# DATES IN A NEW MAYA HIEROGLYPHIC TEXT AS KATUN-BAKTUN ANNIVERSARIES

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This is an attempt to infer much more than is actually stated in one of a collection of texts incised on bone artifacts. These were recently discovered in a tomb at Tikal by Aubrey S. Trik, Field Director of the Tikal Project of the University of Pennsylvania Museum. Before proceeding to specifics I shall try to set the problem in perspective, within the frame of reference of the ancient Maya calendar system and the hieroglyphs which reveal it in Classic Maya times. General familiarity with that system is presumed.

It is well known that on the Classic stone and other monuments usually a contemporaneous recorded date marked off the passage of time, sometimes quite systematically, at regular intervals. Other dates may appear in the same text, and it was long thought that these involved esoteric matters, obscure to us because few of the "non-calendrical" glyphs have been deciphered. It was supposed that real history was confined to now lost paper manuscripts such as were noted by Bishop Landa at the time of the conquest. A basis for this view was the known religious pattern of many gods regulated by the calendar system, plus three surviving manuscripts or *codicies* of Postclassic times, which consist of "almanacs" for calculating the influences of particular gods or combinations of them on particular days or periods in recurring calendrical cycles, some with astronomical significance. Not very long ago Proskouriakoff (1960) made a break-through by discovering non-cyclic patterns, in addition to the cyclic time-marking one, in the inscriptions at Piedras Negras. Studied in conjunction with associated non-calendricals and

carved pictures, she showed that perfectly human priest-rulers and dynastic events were involved.

This view is being tested at other sites. In some cases at Piedras Negras it conflicted with a calendric "Determinant" theory, but it does not explain all the dates. It merely reduces the number of dates for which esoteric calculation hypotheses may still stand or fall on their merits. The same priest who caused a "katun-marker" to be carved with notation of the anniversary of his birth, might also wish to record the result of some important calculation in the supernatural realm for which he was responsible. This seems especially likely where very long time-distances are recorded or implied.

The non-cyclic and presumably historical dates at Piedras Negras include "anniversaries" in terms of tuns and katuns. The main thesis of this paper is that at Tikal we can recognize a carry-over of this concept into the esoteric field, where the "subject date" commemorated by the anniversary date must have been calculated for a mythical event, since it lies some thousands of tuns in the past. It is assumed that various purely calendrical cycles would be involved in the calculation. There seems to be ground for seeing the periods of three such cycles as "yard-sticks" —the 260-day "Sacred Round" cycle, the 365-day "Vague Year", and the "Short Count" of named katuns, so important in the Yucatan of the conquest. Whether astronomical cycles also played a part is left as an open question.

The text which seems to justify these inferences is known as "Miscellaneous Text 26" (MT-26) and consists of three Calendar Round dates, each followed by an abbreviated distance number of some sort. The drawing (Fig. 1) is by Annemarie Seuffert, made from the well-preserved original. After developing the case for supplying three subject dates for recorded long-distance anniversary dates, and Long Count positions for all six dates, comparison is made with a definitely established long-distance recording at Copan, made at about the same time. Some common elements seem to lie behind the calculations at the two sites.

Glyphic distinctions not pertinent to the inquiry will be ignored, such as *haab* and *tun* for the 360-day period, and cardinal or ordinal numbers.

## The collection of bone artifacts in Burial 116

As has been stated, our MT-26 text is only one of a remarkable collection of bone artifacts. They were placed in one corner of a vaulted tomb containing Burial 116. Trik found the tomb by tunneling within the great pyramid of Temple I in its final form. Many of the objects were damaged by partial collapse of the vault. There were an estimated ninety of these objects, of various forms, many with awl-like shafts as in Figs. 1 and 2. Thirty-seven bear incised hieroglyphic texts, definitely functional, not decorative. Fourteen have associated pictorial representations which we shall call simply "pictures". Duplications reduce the totals of really different texts and pictures to thirty and nine, respectively. I think there is no precedent for such a collection of Maya epigraphy and associated art. It exhibits great variety in both categories, with various unique features not found in major texts and art on the monuments. One of these is frequent "paragraphing" by spacing, as in Figs. 1 and 2.

It is fair to presume that the entire collection belonged to the deceased, that the artifacts were produced by or for him during his life-time, and buried with him as his personnal property. The long-lasting element of large carvings on monuments is lacking, and differences in subject matter and new non-calendrical glyphs may be suspected.

Sixteen of the 30 different texts consist of non-calendric glyphs only. Among the 14 with dates, MT-26 and MT-27 stand apart in two respects: (a) they consist of calendrical glyphs only; (b) the first of the three dates of MT-27 and all three dates of MT-26 are at the day Ahau in the cycle of 20 named days. On MT-27 (Fig. 2) the date is 4 Ahau 8 Cumku, showing an awareness of the Long Count (LC), though that count is nowhere actually recorded in the entire collection. In MT-26 (Fig. 1) the distance numbers following the dates include baktuns, each of which covers 400 approximate years (tuns). Evidently the deceased was a calendar-priest who made long-distance calculations. These distance numbers are the only ones in any of the texts of the collection, and they do not connect the recorded dates. Thus MT-26 is a unique item in a unique collection of texts.

FIG. 1. Miscellaneous Text 26, on bone artifact from Burial 116, Temple I, Tikal, Full scale. (Drawn from original by Annemarie Seuffert.)

FIG. 2. Miscellaneous Text 27 on bone artifact from Burial 116, Temple I, Tikal. Full scale. (Drawn from original by Annemarie Seuffert.)

Since LC positions were not recorded in any of the texts, we can only try to infer them, with 52 Vague Years as a yardstick. We have some controls for this. The pottery is like Tepeu 2 of Uaxactun (information from W. R. Coe, Research and Publications Director of the Project). Trik reports that construction of the tomb and of the temple in its final form was essentially one operation. A text on the wooden lintels of the temple yields probable limits for lintel placement of 9.13.3.0.0 to 9.14.0.0.0 (Tikal Report 6, pp. 70-72). We can be reasonably sure that the death, deposit of the artifacts and closing of the tomb occurred during the katun running from 9.13.0.0.0. to 9.14.0.0.0, or perhaps partly in the prior Katun. Allowing an arbitrary 5 tuns for temple construction actually above the tomb, which was not on the temple axis, the tomb was probably closed by ... 9.13.15.0.0, perhaps somewhat earlier.

Recorded Maya dates are usually at present, or present and past time, as of the time of carving. We infer that the dates in our collection fell before 9.13.15.0.0. Specific placements of the MT-26 dates in the Long Count are considered later on. The katun-baktun anniversary hypothesis is first developed without them.

## Patterns in the dates and distance numbers of MT-26

Table 1 shows the sure readings of the three dates of MT-26, which we label A, B and C. One wonders at once whether the Short Count of named katuns, with its augural values, may not be involved. The Vague Year positions drop by 100 days (5.0), as they do in a forward Short Count, katun by katun. However, the Day Numers or "coefficients" of Ahau *rise* by 2, as they would in a *backward* reckoning by single katuns. The three distance numbers are also patterned, in that the coefficient above the baktun glyph is always 11, while the coefficients to the left rise by 1.

We have still to justify inserting "katun" in Table 1, but otherwise it depends on mere inspection of a well-preserved text. We could not ask for better evidence that esoteric calculations and not real history are involved in this text. The numbers are presumably to be counted from or to the dates with which they are associated. Apparently the numbers are abbreviated by suppressing a period glyph but not its coefficient. If we reconstruct

them correctly we expect patterning in the suppressed terminal dates which can then be calculated.

## Reconstruction of the abbreviated distance numbers

We may use Date A and its distance number to represent all three statements, and in Table 1 we have supplied "katun" to produce "1 katun 11 baktuns". This seems simple enough but I do not think one can be sure about it without considering four known types of distance numbers, and various ways in which they might be abbreviated by dropping out terms with zero coefficients. We must, in fact, choose between alternatives for which there are precedents, so far as the numbers alone are concerned. Table 4 is supplied as an aid in seeing abbreviation patterns in the four types of distance numbers. Citations of example numbers always refer to this table. We need to review these types and the theoretical possibility of a fifth type before deciding which one has been abbreviated in our text.

We confine ourselves to the texts of the Classic period, in which the chronological portions break down into units consisting of two dates, usually Calendar Round (CR) dates, and the time-distance between them. The distances are expressed as so many periods in a modified vigesimal count —kins (days), uinals (20's), tuns (18 20's of days), and then simple vigesimal multiples of tuns— katuns, baktuns, pictuns, calabtuns, kinchiltuns, and possibly even higher terms or orders. Normally glyphs for the periods accompany the digits or "coefficients"; the value of the period therefore does not depend on a place-value rule as is usual in the Postclassic codicies. In a multi-term number the order of period values could be, and was, reversed. A period at zero could be omitted, with resulting space-saving.

A *Normal Initial Series* number is counted forward from a base-date far in the past, the CR position being 4 Ahau 8 Cumku, the first CR date of our MT-27 (Fig. 2). This IS base date was conceived as ending a prior cycle of 13 baktuns (Example 9 - the table omits the recorded "Normal Date" 4 Ahau 8 Cumku, a few recorded IS are counted within this prior 13-baktuns cycle, from a base 4 Ahau 8 Zotz. A recorded IS is marked as such by a special "Initial Series Introducing Glyph" (ISIG), but if we are thinking of the position rather than the style of fixing it, it is convenient to speak of "Long Count" (LC) num-

bers or positions. In labeling in this paper simple "IS" or "LC" implies the Normal count; as needed later on, we use "IS*" or "LC*" for a count from 4 Ahau 8 Zotz (Table 3). The departure dates for all LC's are regularly suppressed. The periods are always in *descending order* of values —baktun, katun, etc.— so the suppressed departure date can be calculated.

In multi-date texts *Secondary Series* (SS) usually carry the count forward (but sometimes backward); if the chain is not broken and the LC position of one SS date is known, the others can be supplied. To achieve this for our three dates we must infer not only the LC position for one of them, but the suppressed SS intervals between them. SS numbers are, with very few exceptions, given in *rising order* of period values, *the reverse* of the IS style. These SS numbers may be marked as such by a special postfix for the period glyphs, and/or by a special "Secondary Series Introducing Glyph" (SSIG), Thompson's "Distance Number Introducing Glyph". But SS may not be marked as such (Cp. Examples 1-3 with 4 in Table 4). *There is no limitation on the dates they may connect.*

Example 3 shows that a sequence of lowest terms at zero could be suppressed in an SS; but this is very unusual. Example 2 illustrates the normal pattern (also seen in Example 1); even when the kin term is at zero the zero sign is recorded. Note, however, that normally in SS (Examples 1 and 2) the *period Glyph* for kin is suppressed, leaving the uinal sign with two coefficients in one block. One coefficient is vertical on the left, the other horizontal above the uinal sign. Usually we have the same effect as in our text. We conclude that the same type of "two-coefficient" abbreviation is probably involved, and that some period glyph should be supplied. So far as I know this is the first time that the "two-coefficient" abbreviation has been found where the expressed period is not the uinal or, exceptionally, the tun (Example 4). If our numbers are not abbreviated SS, they seem to be related to SS in the style of abbreviation at least.

A date is said to be at a *Period End* (PE) of the LC if it is at the end of a tun or higher period. The kin and uinal periods, at least, are at zero; the date must be at Ahau, as in our MT-26 text. The month coefficient must include three dots (3, 8, 13 or 18), also as in our text. When a period-end position for a date is not obvious by the recorded zero kin and uinal coef-

ficients of an IS, the PE position may nevertheless be simply understood, or be indicated by special glyphic statements. The PE statement may involve a period glyph and its coefficient, the period being tun or higher. In effect it is then an abbreviated LC number. So I introduce the term "PE number" (PEN). Ambiguity may be guarded against by an "ending" sign as in Example 9. It is understood from context that the suppressed periods lower in value than the recorded one are at zero; but it is also usually understood that one or more *higher* periods, *not* at zero, have been suppressed. The context must then tell what higher term or terms have been omitted —probably always obvious to the Maya. In Example 10 it is the last completed baktun as of the recorder's present time. In some other case, baktun and katun terms might be suppressed, though neither was at zero.

I have found no "2-period PEN's", but logically such might occur to some scribe. For instance, Example 10, for a date at 9.18.0.0.0, fixes it there by recording "18 katuns." A date at 9.18.5.0.0 would normally be fixed by recording "5 tuns," but "18 katuns 5 tuns" would be more precise and perfectly logical. The term "2-period PEN" for this possibility implies recording of two period coefficients not at zero, and in descending order of period values, like the LC number which is being abbreviated in the above hypothetical case (9).18.5(0.0). This may be compared with a claimed PEN at Quirigua (9).17.5.0.0, noticed further on. If we have two period coefficients of two different periods in the distance numbers of our MT-26 text we must consider whether they may be 2-period PEN's.

The fourth type of number covered in Table 4 is here labeled "*Period Anniversary*" (PAn) to cover known and theoretically possible anniversaries in which the tun or its multiples are the units. Reference is to the higher periods of distance numbers, tun or higher, not the CR period, anniversaries of which seem to be very rare. Thompson discusses Katun and Tun anniversaries, which go back to Morley, at least, and assembles a long list of them (1950, pp. 194-197; Table 12). A PAn date may be at Ahau, like a PE, but usually it is not. Calling the date which is commemorated the "subject date", it must be at the same Day Name as the anniversary, but there is no limitation on what this may be, nor on the vague year positions. Normally the subject date is suppressed as is the base-date in IS. As defined by Thompson it is a locally important date which

has been recorded elsewhere, but one must allow for destruction or mere failure to find such other texts. This is the situation in Example 5, here at Tikal. Thompson's table shows there may be several sequent PAn's of the same subject date. The longest "spread" between subject and Pan, as known, seems to be 4 katuns.

As with a PE, there may be no associated glyphs to show that a given date is an anniversary, but Thompson's table shows that similar glyphs may give the clue, including what we may call PAn abbreviated numbers (PAnN's), terms below tun being at zero and suppressed —but *no higher terms not at zero* suppressed (Examples 5-7 are 1 or 2 katun anniversaries).

We may say that a PAnN, like a PEN, suppresses lower terms which are at zero; but only the PEN may also suppress higher terms not at zero. Usually, in either, there will be only one recorded period and its coefficient, not at zero. But at Piedras Negras Thompson's table shows three "two-period" PAnN's, one of which is represented as Example 8 of our Table 4 (6 tuns 3 katuns). In all three the two periods are in ascending order, showing, in effect, that PAnN's are abbreviated SS which might, in theory, have been recorded in full.

We seem to have an actual case of this on Stela 29, Naranjo, Example 2. The departure and terminal dates of this SS, both expressed, are respectively subject and 1-katun anniversary dates in Thompson's table. It happens also that they are at tun-ends of the LC, at 9.13.3.0.0. and 9.14.3.0.0. Thompson's table contains another entry of subject and PAn dates at tun-ends, at Yaxchilan. It is reasonable to consider Lintels 1 and 2 as bearing a continuous text, in which case both dates are again recorded in the same text, the LC positions being 9.16.1.0.0 and 9.16.6.0.0. This time the 5-tun anniversary relationship is expressed by the PAnN "Death eye, 5 tuns." This follows the CR date. Had an SS been used we would expect it to precede the CR, its terminal date, as on Naranjo Stela 29. Note that either style of "measuring" the anniversary interval could be used when the PAn is at a tun-end of the LC.

In both the above cases this interval is less than the 4-katun maximum for Thompson's table as a whole. But I think we may detect a much longer PAn relationship between tun-end dates, on Stela C, west side, at Quirigua.

A special interest in long esoteric calculations is indicated by recording IS 13.0.0.0.0 4 Ahau 8 Cumku on the east side and IS 9.1.0.0.0 on the west side. This is followed by the calendrical data transcribed below:

0(kins) 0 uinals 5 tuns 17 katuns 6 Ahau 13 Kayab 5 tuns

The 5 tuns entry after the CR labels it as a PE in the LC and with nothing more, calculation will recover 9.17.5.0.0 as the IS position. The CR date appears also to be terminal for a normal SS except that its departure date is suppressed. Reversing the recorded ascending order for calculation purposes, the departure date is easily found to be 8 Ahau 13 Ceh. Since frequently if not usually the subject date of a PAn is suppressed, and a SS can be used instead of a PAnN, the way is clear for seeing this CR marked as a 5th tun in the LC, a PE; and also as the 5 tun 17 katun PAn of a subject date. The special importance of the later was presumably the fact that it was at the end of the lapsed baktun, 9.0.0.0.0 8 Ahau 13 Ceh. I submit that the fact that this baktun-end has not been found actually recorded at the site is no real objection to this PE-PAn reading.

On the other hand, Morley sees two PE expressions, the first of which he gives as (9).17.5.0.0, ignoring the reversed ascending order of the record (1915, p. 275; 1937/38, IV, pp. 159-160). This is, of course, an abbreviated LC number, and if that was the intention, surely the descending order would have been used. Expanding the entry after the CR to 17 katuns 5 tuns as a 2-period PEN would have been in line with known PEN practice, though as noted before I have not found an example of a "two-period" PEN. The conclusion here is that, if found, they will be in the descending order of the LC numbers themselves.

The numbers of the text of our problem seem to be like SS in having a 2-coefficient style of abbreviation; they are like three PAn's in seeming to be 2-period statements to which it could be applied. Usually in a normal 2-coefficient SS abbreviation for the kins-uinals terms, the kins coefficient is on the left, vertical, reaching the top of the space, just as do the left-hand coefficients in our text. The order of reading within the block in such cases is normally as close to the normal order for complete blocks as possible. In Example 1 of our Table 4, reading the coefficients along the top, the order is left-right for *18*

(kins) 7, then down for *uinals*. We may represent this order by L-R-D. The example is from the lintel of the temple of our burial; at about the same time (9.14.0.0.0) the same convention holds for Stela 16/Altar 5. There is no reasonable doubt that we should read in this order in our text, which gives us 11 Baktuns, not 1 baktun, after Date A.

In addition to the established Long Counts from 4 Ahau, Morley and Thompson have made differing proposals for an "extended" LC to account for an apparent 8-term IS number on Stela 10, here at Tikal. In correspondence Thompson suggests, "as a starter" on the problem of our bone artifact, that Date A is fixed as a PE in this count —by a PEN in which terms higher than baktun are suppressed. His suggestion, and the corresponding one in the Morley system, work out as below, in terms of coefficients only, the recorded ones being underlined.

Thompson extended LC: 1- 6- 19- *11*.*1*.0.0.0
Morley extended LC: 1- 5- 18- *11*.*1*.0.0.0

This solution of the problem is numbered IV in the list of alternatives below, among which, I suggest, we must chose, if two distance-number periods are involved.

| | | | | |
|---|---|---|---|---|
| I Ascending order | PAn | *1* katun | *11 baktuns* | (L-R-D) |
| II Ascending order | SS | *1* kin | *11 baktuns* | (L-R-D) |
| III Descending order | PE | *1* pictun | *11 baktuns* | (L-R-D) |
| IV Descending order | PE | *11 baktuns* | *1* katun | **(R-D-L)** |

The limitation to these alternatives presupposes that 2-period PEN's would be in descending order. Alternative III seems better than IV because it results from reading the two-coefficient abbreviation device in the same order as in contemporaneous local SS. But it requires supplying the glyph for the period next lower than the recorded one, the kin, as a regular habit in SS, yet at the same time supplying the next higher period glyph for a two-period PE, in this case the pictun. Use of this space- saving device with both ascending and descending period values of numbers seems highly improbable. It would be confusing.

On the other hand, in a context of period anniversaries the kin and uinal terms were regularly suppressed, the order being the ascending one. In Alternative I the suppressed period glyph

is still that of the period next lower than the recorded one, a logical extension of the known use of the device in SS.

Alternative II, "1 kin and 11 baktuns", is the same, in principle, as reading "6 (kins) and 10 tuns" at Yaxchilan (Example 4). In that case both dates are recorded, 6 Ix to 11 Ahau, and the SSIG is present. One sees at a glance that 6 (kins) not 6 (uinals) are required. In our text the reading of the number cannot be checked. But if it is known to be a PE or PAn number, it is also known that the kin term is at zero, and entirely suppressed. In rejecting the SS solution Thompson advises me that the simple bracket prefix of our text does not belong with SS. His Table 12 shows that it is at home with PAn as well as PE numbers, the "dots" bracket of our text, as well as the "u-bracket."

Rejecting the SS solution for this reason, we have a different reason for rejecting the "Extended PE" hypothesis, which yields the Alternative readings III or IV. The interpretation must be applied to all three dates, with no recorded date in contemporaneous times. But where there is reliable control on long calculations, including texts on which Extended LC systems have been based, the text contains or is thought to contain a present-time date also, usually the latest in the text. For Alternative I this may be the latest of three recorded period anniversaries.

Thus far we have been assuming two coefficients for two distance number periods, the glyph for one of them being suppressed. Proskouriakoff, in correspondence, questions this. Her suggestion is summarized as Alternative V in the tabulation below.

ALTERNATIVE V

| | | | |
|---|---|---|---|
| | (4 Ahau 8 Cumku) | | ( 0.0.0.0.0) |
| A | 6 Ahau 8 Mac | 1 (times) 11 baktuns | ( 11.0.0.0.0) |
| B | 8 Ahau 8 Mol | 2 (times) 11 baktuns | (1- 2.0.0.0.0) |
| C | 10 Ahau 8 Zip | 3 (times) 11 baktuns | (1-13.0.0.0.0) |

This is a PE proposal in that a count from the Normal IS is assumed. The three dates are fixed after it by noting that the distances are, respectively, the 1st, 2nd and 3rd multiples of 11 baktuns. This beautifully simple interpretation involving

two multipliers of a given distance-number period has, I think, no precedent, and calculations far into the future are extremely rare. A more important objection is, I think, that the hypothesis does not allow for one present time date in the text. Even Date A, in this scheme, is 520 tuns in the future, as of 9.14.0.0.0.

Thus we are led to the PAn solution, reconstructing the three numbers as in Table 1, and considering these to be complete reconstructions, apart from the lowest terms at zero. In the descending order of IS numbers they would be 11.1.0.0.0, .... 11.2.0.0.0 and 11.3.0.0.0, and in this style are easily added or subtracted.

Mechanically the reconstruction involves a mere quantitative extension of the known period anniversary pattern to include katun-baktun as well as tun, tun-katun and Katun anniversaries. But the spread between subject and anniversary dates is increased from a known maximum of 4 katuns or from a possible 5 tuns 17 katuns to at least 3 katuns 11 baktuns —4,460 tuns. The dates commemorated must have been calculated, and refer to mythological events. Once found, however, they would seem real within the esoteric frame of reference, and particular anniversaries of them within historically experienced time might well seem to have significance. But even these would involve calculation —as is certain for our three dates because of the patterned Day Names and Vague Year positions.

## THE TERMINAL DATES - PATTERNS

We may think of a PAn number as an abbreviated SS of special type, and count it backward from the recorded PAn date to obtain the suppressed subject date, at this stage a terminal date. Having in mind that calculations into the past may have been with an eye on the future we may reverse direction to see if any pattern emerges at the resulting future period anniversaries. The results, in forward direction only if we read straight down, are given in Table 2. All three terminal dates for the backward count are at Vague Year position 3 Zec; for the forward position (future) we reach an SR date 6 Ahau in all three cases. These patterns suggest that Sacred Round and Vague Year "anniversaries" (SRAn's, VYrAn's) were involved, possibly in a search for full Calendar Round anniversaries

(CRAn's). We are extending the use of the term "anniversary" in an unorthodox manner, but logically and, I think usefully.

### Intervals between the dates - patterns

Our text is stripped down to bare essentials. Because the SS between Dates A and B, and B and C are suppressed, they were probably understood to be minimum distances in one direction only, which could be calculated if needed. Making this assumption for another of our texts, on bone, MT-28, not illustrated, if we choose the forward direction the distances are very small, placing six dates within a spread of less than seven tuns. This is the direction for the majority of SS in Maya texts generally. On the lintel of the temple a final SS is counted backward, but there is recorded SS control, and this backward direction is unusual. Without control the usual was presumably understood. Accordingly, placing our dates in chronological order, and at minimum distances, these distances (suppressed SS) are as given in parentheses in Tabla 2, reading the central line horizontally, left to right. Those in other lines then follow.

On any line the dates are spaced evenly in time. The PAn's are 1 katun and one period of 4 vague years apart; the subject dates are 4 vague years apart (4.1.0). This latter distance measures the round of the vague year with the 20 Day Names, known to be an esoterically significant period in the Postclassic times of the codicies, and down to the time of Bishop Landa. Thus our additional step assuming chronological order at minimum distances— seems justified by emerging patterns in the resulting distance numbers.

### Long Count positions for the dates - patterns

If Date C was the latest of the three dates as assumed, failure to locate it in the LC as an IS probably means that it was understood to be at it's latest occurrence in the life-time of the deceased. Knowing this, he could easily calculate it from any known LC position. Our other assumptions require it to be the last occurrence some little distance before 9.14.0.0.0, as late limit for the lintel dedication, or before 9.13.3.0.0., our early limit for it (Tikal Report 6). Thus we feel fairly sure in choos-

ing LC 9.13.8.3.0 10 Ahau 8 Zip for Date C. Having accepted this, the positions for all PAn's and their subject dates must be as in Table 3. It should be noted that the early Long Count positions are in the rare count from 4 Ahau 8 Zotz (LC*). For example, adding the PAn number 11.1.0.0.0 to LC* 11.10.0.1.0 gives LC* 22.11.0.1.0; casting out 13 completed baktuns of the prior cycle gives LC 9.11.0.1.0.

The reasoning as to LC positions is independent of that respecting the intervals, and further patterning would tend to confirm it. The IS of Altar 14 at Tikal (Example 11) shows local interest at this time in the "Short Count" of named katuns by recording the SR day reached, 8 Ahau, at giant size, and by suppressing the VYr position for this IS number, 9.13.0.0.0. Our assumptions respecting LC positions in MT-26 place Dates A -C within three sequent katuns of this esoterically significant cycle— in Katuns 10 Ahau, 8 Ahau and 6 Ahau, the respective katuns ending at LC positions 9.12.0.0.0, 9.13.0.0.0 and ... 9.14.0.0.0. And they place all three of the subject dates, not only at Ahau and at 3 Zec, but in the same katun of the Short Count, a Katun 10 Ahau, like that of Date A. The Short Count relationships are seen below, where the SR date is followed by the name of the current katun, in parentheses.

| | | |
|---|---|---|
| 6 Ahau (10 Ahau) | 10 Ahau (10 Ahau) | 1 Ahau (10 Ahau) |
| 6 Ahau (10 Ahau) | 8 Ahau ( 8 Ahau) | 10 Ahau ( 6 Ahau) |

Subject dates (AA, BB, CC of Table 3) are covered in the first line, Period Anniversary dates (A, B, C) in the second line Note also that, given the 8-year spread for the subject dates, they are placed as early as possible in the mythological Katun 10 Ahau. Date AA is at position 1.0 (20 days) in the then current katun; all six dates are within the first halves of their respective katuns, numbered in the Long Count, named in the Short Count. The choice of the smallest PAn distance, 11.1.0.0.0, could have been conditioned by the fact that it is a multiple of 13 katuns and must always reach the same SR date, in this case 6 Ahau, at the same position in a katun of the same name, in this case 10 Ahau.

*The "spread" of the early and late dates: comparisons with Stela C, Copan*

Both sides of Stela C, Copan, recorded statements which appear to read "13 Calabtuns". For theoretical reasons Morley and Thompson read the coefficients as 11 and 12, respectively. One may agree that these entries appear to be PE's in some "Extended" LC while doubting the specific LC extensions proposed. The last part of the text on the south side can be considered apart from its bearing on that problem.

There are two recordings of the CR date 6 Ahau 18 Kayab which I label Date D (at A2a-A3a), and Date D' (at A7a-A8a). The possibility that D' is a CR anniversary of D seems not to have been considered, and does not need to be settled for our present purposes. Date E, 6 Ahau 13 Muan, was probably understood to be a PE, being the dedicatory date at LC 9.14.0.0.0, a katun-end. (Thompson, 1950, p. 315; Morley guessed one CR period later). Date D' is connected to Date E by a long SS; if the latter date is correctly fixed in the LC, the LC* position of D', and Short Count names of both current katuns can be supplied, as below.

SS 11.14.5.1.0

D' (LC* 10.19.14.17.0) Ant. 6 Ahau 18 Kayab (in Katun 6 Ahau)

E (LC 9.14. 0. 0.0) 6 Ahau 13 Muan (end Katun 6 Ahau)

The SS lies before the two dates connected, a rare pattern. Date D', far in the past in the 13-baktun cycle counted from 4 Ahau 8 Zotz, is labeled as "anterior" by a special glyph.

As in our reconstruction for Dates AA and A of the Tikal text, there is interest in 6 Ahau dates separated by a distance exceeding 11 baktuns, and possible interest in Short Count katuns of the same name, though only here is the late 6 Ahau the katun-namer itself. Such long calculations are rare. The fact that the Short Count concept may have been involved in both texts tends to support a belief that it actually was involved in both.

At Copan, Date E (as Thompson places it) ends the same katun 6 Ahau in which our Tikal priest may have made his calculations, dieing thereafter within the same katun. Its name may have conditioned his interest in the non-period-end 6 Ahau

dates, AA and A. At Copan, with Date E as the katun-namer itself, this is more obvious.

In both texts the early 6 Ahau dates are non-period-endings. In the Tikal text, from AA to A, and also from current katun-end to current katun-end, the distance is 11.1.0.0.0, a multiple of the Short Count period. At Copan, between the respective katun ends (but not between the recorded dates also) the distance is greater by just one Short Count period, being ..... 11.14.0.0.0.

The two texts must have involved substantially different esoteric problems, but I suggest there are enough common elements to claim that the Copan calculation tends to vindicate our Tikal period anniversary reconstruction, including Long Count assignments for all six dates. As to the postulated Short Count element, it should not be forgotten that Tikal Altar 14, which shows it so clearly, may well have been dedicated by the same priest who made the calculations for Miscelaneous Text 26. Such specific evidence of the Short Count concept in Classic times is wide-spread but rare. It must have been in mind many times when the text gives us no hint, unless in undeciphered non-calendrical glyphs. For any date, fixed in the Long Count, the name of the katun, lapsed or current, could easily be calculated in a minute or two. In fact, the changing augural values of the katuns of the short count may well explain the dominant katun pattern in time-marking by erection of monuments.

TABLE 1

| | | | | | |
|---|---|---|---|---|---|
| Date A: | 6 Ahau | 8 Mac | bracket | 1 (katun) | 11 baktuns |
| Date B: | 8 Ahau | 8 Mol | bracket | 2 (katuns) | 11 baktuns |
| Date C: | 10 Ahau | 8 Zip | bracket | 3 (katuns) | 11 baktuns |

NOTE: Completed distance numbers in descending order as in IS are 11.1.0.0.0, 11.2.0.0.0 and 11.3.0.0.0; bracket is Thompson's Glyph 11 ("line of dots").

TABLE 2

| *Vertical Intervals* 11.1.0.0.0 | | | *Vertical Intervals* 11.2.0.0.0 | | | *Vertical Intervals* 11.3.0.0.0 | |
|---|---|---|---|---|---|---|---|
| AA | 6 Ahau<br>3 Zec | ( 4.1.0) | BB | 10 Ahau<br>3 Zec | ( 4.1.0) | CC | 1 Ahau<br>3 Zec |
| A | 6 Ahau<br>8 Mac | (1.4.1.0) | B | 8 Ahau<br>8 Mol | (1.4.1.0) | C | 10 Ahau<br>8 Zip |
| AAA | 6 Ahau<br>8 Zip | (2.4.1.0) | BBB | 6 Ahau<br>13 Zec | (2.4.1.0) | CCC | 6 Ahau<br>13 Pop |

TABLE 3

| | | | | | |
|---|---|---|---|---|---|
| AA | (LC* | 11.10. | 0.1.0) | ( 6 Ahau | 3 Zec) |
| | | 11. 1. | (0.0.0) | | |
| A | (LC | 9.11. | 0.1.0) | 6 Ahau | 8 Mac |
| BB | (LC* | 11.10. | 4.2.0) | (10 Ahau | 3 Zec) |
| | | 11. 2. | (0.0.0) | | |
| B | (LC | 9.12. | 4.2.0) | 8 Ahau | 8 Mol |
| CC | (LC* | 11.10. | 8.3.0) | ( 1 Ahau | 3 Zec) |
| | | 11. 3. | (0.0.0) | | |
| C | (LC | 9.13. | 8.3.0) | 10 Ahau | 8 Zip |

NOTE: Matter in parentheses not recorded; LC* positions for Dates AA, BB, CC, counted from 4 Ahau 8 Zotz.

TABLE 4

EXAMPLES OF ABBREVIATION IN FOUR TYPES OF DISTANCE NUMBERS

| | | *Type* | | *Distance* | *Number* | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Tik T. I, L3 | SS | | *18* Kin | *7 Uin* | | | | |
| 2 | Nar St. 29 | SS | | *0* Kin | *0 Uin* | *0 Tun* | *1 Kat* | | |
| 3 | Tik T. IV, L3 | SS | | 0 Kin | 0 Uin | *3 Tun* | | | |
| 4 | Yax St. 12 | SS | *SSIG* | *6* Kin | 0 Uin | *10 Tun* | | | |
| 5 | Tik St. 19 | PAn | | 0 Kin | 0 Uin | 0 Tun | *1 Kat* | | *"expiration"* |
| 6 | P.N. Jade | PAn | *"end"* | 0 Kin | 0 Uin | 0 Tun | *1 Kat* | | |
| 7 | Yax L9 | PAn | | 0 Kin | 0 Uin | 0 Tun | *2 Kat* | | |
| 8 | P N. St. 12 | PAn | *bracket* | 0 Kin | 0 Uin | *6 Tun* | *3 Kat* | | |
| 9 | Pal Cross | PE | *"end"* | *13 Bak* | 0 Kat | 0 Tun | 0 Uin | 0 Kin | |
| 10 | Tik St. 19 | PE | | 9 Bak | *18 Kat* | 0 Tun | 0 Uin | 0 Kin | *("end"??)* |
| 11 | Tik Alt. 14 | IS | *ISIG* | *9 Bak* | *13 Kat* | *0 Tun* | *0 Uin* | *0 Kin* | |
| 12 | Car St. 8 | IS | *ISIG?* | *9 Bak* | *19 Kat* | 0 Tun | 0 Uin | 0 Kin | |

NOTE: Underlined matter only recorded, the rest suppressed; terminal date of Example 2 is a Period Anniversary but defined by a normal Secondary Series. Examples 1 and 11 are normal Secondary and Initial Series at Tikal. In Example 12 an unusual glyph is read "baktun".

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