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VALLADOLID MAYA ENUMERATION  
By JOHN P. HARRINGTON

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# VALLADOLID MAYA ENUMERATION

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By JOHN P. HARRINGTON <sup>1</sup>

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## THE LANGUAGE RECORDED IN HIEROGLYPHIC WRITING

The Maya language—in an ancestral form of which in the opinion of all students the Maya hieroglyphic writing was recorded—is still spoken by the bulk of the population in the Yucatan Peninsula, situated in the extreme eastern portion of Mexico. The dialects still spoken in the central and northern parts of the peninsula are very similar one to another and closely approximate the speech recorded in the large dictionary which was written at Motul, 12 miles east of Mérida, capital of the State of Yucatan. The Motul dictionary dates from the last quarter of the 16th century.

A Maya person is called in the Maya language *maya*; plural, *mayaoob*. The Motul dictionary through some inadvertency writes *maya*, which is the Spanish, not the native, form. The Maya country, which is the Yucatan Peninsula, is called *mayab*. The tribal name was first recorded by Bartholomew Columbus, brother of Christopher Columbus, in 1506, under the form *mayam*, which he took to be plural and which is probably for *mayaoob*, although it may be for *mayab*. Valladolid is called *saki'*. A person of Valladolid is called *saki'il*. Valladolid is situated in the north-central part of the Yucatan Peninsula. It is with no idea of trespassing on the excellent work of decipherers of Maya hieroglyphic writing, or of translators of the same, that this study is undertaken, but, on the contrary, with the thought that since the two-fifths of the Maya hieroglyphic writing which is in existence deals with dates, an investigation into what moderns remember and what dictionaries and grammars give of the Maya counting system may be helpful. The writer was led to select the Valladolid dialect instead of the Motul dialect because of the availability of good informants.

Maya enumeration is the same whatever is counted, except the classifiers considered proper may vary. Since classifiers have

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<sup>1</sup> Gratitude is expressed especially to Mr. Domingo Cantón Aguilar for his special interest in Valladolid Maya counting, and to Dr. M. W. Stirling, who has contributed unique ideas to this study.

almost gone out of use, and those which remain in use are perhaps distorted in application, one may safely lay down the rule that as far as modern Maya is concerned, all things are enumerated in the same manner.

It has been a matter of curiosity to the writer how one might say in Maya: Valladolid Maya Enumeration. One should begin in Maya with the term for enumeration; šoṭ means counting, but also means reading. One might put baši', how much, after šoṭ to confine the meaning to enumeration. The word "Maya" would better be put as the compound Maya language, which is mayat'an. And instead of saying merely Valladolid, which is called saki', it would be clearer to say tu-kahal saki', in the city of Valladolid. So the entire wording of the title of this paper would be in Maya: u-šot baši' mayat'an tu-kahal saki'; literally, Maya language's enumeration at the city of Valladolid.

### PHONETIC AND TERMINOLOGICAL DIGRESSION

Necessary to the correct pronouncing of the forms given, it should be stated here that the Valladolid dialect of the Maya language operates with two degrees of syllable stress.

The Maya language has six kinds of syllable, two of these being open and four closed, illustrated by the first syllable of wašak, 8; maya, Maya; kay, fish; kan, snake; ku'uk, squirrel; and chaḁk, rain. Syllables of the fifth and sixth kinds have rearticulated vowel in phrase-final form, in non-phrase-final form becoming respectively of the "fish" and of the "snake" kinds. An inverted breve has been placed under rearticulated vowels. Rearticulated vowels have a murmured quality. Syllables of the sixth kind come from those containing a rearticulated long vowel, but the non-rearticulated vowel is not today pronounced long, although it may formerly have been so pronounced.

Maya words presented in this paper have their phrase-final form. When another word of the coherence follows, unless there is considerable pause, phrase-final forms are clipped.

As in Chinese, so also in Maya, sometimes a word with two or more meanings sounds exactly the same. But it often happens that two or more words which have been written the same, for instance in the Motul dictionary, have different pronunciations according to different meanings. They are distinguished by accentual differences which have not been written.

An asterisk before a word indicates that the form is reconstructed, 2 asterisks that the following 2 or more words are in reconstruction.

Each numeral, with the exception of certain higher and plainly compository ones, is written in this paper as a single word; tuy-, tu-, meaning "in its", has, in order to help the reader, been prefixed with hyphen. Each classifier also has been written as a separate word, except in the rare instances when a classifier comes in the interior of an ordinal numeral, in which instance the entire ordinal is written as one word.

A score-initiating cardinal is in this paper called a major cardinal; an intervigesimal cardinal is called a minor cardinal.

## MAYA ENUMERATION EMPLOYS THE SCORE SYSTEM

The score system, also called the vigesimal system, is mostly employed in the Maya language; only in the time-measure system is there multiplication by the number 13, and there the multiplication producing higher periods is largely by 20. Instead of 10 being the pivotal cardinal as it is in languages such as English, which employ the decimal system, the fundamental round number in Maya is 20, and special names are provided for the 2d, 3d, 4th, 5th, and 6th powers of 20. The score, group of 20 units, is called in Spanish *veintena*, a word which starts with the Spanish numeral *veinte*, 20, and has the same ending as Spanish *docena*, dozen. The score and its multiples by 20 are the pivotal numerals of Maya counting; they are the principal resting places on the stairs. But there are other resting places between these principal ones. At every five units there is a resting place. A place of resting, as for instance a terrace breaking the steep side of a pyramid, in Maya is called *ket lu'um*, literally a wide place. A small resting place could be expressed by saying *chan ket lu'um*, *chaan* meaning small. A flight of stairs is considered in Maya to belong to the floor at the head of the flight; the units terminating in 20 are supposed to belong to the first score. The resting place or landing is 20; 5, 10, and 15 are minor ones.

The Maya enumeration goes *k'alenk'aal*, by scores. To the Maya speaker, the enumeration in a language which employs the decimal system, as English does, appears to proceed in very short steps; a language which employs the score system in longer ones. The Maya counted throughout by score, or score times score. Saying *hunbak'*, 400, was merely a shortcut for saying *\*hunk'al ten hunk'aal*, 20 by 20. Lincoln's "Gettysburg Address" would in Maya say 4-score's 7 instead of saying four score and seven.

In order to anchor Maya enumeration to that of the Indo-European languages, it should be said that perhaps the best exposé of the Indo-European system is in Buck (1949, ch. entitled "Quantity and Number," pp. 916-952). There are in Indo-European languages, at least in traces, 10 grammatically distinct sets of numerals, most fully worked out in ancient Greek and in modern High German. The numeral for 3 is used by Buck to advantage for illustrating these sets.

1. Cardinal, 3.
2. Adverbial Collective Singular, as a group of 3.
3. Adverbial Collective Plural, as groups of 3.
4. Fractional, a third.
5. Ordinal, third in order.
6. Compositional, consisting of three kinds.
7. Junctatory, consisting of three kinds together.
8. Unipertinent, 3 apiece.
9. Multiplicative, 3 times.
10. Plicative, threefold.

In Maya these sets are to some extent expressed differently. The basic numeral is the cardinal, as it is in Indo-European, and states how many. The cardinal is an entitative, a special kind of pronoun, and all other sets of numerals, both in Indo-European and in Maya, can be regarded as formed from it. The cardinal, being an entitative, in Maya, is capable of semireduplication denoting collectivity, and the semireduplicative form can be taken in Maya as singular or plural. Fractionals are meagerly developed in Maya, in which language there is no good way of saying a third part. The ordinal is both in Indo-European and Maya an adjective formed from a cardinal. Maya uses also to some extent, instead of forming an ordinal from a cardinal, merely the unchanged cardinal, insisting on such usage in certain instances; for example, saying 3-score, never the third score. For the compositional, one uses in Maya the classifier *mool*, composite, between the cardinal and the noun or adjective which the cardinal modifies. The junctatory is expressed in Maya, if one wishes to give an exact rendition, by adding to the compositional a word meaning together. For giving the meaning of unipertinent, one adds in Maya the pronoun<sup>1</sup>, meaning [each and throws the numeral into the possessive. The multiplicative and the plicative are usually expressed in Maya in one and the same way.

#### DESCRIPTION FROM HIGHER NUMERAL OF PROMINENCE

There is a tendency in Maya to describe a numeral from the next higher numeral of prominence. For instance, one-and-a-half is called 2's half; 21 is 2-score's 1. In Maya a numeral within a score is considered to belong to the next higher score. The cardinals from



1 to 19 are considered to belong to the first score, but their pertinency is not expressed. The moment one steps beyond 20, one is in the realm which belongs to the second score. Any part of the unit beyond the unit is considered to belong to the next higher unit of prominence; for example,  $15\frac{1}{2}$  is called 16's half; 21 is called 2-score's 1, as said above.

## HISTORY OF THE STUDY OF MAYA ENUMERATION

Early Maya grammars and dictionaries pay little attention and give little space to the interesting matter of Maya counting. Coronel (1620), in the earliest Maya grammar which has come down to us, dismisses enumeration in three brief paragraphs, while the Motul dictionary, which is the largest dictionary from early times that we possess, fails to enter some of the principal cardinals and is woefully deficient in entering the names of time periods.

But there is one exception. Beltrán de Santa Rosa María de Lima, Fray Pedro, in "Arte de el idioma Maya" (1859, pp. 195-208), written in 1742, gives a uniquely complete exposition of Maya counting, for which all subsequent generations owe gratitude. The Beltrán presentation contains a sufficiency for showing what the system outside of time reckoning must have been. It is to be deplored that Beltrán omits the system of time reckoning, which, had he given it, would be of great value to modern hieroglyphic readers. The time reckoning system was evidently quite different from that used outside of time reckoning. All that Beltrán gives on the Maya reckoning of time is on page 204 of the second edition of his grammar, where under the entry word *ahaw* in a list of classifiers, Beltrán seems to infer that *ahaw* refers to a \**k'atun*, yet to end implying that *ahaw* refers to a Maya century. The four anomalies or seeming irregularities contained in the system of cardinals given by Beltrán will be presented and discussed in the next section of this paper.

The Pérez (1866) Maya-Spanish dictionary, published approximately a century and a quarter after Beltrán's work was done, is our next source after Beltrán of information on Maya enumeration, and supplies a few important points which Beltrán did not give. Perhaps the most unexploited source of all is modern Maya, which though broken into several dialects may preserve much information when worked over thoroughly.

Only with the quadruple guidance of forms contained in the Motul dictionary, Beltrán's exposé of the numeral, the partly misunderstood forms given in the Pérez dictionary, and modern dialects, can one get a fairly comprehensive view of what the Maya system of enumeration must have been.

## THE FOUR ANOMALIES OF BELTRÁN'S NONCHRONOLOGICAL SYSTEM

More important than slavishly to follow the forms of numeral transmitted by Beltrán, is to try to grasp the system set forth by him and to perceive pattern beyond the anomalies.

(1) The first of these anomalies is that Beltrán in giving the cardinals from 21 to 39 suppresses *ka'*, 2, after all those forms which have *tu-*, in its. The forms for 30 and for 35 in this train have the *ka'*, 2, expressed, but no *tu-* preceding it. Thus one says, according to Beltrán, merely *hun tu-k'aal*, 21, literally 1 of the second score, instead of saying as one would expect *\*hun tu-ka'k'aal*, and this in spite of the fact that one says according to Beltrán *hun tu-yošk'aal*, 41, literally 1 of the third score; yet *lahu ka'k'aal*, 30, which lacks Maya *tu-*. Again *ka'*, 2, is suppressed after *tu-* in Beltrán's words for 500, 600, and 700. The second score was evidently called for short the score after *tu-* of the forms containing *tu-*.

(2) The second of the anomalies in Beltrán's forms is that he omits *tu-* in the cardinals for 30, 35, 40, 50, 55, 60, 70, 75, 80, 90, 110, 115, 120, 130, 135, 140, 150, 155, 160, 170, 175, 180, 200, 220, 240, 260, 280, 300, 320, 340, 360, 370, and 380, while inserting *tu-*, always with the omission of a theoretically following *ka'*, 2, in the terms for 25, 45, 65, 85, etc. This shows that *tu-*, in its, was used mainly with multiples of 5, and that where *tu-* was expressed there was a tendency on the part of Beltrán's informant or informants to suppress a following *ka'*, 2. Beltrán's terms for 500, 600, 700, 800, 900, 1,000, and 2,000 show that evidently *bak'*, 400, and *pik*, 8,000, went the same as *k'aal*, 1-score, as regards alternation of *ka'* and *tu-*.

(3) The third of the Beltrán anomalies is that after the word for 400, he suppresses *k'aal*, 20, in the terms for 500, 600, 700, 900, and the first given of the 2 terms for 1,000; for instance, in his word for 500, but we would expect it to be *\*ho'k'al tu-ka'bak'*.

(4) The fourth anomaly in the numerals given by Beltrán is that before *k*, *k'*, *y*, *t*, and *w*, *lahu* is used instead of *lahun*, 10. The first of these occurrences reached in counting upward is *lahuka'k'aal*, 30, instead of saying *\*lahun tu-ka'k'aal*, 30. Beltrán's *lahu* probably stands for *lahun* with the *n* lost before certain consonants, and is to be held entirely separate from the *lah-* for *lahun* that appears in *lahka'*, 12.

### “HIGH” NUMERAL SERIES OF NUMERALS “ASCENDING”

The Maya now can speak of a “high” numeral, of a series of numerals “ascending,” or of the opposite of these, but this is probably due to Spanish influence. The original usage was perhaps to speak

of a numeral as being beyond another numeral, or as having more load than another numeral. One speaks in Spanish or English of a number being high or low, and the ancient Egyptians, the ancient Greeks, the ancient inhabitants of India, the ancient Chinese, and others followed this usage, which must have been started in the Old World in prehistoric times, but perhaps never spread to, or was developed in, the New World.

### CARDINALS

The fundamental enumeration in Maya is a so-called cardinal series which is used more than any other series and from which any other series can be said to be derived. The cardinal series is basic in all languages.

In Maya the cardinal has four uses.

(1) It answers the question: How many?

(2) It is the series used in counting. The aim is to pronounce each cardinal in counting in its phrase-final form; but if the counting is rapid, this is difficult to do.

(3) The cardinal is coupled with a noun, adjective, or pronoun, which it modifies. It was probably the ancient usage in Maya to put this noun, adjective, or pronoun in the singular, but Spanish uses the plural, except with the numeral for 1, with the result that present-day Maya uses either singular or plural with cardinals above 1, and when singular or plural is volunteered, the opposite of singular or plural is always approved. Sometimes in Maya a so-called classifier appears between a numeral and its modifactive, but classifiers will be discussed later.

(4) A cardinal is an entitative, and like all other entitatives can be used as a verb. Just as *winik*, man, also means it is a man, so *ka'*, 2, may also mean there are 2, they are 2.

One may well ask to what part of speech the Maya cardinals belong. They were called numeral nouns by some of the early writers of Maya grammars. The cardinals are entitative; they are a special set of nouns, or rather of pronouns. They go most like what are commonly called in grammars indefinite pronouns. One says, for instance, many trees, and similarly three trees. The numeral in Maya is a special kind of pronoun, developed through the use of generations into a most intricate and extensive system.

### THE USE OF THE FINGERS IN COUNTING

In counting up the number of things, the Mayas are apt to make use of the fingers, doubling the finger down when the unit represented by the finger has been counted. One often starts by turning the palms of both hands, or the palm of the left hand only, toward self and

beginning with the thumb of the left hand. Each successive digit is turned down to indicate cancellation until the highest number counted is reached. If the counting exceeds 5, it continues, beginning with the little finger of the right hand; if 10, it continues, starting with the thumb of the left hand again.

### SOME NUMERALS HAVE THE LARGER NUMBER FIRST, SOME THE SMALLER

In looking over the Maya numerals, it will be seen that some of them have what we can well call the "twenty-four order" of elements, some the "four-and-twenty order." Those of the first-mentioned order remind one of a Maya hieroglyphic inscription starting with an Initial Series. The general orientation is given before detail. Thus in Maya *lahka'*, 12, literally ten-two, but *ka' tu-ka'k'aal*, 22. When *katak*, and, is used in a higher number, the word indicating the larger number is always placed first; thus in *hunbak' katak lahun uy-ošk'aal*, 450, an example given by Beltrán.

### SPANISH INFLUENCE

Spanish influence has been exerted on the Maya language for more than 3 centuries and will probably result finally in the extinction of the Maya language. Especially in the cities and in the schools is Spanish spoken and encouraged. Maya grammar has undoubtedly been altered through influence of Spanish, and Maya vocabulary has been changed through such influence. Maya enumeration has not escaped persistent Spanish influence, as evidenced, for instance, by the disuse and forgetting of nearly all of the Maya classifiers.

Especially as regards time reckoning is Maya information that has been transmitted to us very weak. This is unfortunate, since Maya hieroglyphic writing deals largely with time periods and dates. When the old pagan calendar fell into disuse, generations ago, much information disappeared along with it.

### SOME ANCIENT WORDS SURVIVE THROUGH MERE CHANCE

Sometimes a word is preserved in a meaning far afield from the one in which the preservation is sought. Thus "winik" is remembered to mean a measure of 20 cords of wood, while a similar-sounding word, which may have been exactly the same in pronunciation, meaning a measure of 20 *mecates* of land, although attested by the Motul dictionary, is forgotten.

Or the Maya word may have been helped to survive by having been given a new equivalence in Spanish. Thus "pik" originally meant

8,000, and probably would everywhere have become obsolete if it had not been equated to Spanish mil—1,000. In modern Valladolid Maya one thinks that “pik” signifies 1,000, and by having been given this new value, the term “pik” has survived.

## THE CARDINALS FROM 1 TO 19

### GENERAL REMARKS

The cardinals from 1 to 19 are of the first score, but this affiliation is not expressed.

The cardinal for 1 has in the Valladolid dialect, lost its initial *h*, but the pronunciation of this *h* is retained when it is placed before a pivotal cardinal. Thus one says *un*, but *hunk'aql*, 20; *un* is the masculine form of the indefinite article in Spanish, and Maya *un* sounds exactly like it.

The cardinals for 6, 7, and 8 seem to be ancient compounds, having said originally 1-5, 2-5, and 3-5, respectively, as they do in many languages. The 5 seems to be reduced to a *k* at the end of these three words. Only the term for 8 retains perhaps more of the phonetics of the first member of the old compound than the cardinals for 6 and 7 do; one notices *š*, perhaps being the same as in *oqš*, 3.

For the cardinals from 13 to 19, Tozzer (1921) gives different forms, all of which start with *lah*, followed respectively by each of the cardinals from 3 to 9. This *lah* is probably the same as what is remembered in *lahka'*, 12, and stands for 10.

Each of the cardinals from 1 to 13 had its patron divinity, and the heads shown in the so-called head-variant count of Maya hieroglyphic writing are doubtless the heads of these patron divinities, the depicting of the heads being a shortcut for the depicting of the entire bodies. Among these heads that of the death-god can be recognized as denoting the cardinal 10. The nether world had 9 gods, the upper world had 13; 13 was the most prominent sacred number, as we shall notice below in presenting Maya time reckoning.

### LIST

*un*, 1. Anciently, and also at the present time, when accompanying a following major cardinal, pronounced *hun*, but when alone and also in the negative form *mišun*, not 1, pronounced without *h*, sounding the same as the masculine form of the Spanish word for 1 before a noun or adjective. The form *un* is also used, as in most languages, as indefinite article, and in this usage has a plural *unoob*, several. Compare *kan*, 4.

*ka'*, 2. The cardinal sounds the same as the word for metate, a kind of grinding slab.

*oqš*, 3.

*kan*, 4. Compare *ka'*, 2.

ho', 5. The initial *h* is never omitted, despite its required omission in the cardinal for 1. The cardinal sounds the same as the Maya name of Mérida; the reason is not known.

wak, 6. Possibly for \*un-ho', 1-5.

uuk, 7. Possibly for \*ka'-ho', 2-5.

wašak, 8. Possibly for \*oqš-ho', 3-5.

bolon, 9. Also means many.

lahun, 10. In some of the cardinals it appears as lah-. The lah may easily be the same as the prefix lah-, all, the reference being perhaps to all the fingers being finished when one counts as far as 10.

buluk, 11.

lahka', 12.

ošlahun, lahoqš, 13.

kanlahun, lahkan, 14.

ho'lahun, laho', 15.

waklahun, lahwak, 16.

uklahun, lahuuk, 17.

wašaklahun, lahwašak, 18.

bolonlahun, lahbolon, 19.

## THE CARDINALS FROM 20 TO THE HIGHEST ENUMERATION

### GENERAL REMARKS

There are preserved to us in the Maya language the names of the score and those of five powers of the score, making in all six score-power cardinals.

The lower three of these happen to be monosyllables. These are k'aal, 20; \*bak', 400, and pik, 8,000. k'aal is still in use and its pronunciation is well known. \*bak' is guessed to sound the same as the word for meat. pik has had its pronunciation preserved through equation of meaning to Spanish mil, thousand.

But the higher 4 score-power cardinals are all dissyllables. One can only guess at the pronunciation of them, except that the second name of the one of 5th order, tso'tskeen, can be detected through obvious meaning to signify the hair of a deer.

The intervigesimal cardinals from 21 to 39, 41 to 59, etc., have 2 manners of formation: (1) The number is expressed as belonging to a certain score; (2) the number is expressed as in Spanish except that one keeps on enumerating through the score, while in Spanish stops at 10, putting first the score cardinal next below, and coupling this through "and" to following unit expression. Method 1 is probably the ancient method. Beltrán gives one example of what we can call the "and" method of formation as a term for 28, but he also gives 28 as saying 2-score's 8, and in an example uses pik meaning 1,000. Perhaps the old word for "and" in a cardinal was katak, and yetel, the modern word for "and" in current use, is substituted for this.

Belonging to a certain score is expressed by saying "in its score," which can also be translated "of its score." The term for its, 3d person singular personal pronoun possessive, is *uy-* before a vowel, *u-* before a consonant. *-k'aal* means score, and starts with a consonant, therefore one says *u-k'aal*, its score. The preposition meaning "in" is *ti'*, which also appears as *t*. This preposition before *uy-* or *u-* becomes merely the letter *t*; *tuy-*, *tu-* means "in its." The interscore cardinals are considered to belong to the cardinal which ends the score. 2-score ends with and includes the number for 40, and the interscore cardinals, starting with 21, are considered to belong to 2-score, starting with 41 to 3-score, etc. One proceeds by scores, each starting with its numerator designation of how many scores, until one reaches 380, which is 19-score. Then for saying "381" one enters the score belonging to *\*hunbak'*, and has to say "*un tu-hunbak'*".

#### LIST

*hunk'aal*, 20, literally 1 score. There are six major cardinal names used in counting upward and the term for 20 is the first of these. As a general noun meaning a score, *k'aal* can have the determining *hun-* omitted, but as a cardinal meaning 1 score must have the *hun-*. *k'aal* is the most important cardinal in Maya enumeration and corresponds to the year in Maya time reckoning and to the note in music. *k'aal* means also a closure and is evidently connected with the verb *k'aal*, to close. If *k'aal* means fundamentally a closure, then we see connection with *taab*, classifier for scores, since the current meaning of *taab* is forehead strap, which is used for tying a completed load. When *k'aal* means 1-score, the informants have been strangely meticulous in insisting on the prefixation of *hun-*, 1, thus contrasting the term with *ka'k'aal* 2-score, etc., only in derivatives, such as *u-k'aal*, its score, and *k'alenk'aal*, by scores, omitting the *hun-*, 1. The cardinals from 1 to 20 belong to 1 score, although this ownership is not expressed. The classifier for scores is *taab*, as already mentioned in the Motul dictionary, and apparently this classifier *taab*, is the same word as *taab*, forehead strap.

*un tu-ka'k'aal*, literally 2-score's 1, *hunk'al katak* (or *yetel*) *un*, 21.

*ka' tu-ka'k'aal*, literally 2-score's 2, *hunk'al katak* (or *yetel*) *ka'*, 22.

*lahun tu-ka'k'aal*, literally 2-score's 10, *hunk-al katak* (or *yetel*) *lahun*, 30.

*ka'k'aal*, 40, literally 2-score.

*ošk'aal*, 60, literally 3-score.

*kank'aal*, 80.

*ho'k'aal*, 100.

*wakk'aal*, 120.

*ukk'aal*, 140.

*wašakk'aal*, 160.

*bolonk'aal*, 180.

*lahunk'aal*, 200.

*ho'lahunk'aal*, 300.

*bolonlahunk'aal*, 380.

From 381 to 400 the realm belongs to *\*hunbak'*, 400. Thus *\*\*un tu-hunbak'*, 381.

*\*hunbak'*, 400. Compare possibly *bak'ach*, plural all, totally. It is the consensus of opinion that the cardinal probably sounds the same as *bak'*, meat.

hunpik, 8,000 (20×400). Informants have remembered the important information that pik, the cardinal, sounds the same as the name of a kind of insect, while pik, skirt, is a different word. pikil and piklis, both meaning multitude, are probably derivatives of pik.

\*hunkalab, 160,000 (20×8,000). kalab as an adverb means infinitely, many times, but this is probably a derivative of the cardinal, which can be thus figuratively used.

\*hunk'inchil, or huntso'tskeḡ, 3,200,000 (20×160,000). The first of these names evidently has k'in, period, but what the chil syllable is, no one knows; tsil is to make threads out of cloth. But the etymology of the second word is clear. It means the hairs of a deer, referring to the body hairs all over the deer's body. tso'qts means either head hair or body hair, and keḡ means deer.

\*hunalaw, 6,000,000 (20×3,200,000). This is the upper extension or limit to Maya enumeration, as far as we know. The name is guessed by the informants to have the accentuation of ahaw, head chief, merely because it refers to a number very great, as it would be appropriate for ahaw to do.

### THE USE OF "AND" IN CARDINALS

There are two words meaning "and" which occur in the cardinals. The first of these is katak and no doubt occurred in preconquest Maya. Although what is considered the best way of forming the interscore cardinals in Valladolid Maya is to say un tuy-ošk'aal, 41, Beltrán (1859, p. 167) indicates that one also could say hunk'al katak un, 21, and informants have also volunteered hunk'al yetel un, 21. Beltrán gives three examples of numerals containing katak, which we reproduce here in phonetic restoration to avoid typographical difficulties: hunk'al katak wašakp'eel, 28; \*\*hunbak' katak lahun tuy-ošk'aal, 450; \*\*hunpik ho'lahunk'al tu-ka'bak' katak oš tuy-ošk'aal, 1743. Beltrán remarks that in the last, katak comes before the last expression of cardinal, which is 43. Probably katak, and, had little usage outside of the formation of numerals.

Probably yetel, and, which is now at least the universal way of saying "and," was not used in prehispanic times at all in the numeral, the connective "and" entering mostly into the formation of higher numerals having the form katak.

### ZERO

The native term for zero is probably preserved as mišun, literally, not 1. One can also say mišbaal, nothing, negativized from baal, thing, something. Thus mišun p'el che', not a single stick; mišun t'ul winik, not one man. A shuttle-shaped hieroglyph signifying zero is supposed to be a conventionalized picture of a shell. It is probable that zero was expressed by mere negativizing in the Maya language.

Maya counting does not start with zero but with 1. Zero belongs to the realm of the negativization of 1, or of some.



## FRACTIONALS

Modern and apparently also ancient Maya has a most limited nomenclature for fractions, which is confined to three words: half, piece, and bit. Of these only the word for "half" has a definite meaning. The term for "piece" is a general noun, for "bit" a numeroid.

tankoch, half. tankoch tunich, half a stone.  
tankoch tu-ka'p'eel, one-and-a-half, literally 2's half.  
seet', piece; un seet', 1 piece. ka' seet', 2 pieces.  
p'ijt, bit; un p'ijt, a bit, a little.

For the expression of other fractions, one uses merely the term for piece or bit, or could say, in order more definitely to express the idea of one-third, for instance: "It is cut into three pieces, and then one takes a piece." There is no more definite way of saying one-third.

## GROUP CARDINALS

For indication of a group, or groups, a cardinal is semireduplicated, as any other entitative may be; the meaning is adverbial. Semireduplicated forms of only a few of the cardinals of lowest value are used in actual language—who would say: "They came out of the dance by fourteens?" hun when prefixed to a pivot cardinal is regarded as part of the cardinal to which it is prefixed, and since it comes first, it is the part of the word to get semireduplicated.

huhun, 1 by 1.  
ka'ka', 2 by 2.  
o'oqš, 3 by 3.  
kankan, 4 by 4.  
ho'ho', 5 by 5.  
wawak, 6 by 6.  
huhunk'aal, 20 by 20, in crowds.  
huhunbak', 400 by 400, in great crowds.

Distributives consisting of a noun or adjective said twice with -en- of -un- as a central ligature cannot be formed from the cardinals except that k'alenk'aal, by twenties, in score fashion, can be said, always with the dropping of hun-, which is otherwise required for expressing the singular of the score.

## ORDINALS

The common way of forming an ordinal is to make the corresponding cardinal into an adjective by the suffixation of -il or -lil. This same process is much employed outside of ordinal formation. Thus from ka'an, heaven, one forms ka'nil, heavenly; from kah, a pueblo, one forms kahil, pertaining to a pueblo.

The formation of the ordinals from 13 to 19 is peculiar in that it always has lah- as the first syllable, and there is only this one form.

An ordinal \*ošlanunil, built on the cardinal ošlahun, is denied, and only lahošil, 13th, is employed.

Sometimes a classifier is used in an ordinal, always thrust in between the number-saying part of the word and the ending. Thus ošp'elil, the third, instead of ošlil, the third.

According to another system, a series of the equivalents of ordinals is formed by using the classifier taas, in position beyond, after the respective cardinals. Thus hun taas, first, literally 1 beyond, 1 in order.

The using sometimes of yaaš, literally first, as an ending added to a cardinal to turn the cardinal into the corresponding ordinal, sometimes heard in Valladolid Maya, has not been reported from any other language and cannot be traced in any book. Thus one says ka'yaš nah, the second house.

The words for first, other, and last are sometimes used in the same way that ordinals are. Thus yaaš, first (contrast ya'aš, green); yaš be, the first road; in yaš mehen, my first son; u-laak', the other one, literally its other one; u-lak' winik, the other man; u-ts'ok, the last one, literally its last one; u-ts'ok winik, the last man.

There is a tendency both in Maya and Spanish to use a cardinal instead of bothering to form an ordinal. Thus one says in Spanish *la calle catorce*, and also uses the cardinal in Maya, but in English says "fourteenth street." In counting, for instance, the houses along a road, one can say in Spanish, and also in Maya, instead of saying the second house, house number 2. The second score is always in Maya 2-score, the third score 3-score, and so on. Sometimes even though this usage is ambiguous in Maya, it is employed. For instance, ka'be can be taken in Maya to mean 2 roads, and it also means road number 2.

The most used series of ordinals is:

- hunlil, 1st.
- ka'lil, 2d. The Motul dictionary gives "cabil," 2d, but this form has not been known to the informants.
- ošlil, 3d.
- kanlil, 4th.
- ho'lil, 5th. Contrast tho'il, native of Mérida.
- wakil, 6th.
- ukil, 7th.
- wašakil, 8th.
- bolonil, 9th.
- lahunil, 10th.
- bulukil, 11th.
- lahka'lil, 12th.
- lahošil, 13th.
- lahkanil, 14th.
- laho'lil, 15th.

lahwakil, 16th.  
 lahukil, 17th.  
 lahwašakil, 18th.  
 lahbolonil, 19th.  
 hunk'alil, 20th.  
 hunk'al katak (or yetel) hu:nlii, 21st.  
 \*hunbak'il, 400th.  
 hunpikil, 8,000th.  
 \*hunkalabil, 160,000th.

### CLASSIFIERS

The Maya language has in its intransitive, and also in its transitive verb, traces of classification, and before a specific noun one sometimes puts a generic one, saying, for example, my food beans, my domestic animal dog, as is not done in speaking Spanish or English, but classification comes out most of all when a numeral is coupled with a following noun or adjective of specific meaning. It is then that a so-called classifier, which is usually a noun of generic meaning or one denoting measurement, is thrust in between the first cardinal and the final noun or adjective in truly East Asiatic fashion. The classifier classifies the object enumerated, according to appearance characteristic of a group. Sometimes the ultimate noun or adjective is omitted, and only the classifier terminates, and together with the context hints the reference, and saves repetition of detail. It is then that a classifier is seen to be of real use even by one not used to classifiers.

Rarely two classifiers are employed, the first always modifying the second. Thus one says, for instance: ka' p'el lub be, a road 2 leagues long, literally a 2 unit of league road.

The classifiers fall into four categories. (1) There are pivot cardinal classifiers, such as k'aal, 20, which have already been described in presenting the cardinal. (2) There are general classifiers. A more detailed analysis of these has several times been undertaken, but owing to the difficulty at this late date of examining the fields of each classifier, such analysis has had to be abandoned. (3) Multiplication classifiers indicate time or times which the final noun or adjective is to be taken. (4) Measure classifiers name the unit of measure which the final noun or adjective undergoes.

Especially are the three classifiers (1) ts'iit, for long, slender thing or things, (2) paay for long not slender thing or things, and (3) peek, for circular thing or things, seen to bring out characteristic according to shape.

Some of the classifiers also appear as ordinary nouns; others do not. For instance, kuuch, for load or loads, appears both as a classifier and as an ordinary noun. Yet kuul, for plant or plants, is considered to be a classifier only, and if a plant name does not follow it, the plant name is considered to be omitted.

Again, this same term "kuuch," usually a general classifier, sometimes appears to be on the verge of being used as a measure classifier.

Certain classifiers were evidently used only for a limited sequence of numbers. There are several traces on record of such limited usage, but only traces. No early writer takes the pains to give a complete account of a single instance of such classifier usage, and no modern knows anything about such classifier usage. Beltrán gives "pach" as a classifier for birds and other animals from 9 to 19. With 20 this classifier changes to "tab." What it would be for the most important sequence from 1 to 8, is not stated. Beltrán's "pach" is evidently for paach, his "tab" is evidently for taab.

Only one classifier, \*t', in the examples given in early works, takes the preposition ti', in, after it and before the final noun or adjective.

teñ, time, times, stands unique as a classifier in that it has a past tense; teñ also sometimes suffixes -ili, only.

Especially some of the measure classifiers are in origin Spanish names of measures.

A classifier is called in Spanish: *cuenta*, or *partícula para contar*; in translation: a count, or particle for counting. The term "classifier" is translated into Spanish as *clasificador*.

A classification complex consists of three parts: First the numerator, which states in how many occurrences the remainder of the complex is to be taken; then the classifier, which has generic meaning and seizes upon some characteristic; and finally the specific noun or adjective, stating the thing numerated and classified.

The two classifiers most in use at the present time, aside from those felt to be necessary because they state measure or type of completed action, are p'eel and tuul. The first of these starts with a clicked consonant, the second with a plain consonant. The Motul dictionary has p'eel, and states that it is used for counting things of whatever nature, by that apparently including humans. The Motul dictionary does not have tuul as a classifier at all, but Beltrán and the Pérez dictionary give it as a classifier for humans. The modern Maya use p'eel for inanimate things, plants, and nonhuman animals but tuul for humans.

The only classifiers the hieroglyphs for which have been deciphered are some of the time measure classifiers.

#### MAJOR CARDINAL CLASSIFIERS

Major cardinal classifiers denote groups of numbers of the score-power cardinal count. They are: k'aal, \*bak', pik, \*kalab, \*k'inchil, or tso'tskeh, and \*alaw, and have already been presented in giving the cardinal count. They all denote 20 or multiple group of 20 by 20.

A few of the classifiers put in appearance in fields far apart one from the other. So do certain measure terms in Spanish and in English, as for that matter. In Spanish, *estado* was, according to the dictionaries, used of a measure of distance, and also of area. *Arroba* was a unit of liquid measure, as well as a unit of weight. In English, a pound is a unit of money, also a unit of weight.

#### MULTIPLICATION CLASSIFIERS

The multiplication classifier denotes time or times. There are on record 6 multiplication classifiers, each of which means time or times, and 2 of these have gone entirely out of use in Valladolid Maya. In the multiplication tables given by Beltrán (1859, pp. 202-203), *leem* is used, no comment being made. A cardinal followed by another cardinal without any intervening multiplicative classifier means the same as with one, but to use a multiplicative classifier makes the wording clearer. Thus one can say in English: six 6's, but with greater clarity:  $6 \times 6$ . There is one multiplicative ordinal classifier, indicating on such and such an occasion in order.

*ka'*, 2, when followed by *teñ* sometimes means twice, but also sometimes means again, and *ka'*, perhaps to be regarded as having the *teñ* omitted, said alone, sometimes means again.

*teñ* has a past tense of different form, and is the only classifier which has tense. *teñ* and its past also sometimes suffix the restrictive *-ili*, only.

The 6 multiplicative classifiers are:

*leem*, time, times. The Motul dictionary gives "*lem*" only in the meaning of very.

\**maal*, time, times. *os maal*, 3 times.

\**muuk*, time, times. *ka' muuk*, twice.

*naas*, time, times. (Not in the Motul dictionary, but in the Pérez dictionary.) *ma' ka' nas in-t'an*, I did not speak twice.

*puut*, time, times. *ka' put tali*, twice he came, again he came.

*teñ*, time, times. *hay teñ*, how many times? *kan teñ*, 4 times. *hay tenak*, how many times in the past? *kan tenak*, 4 times in the past.

#### MULTIPLICATIVE ORDINAL CLASSIFIER

Only one of these has been found. The reference is to the such-and-such occasion in order.

*nuum*, on ordinal occasion. *oš num in-t'an*, I spoke for the third time.

#### GENERAL CLASSIFIERS

\**aak*, for counting a high number of things. This is the first entry of a classifier in the Motul dictionary (p. 66): "[ac]: cuenta para contar muchas cosas." This definition could be taken two ways, but is shown by Motul dictionary (p. 67) "*accunah cal ti than: reñir mucho*" to mean that the classifier is used for high enumeration.

*bal*, ply. *ka' bal sum*, 2-ply rope. Compare *balak'*.

balak', coil, wrapping around, a complete turning over. oš balak', 3 coils (of a rattlesnake). oš balak', 3 wrappings around (of vine). oš balak', 3 complete turnings over (as one rolls downhill).

baan, squad, group, pile. oš ban soldadoob, 3 squads of soldiers. kan ban tunich, 4 piles of stones. oš ban šch'upoob, 3 groups of women.

buuk, year. oš buk haab, 3 years. Compare t', classifier for years.

heeb, piece. Given by the Motul dictionary only as a noun meaning the quarter of an animal. But the Pérez dictionary gives it as a classifier for counting pieces of cloth, provinces. oš heb lu'um, 3 pieces of land.

heek', branch (of a plant), offshoot of a deer's horn, cluster of bananas which is part of a larger bunch. Not given in the Motul dictionary as a classifier, but as a noun meaning bunch.

heech, hour, plan, string of beads. Given in the Motul dictionary only as classifier for hours, but in the Pérez dictionary as classifier for hours, plans, strings of beads. Remembered as classifier for string of beads. The word for hour not a classifier is k'intzil.

koop, roll. Given in the Motul dictionary as meaning an iron or wooden hoop. bolon koop, 9 rolls (of wire). bolon kop sum, 9 rolls of rope.

koqt, classifier for nonhuman animals. Contrast kot, stone wall. un kot ts'unuun, 1 hummingbird. oš kot pekoob, 3 dogs.

kots', roll. Motul dictionary gives this only a verb meaning, to roll. The Pérez dictionary states that it is a classifier for counting thread fragments, strings broken off in weaving.

kuuch, load. un kuch haas, a load of bananas. un kuch si', a load of firewood.

kuul, plant. Despite the Pérez dictionary, it cannot be used except as a classifier. ka' kul che', 2 trees. ka' kul ya', 2 zapote trees.

lot, pair. Compare the classifier yaal, accompanying mate. ka' lot šanab, 2 pairs of shoes.

\*maas, classifier for pieces of sugarcane. Gessed to mean merely piece.

\*mol, classifier for assemblages. Compare mol, to assemble.

muuch', group. un much' che', a stand of trees.

\*paach, classifier for birds and nonhuman animals for the cardinals 9 to 19, according to the Motul dictionary. Beltran's "pach" is evidently for paach.

paak, pieces of cloth, garments, adornments. oš pak manta, 3 pieces of cloth. Homophonous with the following.

paak, blows. Not in the Motul dictionary. oš pak loš, 3 blows. Homophonous with the preceding.

pakab, bevy, brood. Not in the Motul dictionary. oš pakab bech', 3 bevies of quail. oš pakab poyo, 3 broods of chickens.

peets', tabloid of chocolate. Compare peets', to press down. oš pets' chukwá', 3 tabloids of chocolate. Homophonous with the following.

\*peets', chapter, song, speech. The Motul dictionary gives only these 3 usages. The Pérez dictionary adds that it also refers to article and time that one sleeps.

\*pet, cultivated field. The Motul dictionary gives "pet" only as an adjective meaning circular. As a noun "pet" means a circular shelf.

\*pis, day, month, coin, weight (these only as far up as 20). Given by both the Motul and the Pérez dictionaries.

\*peek', nonhuman animal. Given as a classifier of this meaning both in the Motul and Pérez dictionaries.

\*puut, plant bottom. The Motul dictionary gives puut only as a verb meaning "to carry."

p'eel, inanimate thing. Now at least used as a classifier for inanimate things, plants and nonhuman animals, contrasted with t'uul, which is supposed to be only

a classifier having reference to humans. Given in both the Motul and Pérez dictionaries. According to the Pérez dictionary used only up to 20.

p'iis, fanega. Given by the Motul dictionary only as a verb meaning to measure. The informants have known p'iis as a verb meaning "to measure," also as a noun meaning any measure. Perhaps p'iis could be called a classifier for *fanega* because *fanega* was a foreign or Spanish measure.

p'uuk, mouthful of food, drink. Not in the Motul dictionary. Compare the verb p'uuk, to take a mouthful.

\*taab, score, use in counting scores of loads of corn, wool, or tribute mantles; bunches of 20 nonhuman animals. As employed outside of counting, the word "taab" means forehead strap. Given in the Motul dictionary. Beltran's "tab" is evidently for taab.

taas, file, row. Perhaps this is the same word as is used for a cord of firewood.

\*te', piece of cocoa, egg, pumpkin. Perhaps the reference is to thing of spherical shape. Possibly the same as the classifier which immediately follows below.

te', year, month, \*k'atun, league. Given in the Motul dictionary, which gives only 2 examples of the use of this classifier, but each of these examples has the classifier te' followed by ti', in.

\*tuuk, pile. The Motul dictionary gives this word only as a noun meaning a pile, not as a classifier.

tuul, human. Not given in the Motul dictionary.

\*tsool, file of humans. There is also a semireduplicated noun tsoolentsool, in files.

\*tsuuk, pueblo, paragraph, article, a speech, reason, difference, word, pile. This is evidently the noun tsuuk, part.

\*tsaak, stair flight, thing which ascends.

\*ts'ijk, respected human, finger, spouse that one has had. The Motul dictionary gives what is probably the same word as meaning brave.

\*ts'ijt, candle, string, stick of firewood, fruit of long shape, ear of corn.

waal, large leaf or sheet of paper. The Motul dictionary gives this same word as a noun applied to leaf of tobacco, leaf of banana, sheet of paper.

\*waan, group. The Motul dictionary gives what is apparently the same word as meaning placed.

\*waay, day (of 24-hour duration). Day with following night can be looked upon as of such duration.

wuts', fold. What sounds like this same word means a quantity measure which is the quarter of an almud.

waal, mate which accompanies, lining. Given in the Motul dictionary. Compare lot, pair.

#### MEASURE CLASSIFIERS

Classifiers denoting measurement are here presented in separate lists as those denoting distance measures, area measures, quantity measures, and time measures. Especially time-measure classifiers are difficult to restore, since most of them fell into disuse generations ago.

The verb "to measure" is p'is, and the noun meaning "any measurement" has exactly the same form. One can use the noun p'is as a sort of classifier, saying, for instance, un p'is fanega, 1 *fanega*, literally 1 measuring of *fanega*.

Ascending order of values is followed in all the measure-classifier lists.

Since the time of the conquest the Spanish language had a system of measures, but this was superseded about 60 years ago by another system of measures. What is known as the Spanish system of measures was followed in the Yucatan Peninsula for a couple of centuries, only to have Mexico in 1890 adopt the metric system. Many of the Spanish system names of measures still survive in the Maya language.

Money and weights have been omitted, since it is said that the Maya had none, and it has been possible to obtain only Spanish terms.

#### DISTANCE-MEASURE CLASSIFIERS

Distance measures are the simplest of all measures. Among the Maya these start with the fingerbreadth and end with the league. The wonderful architecture of the ancient Maya was evidently accomplished with good eye and commonsense, but with a very crude measuring system.

k'ab, hand, arm, finger, fingerbreadth. There is no easily wielded word for finger in Maya, so it is sometimes simply called hand. As a measure, fingerbreadth is called *dedo*, finger, in Spanish, and it may be under Spanish influence that fingerbreadth became used. But fingerbreadth may also easily have been a native measure. The Motul dictionary notes fingerbreadth as a measure, and the example which it gives refers to the measuring of weaving. A hand's breadth is still spoken of as 5 fingerbreadths.

ni' k'ab, finger, fingerbreadth, literally point of the hand. This is a second term sometimes used for fingerbreadth.

pulgaña, inch. This is patently taken over from Spanish *pulgada*, inch.

hatk'ab, forefinger span, literally split hand. This is the distance from thumb tip to forefinger tip, when thumb and forefinger are gaped apart. This is the kind of span called *jeme* in Spanish.

naab, handsbread. This is the distance from thumb tip to little finger tip, when hand is spread. This kind of span is called *cuarta* in Spanish, in book Spanish *palm* or *palmada*. Beltrán gives naab as a classifier for "palms."

chinaab, handsbread (?). Beltrán gives what must be chinaab as a classifier for *jemes*, perhaps more correctly stated for *cuartas*, since the second member of the word is evidently naab.

ok, foot. This may be nothing but Spanish *pie*, foot, translated into Maya.

kuuk, cubit. This is the distance from middle-finger tip to elbow, and evidently differed considerably according to different individuals. This measure is in the Motul dictionary. The classifier is the ordinary noun for elbow.

šak'ab, step, pace. The Motul dictionary has this word only as a noun meaning "step."

bara, yard. Patently from Spanish *vara*, yard. The Spanish *vara* was a little longer than the English yard and contained 48 fingerbreadths.

saap, fathom. Roughly speaking, the length of 2 yards. Called in Spanish *braza* or *brazada*. This is the distance from hand to hand when a person stands with sideward extended arms in the form of a cross. The term is used by the Maya in speaking of tree height or water depth.



\*walab, 6 yards. The Motul dictionary (p. 891) equates "valab" to 1 *estado*, a Spanish term which has not been known to the informants either as a measure of distance or of area. The Motul dictionary further down on the same page gives "valah" as a distance measure of about 1 *estado* and as an area measure of 3 fathoms (on each side); the latter does not agree with my information as to length. Rescued to practical certainty through an informant remembering walabche', 6-yard long measuring pole formerly used. See \*walab, area measure.

staal, Spanish *estadal*, Yucatan Peninsula Spanish *estal*. According to the Spanish dictionaries a distance measure of 4 yards. Known only as an area measure to the informants, for which see under area-measure classifiers below.

awat, kilometer, mile. There are said to have been 4 miles in a league. The meaning is literally a shout, and the term denotes the very vague distance of the audibility of a shout. At least the original meaning denoted the distance at which a shout could be heard.

paš, literally played piece of music. According to the Motul dictionary (p. 414), this denoted the distance at which a drum could be heard, which would be about the length of a cultivated field.

luqb, league, literally resting place. A league is in common parlance said to measure 4 kilometers. The ancient Maya had resting places along the trail, and after the Spanish conquest the term evidently got revalued.

#### AREA-MEASURE CLASSIFIERS

The principal measure unit for land was the *mecate*. Smaller areal measurements tied to the *mecate*, and so also did larger ones. A person's milpa was regularly stated to consist of so many *mecates* and *estadales*. Milpa was called kol and was of most varying size and shape.

One can say in Maya, following Spanish nomenclature, a square inch, a square foot, a square yard, but measured areas which interest the Maya are larger than these.

\*walab is a pretty certain reconstruction of the name of an area 6 yards square, a quarter of a staal. The name was rescued from having its pronunciation remain forever unknown. It was remembered that it is said that in former times the staal was measured with a pole, and that the pole was called walabche', also that the putting of the pole down twice measured 1 side of the staal, and on another occasion it was stated that the staal has a side 12 yards long. The pole, therefore, must have been 6 yards long and the area called walab evidently measured 6 yards on each side. che' means pole, and walabche' evidently means 6-yard pole. The Motul dictionary (p. 891) gives both "valab" and "valah," the latter possibly intended for \*walab. "valab" is defined as a distance measure of 1 *estado*, "valah" as a distance measure of about 1 *estado* and an area measure having 3 fathoms on a side, while my information states 2 fathoms. A pole 3 fathoms long is pretty long and would usually have to be spliced. See \*walab, distance measure.

staal, Yucatan Peninsula Spanish *estal*, literary Spanish *estadal*. The staal is one quarter of a *mecate* in area. One side of the staal measures 12 yards. Rare memory recalled that the staal used to be measured with a special measuring pole, prepared for the purpose and known by a special name. This pole was cut maybe in nearby woods, might be of several kinds of tree, might be spliced to make it longer. Such a pole was called walabche' and two layings down of the pole measured one side of the staal. Although the name "mecate" means string

and might be taken to imply that the *mecate* was originally measured off with a string, what is remembered is that the *staal* is said to have formerly been measured off with a pole, not with a string. So that the measuring would not have to be done all over at the beginning of the next season, stone pile markers were set up about 2 feet in height as the measuring was done with the pole, and were sometimes painted white to make them more visible. Thus the boundaries of the *staal* were measured off and marked.

*suuk'*, literally inside corner, is a vague term, but considerably in use. A *mecate* is often square and each of its corners is called *suuk'*. Sometimes *suuk'* applies to the side of a *mecate* rather than to the corner of a *mecate*. Sometimes *suuk'* is used as the equivalent of *staal*, which is the proper term for the quarter of a *mecate*.

*k'aan*, *mecate*, literally string. The *mecate* in the Yucatan Peninsula is a square one side of which is 24 yards in length, and contains 4 *staal*. Nonagricultural land jutting in sometimes caused the *mecate* to be irregular in shape, and land measurement by the *staal* had to be resorted to, or even just guessing had to be resorted to, for guessing was very accurate. The etymology of *k'aan* has been discussed above under "*staal*." What is remembered about is that a pole, and not a string, was used for land measuring. *k'aan* is possibly translated from Spanish *mecate*.

\**winik*, 20 *mecates*. There is also this larger unit of area measure consisting of 20 *mecates*. This name is practically certain of reconstruction and was rescued in a marvelous way. It was remembered that 20 cords of wood were called *winik*, and that the name of the 20-cord lot sounded the same as the word for man. So it may easily be that a 20-*mecate* piece of land was also called *winik*.

#### QUANTITY-MEASURE CLASSIFIERS

Quantity measures start with the single handful and the double handful. The most exact measures of the system are the *mut* and the *fanega*, both terms from Spanish. There was among the Maya no system of weights, the calculating of which required complicated apparatus.

*chaach*, single handful, literally a grasp; compare *chaach*, to grasp.

*taap'*, a single handful; compare *laap'*, to close the hand about.

*ok*, a double handful. Perhaps the word originally meant a trip.

*wuts'*, Spanish *cuartillo*, quarter of an *almud*. The Maya word is in pronunciation the same as the classifier meaning a fold, but a connection in meaning is difficult to see.

*mut*, *almud*. The Spanish *almud* has approximately the same capacity as the *celein*. Spanish dictionaries tell of *almud* being used as an areal measure, but this usage is not known in the Yucatan Peninsula.

*muk'ub*, a skirtful. According to the Motul dictionary this is a quantity amounting to about half a load.

*fanega*, *fanega*. This is the Spanish bushel, consisting in the Yucatan Peninsula of 12 *almudes*. The classifier is *sip'iis*, which is merely the general noun meaning a measure.

#### FIREWOOD-MEASURE CLASSIFIERS

*che'*, stick of firewood. *un p'el che' si'*, a stick of firewood.

*taas*, cord; compare probably *taas*, general classifier for row or rows.

*winik*, 20-cord lot of firewood. This word in this meaning is not in the Motul

dictionary, but was remembered and volunteered, and it was also volunteered that it sounds the same as man. This is important toward the restoration of \*winik, area measure of 20 *mecates*.

#### LIQUID-MEASURE CLASSIFIERS

Maya speakers at the present time do not remember well Spanish liquid measures, which preceded the coming in of the metric system. Much less do they remember native Maya measures, which may have been gourdfuls, ollafuls, bucketfuls, and the like. Not a single definite liquid measure was recoverable, if the Maya ever had such.

#### TIME-MEASURE CLASSIFIERS

Neither the lunar month nor the terrestrial year fitted perfectly into the score system of days; 13, 18, 260, and 360 as well as the score, enter for the sake of convenience or for the sake of fitting into the current religious calendar system into the formation of the higher periods of Maya time reckoning.

The fundamental unit of Maya time reckoning was certainly the tun, or 360-day year, but tun as the name of a time period is not in the Motul dictionary, and probably meant to the ancient Maya a stone and nothing else, although \*k'atun was the name of a time period, and is already entered in the Motul dictionary as denoting a time period of 20 years.

The second higher unit of time reckoning, above the \*k'atun, was evidently the \*ahawk'atun, a period of 260 years. Putting brief entries in Beltrán and in Pérez together, one comes to the conclusion that ahaw, meaning as a nonclassifier noun head chief, king, was a classifier for the Maya century, a period having, according to Beltrán, 260 years, and called in Maya, according to Pérez, \*ahawk'atun, and was not a classifier for the \*k'atun as Beltrán states at the beginning of his entry. The interpretation is vitally important to the determination of the nomenclature of higher Maya time periods, and it is well to give the exact Spanish wording of Beltrán and of Pérez, followed in each instance by a translation into English. Beltrán (1859, p. 203) states: "Ahau. Para cuenta de veintenas de años en calendarios de los indios yucatecos, lo mismo que las indicciones neustras; pero de mas años que estas, eran trece ahaues que contenian 260 años que era para ellos un siglo." In translation: "Ahau. For the count of the scores of years of the calendars of the Yucatec Indians, the same as our manner of counting, but having more years than ours, it was 13 ahaws that had 260 years, that was for them a century." Pérez (1866, p. 169) states: "KATUN: la edad ó indiccion [using this same word which Beltrán uses] de trece años que contaban los indios para formar otros períodos mayores ó sus siglos. A este llamaban tambien kinkatun y á los mayores ahaukatun ó uakatun."

In translation: "KATUN: the period or manner of counting having 13 years which the indians counted for forming other larger periods or their centuries. This [\*k'atun] was also called by them \*k'ink'atun and the larger ones \*ahawk'atun or \*wak'atun." Beltrán states that the Maya century was longer than ours, that it was a period of 260 years; Pérez evidently gives the name of such a century as \*ahawk'atun. ahaw was evidently the classifier for such a century, for it is difficult to think that the classifier for \*k'atun was ahaw, while the century was called \*ahawk'atun. This same meaning of \*ahawk'atun as Maya century of 260 years is also suggested by Pérez in the two entries on page 10 of his dictionary. Again I quote the Spanish. "AMAYTÉ: los primeros veinte años que contaban los antiguos indios en su epoca, llamada ahau katun . . ." In translation: "AMAYTÉ: the first 20 years which the ancient Indians counted in their epoch, called ahau katun . . ." Here Pérez suggests that the epoch was no more than 20 years. Immediately below this entry, on the same page, he states: "AMAYTUN: piedra cuadrada en que colocaban los antiguos indios los veinte años del ahau katun." In translation: "AMAYTUN: a square stone on which the ancient Indians placed the 20 years of the ahau katun." ahawkan, rattlesnake is, as most recurrent in meaning, different from kan, snake, and it may well be that \*ahawk'atun was to the Maya of former times different from \*k'atun.

Maya time reckoning began with some unknown early event, possibly the mythological creation of the world, at the date A. D. 682, equivalent perhaps to 8 ahaw. If we assume that ahaw refers to a Maya century of 260 years, Maya time reckoning had already been going on for 8 times 260 years, which is 2,080 years. The ancient Egyptians started time reckoning with the beginning of the reign of the king, the Christians of the West with the birth of Christ. The Jews and the members of the Greek Orthodox Church started time reckoning with the creation of the world. The important matter in dating is that a single commencing date is agreed upon. le mayaoob kušohkoob le haboob kah chumpahil yo'kolkab, the Maya began the count (here literally the years) from the commencement of the world.

Coordination of the Maya system of dating with the system used by ourselves is a matter which holds prime interest for the public at large. One of the first questions asked upon seeing the ruins of Chichen Itzá or of Uxmal, in Yucatan, is "How old?" The connecting of Maya time reckoning with Christian has interested students of Maya hieroglyphic writing and of general Maya culture from the first, and Antonio Ciudad Real, the supposed author of the famous Motul Maya dictionary, was evidently one of those interested. In a

book written by him (1586), there is mentioned the obtaining from a Maya Indian of a linking of the Maya time reckoning system with the Christian. After giving a description of the ruins of Uxmal, the earliest which has come down to us, he states that through consultation with Indians, 8 ahaw was equated to A. D. 682.

There is also a coordination of five of the month names with the rainy season, which, as far as I know, has not been noticed. It is natural that the year would be begun in the spring, and there is good testimony that the first month was *poop*, *petate*, which name is famous as entering into the title of the *Popol Vuh*, book of traditions written in the related Quiché language. If *poop* starts about the middle of May, then the frog species called *wo'* suddenly comes out when the rainy season is well underway, about the beginning of June, and this name is given to perhaps the first month of the rainy season. *wo'* is the first of a series of 5 months, which are evidently the months of the rainy season, and this sequence closes with the month of *šul*, which word means close, end. Then starts the month *yašk'in*, which name means first sunniness. The rainy season is commonly called *u-k'inil chaak*, which means the same as Spanish *tiempo de lluvias*.

We now proceed to give the time measure classifiers in ascending according to duration of period.

segundo, second. From Spanish, and no equivalent of Maya origin is known.

minuto, minute. From Spanish and no Maya equivalent is known.

k'intzil, hour. *k'in* means time, and *tsil* is possibly connected with *tsil*, to shred cloth into threads. *tsil* would then refer to small division of the day. The hour classifier given in the Motul and Pérez dictionaries is *heçch*.

k'in, sun, day, festival day. As a time-period measure the word means day. *k'in* is the day from sunup to sundown, but the ensuing night goes along with the day as a lining goes along with a coat. The two classifiers for day are *te'* and *\*waay*. The latter is defined in the Motul dictionary as being the classifier for 24-hour days. One can safely assume that each is a classifier for day. One's saint's day is called *u-k'in u-k'aba'*, literally the day of one's name. In early times in the Yucatan Peninsula, there was always given to a baby the name of the saint on whose day the baby was born. Nowadays the parents merely give the baby a name that sounds good.

There are names for the sections of a day, such as dawn, morning, forenoon, and names for sections of time defined from today, such as tomorrow, tomorrow at dawn; but such terms are not names of time-reckoning periods.

The word *k'in*, priest, is more fully *hk'in*, and sounds as if it says one who heats or illuminates.

#### \*WINAAL, 18-DAY MONTH

\**winaal*, or some similar reconstruction, is the name of the former 18-day month of the Maya; 20 of these months constituted a *tun*, 360-day year. Unfortunately the name cannot be reconstructed

with certainty, and there seems to be no clue. The word may be related to u, moon. There is a word "wí'nal," seed corn, said of an ear or several ears of corn kept during the winter for planting in the spring, but this word has no connection with the old word for an 18-day month. The Motul dictionary does not give the word, nor does Beltrán.

Each of the days of the 18-day month had its name and its patron divinity. All these day names are known to us, but only a few of the patron divinities are. Of the day names only the following are understood, and it seems probable that in each instance the understanding is correct.

ik', wind. inw-i:k', my breath. i:k'al k'a'naab, sea breeze.

ak'bal, night time.

k'aan, string, hammock.

kimil, to die, death. The l should be restored at the end of the word, for kimi means "he died."

ok, foot, footprint, trip.

egb, flight of stairs, stairway.

kib, wax, candle.

ahaw, head chief. The Devil can be called kumahaw, literally the head chief who left his heavenly home. ahaw was the name of the last of the 18 days, and is felt to refer to something beyond, ultimate. This usage perhaps fits in with ahaw as a classifier being used for century or centuries.

Also each of the 20 months in the 360-day year had a name and a patron divinity. Of the month names, only the following are understood.

popp, petate, rush mat. Anciently the petate was used only for the head chief, chief, or noble to sit on. The common people sat on the bare ground. This month evidently started the Maya year, and the name has a good meaning for the month starting the year, since from the petate orders and instruction were given. With "popp" compare the first member in the title of the Popol Vuh, previously mentioned.

wó', wó' mu:ch, frog species. mu:ch alone is a generic word meaning frog. The wó' is as large as one's hat and is called the *sapo gigante*, giant frog, in Spanish. It is mud colored. It suddenly comes out about the beginning of June, and is prominent at the first of the rainy season, after the rainy season gets well underway. It makes a thud with its belly as it lands on the ground after jumping. When one eats it, it is pure fat. It sings wó' wó' from the water with a bass voice. There is a Maya god in the form of a frog, and it may be that this species of frog is intended and it is also possible that this god is the patron of this day. The name is fitting if this month falls at the beginning of the rainy season.

sip' is actually remembered as the name of a mysterious personage, and si:p', meaning fruit is almost ripe, tumor is about to burst, is contrasted. The last consonant, despite the old writing, is p', not p. The information apparently fits in with the information obtained on another occasion that a good time to go hunting is near the start of the rainy season.

so:ts', bat. This is the generic name. Bats come out at dusk during the entire year. There is a Maya god in the form of a bat.

tseek, punishment. The Motul dictionary has this word. It is considered a punishment when it is overclouded. no:koy, it is overclouded.

šul, close, end, as a month name perhaps referring to the termination of the rainy season.

yašk'in, first sunniness, first day all day clear. From when the sun rises to when it sets there is no raincloud. It would be appropriate for a month to be so named coming immediately after close of the rainy season.

mo'ol, foot (of either front or hind limb) of an animal of the cat family, of a dog, of a badger. Compare chakmo'ol, jaguar, literally redfoot.

ch'een, well, cenote. Perhaps a dry well could be called the same way. But haktun, cave. This last word always starts with *h* and has short *u*.

yağš, first. This word may mean the same as yašk'in, which has preceded as a month name. Or the month name may be ya'ğš, green; compare the next month name, which is the word meaning white, and the month name further below signifying yellow sun. There are these two possibilities; on the whole the former seems the more likely.

sak, white. This is the adjective meaning white and sometimes said of the dawn: sak ak'ab, it is dawn, literally the night is whitening.

keğh, deer. If this month starts at the beginning of December, that would be a good time to go deer hunting.

mak, cover, stopple, lid. Or this month name may be mağk, person.

k'ank'in, yellow sun; one could hardly translate it as yellow day.

paš, section of sounding, piece of music. As a classifier paš means drum-hearing distance. Compare the meaning of the following month name.

k'ayab, song. Compare the meaning of the preceding month name.

kumk'u', oven for baking pottery, literally *olla* nest. It would be good to make such in the middle of February, when the beginning of this month would fall, before the rainy season starts in.

#### 13-DAY FORTNIGHT

A period of 13 days, the Maya name of which is unknown, constituted what can be called the Maya fortnight of 13 days. This unit was compositional to the tsol k'in and bore slight relation to the other time-measure classifiers. The cardinal for 13 is ošlahun, and for saying 13 days the ordinary modern way would be to say ošlahun p'el k'in.

#### U, MOON, LUNAR MONTH

As a time-measure classifier, *u* means lunar month. The lunar month has a length of almost 29 days 12 hours. The Motul dictionary gives *u*, month, and *u*, necklace, as two separate entries; but the Maya word is the same. Necklace is evidently called moon not because of the transparency or glittering quality of its beads but because it hangs in a crescent form like the crescent moon.

#### TSOL K'IN, 260-DAY YEAR

tsol k'in signifies a series in order of days, and is an invention of modern scholars for naming this period, the Maya name for which is

not known. *tsool* means series in order and is also used as a classifier for file or files.

Each of the day names always had a cardinal from 1 to 13 preplaced. One had to say: 1 *ik'*, and so on. Not until each of the day names had been given a number, was the 260-day period completed. Since 13 and 20 have no common factor, 259 days have to pass before the day 1 *ik'* comes again. There came 13 days. The second month started with the 5 remaining day names, followed by the first 8 of the 13 day names again. When 20 of these 13-day fortnights had been completed, the same day name with the same number preplaced came again.

#### TUN, 360-DAY YEAR

The ordinary word for year in Maya is *haab*, and undoubtedly *haab* was used instead of *tun* unless the designation was required to be very exact. One could probably speak of the 260-day period as *haab*. There is also some use of *haab* meaning Maya time period counting in general. *tun* is an antiquated form; the current form is *tunich*, meaning stone. *k'atun* appears to mean 20 *tun* period, therefore a twentieth part of that period ought to be called *tun*. Whether it actually was or not, there is little evidence. *tun* is given in the Motul dictionary as being the generic word for precious stone, and *tun* meaning the pit or stone of a fruit is given as a separate entry. The Motul dictionary gives *tunich* as the regular word for stone. The Pérez dictionary gives both *tun* and *tunich* as meaning stone. *tunich* is *tun* plus a suffix, and the suffix is omitted in many compounds. In modern Maya the pit of a fruit is commonly called *u-nek'*, its pit. The word for stone appears as second member of Maya compounds as *-tun*, *-tunich*. Thus *ya'stun*, turkois, means literally green stone; also *ya'stunich*, turkois; *pik'tun*, boundary stone; *chaltun*, bare rock; *ebtun*, flight of stairs; *haltun*, waterhole; *chantunich*, pebble; *tok'tunich*, piece of flaking stone. In many composite terms *-tun* alternates with *che'*, wood. Thus *petentun*, millstone; *petenche'*, wooden wheel; *ebtun*, stone flight of stairs; *ebche'*, wooden stairway. The informants have guessed *\*tun*, yet *\*k'atun*, *\*ahawk'atun*, *amaytun*, as restorations; these guesses are not certain.

#### HAAB, 365-DAY YEAR

The exact length of the terrestrial year is 365 days, 5 hours, 48 minutes, 46 seconds, or with the fraction decimally expressed, 365.2422 days. The nearest integral number is 365. The Gregorian calendar makes an ordinary year 365 days, while a leap year, also called a bissextile year has 366 days, adding the extra day at the end of



February, still the shortest month of the year. The word *haab*, like the word *\*tun*, is also not in the Motul dictionary.

The initial *h* of the word *haab* is omitted in the Mani Treaty, the form signifying the year being *uy-aab* instead of the expected *u-haab*.

Instead of having leap years, the Maya had a year of 360 days followed by 5 epigominal or intercalary days. In other words, the Maya compensated their years as they went along. The left-over 5 and a fraction days were known to the ancient Egyptians and are called epigominal days. They are termed in Spanish "intercalary," which means "intercalary." The Maya called them nameless days. The Maya expression for nameless day is *šma' k'aba k'in*. Pérez wrongly thought that the *\*k'atun* had 24 years instead of 20, and attempted to set up 4 intercalary years after the fashion of the intercalary days of the *haab*. On the epigominal days everyone stayed at home, since if he went forth, it was believed that some misfortune would befall him.

The classifiers for year are *buuk*, year, and *te'*, year, etc. The latter if followed by *ti'*, in.

#### THE VENUS YEAR

The planet Venus has a year which averages 584 terrestrial days in length, the Venus year being 219 days longer than the earthly year. Venus is known to modern astronomers to appear 236 days as morning star, and 250 days as evening star. By the modern Maya, the morning star and the evening star each is called *nohek'*, literally large star, a nomenclature which is already given in the Motul dictionary. The Venus year could be translated into Maya as: *u-hab nohek'*, literally the year of the large star.

#### SUBDIVISIONS OF THE *\*K'ATUN*

At the termination of a *\*k'atun*, or 20 *\*tun* period, a commemorative stela was erected. The *\*k'atun* was evidently divided into 4 minor periods of 5 years' duration each, and the minor period can be called in Spanish *lustrum*, which according to the Spanish dictionaries and modern usage means a period of 5 years. It is significant that the stela erected at the termination of a *\*k'atun* had four corners and sides; perhaps a *\*k'atun* was conceived of as a quadruple thing. There was a minor ceremony at the close of a 5-year period, another at the close of a 10-year period, still another at the close of a 15-year period. Then came the great celebration at the termination of the 20-year period.

## \*K'ATUN OR \*\*K'INK'ATUN, 20-TUN PERIOD

Already the Motul dictionary defines \*k'atun as a 20-year period, and it is very probable that the word "\*k'atun" is a compound noun in origin, the more original form having been \*k'altun, and the present form having the "l" omitted. The Pérez dictionary gives a similar-sounding word with this process caught in operation. Pérez (1866, p. 185) gives: "KULTUN: mortero, almirez. Kuttun." In translation: "KULTUN: mortar, pounding bowl. Kuttun." Syllable-closing "l" in word interior of this word has disappeared, for I have obtained only k'utun, pounding bowl. The Pérez dictionary also gives \*k'atun to be an adverb meaning "always." Informants have not known this form. The Pérez dictionary also gives \*k'atunbeen, an antique, evidently meaning literally an age-old thing, but informants have not known this word.

\*k'ink'atun evidently means the period of a \*k'atun, and, as the Pérez dictionary states, has a meaning exactly equivalent to that of \*k'atun.

The classifier for \*k'atun is given in the Motul dictionary as t'. It is thus the same as the classifier for years. Beltrán gives ahaw as classifier for \*k'atun, but ahaw, is, as has already been stated above, classifier for the Maya century known as \*ahawk'atun.

There was a great ceremony at the end of a \*k'atun. A stela, or four-sided tall monolith, was erected. The name of this stone is recorded in the Pérez dictionary as "AMAYTUN," which is guessed probably to be restored as: \*amaytun, literally cornered stone. The Motul dictionary gives "amay," corner, also "anamay," corner. The stone had four corners, but the word "kan," 4, was omitted.

## 52-TUN PERIOD

The 52-tun period belongs with the 260-day year, and like the 260-day year the Maya name for the period is unknown. Only after a 52-tun period did the count of 260-day years coincide with the count of 360-day years. The 52-tun period can be called the Lesser Cycle.

## \*AHAWK'ATUN, OR \*WAK'ATUN, 260-TUN PERIOD

There were 13 \*k'atun periods, and 20 times these constitutes what is known to us through Pérez as having been called the \*ahawk'atun, evidently meaning the head chief \*k'atun, or the \*wak'atun, 260-year period, which was the Maya century. ahaw means head chief, king, and as first member of the compound ahawkan, rattlesnake, gives the literal meaning of lordly snake. So \*ahawk'atun must mean lordly k'atun.

A second name for this Maya century is given by Pérez as being \*wak'atun. As regards etymology, informants and early dictionaries come to the possible rescue. The \*wa- used as a first member evidently means excessive; compare wa-, indefinitizing (p. 276).

Possibly the \*ahawk'atun or \*wak'atun was sometimes called for short merely \*k'atun when background made it clear what was meant, but such calling was ambiguous.

Whether the classifier t' was used for counting 260-tun periods is not known. It seems probable that the application of ahaw to the \*k'atun is an error starting with Beltrán, who writes ambiguously, and that ahaw applies properly to the Maya century or 260-tun period.

What the Maya called higher orders of time reckoning than the 260-tun period is not known. It is possible that they carried the score system into the denomination of higher time periods, speaking of the \*bak'tun, 400-tun period, and so on, but it is also possible, and even likely, that 13 entered into the determination and naming of higher time periods.

#### SUN ORBIT YEAR

The period of time which it takes the sun to make a complete revolution in its orbit was not known to the Maya, nor is it known to modern astronomy. It is perhaps something in the neighborhood of 2 million years.

#### INFINITY

"chac et," infinite thing, literally large thing, is already given in the Motul dictionary. Beltrán (1859, p. 168) gives this same term as "Chacet." chaak, large, gigantic, sounds the same as the word for rain.

#### THE FOUR MATHEMATICAL PROCESSES

It is said in the Yucatan Peninsula that anything which can be expressed in Spanish can also be expressed in Maya. For instance, in telling of the four mathematical processes, one would say: kan hela'an u-betal le-soko', literally there are four ways in which a solution is arrived at.

The four methods referred to, by which mathematical problems are solved, are the processes of addition, subtraction, multiplication, and division. Below are given sample wordings employed in expressing each of these processes.

- (1) ka' yetel ka' kubetik kan, 2 plus 2=4.
- (2) ti' ka' kalusil un kup'atal un, 2 minus 1=1.
- (3) ka' ten ka' kubetik kan, 2 times 2=4.
- (4) ti' kan kašotik ka'e kubetik ka', 4 divided by 2=2.

## EXACTLY, APPROXIMATELY

A quantity may be expressed exactly or approximately.

šoot, the noun meaning number, enumeration, when placed before a numeral has of course adverbial force and means exactly. Thus šot hunk'aal, exactly 20.

naats', approximately, means literally near, nearly. Thus nats' hunk'aal, approximately 20, about 20, literally nearly 20.

## NUMEROIDS

Terms expressing impressional, not exact, quantity are much employed in the Valladolid Maya dialect, and the principal ones are given below to make this paper more complete. Two of the terms, those for bit and piece, have already been presented under the caption of Fractionals, but these terms belong also to the group of Numeroids

Maya enumeration pays no attention whatever to gender except in the instance of a few classifiers, but the numeroid is determined by gender classes, now difficult to investigate because of the havoc which Spanish influence has played with the Maya language.

The singular of a numeroid applies to quantity of substance, or to a single member of a group.

p'iit, bit, a little, used in the singular only with reference to quantity of substance. un p'it sa', a little gruel. p'itoqb, plural, is used rarely of quantities of substance, mostly in modern Maya meaning few, a few, without gender distinction of application. p'itoqb winik, a few men.

ts'ets'ek, some with reference to quantity of substance. The plural would scarcely be used.

wabaal, something, indefinitized by prefixing wa- to baal, thing. Plural, wabaloqb, somethings. Gender application is to inanimate thing, plant, nonhuman animal. Compare \*wa-k'atun, 260-tun period.

wamaaş, someone, somebody. Indefinitized from maaş, who? Plural wamaşqb, someones, some people. Gender application is to human only.

et, something, someone, the like.

yaqb, much, used in the singular only with reference to quantity of substance. Plural yaboqb, many, used of objects of inanimate, vegetal and nonhuman animal gender, while for plural of humans bahun is preferred instead.

hunab, all, with reference to quantity of substance. hunaboqb, plural, would be used rarely.

tu-laklil, it is all. Plural tu-lakloob, they are all.

lah-, a verb prefix, means all. tase, bring it! lah-tase, bring it all!

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