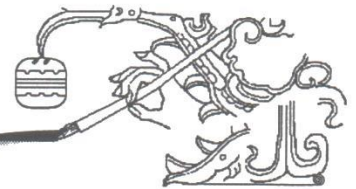


The Codex



At the
University of Pennsylvania Museum
of Archaeology and Anthropology

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Welcome to the



23 – year book” of **The Codex.**

TABLE OF CONTENTS



NOTE FROM THE EDITOR	1
ANNOUNCEMENTS	2
SITE-SEEING: REPORTS FROM THE FIELD: CONSERVING THE ANIMALS OF SITIO CONTE: AN EVOLUTIONARY JOURNEY	
by Julia Lawson	3
GOSSIP COLUMN	
by Lady Sharp Tongue	14
TWO SKELETONIZED POTBELLY-LIKE SCULPTURES FROM CHALCHUAPA, EL SALVADOR: THEIR POTENTIAL MEANING AND PURPOSE	
by Arnaud Lambert	15
TRAVELS IN AND AROUND GUATEMALA IN 1964 AND 1965, PART 1	
by Christopher Jones	
Edited by Anita Fahringer and C. Jones 5/18/2015	25
GRAMMAR IN THE SCRIPT: A RATIONALE FOR THE INITIAL DATE OF THE TEMPLE XIX PLATFORM AT PALENQUE	
by Hutch Kinsman	39



Now 3 years after the completion of its first k'atun, *The Codex* continues to grow both in size and quality of material found within its pages. This trend continues in the twenty-third volume.

We're in for a special treat in this issue of ***The Codex***. Chris Jones kept a journal while he was in the field in Guatemala in 1964 and 1965. The first installment appears in this issue, and further installments will appear in succeeding issues of ***The Codex***. (Just reading about his various travels by bus makes one thankful for today's modern conveniences.)

In the Site-Seeing Column, conservator Julia Lawson reports on a different way of seeing a site: in the lab, conserving ceramic animal figures and ceramics with animal motifs excavated from Sitio Conté, restoring them – as much as possible – to their former glory. Two potbellied sculptures from Chalchuapa are the subject of Arnaud Lambert's latest paper. In his Grammar in the Script Column, Hutch Kinsman discusses “ring numbers” and how they relate to the initial date on the platform at Temple XIX at Palenque.

Although *The Codex* has become a publication of substance in the world of Pre-Columbian and Mesoamerican studies, we do not plan to rest on our laurels. We welcome suggestions for new features and ideas for future issues that will build on our success.

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The Codex is a publication of the Pre-Columbian Society at the University of Pennsylvania Museum of Archaeology and Anthropology. Each volume of **The Codex** consists of 3 issues: October, February, and June.

Subscription/Pre-Columbian Society Membership information can be found on the last page of this issue.

We are proud of our tradition of publishing original papers in **The Codex** and are now soliciting contributions for future issues. Manuscripts should be no longer than 15 pages, single-spaced, including illustrations, and may be submitted on 3.5 disk, on CD, by e-mail, or hard copy. We welcome submissions on all aspects of Pre-Columbian studies and American studies as they pertain to Native American cultures. Please address all communications regarding **The Codex** to:

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**ANNOUNCEMENTS:
UPCOMING MEETINGS**

15th Biennial Symposium, Textile Society of America, "Crosscurrents: Land, Labor, and the Port," October 19-23, 2015. Savannah, GA. We will explore the ways in which textiles shape, and are shaped by historical, geographical, technological and economic aspects of colonialization and/or globalization. For further information, see the website: [4www.textilesocietyofamerica.org](http://www.textilesocietyofamerica.org)

"Connecting Continents: Archaeological Perspectives on Slavery, Trade, and Colonialism." Joint Thematic Meeting of the Society for American Archaeology and The European Association of Archaeologists, November 5-7, 2015. Curaçao. For more information, see the website: <http://www.saa.org>

114th Annual Meeting, American Anthropological Society, "Familiar/Strange," November 18-22 2015. Colorado Convention Center, Denver, CO For further information, see the website: <http://www.aaanet.org>

20th European Maya Conference: Maya Cosmology: "The Maya in a Digital World," 8-13 December, 2015. Department of Anthropology, University of Bonn, Bonn, Germany. For further information, see the website: www.wayeb.org or contact the local organizers at emc2015@wayeb.org.

2016 Society for Historical Archaeology Conference on Historical and Underwater Archaeology: "A Call to Action: The Past and Future of Historical Archaeology," January 6 - 9, 2016. The Omni Shoreham, Washington D.C. For further information, see the website: <http://www.sha.org>

117th Annual Meeting, Archaeological Institute of America, January 6- 9, 2016. San Francisco, CA. For further information, see the website: www.archaeological.org/annualmeeting

The 2016 Maya Meetings-working title: "Archaeology of the Río Pasión: Origins, Art & History, January 12-16, 2016. The University of Texas at Austin. For further information, see the website: <http://www.utmesoamerica.org/maya/2016-maya-meetings>

EXHIBITIONS:

"The "Great Inka Road: Engineering an Empire," June 26, 2015-June 1, 2018. Museum of the American Indian, Washington DC. This exhibit explores the foundations of the Inka Road in earlier Andean cultures, technologies that made building the road possible, the cosmology and political organization of the Inka world, and the legacy of the Inka Empire during the colonial period and in the present day. In 2014, the United Nations cultural agency, UNESCO, recognized the Inka Road as a World Heritage site. For more information, see the website: <http://m.nmai.si.edu>

CONSERVING THE ANIMALS OF SITIO CONTE: AN EVOLUTIONARY JOURNEY

by

Julia Lawson

Over a course of ten weeks in 1940, a wealth of Coclé gold, stone, bone, dental, resin and ceramic objects were excavated at the site of Sitio Conte, Panama, by archaeologist Dr. J. Alden Mason and his team. More than five thousand artifacts, said to have weighed over three tons, presumably with the crates, were shipped to the University Museum for study and display. To that end, a sampling of the primarily fragmentary pottery vessels was almost immediately reconstructed. These objects were then treated at least two more times over the years, including preparation for the current exhibition, *Beneath the Surface, Life, Death and Gold in Ancient Panama*.

The original reconstructions were carried out under the auspices of the Works Progress Administration in conjunction with the Museum's Ceramics Research Laboratory, which was led by Dr. Vladimir Fewkes from late 1938 until his death in December of 1941. Fewkes completed his graduate studies in anthropology at the University of Pennsylvania and eventually became a Research Associate in the University Museum, conducting archaeological studies in Europe and North America. He was particularly interested in ceramic technology and was a chairman of the Committee on Ceramic Technology and Classification of the Society for American Archaeology (Mason 1942). There are no specific records of the number of vessels reconstructed by the WPA workers, but Fewkes reported that they cleaned and accessioned everything from five burial sites, including the massive and important Burial 11.

The Sitio Conte ceramics were re-visited from 1968 into or through 1970 by American Section volunteers, who re-adhered failing old reconstructions and may have tackled some new vessels that were not done in the first round. (It is just as well that they did not continue past 1970, as the adhesive they employed makes current treatment work more difficult). There had been pressure for at least ten years prior to this from the Conte family, who owned the Sitio Conte site and had invited the excavation, for the University Museum to reconstruct all of the pottery (PU-Mu.1108). Unfortunately then as now, it is a very painstaking and time-consuming process, and the demands on the time of the Conservation Laboratory are many and varied. We would love a chance to delve into the numerous boxes and bags of dusty sherds that no one has likely examined since they were packed up with newspaper and bunchgrass in Panama, but this remains a daunting and elusive project.

Art and artifact conservators like nothing better than to bring out objects that have been tucked away in basement storerooms for decades and to introduce (or reintroduce) them to new admiring audiences, whether in-house or public. So it was with glee that I and my Conservation colleagues and interns set about the treatment of

objects for *Beneath the Surface*.... We knew that the timeline for exhibit development would be quite compressed for various reasons, and that conservation needed to commence well before planning was completed. This is obviously not an ideal situation, but it gave us and the American Section keepers the opportunity to conduct numerous forays into storage to seek out the most intriguing specimens of Coclé design. Keeper William Wierzbowski strode into Conservation many times to say he just discovered a pot that we just had to come see. We could often be heard exclaiming that they *had* to include *that!*

A small number of ceramic pieces had been incorporated into the *River of Gold* exhibition that opened at the Museum in 1988 and became a long-running travelling exhibition, but these did not prepare me for the sheer exuberance of painted, and sometimes modelled, polychrome forms in typical red, black and purple. Many round plates and rectangular platters are resplendent with writhing interwoven dragon-like beasts with long spiraling tongues or tails, toothy gaping jaws and rampant claws. These last two features can appear in many forms, not just where one might expect them, such as in crocodilian designs.



Figure 1. Coclé plate 40-16-811 before treatment.

The first ceramic pieces to enter the Lab for *Beneath the Surface* were these plates and footed platters. Conservation treatment protocol involved disassembly of the previously joined fragments with solvent fumes, removal of the softened adhesives while retaining the original paint (a step far less simple than it sounds), cleaning away sooty grime from mid-century Philadelphia air and 19th century boilers, reassembly with stable, reversible adhesive, and sometimes loss compensation for gaps. We do not have a 'one size fits all' approach to reconstruction of objects in the Conservation Lab. Goals common to all treatments include achieving or retaining physical and chemical stability, and preservation of original material including residue and evidence of use.

The final level of reconstruction, however, varies according to the curator's preferences and the purpose of the exhibition, or of the object within it, *e.g.*, as an art object, a tool, an artfully designed utilitarian object, etc. Sometimes it boils down to what looks 'right', what best conveys the essence of the object, while of course sticking to the facts. No guesswork, flights of fancy or assumptions are ever employed to recreate lost parts or painted areas.

The finely painted and surreally appealing creatures of the plates and platters practically insisted that the final steps be taken to make them as complete as possible, and curator Clark Ericson had no objection. Enthusiastic endorsement would be a more apt description, actually. So early in the conservation and exhibit planning and design process, the plates that could not be refused, so to speak, were taken apart, cleaned up, put back together, and had their lacunae filled.



Figure 2. Coclé plate 40-16-811 after treatment.

Larger losses from missing sherds were filled with plaster, as generally had been done in the past, while gaps along break edges were filled with Paraloid B-72 acrylic copolymer bulked with glass microballoons and tinted with dry earth pigments. This latter fill type reinforces the joins and does not introduce any problematic water or wandering plaster residue. The vessels with the most interesting painted designs had the most loss of clay fabric along the edges for that very reason. These were the ones that appeared to have been reconstructed early in the field and/or by WPA workers. The adhesive of the original campaigns shrunk over the years, pulling fabric from both edges in the process. Removal of this, and later adhesive additions in some cases, inevitably left the gaps.



(a)



(b)

Figure 3. Pedestal platter, 40-16-1298, (a) before, and (b) after treatment.

You can see these fills along the break joins and in the lacunae, possibly raising the question of whether or not these should be visible. The answer at the Penn Museum is yes, they should. Unlike the aesthetic of many fine art museums and private collectors, we strive to present what is extant without trying to make it look new or unaffected by time and burial. When sprucing up an object for public consumption, we almost always adhere to the 'six foot six inch rule', whereby the object should appear either complete or at least legible from a distance, but readily reveal its non-original material or voids when viewed close up. Cracks between the mended sherds, and even voids, are left as is when they are not so visually intrusive that they interfere with the design. Entire continuous areas of loss, such as half of a plate, are almost always left uncompensated.



Figure 4. Plate 40-16-818 after treatment.

For similar reasons missing elements of the painted creatures are not recreated. Attempts to do so might not match what the original artist had drawn, so conservators are left with various options to make reconstructed pots presentable for display. A few of these techniques can be seen in the exhibition. Sometimes a solid background color is simply applied, or a much paler version of the lost design is filled in, or my personal favorite, in which the adjacent colors are stippled in rather amorphously. The look and feel of the object will usually suggest the option that will suit it best, when I'm given the latitude to do so. Breaks in plain linear designs such as rim bands were painted to match the color but not necessarily the gloss level.



Figure 5. Coclé plate 40-15-204 after treatment.

Returning to the subject of animal variety represented in Coclé ceramics, I was very taken with the array of turtle pots, only a small sample of which were selected for the show. Turtle vessel styles range from fairly realistic effigies, to highly stylized (not a surprise to anyone) geometric types, to minimalist. An example, of the latter is a small brown-slipped footed bowl with little protruding nubs beneath the rim representing the head, feet and tail, previously described simply as bosses. A much more fabulous example of the turtle group is this large carafe that was conserved by my colleague, Nina Owczarek. The carapace is dominated by a ring of repeating concentric circles with alternating red and purple centers. A very large spiral-painted, trumpet-shaped vessel neck rises from the center. The turtle's head, feet and tail are rather realistically depicted, charmingly so for the tail.



(a)



(b)



(c)

Figure 6. Turtle carafe, 40-16-934, (a) before, (b) during, and (c) after treatment.

Nina filled in losses only where compensation was needed for structural stability. More were not required for visual clarity, and the ease and safety of future re-treatment were also considered. As we well know, the more material one adds today, the more material someone may need to remove in the future. This increases the potential for loss of original clay and paint no matter how wisely we select our conservation materials for each project.

I usually find it very difficult to answer the question, “What is your favorite object in the Museum”, as I generally like whatever I’m currently working on, but this snake effigy vessel comes close. It became a sort of temporary mascot in the Conservation Lab while undergoing treatment, and for as long as I could keep him afterward. He almost has too much personality to be referred to as an ‘it’. His expression probably should not be interpreted as a grin, but it is impossible to react to it any other way. I often grinned back, and I know I’m not the only one. The vessel is one of those objects that was gleefully extracted from sub-basement storage, and I immediately claimed it for *my* workbench.



Figure 7. Snake effigy vessel, 40-16-282, (a) before treatment, and (b) after treatment.

The little snake, possibly a boa constrictor, needed surface cleaning, reassembly with contemporary adhesive, and a few small structural fills. Even though three sizable areas of loss remain, it still easily reads as a snake vessel, or a serpentine animal with two tongues and three feet to be precise. It seems to be a rare three-dimensional version of the creatures with elongated tongues and bodies that can be seen in the painted decoration on many plates and platters. The vessel has an opening in the approximate top center of the body and the tail likely functioned as a spout. The lacunae from losses actually allow an interesting look into the interior, and offer access for potential sampling for future residue analysis.

The snake’s conceivable rivals for cuteness, though perhaps not his charisma, are the armadillos. There is no denying their innate appeal, even in the one that has unfortunately lost its nose, giving it a rather mutant look. The upright armadillo survived burial amazingly unscathed, except for the vulnerable tail spout.



(a)



(b)



(c)

Figure 8. Armadillo vessels. (a) 40-15-72 before treatment; (b), and (c) 40-16-955 after treatment.

Ceramic conditions vary widely in the Sitio Conté collection, from extremely weathered objects that bear all the evidence of burial in a wet site for well over a thousand years, to those that appear much more recent. This bowl with a fish motif is another favorite example of the latter.



Figure 9. Bowl with fish motif, 40-15-75 before treatment.

I will leave you with two final examples of fun effigies, a frog in the more natural style and a human that is slightly less so. The frog, happily, is intact and required only minor surface consolidation, and cleaning with the aid of a soft brush and white vinyl erasers. (The first conservation treatment in which I ever participated as a pre-program intern employed erasers- a wonderfully low-tech method that amused me then and still does today).



Figure 10. Frog effigy, 40-15-197 after treatment.

Lastly, since the Coclé appear to have considered themselves to be an integral part of the region's fauna, I present to you this captivating human effigy pot.

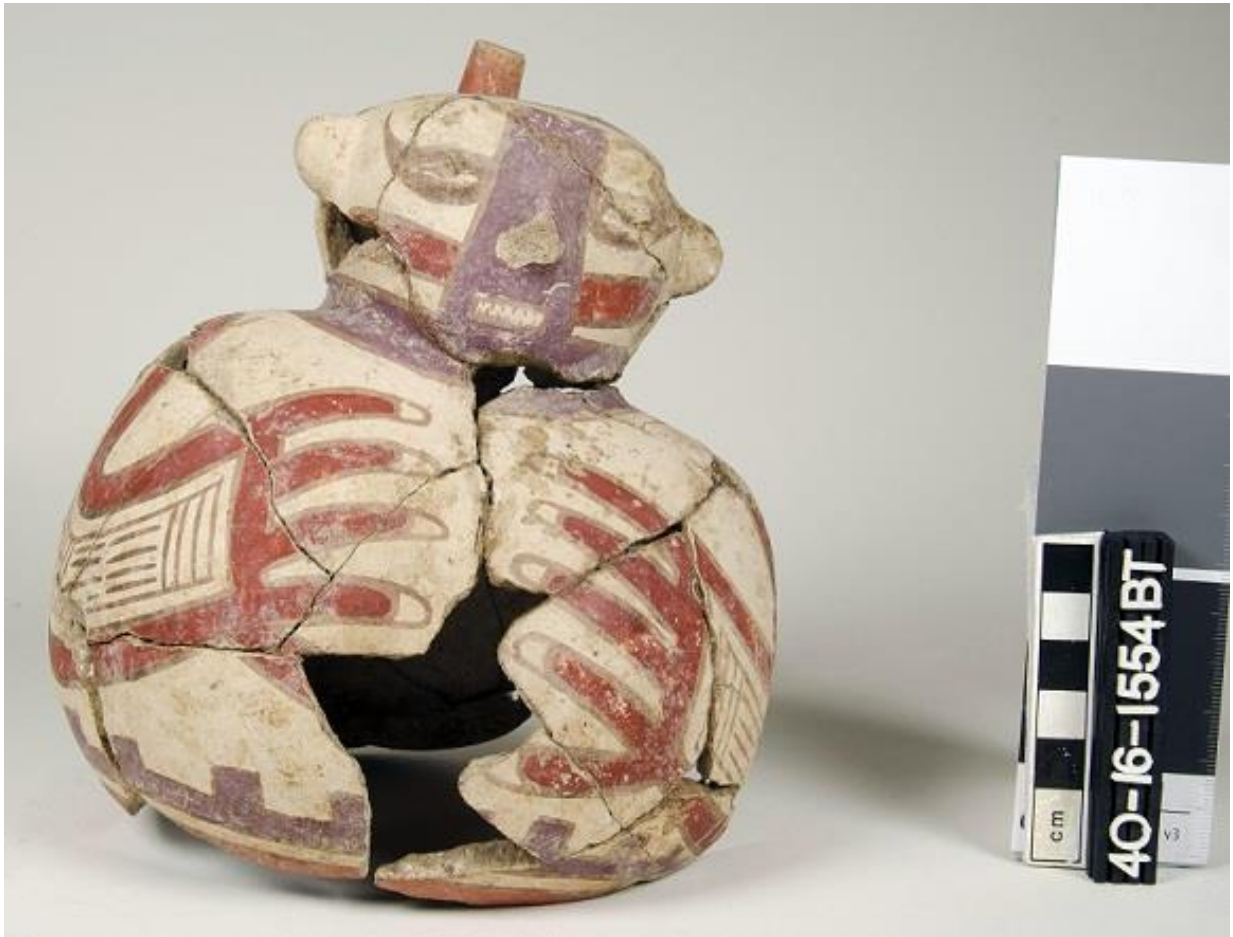


Figure 11. Human effigy pot 40-16-1554 before treatment

He attempted to hog more than his share of conservation time, first from summer intern Elizabeth Mauer who completed the grunt work of disassembly, cleaning and basic re-adhering of sherds over several weeks before heading off for her real summer vacation. I then spent a few more weeks fine-tuning the joins and filling the gaps, a time in which the term 'bonding' included more than just the use of adhesives.



Figure 12. Human effigy pot 40-16-1554 after treatment.

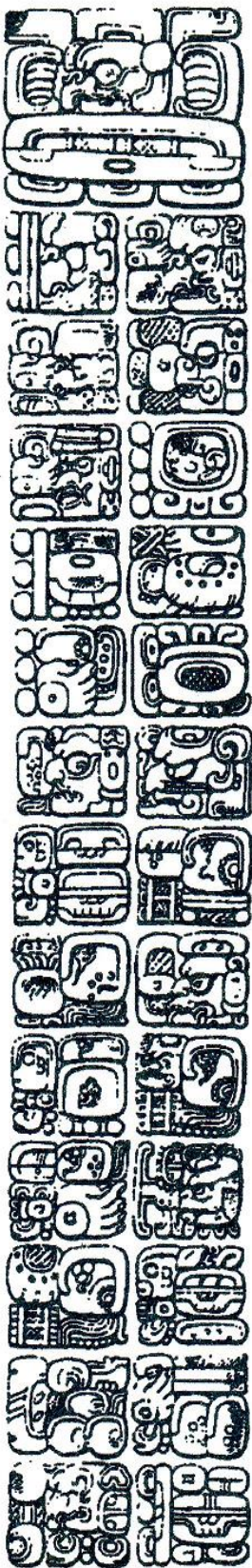
Though he was not bestowed with a nickname, like the “Fat Shaman” effigy vessel that had been in the Lab several years previously [see *Expedition*, Volume 56, Number 3, p. 20], he did a good job of conveying a bit of artisanal camaraderie from another time and place.

References:

Mason, J. Alden. Vladimir J. Fewkes. *American Antiquity*, Vol. 8, No. 1 (Jul., 1942) pp. 114-117. Society for American Archaeology

PU-Mu.1108. Box 1. Division of Objects, settlement of contract, 1953-1970. Sitio Conte expedition records. Penn Museum Archives.

THE GOSSIP COLUMN



Dateline 9.13.7.14.7
7 Manik' 0 Muwan
(November 21, 699)

Toniná. Our glorious lord, K'inich Baaknal Chaak, has decreed that today will be a day of celebration to commemorate the successful end of our long war with Palenque. Throughout the war, many lords from Palenque and its vassal cities were captured, and K'inich Baaknal Chaak plans to sacrifice 6 of them at today's dedication.

I was among the privileged few to tour the new ballcourt with K'inich Baaknal Chaak and his court. Never before have I beheld such an impressive ballcourt. The plaster floor is so smooth that you could slip and fall if you're not careful. The royal architect designed it as a sunken ballcourt to give the impression of entering the place of Underworld sacrifice. I must say that he was very successful; the hair on my arms stood on end as we entered the playing field.

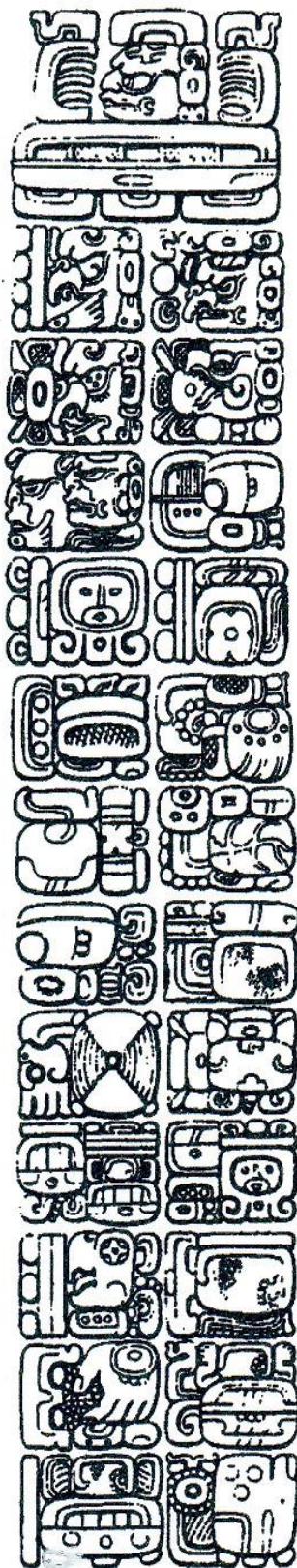
Plaster-sculpted images of the 6 captives to be sacrificed project from the walls. Their names are cleverly carved in their headdresses and on their torsos so that their names and fates will be remembered for all time. The most notable captives are Yax Akh and K'awil Mo'.

Thanks to my contacts in the Palace, I was allowed to speak with K'awil Mo' after he was selected for sacrifice. He was captured 7 tuns ago and is our longest-held captive. I asked him if he was surprised that he was to be sacrificed after being held for so long. He said he was, and he had always thought he'd be part of a prisoner exchange. I asked him if he wanted to say anything to his family, and he said to tell them that he loved them and that he died with valor. I was awed by his manner and dignity. Truly, he will be a good sacrifice at today's ceremony.

The gates open at noon today, and all citizens are urged to come early for a good seat. K'inich Baaknal Chaak promises a "great show," and a great game. (As always, all wagers are off the record.)

Tak samal, y'all.

Lady Sharp Tongue (Na Yeh Ak'il)



TWO SKELETONIZED POTBELLY-LIKE SCULPTURES FROM CHALCHUAPA, EL SALVADOR: THEIR POTENTIAL MEANING AND PURPOSE

by

Arnaud F. Lambert

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Abstract

Two partly skeletonized potbelly-like sculptures have been identified from different areas of the Chalchuapa archaeological zone in western El Salvador. I first observed these monuments in January 2006. To my knowledge, they have not been discussed in previous surveys of this sculptural tradition. On the basis of their archaeological associations and by analogy with Classic and Postclassic period depictions of skeletal figures, this brief report interprets these potbelly sculptures as ancestral effigies linked with fertility and the earth.

Introduction

Southeastern Mesoamerica is dotted with numerous potbelly sculptures. Although present at archaeological sites in the Maya highlands and lowlands, western El Salvador, and southern Mexico (Amaroli 1997; Guernsey 2012:83-84; Navarrete and Hernández 2000), their greatest concentration appears to be the Pacific Coast and piedmont of Guatemala at Late Preclassic sites such as Kaminaljuyú, Monte Alto, and Tak'alik Ab'aj (Love 2010; Parsons 1986; Rodas 1993).

Full-bodied potbelly sculptures were carved with a common set of morphological features that some researchers suggest alluded to human death and decomposition among other themes (Boggs 1969:50; Guernsey 2012:136-137; Lambert 2015). Such features include a simple cylindrical or corpulent potbellied body with schematic arms and legs wrapped around the abdomen. The figures are minimally adorned, usually with a loin cloth or collar. The head of a potbelly sculpture is one of its most characteristic traits and consists of closed eyes with heavy eyelids, large pendulous cheeks, a flattened nose, a mouth with slightly pursed lips, a bald head, and rectangular ears decorated with circular ear ornaments.

While one potbelly sculpture has been previously reported from Chalchuapa, i.e. Monument 7 (Anderson 1978:156; Guernsey 2012:85-86), continued excavation and survey work in the greater Chalchuapa archaeological zone has yielded evidence for two potbelly-like sculptures (Anderson 1978:161; Ohi 2000a:31) not reported in previous surveys of this sculptural tradition (Guernsey 2010, 2012; Parsons 1986; Thompson and Valdez 2008). An interesting and rather rare feature of these two potbelly-like sculptures is that their faces are partly skeletonized. The skeletonized face is more reminiscent of Classic and Postclassic period art of Veracruz and the central highlands of Mexico (Barba de Piña Chan 2004; Furst 1982) than the Late Preclassic period potbelly sculptural tradition of southeastern Mesoamerica and suggests that these potbellied figures may represent some aspect of Preclassic Maya cultural practice or belief that has not yet come to light. The present report seeks to

discuss the general features of these two sculptures and explore their possible significance and purpose.

General Features of the Skeletonized Potbelly-Like Sculptures from Chalchuapa

Chalchuapa is a very large archaeological zone located in the Río Paz Valley in western El Salvador (Ohi 2000b:10-11, 15; Sharer 1978:3). It encompasses four large mound groups: Tazumal, Casa Blanca, El Trapiche, and Pampe, as well as several smaller areas of cultural activity such as Las Victorias, Laguna Seca, and Laguna Cuzcachapa. The skeletonized potbelly-like sculptures from the Chalchuapa archaeological zone were reported in two areas. One is from the Tazumal group of structures and mounds. The other is from the Casa Blanca group. I will begin with a description of the sculpture from Tazumal – Chalchuapa Monument 27.

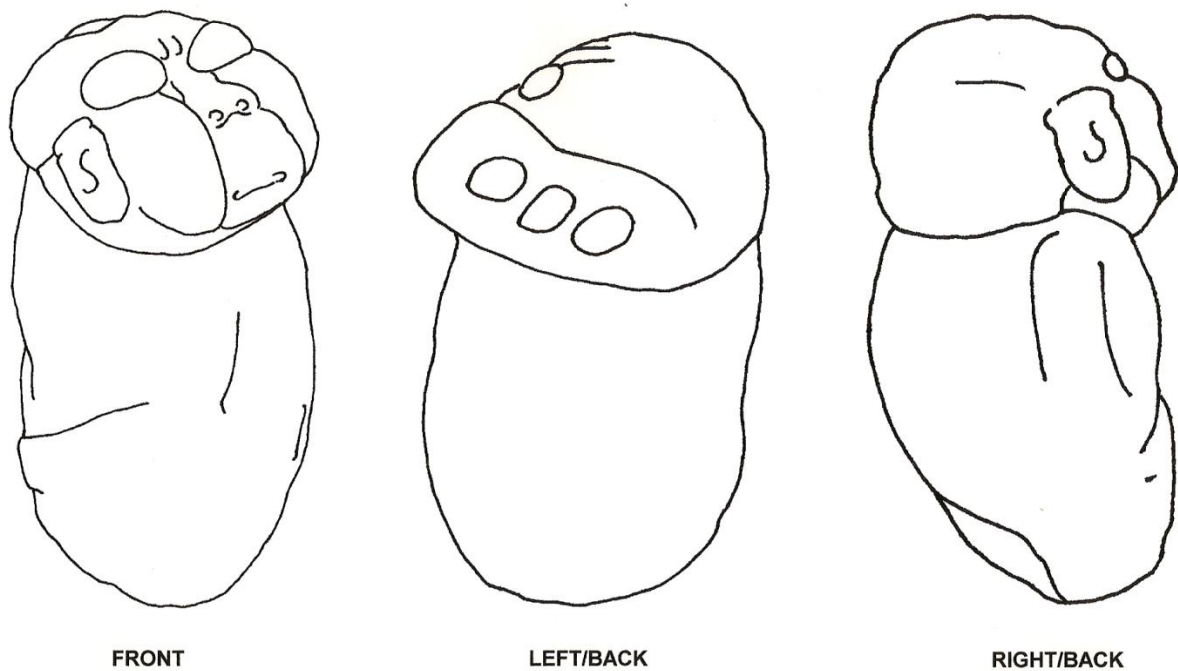


Figure 1. Chalchuapa Monument 27 (Tazumal Archaeological Museum, Chalchuapa, El Salvador). Unscaled drawings by the author.

Chalchuapa Monument 27 (Figure 1)

This potbelly-like sculpture was purportedly found north of the ballcourt (Structure B1-4) of the Tazumal Group in 1969 although this monument's original context and position have been questioned (Anderson 1978:161). Because its exact provenience is somewhat unclear, no associated archaeological materials have been reported, although a Late Preclassic period chronological framework seems warranted on stylistic grounds (Parsons 1986:93).

Monument 27 is carved in full round, low-relief from medium-grained andesite. Its overall height is 98 cm, its maximum width is 44 cm and its maximum depth is 43 cm. The figure consists of a slightly curved tubular body (60 cm in height) topped with a head characterized by physiognomic features typically associated with potbelly sculptures of the Late Preclassic period such as heavy, closed eyelids, large cheeks marked by a heavy line extending from the top of the nose, a broad nose with large nostrils, a slightly open mouth, a rectangular left ear with S-shaped folds, and a bald head. The left side of the head has a broad band with three curved vertical grooves. This band may depict a skeletonized jaw. In addition, the cylindrical body of the figure contains a shallow oblong depression on the sculpture's front facet. This may depict a navel. The right side of the body also has a series of shallow incised lines that may indicate the placement of an arm.

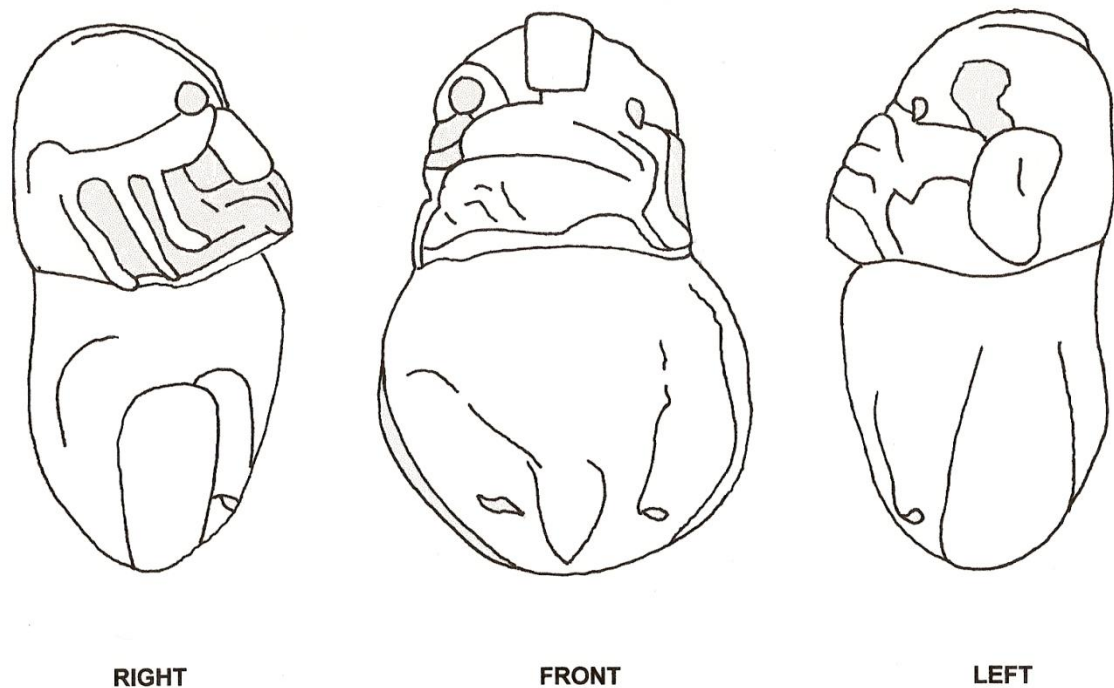


Figure 2. Casa Blanca Monument 2 (Casa Blanca Archaeological Museum, Chalchuapa, El Salvador). Unscaled drawings by the author.

Casa Blanca Monument 2 (Figure 2)

This potbelly-like sculpture was found on the northern face of Structure 2 in the Casa Blanca Group (Ohi, ed. 2000:iv). In its depositional context within Structure 2, this potbellied monument was associated with a grave (Burial 4) in the same stratigraphic layer (Ohi 2000a:28, Fig. I-I-9). The sculpture was found in a cavity which measured 1

meter along a north-south axis and 3.3 meters along an east-west axis (Ito 2000:194). The burial contained a partial male skeleton which had suffered from periodontitis prior to death (Lagunas Rodríguez 2000:81). The crowns of this individual's superior left canine and superior central incisor were also heavily modified through filing.

Casa Blanca Monument 2 is carved in full round, low-relief from a medium-grained volcanic stone. The exact type has not yet been determined. It is medium gray in color. Its overall height is 78 cm, its maximum width is 53 cm and its maximum depth is 40 cm (Ito 2000:194). The figure is characterized by many morphological features associated with Late Preclassic period potbelly sculptures, including large cheeks, rectangular blocks serving as ears, a bald head, and schematic arms extending around the body. No clothes are present and although the figure is nude, it is depicted in an asexual manner. Legs and feet also appear to be absent from this boulder sculpture.

The right side of the sculpture's face consists of skeletal features reminiscent of Chalchuapa Monument 27. Prominent features of the skeletonized portion of the monument include: a circular eye socket and a schematic rendering of the mandible. The skeletal and non-skeletal portions of the face are divided by a sagittal crest. Finally, there does not appear to be a pedestal base – suggesting that the figure was not intended to stand upright. In fact, its association with a burial in Structure 2 may indicate that it was intended to be covered.

Despite having a great deal of archaeological data on these monuments, the significance and purpose of the skeletonized potbelly-like sculptures remains enigmatic.

Recent investigations of the potbelly sculptural tradition have amply demonstrated that it was closely linked to the dramatic sociopolitical shifts that were occurring throughout southeastern Mesoamerica during the Late Preclassic period – i.e. the reorientation of political power from corporate groups to ruling dynasties, the focus on public monumental displays over domestic rituals, and the establishment of new iconographies of power associated with ancestor veneration (Guernsey 2010:229-230, 2012:149-152). While I concur with these interpretations, they do not specifically address the skeletal imagery present on the potbelly-like sculptures from Chalchuapa. Moreover, even though skeletal forms are found on Postclassic period Maya sculptures and codices from the northern lowlands, some examples of Maya parietal art in the Yucatán, and the Middle Classic period sculptures of the Cotzumalguapa urban zone (Chinchilla Mazariegos 2012; Miller 2007; Strecker 1983), such portrayals of skulls and bones seem to be closely tied to human sacrifice, the ballgame and representations of “death gods”. As such, these art works do not appear to be directly related to the potbelly sculptures of the Late Preclassic period. It is therefore necessary to examine the imagery of skeletonization outside of the Maya realm for other pertinent evidence that can be used to draw connections between these disparate forms of representation.

Skeletonization in Mesoamerican Art

In apparent contrast to the general themes surrounding later Maya depictions of skeletons, surveys of ancient Mesoamerican art outside of the Maya realm have shown

that representations of skeletons are intimately connected with images of reproduction, germination, and agricultural fertility (Barba de Piña Chan 2004). This duality is frequently expressed through the artistic devise of skeletonization - the partial representation of skeletal traits such as mandibles, long bones, or exposed eye orbits on living human figures, ancestors, or deities. Among the more well-known examples of this trope are depictions of Mixtec pulque goddesses in the *Codex Vindobonensis Mexicanus 1* (Furst 1982:214, Figs. 5 and 6) (Figure 3a) or the Mexica day-name *malinalli* (grass) (Figure 3b). Partially skeletonized beings in Late Postclassic codices frequently denote the lord of the dead, *Mictlantecuhtli*, but in the *Codex Laud*, this deity is also be present during the act of human conception and birth (Barba de Piña Chan 2004:105,107) (Figure 3c).

Occasionally, full-bodied representations of clothed skeletons are portrayed as being seated on thrones and adorned with headdresses. Such art forms are typical of Classic and Epiclassic Veracruz art (Furst 1978:104; Nicholson 1971:16) and, like some of the reliefs from Cotzumalguapa (Chinchilla Mazariegos 2012:66-67) (Figure 3d), have been frequently interpreted as “death gods” or references to the underworld (Barba de Piña Chan 2004:110). The adoption of skeletal imagery, particularly skulls, on hachas and yokes from these two regions (Scott 2001:56-57; Shook and Marquis 1996:176-181) also indicates a degree of continuity in their relationship to the ritual ballgame. However, recent studies of the clay sculptures and mural paintings at El Zapotal, Veracruz have also shown that these imposing skeletal figures were closely integrated with notions of rulership (Wylie 2008:236-237). Interestingly, fully skeletonized figures are also associated with fertility and human reproduction. A case in point is the so-called “death god” from Izapa Stela 50 (Norman 1973:, Plates 49-50). In this monument, a large umbilical cord connects a small human figure to the seated skeleton. A similar connotation is seen on the South Ballcourt Panel from El Tajín in which the “death god” watches over the sacrifice of a ballplayer and the journey of the dead player through the fecund watery underworld (Barba de Piña Chan 2004:100-101; Wylie 2008:242-243) – a symbolic relationship between death and fertility echoed in the ballcourt reliefs from Chichen Itzá (Miller 2007) and Bilbao Stela 5 (Chinchilla Mazariegos 2012:93, Fig. 61).

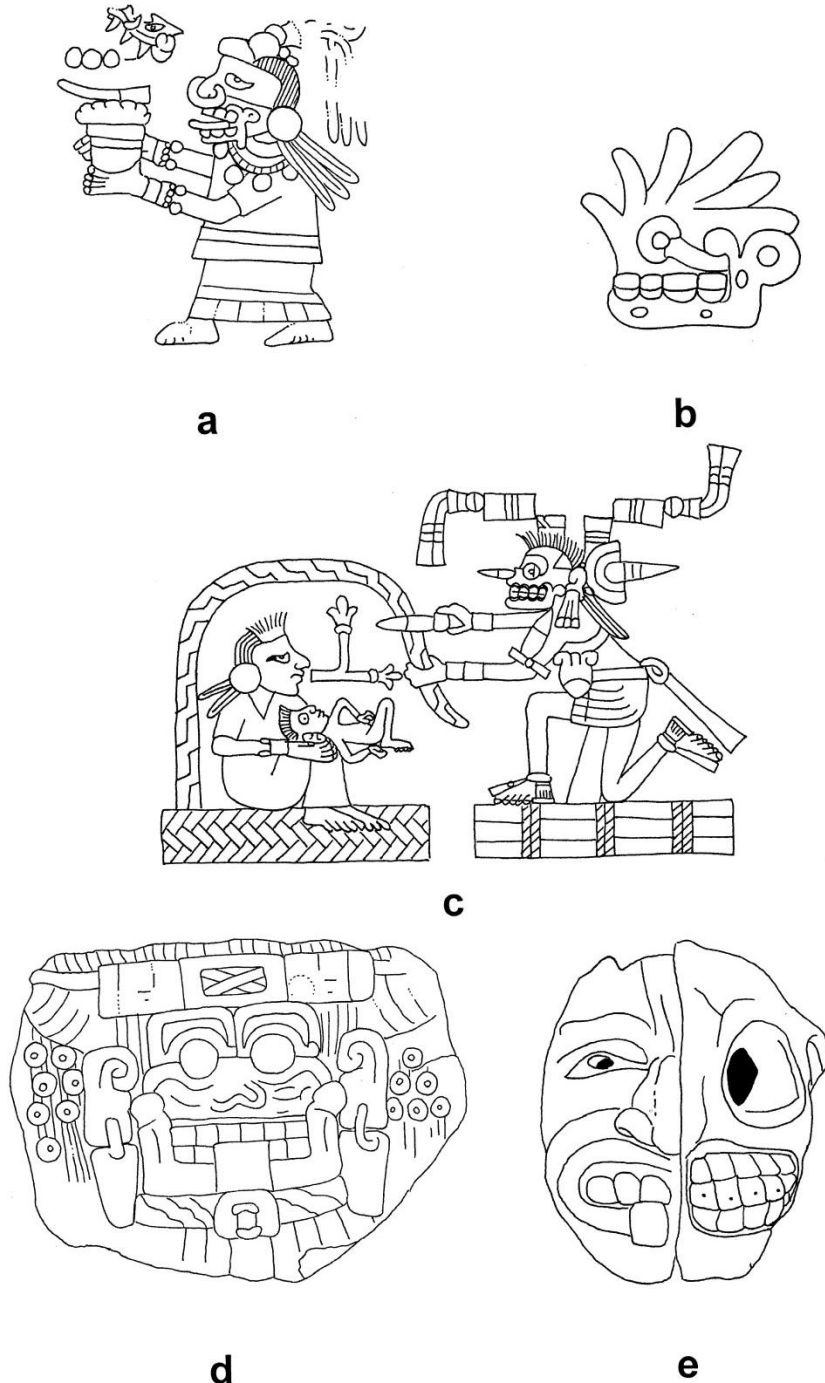


Figure 3. The skeletonization trope in ancient Mesoamerican art: (a) a skeletonized pulque goddess redrawn from page 25 of *Codex Vindobonensis Mexicanus 1* (1974); (b) the day-name *malinalli* (grass) redrawn from page 37 of *Codex Fejérváry-Mayer* (1971); (c) a Postclassic period representation of *Mictlanecuhtli* redrawn from page 27 of *Codex Laud* (1966); (d) El Baúl Monument 34 (Museo El Baúl, Guatemala); and (e) a ceramic mask from Tlatilco (redrawn after Barba de Piña Chan 2004:109, Fig. 23). Drawings by the author.

Another version of this trope, the half-skeletonized face, is also common in Mesoamerican art and is the form of skeletal imagery used in the Chalchuapa

potbelly-like sculptures. First encountered on a ceramic mask from the Preclassic site of Tlatilco (Barba de Piña Chan 2004:109) (Figure 3e), it combines a living and defleshed face within a single composition. Other examples of art works with such divided faces featuring skulls include a ceramic head from Soyaltepec, Oaxaca (Paddock 1970:206, Fig. 250) and a Remojadas-style ceramic head from Veracruz (Goldstein 1988:56, No. 48). The representation of a skeletal solar deity on a ballcourt marker from Teotihuacán (Barba de Piña Chan 2004:110, Fig. 24) could likewise be interpreted as referencing the same symbolic relationship. This dynamic bond between life and death is also recognizable in Cotzumalguapa, Guatemala where twin stelae, Bilbao Monuments 82 and 83, portray contrasting depictions of a living lord and a “death god” (Chinchilla Mazariegos 2012:111, Fig. 78).

Taken together, these various examples of skeletonization from Middle-to-Late Classic and Postclassic period Mesoamerican art lend a great deal of credence to the symbolic link between representations of skeletal figures, the ballgame, rulership, and the underworld in later Maya art. This association seems to have been present in the Chalchuapa potbelly-like sculptures. In the case of Casa Blanca Monument 2, the skeletonization of the figure may have been a reference to the dental disease that affected the elite personage (based on the pre-mortem dental modification) interred in Burial 4. In addition, Chalchuapa Monument 27 was plausibly linked to a ballcourt in the Tazumal Group. However, these observations do not address the use of the skeletonization trope on the medium of potbelly sculptures. It is in regard to this question that the probable iconographic link between skeletonization, ancestors, and fertility seems especially noteworthy. Barba de Piña Chan (2004:90-91) argues that the duality of life and death, as depicted in skeletonized figures, was seen as a basic aspect of existence in ancient Mesoamerica. Yet these were not opposing facts needing mediation; rather, life and death were seen as complementary – each flowing from the other. Some scholars have suggested that such beliefs were shamanistic survivals (Furst 1982:221). This may or may not be the case but at Chalchuapa, it is equally likely that use of the skeletonization trope was an outgrowth of the ancestral symbolism that was part of the potbelly sculptural tradition. Human death was already one of the salient aspects of the imagery of potbelly sculptures (Guernsey 2012:136-137). It is possible that the skeletonization of the Chalchuapa monuments not only reinforced this association but also served to highlight their importance as powerful signs of fertility and fecundity connected to public rituals of ancestor veneration.

Comments and Conclusions

The iconographic correspondences mentioned above suggest that the potbelly-like sculptures of Chalchuapa were singled out by the Preclassic Maya lords of Tazumal and Casa Blanca to be carved with skeletal traits on their faces. The archaeological contexts of Chalchuapa Monument 27 and Casa Blanca Monument 2 indicate that one potential reason these two monuments were skeletonized revolved around the complementary symbolic relationship between death and life in Mesoamerican thought and its salience in several cultural practices – ancestor veneration, rulership, agriculture, and the ballgame – that played an increasingly important role in the societies of the Late Preclassic period. It is probable that these figures served as expedient ways to encapsulate these complex beliefs and practices in sculptural form. Skeletonization was an important part of this process.

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TRAVELS IN AND AROUND GUATEMALA IN 1964 AND 1965, PART 1 BY

Christopher Jones

Edited by Anita Fahringer and C. Jones 5/18/2015

[Editor's note: I have kept to the style, spelling, punctuation, etc. of Chris' journal as much as possible in keeping with his "on-the-fly" entries, comments, and illustrations. In some instances, where we had difficulty in deciphering a word, the questionable word is in italics and boldface. I've occasionally inserted photographs to further illustrate his text. Chris' journal provides a glimpse of life in the field before the comfort of our modern conveniences. Future installments of his journal will appear in following issues of **The Codex.**]

Introduction

This book has hopes of being a diary kept faithfully day by day during my travels through Guatemala, Mexico and Central America from May to December 1964. I do not like to keep records or diaries. And the last and only time I did was in France in 1960, under the inspiration of John Pfeiffer, who loves to write. But it looks as if my adventures here will be full and interesting enough to make this effort worthwhile.

March 16, Saturday. Yesterday noon I arrived in Guatemala City from Tikal, where I worked at planning and recording excavations for 3 1/2 months. My beard had grown out full and my hair curled out at the neck. I looked so wild, with a straw hat on, that Sally Bates, expecting me to arrive that day, thought "What is the Pan. Am. Hotel coming to" when she saw me bounce into the lobby. Somehow one looks very different back in civilization. So I went out and got a haircut.



Figure 1. The author in the field.

Sally and I walked over to Joya Hairs' and Sue Miles' place and sat around chatting. Joya's rubbings of the snake stela and other stelae at Siebal are great. Even the glyphs are very clear. Only a rubbing captures the grandeur in the size and texture of a stela. Dale Nichols got \$300 for that black and red rubbing of Stela 9, it is

said. Hmm! Sue wants me to record some stuff at Kaminaljuyu (hereafter referred to as K.J.). Sure, I said, love to.

Saw Sally off to Mexico City, we had two drinks at the upstairs bar, and had ordered another from a funny chubby waitress when flight 502 was called departing. I told her we couldn't drink it since she had not even poured anything yet. But she insisted in a motherly way, so Sally was rushed down to the plane just before the doors slammed shut. The red light of the tail swung a great arc out toward the north and the north-west, and stayed suspended for ages in the lightning-flashy sky.

This morning I was up (awake) at 6:00 as usual but breakfasted at 7:30. Sue called to say she was coming to take me out to K.J. – good – went to the Museo Nacional de Antropología e Historia first. In the basement, where there are tons of broken monuments and pots, I saw Norma Garcia and Dora Guerra again, old friends from Tikal 1963, full of spirit and studying for exams and still working hard in the Museum. On what,? “on pottery, from all over.”

Also met a French student (who) who had just finished surveying the area of Huehuetenango north of Nebaj. Working on some pottery in the museum and planning to go back to the hills. I'll see if I can go too!

The mound in K.J. where Ismael Tercero is working had now a great hole in its rear, looking for the tomb. Issy is doing well with his plans and sections, but has to spend a lot of time working out the sequence on the front of the mound, which he had not been permitted to touch yet. A few probes will yield a lot of understanding. The back trench revealed a great thin shaft winding down from a platform to an ancient floor. What is it? No burial at the bottom of it. Sue suggested the Maya had dug it to check whether the tomb was still intact, as they had done at La Venta (??) or Maya grave robbers had dug it and had given up at the floor.



Figure 2. Kaminaljuyu.

Ismael is gaining all the confidence he lacked when he was stooging for me in the Twin-Pyramids at Tikal. Should he draw his sections more realistically? I think the **dirt** warrants it. I will look at the wall he drew more realistically. There are a lot of tip-lines and fill situations which lacking nice floors and walls, might reveal something. I think his plan is almost done as of what we know right now. The elevations let us do Monday.

Sue asked me to go with Joya and her to Siebal Tuesday. Things get crowded already what with Peter coming in on Thursday to go up to Chichi, with Sue Webster and Jane O'Malley. But we will be back by the time Peter gets there, I guess.

Also, busy Sue wants to go visit Gary Lowe in Tapechula (where's that?) sometime next week and wants to drive – so let's go, gang.

Anyhow – first day bodes well for a full season.

But if today's lunch at the Fu Lu Sho was any preview of Chinese Guatemalan cooking this year, ugh! It was too greasy.

Friday March 22 – This is a bad beginning for a “faithful day to today record” but this week was very active and I really didn't have time to write it all down. I just came back from hearing an afternoon piano concert by Srta. Victoria (?) Mimoso, who is interpreting 32 sonatas of Beethoven in 6 afternoons. She did a beautiful job (4 of them, among them the 1st and 3rd) with wonderful control and feeling combined. But she looked very silly with sparkly things in her frizzy wig-like hair, and an ill-fitting – old looking bright orange dress. She had a hulking big maid in another chinzy yellow dress who came out after the 2nd intermission to announce in a faltering shy voice that Miss Mimoso was dedicating this recital to her teacher. The old woman sitting behind me said “Muchas gracias” so it must have been her. She had been complaining loudly to her companions that the whole thing had been poorly planned, in the afternoons as it was, when everyone was working. It was all an injustice to a fine pianist who lets people step all over her.

On **Sunday, May 17**, Ginny Green and I went to Quirigua more or less on the spur of the moment. We didn't know the right bus line so we consulted the telephone book and called Lineas Pacificas – otherwise called Las Patojas – who said that they were leaving for Quirigua at 9:30 we got there at 9:00 and the bus left, toured the city for a half an hour, jammed scores of people on board then spent the next 6 hours stopping for gas stopping for anyone who stuck out his hand anywhere, cutting back on dirt roads to small towns all down the Motagua Valley. It was interesting, however, especially Sanarate, the one town we saw for more than 10 minutes. It was a railroad town with a wide-eaved green clapboard station and two old steam engines. Being Sunday, it swarmed with people and stalls of all sorts selling hardware, junk, and mostly food. The cowboy hats, the Indians, the animals, the oily tracks, the railroad trash and weeds, the great dry hills above the river, all made a terrific movie set. All you would need is a guerilla plot, fighting in Quirigua, ships in Puerto Barrios, a few Nacional Palace corruption scenes, and you have it, really Mr. Zanuck, it's a cinch.

By the time we got to Quirigua it was 3:30, rain clouds threatened, and I had lost interest in almost everything, The bus left us at the station which is a km. from

the road. Then we found that the ruins were another mile and a half, and there were no cars. So we found a guide (he found us) who contrary to the others promised us that it would not rain. So off we went on foot, walking along an old United Fruit company railroad side line which is used once a week or so. It's a well laid track, deep ditches for drainage, lots of gravel, even rails. In fact, one is as impressed with the rise and fall of the ancient Norteamericanos in Quirigua as of the ancient Maya. The company houses on stilts, the great hospital on the hill empty and dark, the cement house stilts along the track, large water towers beginning to crack, mysterious pipelines and canals weaving out through completely un-producing fields. "Why did the company stop planting here?" "I don't know." "Banana sickness?" "Maybe." Someone said later that the soil had been exhausted and that they were grazing cattle on it to replenish the minerals, But it is like the Maya; great public works, great projects quickly started and quickly ended, and the reasons never quite known.

The ruins of Quirigua are just 500 feet or so south of this main track on a small rise above the level valley, in a thick grove of large trees. There is an entrance through an alley of planted palms along a raised carefully laid flagstone walk which goes the entire length of the site. The walk is on the edge of a still nicely kept great rectangle of cut grass under huge shade trees. In this rectangle are all the monuments from Stela A to Zoomorph S or so and at the south end of the rectangle is a raised plaza with mounds.



Figure 3. Acropolis, Quirigua.

Oh the stelae are magnificent, high majestic, proud. They are the easiest to study, being upright, but the zoomorphs, exposed to the rain, are covered with mold and moss. Besides, the big iron fences are around two stones at once sometimes, so one cannot examine the glyphs real closely nor even see the forms of the huge animals themselves. The monuments are in good shape, except for one (Stela C) whose fence has been partially removed, and whose sides bear the marks of small people struck with the desire for immortality. We could only stay until about 5:30, so we saw all the stelae stood in front of them a while, but did not really study them. All the while a slow drizzle fell, making the grass and trees dark green and making the rotting forest fruits which were being crushed under our feet smell even more. Decay and abandonment surrounded us. We walked the long railroad back before dark. Ginny's feet had become badly blistered on the walk out because she had worn thin shoes and no socks, so we went back slowly. Again, lots of people were hanging around the station of Quirigua. Little shacks along both sides of the tracks all said Pulqueria. People didn't seem drunk or anything, but just standing around watching the busses and trains come in. We caught a Las Patojas bus at 6:45 and it went pretty fast through the night. We got back at about 11:00, completely exhausted.



Figure 4. Quirigua Stela C.

The next day, Monday, I got up late and moved to the Fernandez Pension on 4th St between 5th & 6th Ave. It is one of the last old-fashioned pensions in the city, recommended highly by Sue Miles for its food and atmosphere and is recommended highly by Hattula for its insistence on quiet and for its regulated meal-house. It's one story high, about 8 rooms, two baths and a dining-room around an open patio jammed with potted flowers & tall plants, sort of like the Posada Toledo in Merida. I have a square box-like room in the N.W. corner, high ceiling wooden bed, wardrobe, etc, and easy chair and a couch besides a bed, all comfortable but a little dull.

Tuesday at 8:00 I left with Dr. Sue, Joya, and three other women on a trip to Seibal; Lucy _____ is a Guatemalan-American – works for the tourist bureau here, Carol _____, is an American married to a Guatemalan, living here, and has 3 little kids. Mattie _____ is a Guatemalan living on a finca on the road to Salvador. It is very easy to go to Seibal. Aviateca flies there whenever anyone gets 6 people together to go, and flies anyhow every Thursday.

(Note: This account to be continued – skip to trip to USA, Mexico, etc., June 6 to July 6.)

July 6, 1964 – I am writing this in Santa Cruz del Quiche, ashamed of myself for not having kept up in my journal all the exciting and fast-going days since I left Guatemala City a month ago.

The purpose of the trip was to help my brother Stephen get married to Susan Ringler in Bloomington, Illinois. I flew direct to Miami and Cleveland – taking about 4 ½ hours in all, spent a week in Gates Mills, from which the family drove to Illinois. Bloomington is in the very center of the corn belt. Corn grows best in a very humid and very hot climate, and this place is perfect. Everything is air conditioned so one doesn't even get used to it at all. We stayed at the HoJo's Motor Court on the highway, had two parties, broke a window in our room, had other more formal parties, became friends with the Ringlers, made toasts at dinners, stood at the alter and generally went through with the rituals involved. But you really need such ritual when someone you know and are close to makes such a step.



Figure 5. Howard Johnson's Motor Lodge, Bloomington, Il, ca 1964.

Well, a few days after the wedding, Sally Bates came to my parent's with a red chevy stayed a day, riding and generally enjoying the "farm." Then we went off to Philadelphia, We stayed overnight at Polly Dow's and then Sally moved to a motel. As I thought (or hoped) she and the Dows loved each other. She thought they were wonderfully free and yet well brought up kids, and we all sat around in the kitchen and got looped on (ugh) Kahlua and vodka, talking away about everything, Next day Nate, Duncan and I went swimming in the quarry near Drexel Hill, Pa., the biggest

event of which was my refusing to jump from a high cliff into the water. I think (rationalize) that it had something to do with me not having my glasses on. It looked just like the Caribbean from a plane at 9000 ft, same size, waves and everything.

Well, Sally took me to the Station and I went up to New York, stayed overnight in Manhattan, checked my bags at the eastside terminal, and subway to the Worlds Fair. Huge crowds and lines at everything good, no lines and pure television advertising at the other places (i.e. G.17.). I missed the international and the whole western end of the fair but I was tired and got to the airport to go to Mexico. I got into Mexico late at night, told the taxi to go to the Hotel Moneda. At night it looked like a main street surrounded by old dark brick warehouses, but when I got up in the morning to look around I was surrounded with wonderful little tidbits of old architecture, the Moneda or mint (now the museum), the national palace, the great cathedral, the little shrine beside it (whose wonderfully elaborate façade I first saw from the Moneda. I had no idea I was near the cathedral and I thought, is this just a little church of Mexico? That was my feeling through most of my stay in Mexico, that around every corner something new and exciting appeared.

Around Mexico City I saw:

1. The museum of INAH, tiring but so full – few Maya pieces except the wonderful Palenque tomb and the Bonampak rooms. Aztec calendar stone gone to new Chapultepec Park museum.
2. A bullfight – last corrida was a young hero who was carried off the field and around & around the ring by young frenzied worshipers, who also ran to dip their hands in the blood and to ride on the bull as the mules hauled it away. This time, my newly reinforced anti-bloodshed principles held me back from a full enjoyment of it all. It's beautiful but it ought to be banned.
3. University City – like the air force academy, tall buildings & wide spaces dwarfed by great green mountains – wonderful murals – poorly stocked library.
4. Mariachis at Garibaldi Square – not good at all.
5. Teotihuacan – hot, sunbaked, but so monumental – really amazingly little to see: the murals of course are worth it in themselves – makes one think of Pompeii, but the restored buildings all look the same – same tablero & talud, same balustrades, nothing on top, same rooms surrounding them – the restoration seems a big tour de force – “lets blow them over with temples.” Pyramid of the Moon in restoration. Climbed up on the Sun – great view of the valley. Bought some figures, probably fake but nicely made.
6. Cuicuilco and Copilco – met there (Mark **Kinney**) a nice family whose names I have somewhere – American man who married a Mexican – all live in Mt. Vernon Ohio – I ate lunch with them, went to their house (of friends) – this led to:
7. Diego Rivera's museum not yet opened, but the friends of Mark's wife knew a friend who knew the guard, and I and senioritas of the house got a private tour of this fantastic place. It is like being in a huge, hollow, damp dark Egyptian pyramid with high narrow vaulted passageways, It's built all of this black spongy lava of the pedregal, looks like a pyramid of some sort, and has three or four floors packed with Don Diego's personal collection. It's mostly pottery, mostly Western Mexico (esp. Colima dogs) and marvelous fun to see, above you in each gallery is a stone mosaic done by D. D. himself – a serpent-tlaloc, rain and earth I sure creating corn with the help of man and the hammer & sickle. It

- is a genius' whim, ugly as Aztec sculpture yet somehow leaving you breathless, awed and greatly entertained.
8. Basilica of Guadalupe – sort of what I expected, but worth seeing.
 9. Chapultepec Park and Castle – the castle museum full of old viceroys' pictures, of bishops, of ladies, of poor Charlotte and silly old Maximilian
 10. The Instituto de Antrop. & Historia where-in I spoke to the director, and bought a few books (incl. Marquina's *Arquitectura Prehispanica*, Tlatilco, & two Maya & Huastec seminars for 20% off.
 11. Andy Seuffelt on a bus – she is now working for INAH on the new museum pining away for wonderful Tikal. Plans to publish the bones – not much interested in checking the accuracy of them.
 12. Dick Moskowitz, a Harvard friend whom I haven't seen since then – has MD, is now going for Ph.D. in philosophy at U. of Colorado. We got into several arguments about bullfights, ultimate goals of philosophy, etc. etc.

Did not see:

Tlatilco, Malinalco, Tepoztlan, Cuernavaca, Jai-alai, Ballet Folklorio, y mucho mas.

July 2. I left Mexico City on the 9:30 AM bus of Lineas Suroeste (Christobal Colon) for Oaxaca. A wonderful introduction to Mexico – a good fast Pullman bus – We climbed up out of the valley through pines and fog – at the top we went past the two volcanoes and down into this enormous and well used valley of Puebla. Saw there the town or a pass-through, drove past the fort of Zaragossa's odd victory, and down, down this rich valley. Just as I began to think that Mexico was all like this, we started to climb and from there to Oaxaca it was vast panoramas, narrow ravines rushing streams all now blended in with each other because I'm writing this after five days journey through mountains.

I do remember, though, a rural hydroelectric plant, new and proud. And farming on steep slopes, ploughed in beautiful contours by man, ox, and wooden plow. That was the day for plowing, I guess. Agriculture doesn't seem primitive here. The land is well used, but probably there isn't enough supply of fertilizer.

In Oaxaca I stayed in the Hotel Juarez. 20 pesos a night for room with bath. Went to Monte Alban with a person I met at the Marquis de Valle Hotel – Harry _____ an Uruguayan living in Chicago, a student of mathematics, philosophy and all learning. He and I shared the 60 pesos it took to get a cab to take us out there, and wait 2 ½ hours, which is what it takes to see that site. Way up on a high hill 500 ft over Oaxaca, the tombs and temples stretch out along the ridge for miles. The restoration is well done, showing clearly the re-finishings and re-buildings. I would have preferred to have spent more time looking at the figures and hieroglyphs for they were all over. Usually they were on large stones set into the wall, not only the "danzantes" or Pre-Classic crude figures in grotesque postures, but also classic figures, hieroglyphs, whole scenes, swimming people, most of which I had never before seen. I had not realized that Zapotec art was so rich.



Figure 6. Monte Alban Danzante with hieroglyphs.

The Museum in Oaxaca has the various periods well outlined by cases of pottery, and upstairs has a large room full of Tomb 7 the Mixtec (Monte Alban V) burial so rich in jade, gold, metals, carved bones, shells, pottery, and other things.

I found out in Oaxaca that I was supposed to be in Guatemala on the 3rd instead of the 5th of July, but there was no way to get to the border on the 3rd.

So I stayed to see Monte Alban, and boarded the bus at 7:30 PM the 3rd, and slept all through the Isthmus of Tehuantepec until dawn, when we came into Tuxtla. From Tuxtla the road goes over some more, very beautiful mountains to San Christobal de las Casas in a high valley. (In fact all the larger towns in the mountains seem to be in fairly large valleys.) The road drops from las Casas to Comitán, then to the valley at the border (Cuautemoc). I got in easily enough on my visa. The inefficiency of Guatemala really showed itself here, where the bus had to stop 3 times in 1000 yds – first to show Mexican visas, then Guatemalan, then Guat. customs.

Then I passed through the paisaje on a horrible *dirty* old bus to Huehue and then to Quetzaltenango, where I spent 2 nights, resting, then Quiché, Chichicastenango, then Guatemala City, where I found Mom and Dad. We went for a two day trip to Tikal, then a 4 day trip to Antigua, Panajachel, Chichí. which I enjoyed immensely because I had not seen any of it before.

So here I am now in:

July 31 in Coatipeque spending the night after having driven up with Joya Hairs and Sue Miles from the City, where I have been staying at the pension Fernandez and writing my thesis. Yesterday we saw Amatitlán (beautiful), Palín, a market town with an old church, and an enormous Cieba Tree spreading its branches over all the square and the neighboring houses.

The only archaeology we saw was at San Isidro Piedra Parada where a stela is in the garden of a finca house built on a large pyramid, with a face-mask looking down on a figure in early classic style, wearing a half mask over his mouth. Kilts, socks, and with a great coiled snake below in front of him. In front of his face is a neat panel of 4 glyphs. Another stela the more famous one with two figures facing each other, is half buried below the mound or hill on which the finca stands. Another fragment is in the stone chimney of the finca and another is ½ hour's visit away. It is called Tecun Uman but used to be called El Capitan.

Also we saw briefly Mazatenango, just off the road, and Retelhaleu also off the road, both about the same. In a little town called Cuyatenango (?) where we got our tire fixed, Joya was interested in some old carved doors in several houses, to be fixed up and put in restored old houses. One especially had brass fixings and great elaborate hinges. The plaza was small, the streets were cobbled except those which were being torn up for water mains or something.

August 1 evening – two days have passed. Yesterday we went up to Tapachula in the morning, wanted to go to Itzapa but rain prevented, so we just walked around the town and rested. Then early (6:00) the next morning we got up, had a snack and saw Itzapa from 7:30 to 9:30, drove back to town, ate breakfast and left at 11:30 or so. Then we saw Tonolá at around 2:30 or 3:00 and just now arrived in Tuxtla where we are luxuriously staying in the Hotel Bonampak on the west edge of town. I skip over these touring details for the sake of the archaeology, while it is still fresh in my mind.

Tonolá is a small town on the Tapachula- Tehuantepec road. In the plaza are 15 pieces of sculpture which have been taken down from a nearby site normally called Tonolá but which is called Iglesia Vieja in the town. There is another site, which is more perfectly known farther up on the mountain side – according to Sue about 1 ½ hr by foot, which has several stones in it. The 15 stones lie together in the plaza, a few in 2 or 3 pieces and some as fragments. Most are weathered. They seem to all be of the same period, that is Pre-Classic with strong La Venta or perhaps Itzapa influence or as part of a general wide-spread pattern. For example, one is a niched figure surrounded by the giant jaws of an animal like the bigger one at Itzapa. The Tonolá one is only about 4 feet long, about the largest one of the group. A common type is of an elongated boulder-shaped stone with a full figure carved in the round but in fairly low relief. The legs are bent as if he is sitting, the arms are crossed or folded in front, the head is large and ear plugs are visible. On 3 or 4 pieces there is a doughnut-shaped mouth giving a surprised look and the rest of the face is done by deep groves put into a flat surface, with no projection of the nose. Three other figures are full-figured standing complete with straight legs. This is not done in the round but on the flat front surface of the stone.

We took photos of the stones and of the kids watching us look at the stones, then went across the street to have a refreshment. There Sue started talking to a man who knew a doctor who had a collection. Then the doctor, Dr. _____ Renda? parked his car and walked down the street. We introduced ourselves, he kindly showed us the pieces he had in his office, (on the east side of the street that goes south from the center of the plaza, halfway down the first block) and in his home, (behind a red brick 2 story house on the road out west of the plaza a few blocks). The pieces in the office are: sherds of a pot with monkeys around the rim in all positions,

hands on head, hands over mouth, etc. Another piece was a necklace of animal teeth, incisors and molars, all heavily burnt.

The pieces in the house are: scores of figurines, some grotesque and comical (buck teeth, fangs, etc.), pottery of all periods, pre-classic (esp. a handled piece of red ware with fine incision) Mixtec wares. In the closet were some treasures, a whistle or ocerina with two figures: a little one riding on a larger one's back. Both have masks, the larger one a bird's, the smaller one's an animal's – behind them are two connected hollow balls for other sounds. The thing doesn't play, but has to be fitted with some kind of a reed or mouthpiece. Another superb piece is a jade-incrusted skull found with the skull badly crushed, he took it and transferred the small mosaics onto a well preserved skull. It has a gold headpiece of thin strips and gold eyeballs, and beautiful blue jade like the one on the cover of Covarrubias.

The restoration might not be exactly faithful, but the idea is probably right, and the effect is sensational. He has 3 plumbate pieces all from one tomb, a jar shaped with large carved design, a mask face on a smaller jar,



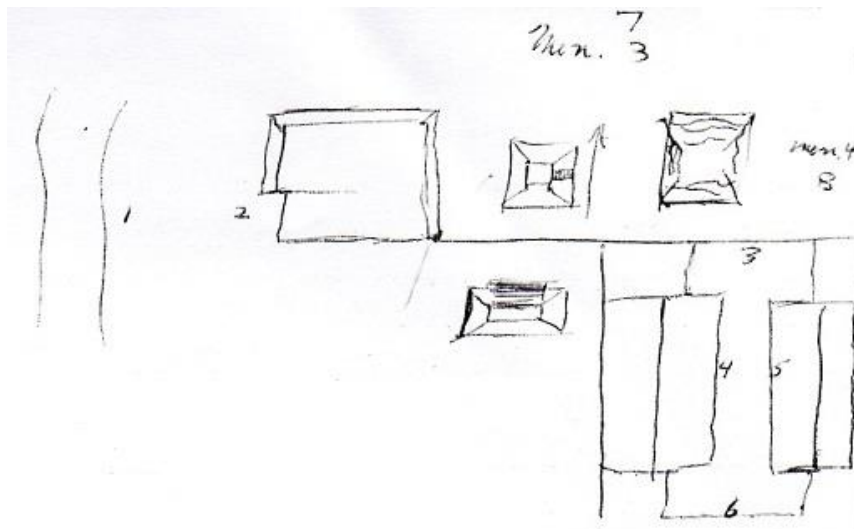
a wonderful warrior in two pieces, the body a fat pot resting on his knee and one foot, rectangular loincloth hanging down, an atl-atl in his right hand, a mace in his left. The head fits over the body, an old face, somewhat grotesque. He has a square bowl with 2 full figure jaguars or pumas on two sides and eyes on the other two sides, the eyes are in Teotihuacan style, painted, the top red, the bottom green. Also, in the office, was a nice bowl, perhaps of fine orange, with a large fine featured head on it.

The whole collection is extraordinary and worth a museum in its own right. Tourism ought to pick up through there and one might be built since it is on the road through to Guatemala.

Extra: there is a wonderful pot in the form of a coiled rattlesnake with highly painted coils and projecting head, period unknown – probably post classic.

Now, backtracking to Izapa which we saw in the morning.

Itzapa is 8 km on the Guatemala road east of Tamaulipas (take a bus marked Frontera). The road goes right through the zone, so there are two entradas with regular mexican Zonas Arqueologicas signs, on either side of the road. On the north side are the restored buildings, done by Gareth Lowe and the Mormons in 1963-4 in less than a year. It's a very good job. There is 3 or so large temples, some palaces, and a ball-court.



The monuments which I remember are as follows ① is a frog very large, looking very like a KJ. frog, with spotted ears, etc. a plain stela is behind it.

② is a large fragment of a stela practically un-weathered, what can be discerned is the figure of a man wearing a bar or yoke on his neck and the mask of a crayfish (what Peteneros call camerones) like in Bonampak. The rest is hard to see the whole of, though details are clear. Several dragon heads appear simple, down to basics of the eye & jaws.

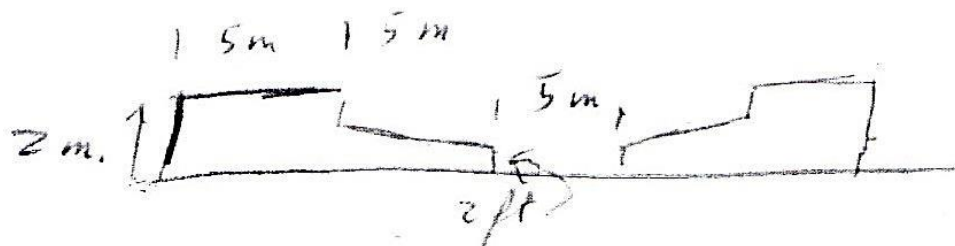


③ is an altar with 4 legs and a face & crossed arms projecting from the front.

④ is a stone figure, above it on the court is a large plain stone.

⑤ is carved ⑥ is a square column.

⑦ is flat and also carved but much eroded. All of these 4 stones were used as markers in the ball court, but come from various periods and are re-used, probably.

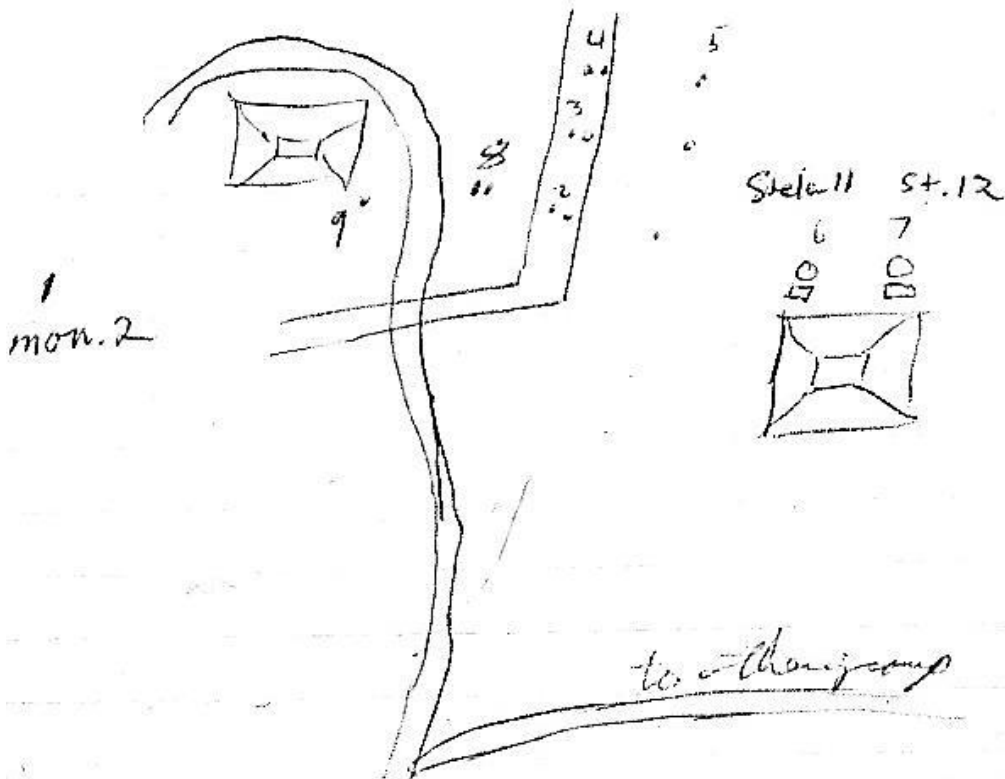


The ball court profile above, measurements are approx., from memory.

⑧ is a great jaguar spout about 6 ft long.

The other side of the road is the place of many of the best monuments. They are back about 500 m and can be driven but also easily walked, through groves of cacao trees. One comes across some plain stelae in the woods on the edge of a platform.

In a clearing farther on are the monuments:



① is a jaguar protecting a large seated figure within his mouth. The figure has a great rectangular Olmec head (the face is gone) and the whole thing is the same motif as LaVenta and Tonolá.

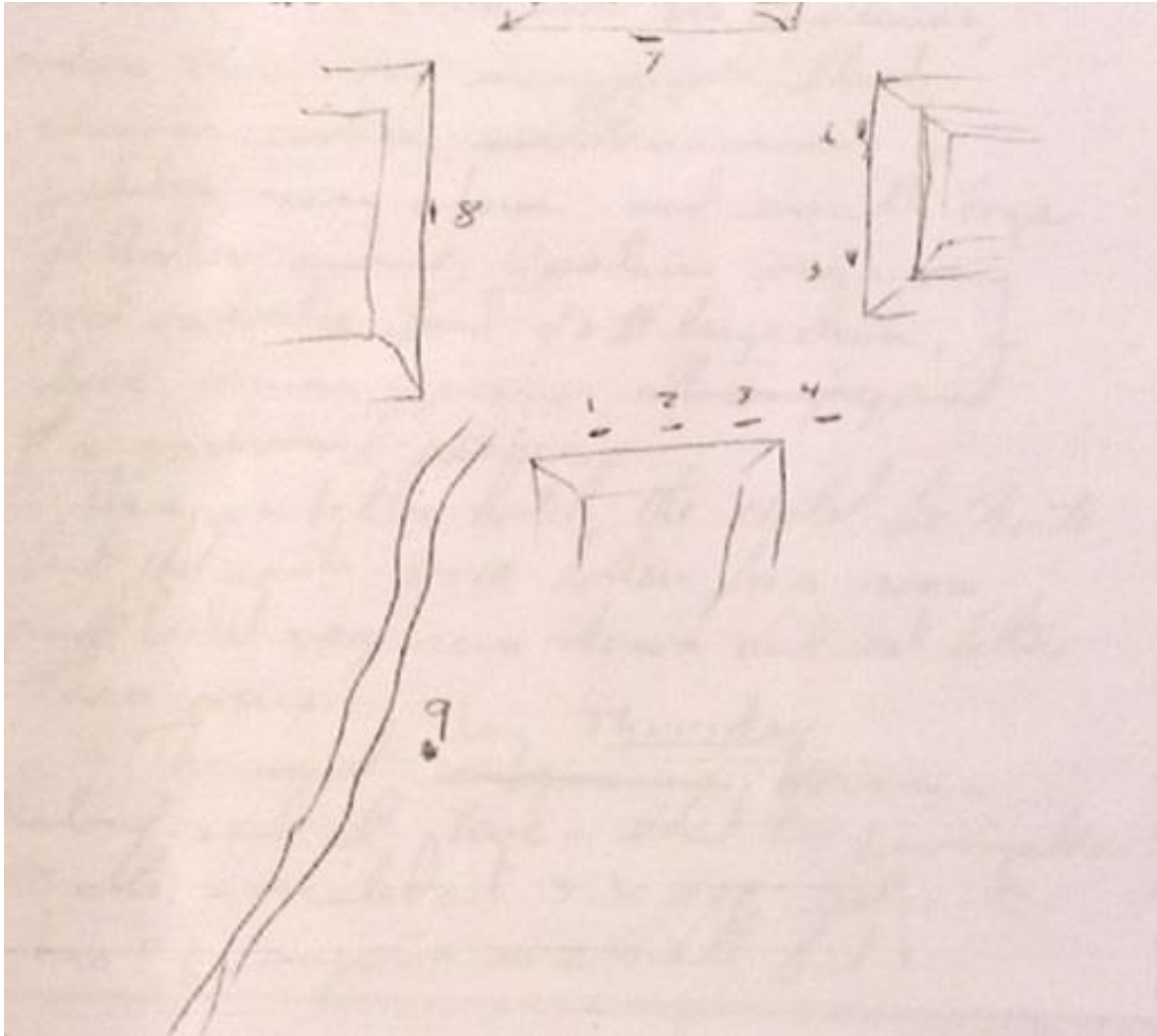
②③④ are badly weathered stelae with altars in front of them – hard to make out in the morning for the sun. In fact, noon or early afternoon would probably be perfect for seeing the designs.

⑤ are three drums or cyl. columns about 4 feet high with large 2 ft balls on them.

⑥ is a stela with deep carving showing a crouching jaguar snapping his jaws at a flying animal with 6 arms.

⑦ is a stela of very different stone and carving style, a grey stone and a flatter carving. It shows a decapitated jaguar suspended from ropes from 2 dragon masks, framed by a sky band. Figures below are offering incense.

⑧ is a carved altar shows a big bird, and the base of a finely carved stela showing only little figures burning incense in 2 incensarios with applique knobs – smoke curls up in three spurs or curls. The track to the right goes to another plaza, with a soccer field in its middle, ringed on all sides with stelae and mounds.



8 are 15-42 (?)

4=stela 5
3=stela 18
7=stela 2

In Tuxtla we tried to get into the regional museum, but it was closed. However, we could see a lot by peering in at the windows. There is a stela from Toniná in the form of a Copan stela, many Tonolá style pieces, but we couldn't see the pottery.

We drove up to San Christobal and stayed at Trudy Blom's great house,....(not continued).

GRAMMAR IN THE SCRIPT

A RATIONALE FOR THE INITIAL DATE OF THE TEMPLE XIX PLATFORM AT PALENQUE

by

Hutch Kinsman (jhkinsman@gatech.edu)

When Floyd Lounsbury wrote “A Rationale for the Initial Date of the Temple of the Cross at Palenque,” Thompson had suggested an analogy between the “ring” numbers found in the Dresden Codex and the initial date carved on the tablet in the Temple of the Cross. The reasoning Thompson used was that since the initial date occurred prior to the era date, 13.0.0.0.0, 4 Ajaw 8 Kumk’u, the distance number from the initial date to 13.0.0.0.0 could represent a “ring” number such as found in the Dresden codex. This so-called *ring number* could then be added to a *terminal date* to create an implied *companion number* (or *long reckoning* number as called by J. Eric Thompson (1972:21)). The implied companion number would have similar qualities with other companion numbers such as the ones found in the Dresden and contain factors of prime numbers and multiples of cycles familiar to the Maya such as the 260 day Tzolk’in, the 365 day Haab’ (“Vague” year) and the 584 Venus cycle among others. Lounsbury then analyzed the initial date (as a ring base date) of the Tablet of the Cross using this method and indeed determined that there seemed to be a viable implied companion number (distance number) that factored into numerous calendrical cycles. This author follows a similar procedure to devise a reason for the initial date found on the Temple XIX platform at Palenque. The Maya’s choice for the initial date seems to rest heavily on the date immediately following the initial date, also prior to 13.0.0.0.0, an event that involved the decapitation of the Starry Deer Crocodile. The two pre-era dates as carved on the platform are 12.10.1.13.2 (initial date) and 12.10.12.14.18 (Starry Deer decapitation date).

Review of Ring Numbers

The name “ring” number simply put originated from the fact that some numbers found in the Dresden Codex were encircled with a red-painted ribbon, band, or loop, which seemed to be enclosed at the top with a knot-like glyph (Willson, 1924, in Thompson, 1972:20). It was found later that the encircled number and a few other numbers that were part of this “ringed” number were to be subtracted¹ from the “era base”, 13.0.0.0.0, 4 Ajaw 8 Kumk’u to determine another date known as a “ring base date” or “ring-number date,” (Thompson, 1972:21). Found in the same column as this ring number are 1) a much longer number written in bar and dot form, 2) a calendar round date including the

¹ Because of the numerous and sometimes confusing terms connected with ring numbers, the author has found it advantageous to memorize the simple rule of whenever “ring number” is mentioned, think, “**ring number—subtract from 13.0.0.0.0.**” That procedure establishes the ring base (pre-era) date from which the remaining calculations can be made.

Tzolk'in (260 day calendar) date and sometimes the Haab' date, and finally, 3) 4 Ajaw 8 Kumk'u found at the base of the column. The longer number spans a time from the ring base date to some contemporary Maya date and is known variously² as “long-reckoning or LR” (ibid.), “companion number, CN” (Satterthwaite, 1964 in Lounsbury, 1976:211) and “long round”³ (Bricker and Bricker, 2011:76n). The long count date reached by adding the companion number to the ring base date is known as the “terminal date.” Some sources call both the ring base date and the terminal date base dates, adding to the confusion. When reading about the ring numbers, the author has found that the best policy is to first recall that the ring number is subtracted from 13.0.0.0 and then decide what definitions that author is using for the other numbers and dates.

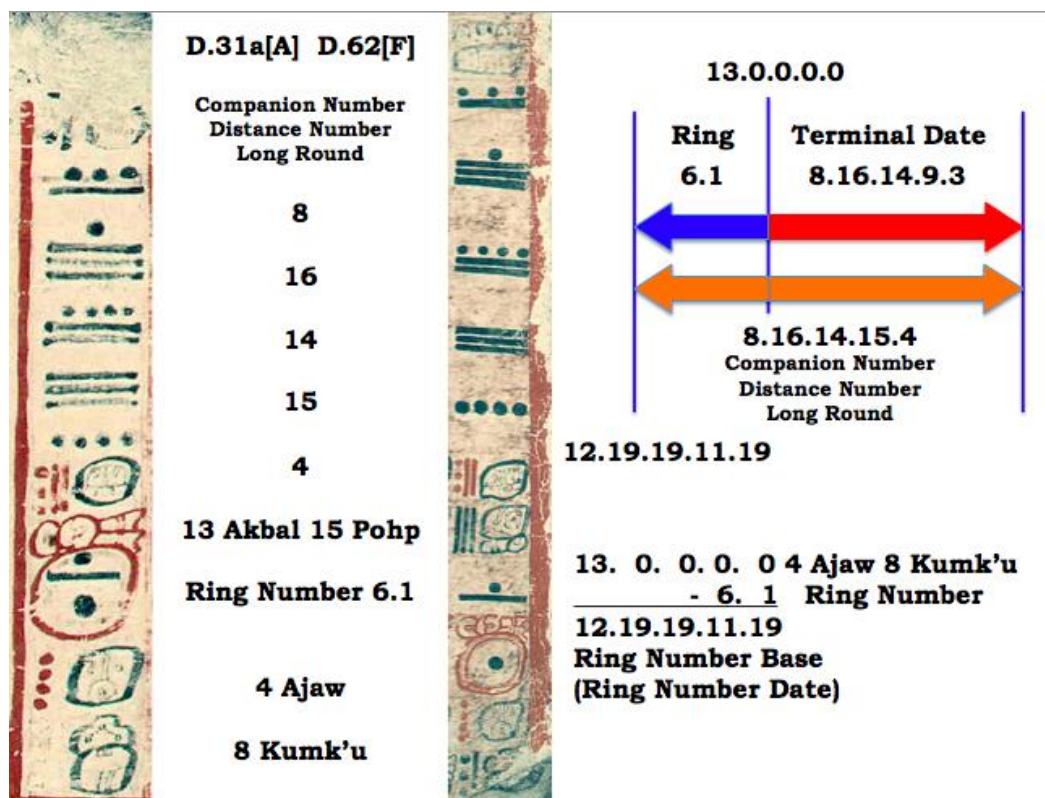


Figure 1. Example of Ring Number from the Dresden Codex, page 31aA and 62F (Förstemann, 1880, courtesy of www.famsi.org) including author's linear form.

² The author will use the term “companion number,” “long reckoning [LR]” and “distance number” interchangeably for the distance number connecting the ring base date to the terminal date though favoring “companion number” since this article closely follows Lounsbury and that is his term of choice.

³ “long round” seems to be an innovation by Bricker and Bricker since they state without explanation “What we call the ‘long round’ corresponds to Thompson’s (1972:21) ‘long reckoning’ and Closs’s (1986:349) ‘companion number’ “ (2011:76n). The author agrees with the origination of “long reckoning”, abbreviated to LR by Thompson, however, Lounsbury uses “companion number” in his 1976 publication (p. 211) and attributes the term “companion number” to Satterthwaite (1964).

An example of ring numbers and associated calculations in both column form and linear form is shown in figure 1. The example actually appears on two separate pages in the Dresden, once on page 31a, and again on page 62. The ring number appears in two variations, once with the bar and dot for 6 and the dot for 1 both enclosed in the ring (page 31) and once where just the dot for 1 appears within the ring (page 62), which is the usual appearance.

Lounsbury noted that there were “eighteen ring-number statements of this type in the Dresden Codex” and that “each of them, or each set of them, is accompanied by a table of multiples (and multiples of multiples) of some basic interval” (1976:212; also see Thompson, 1972:22-23). The companion numbers “are often, though not always, divisible by 260 or by 364 or by both (i.e., by 1820, the lowest common multiple of these) or by 780. Occasionally they are divisible by yet other ‘Maya’ factors,” (ibid, 212, Thompson, 1972: 21b; 24a). An example of a Companion number made up of a number of prime factors and several Maya cycles is given by Lounsbury, 9.9.16.0.0 (p. 212-213):

The characteristic of the companion number 9.9.16.0.0 is its divisibility, without remainder, by the following significant Maya calendrical numbers: (a) the tzolkin of 260 days; (b) the triple tzolkin and approximate synodic Mars year of 780 days; (c) the Maya calendrical year or haab of 365 days; (d) the approximate synodic Venus year of 584 days; (e) a 2340-day period, with a variety of applications, that is presented in the Dresden Codex;⁴ (f) the Venus-haab cycle of 2920 days; (g) the calendar round of 18,980 days; and (h) the Venus grand cycle of 37,960 days. Thus:

(a)	9.9.16.0.0 = 1,366,560 = 5,265 (260)
(b)	= 1,752 (780)
(c)	= 3,744 (365)
(d)	= 2,340 (584)
(e)	= 584 (2,340)
(f)	= 468 (2,920)
(g)	= 72 (18,980)
(h)	= 36 (37,960)

However, it fails with several other important Maya numbers, by which it is not evenly divisible; for example: (i) the ‘computing year’ of 364 days; (j) the seven tzolkin or five-computing year-year cycle of 1820 days that is the object of a number of tables in the Dresden and Paris codices; (k) the 819-day cycle that is recognized in several inscriptions at Palenque, Yaxchilan, and Quirigua; (l) the 81-moon unit of 2392 days that was the basis for lunar computations both at Palenque and in the Dresden Codex, and (m) the Dresden eclipse cycle of 11,960 days. Thus:

(i)	9.9.16.0.0 = 1,366,560 = 3,754 (364)	+ 104
(j)	= 750 (1820)	+ 1560
(k)	= 1,668 (819)	+ 468
(l)	= 571 (2,392)	+ 728
(m)	= 114 (11,960)	+ 3,120

⁴ “The number 2340, or 6.9.0 in Maya is (1) the period that harmonizes the cycle of the nine lords of the night with that of the tzolkin, and (2) the magnitude of the corrective foreshortening of the Venus grand-cycle. See Thompson 1950, pp. 208-211 and 224-227” (Lounsbury, 1978:213).

Lounsbury states that both the factors and non-factors are interesting in that the factors may suggest the purpose for which the companion number was created whereas the non-factors could be equally revealing in that the subject matter would not be related to any of the non-factors. Also, the companion number breaks down (usually) into several low prime factors, which is not the usual case for the terminal date numbers.

The prime factor breakdown for the above example is (page 213):

CN: 9.9.16.0.0 = 1,366,560 = $(2^5)(3^2)(5)(13)(73)$;

TDN: 9.9.9.16.0 = 1,364,360 = $(2^3)(5)(23)(1483)$

When comparing the companion numbers to the Terminal Date Numbers listed in Table 1 (p. 223), because of the many more factors that make up the Companion Numbers versus the Terminal Date Numbers, the “inference is that the companion numbers are *contrived numbers*,” (page 214).

Contrived numbers then would only be devised for a specific purpose, possibly connecting the terminal date event to a mythological event that “occurred” on the ring base date, the last date prior to era date 4 Ajaw 8 Kumk’u; “it would be reasonable to expect that the dates for which these prehistoric like-in-kind antecedents were sought must have had some considerable importance, whether in the history of human or of celestial events,” (Lounsbury, 1976:215). The question then might be asked, what would be the criteria for the occurrence of this mythological event prior to the creation (era) date? Besides somehow relating the two events in subject matter and the cycles or intervals found in the companion number, Lounsbury surmised that the length of the ring number should encompass not more than the length of the largest cycle or combination of cycles that made up the companion number. He stated it this way, “It looks as though the calendar priests were trying to project some significant combination of attributes of a Maya ‘historical’ date backwards to an earlier date that would *share those same attributes* and that would be *the last possible one to do so* before the beginning of the current chronological era,” (p. 214).

Initial Date of the Temple of the Cross

With this idea in mind, Lounsbury proceeded to relate the initial date of the Temple of the Cross, 12.19.13.14.0, 8 Ajaw 18 Sek to Pakal’s birth date, 9.8.9.13.0, 8 Ajaw 13 Pohp (p. 215-216). The hypothetical companion number 9.8.16.9.0 is composed of prime factors 2^2 , 3^2 , 5, 7, 13 and 83 and numerous multiples of Maya cycles, 364, 780, 819, 1820, 2340, 3276 and $[(71)(18,980) + 11,960]$. Since 8 Ajaw is common to both the implied ring base date and Pakal’s birth date, he noted it follows that the implied companion number must then be divisible by a multiple of the 260 day cycle. Then, assuming that the companion number should include as many prime factors as possible and using all the prime factors listed above except 83, Lounsbury surmised that the companion number should have the factors of $(2^2)(3^2)(5)(7)(13)$, or 18,380 days, 2.5.9.0 in Maya notation. Lounsbury calculated that the companion number

would be a multiple of 2.5.9.0 with the final 2.5.9.0 interval overlapping the 13.0.0.0 era date and as such arriving at a date earlier than the era date. Therefore starting at Pakal's birth date and working backward in 2.5.9.0 intervals, the first pre-era date should be the initial date of the Cross and that date would be $[(13.0.0.0) - (\text{ring number})] = [(\text{Pakal's birth date}) - (X\text{-multiples of } 2.5.9.0)]$. In other words, the last 2.5.9.0 interval would carry over 13.0.0.0 into pre-era time by the amount of the value of the ring number. That number turned out to be 6.14.0, the hypothetical ring number (p. 217). Figure 2 below diagrams the implied companion and ring number with the appropriate dates in linear form.

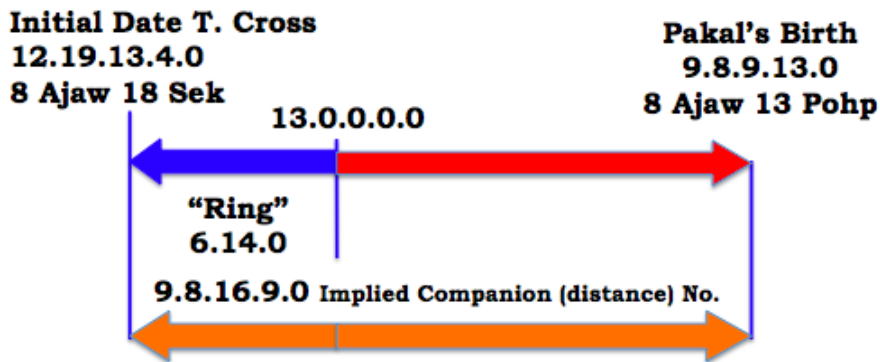


Figure 2. Initial date for the Temple of the Cross with ring number (6.14.0), terminal date (9.8.9.13.0, Pakal's birth date) and implied companion number (9.8.16.9.0) in linear form.

Initial Date of Palenque Temple XIX: Introduction

Figuring the rationale for the initial date carved on the platform in Temple XIX is slightly more difficult than the Temple of the Cross, but still employs a procedure similar to that of Lounsbury. The main difference with the platform is that the inscription begins with two dates prior to era date (not including the 819 day count passage, which does not figure in the author's computations) which must be accounted for in the calculations. The author contends that the conditions for the second pre-era date, 12.10.12.14.18, 1 Etz'nab 6 Yaxk'in must be satisfied first and included in the reasoning for establishing the first pre-era date, 12.10.1.13.2, 9 Ik' 5 Mol. The reason should become clear in the following discussion which begins with 12.10.12.14.18.

Rationale for the Date of the Decapitation of the Starry Deer Crocodile: Introduction

David Stuart describes the event involving one, possibly two crocodiles from passage S-2 on the Temple XIX platform as a ritual decapitation, including possible flowing of blood and drilling of fire; the crocodile(s), with a

characteristic “star” glyph as the eye, are likely a “poorly understood aspect of the ‘Celestial Monster’ or ‘Cosmic Serpent’ (2005:68-77, figures 39, 43, 44, 45, 46). This “event of great cosmological importance” occurs on 12.10.12.14.18, 1 Etz’nab 6 Yaxk’in and was the “work” (MacLeod, n.d.) of the triad deity GI (p. 68; platform from Temple XIX, E2F2-G1H1). Stuart notes that the Tzolk’in date of 1 Etz’nab may not be accidental since 1 Etz’nab is “1 Flint” in the central Mexican calendar and flint would be an instrument used for decapitation (ibid.). The reference to flint is the only hint by Stuart at a possible reason for the Maya’s use of this date; however, the author believes there is much more involved.

The author has mentioned previously that 12.10.12.14.18 correlates to 3298 BC March 17/18⁵ date when an Eta Aquariid meteor shower would have occurred as post-dicted by the Maya (2014c, 2015). The fire-drilling collocation of glyphs at E6 on the Temple XIX platform may also be an indication of meteors as discussed by Taube (2000:294). Two contemporary Maya dates seem to have a prominent connection to this mythological date, 1) a fire-entering ceremony on 9.15.4.15.17, 6 Kaban 5 Yaxk’in involving the Triad Deities as carved on the platforms in Temples XIX and XXI and 2) the ISIG long count date 9.12.15.0.0 carved on the front of Piedras Negras niche Stela 6 (Kinsman, 2015). Both of these dates are seemingly remarkable in the accuracy of their respective cycles, the fire ceremony with regard to the actual Jupiter sidereal cycle of 4332.589 days and the haab’ (365 day) cycle, and the Piedras Negras Stela 6 ISIG with regard to the length of the actual Earth sidereal year of 365.25636⁶ days. What is even more remarkable is that all three of these cycles are commensurate at the base date of the decapitation of the Starry Deer Crocodile on 12.10.12.14.18. Furthermore, 12.10.12.14.18, 3298 BC March 17/18 correlates to an Eta Aquariid meteor shower, one of the four major showers that are still seen today that the Maya would have observed prior to AD 900. If it is true that the Maya post-dicted this meteor shower on this date, it would indicate an intimate familiarity with annual meteor showers and the Earth’s sidereal year. See figure 3 below.

⁵ The author uses the notation of two dates with a slash to indicate a time of darkness, the evening of the first date and the morning of the second date. The author follows a correlation constant of 584286 (Martin and Skidmore) in computing the Julian Calendar dates, although in some cases a correlation constant of 584283 will also correlate to a meteor shower date because the particular meteor shower has a peak width of more than one day, as 2.5 day peak for the Perseid meteor shower.

⁶ At the press time of this publication, the most accurate length of the Earth sidereal year that the author could determine through various publications was 365.25636 days. In a future issue the author will attempt to have a more definitive source for this figure or more information as appropriate.

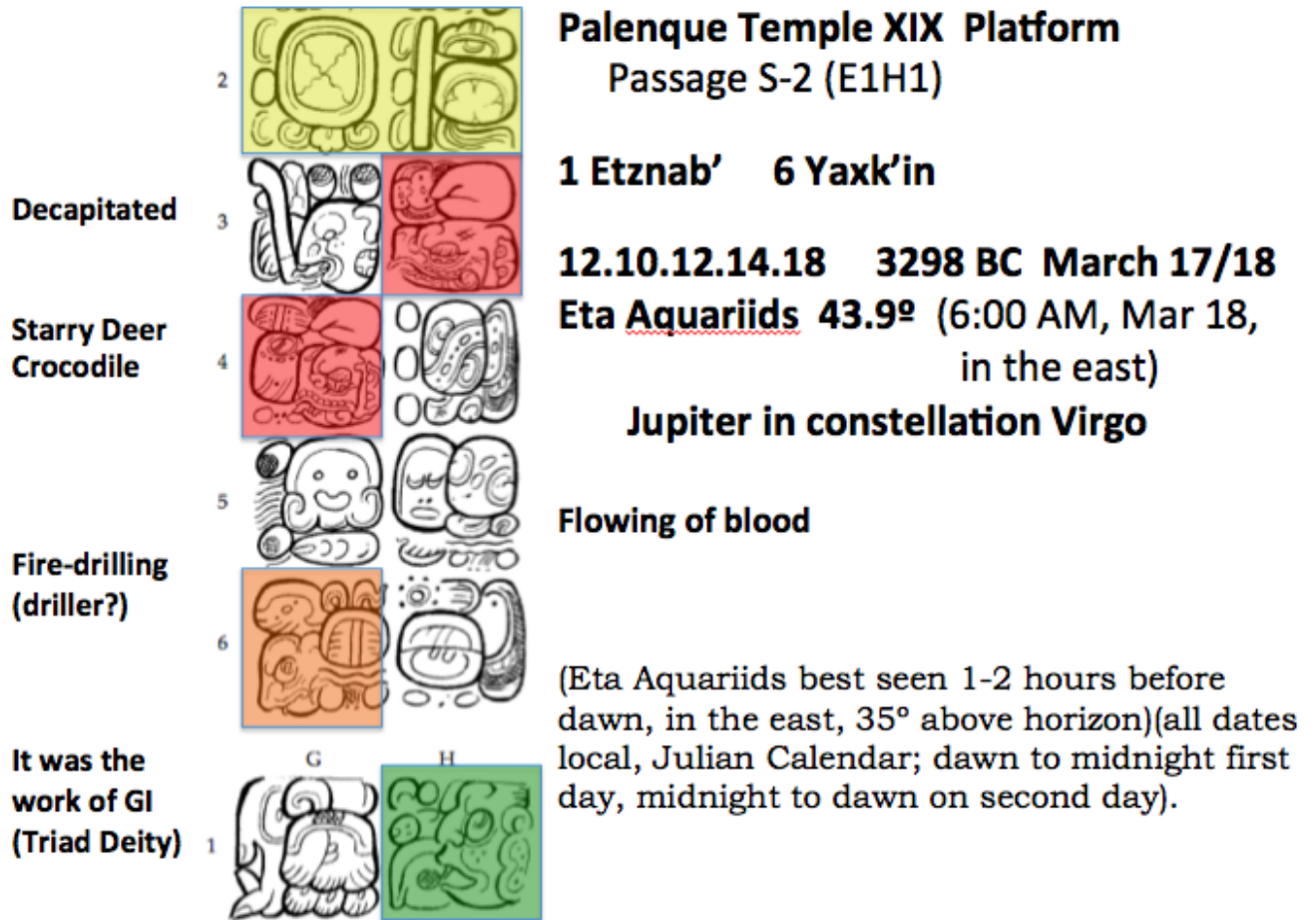


Figure 3. Decapitation of the Starry Deer Crocodile on 12.10.12.14.18, 1 Etz'nab 6 Yaxk'in: Passage S-2 from the Temple XIX platform.

Fire Ceremony 9.15.4.15.17: Discussion

The contemporary Maya date 9.15.4.15.17, 6 Kaban 5 Yaxk'in occurs on both platforms in Temple XIX and Temple XXI and not only equals a multiple of haab' cycles with 12.10.12.14.18, 1 Etz'nab 6 Yaxk'in [(4036)(365) minus one day⁷] but is also a haab' anniversary [(2)(83)(365)] of the previous date of 9.6.16.10.7, 9 Manik' 5 Yaxk'in, the road-entering of Ahkal Mo' Nahb II. If 43 days (2.3 in Maya notation, carved as a distance number on both platforms in Temple XIX and XXI) is added to the fire ceremony date, 166 [(2)(83)] haab's converts to 166 sidereal years, i.e., (166)(365) + 43 = (166)(365.259), yielding 9.15.5.0.0; both this date, 9.15.5.0.0 and Ahkal Mo' Nahb II's road-entering ("och-bij") date coincide with Perseid meteor shower dates (Kinsman, 2014a:119; 2014c, 2015). The fire-entering ceremony relates to the pre-era 12.10.12.14.18

⁷ The author is unsure of the reason for the lack of one day, but it may have something to do with the constraints from all the factors that determine the implied companion number as discussed below, or on some occasions, the event involved may be a night or darkness event (author states as only a suggestion).

by 340 Jupiter sidereal cycles $(340)(4332.762)$ (ibid.); the actual value of the Jupiter sidereal cycle is 4332.589 days, resulting in only a 59 day error over a 4000 year period, virtually undetectable (see figure 4 below). See figure 5 below for the linear relationship of the dates just discussed.

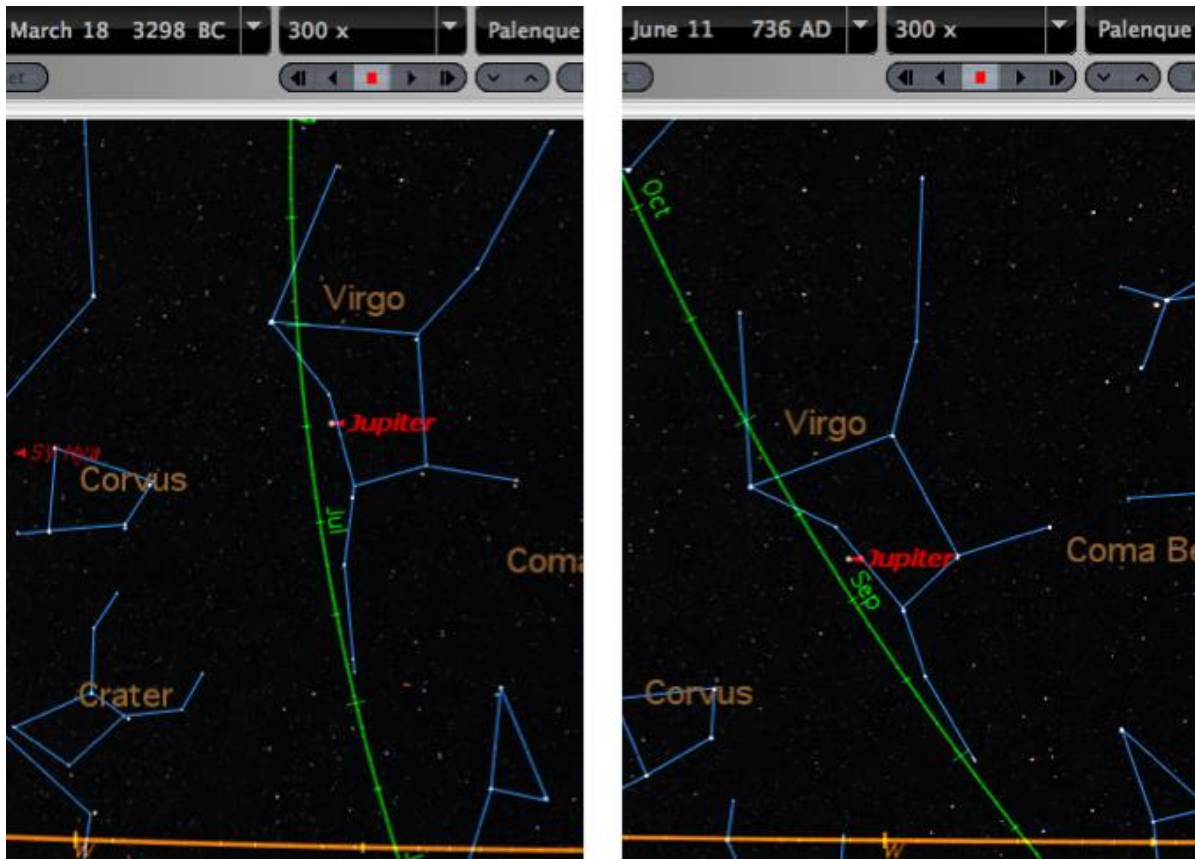


Figure 4. Jupiter shown in the constellation Virgo on the Starry Deer decapitation date, pre-era 12.10.12.14.18, 1 Etz'nab 6 Yaxk'in, 3298 BC March 18 and contemporary Maya 9.15.4.15.17, 6 Kaban 5 Yaxk'in, 736 AD June 11 (snapshots from author's Starry Night Pro Plus version 6.4.3, 2009 Simulation Curriculum Corp.).

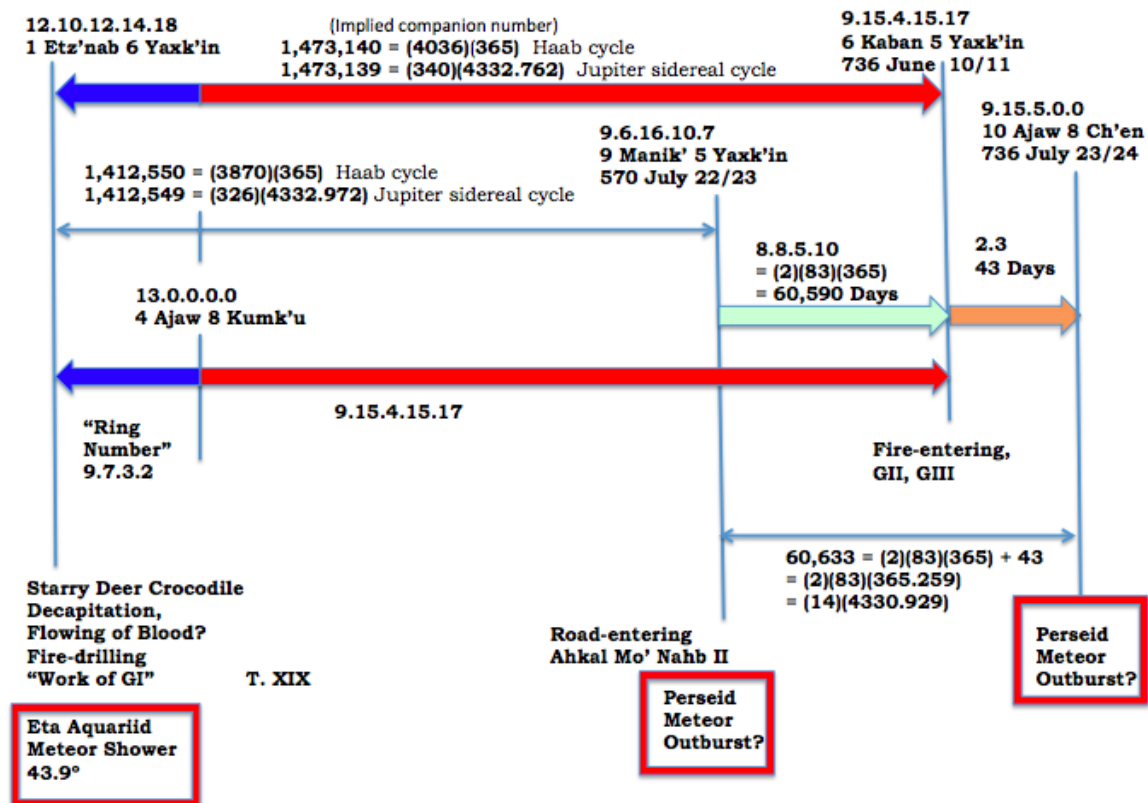


Figure 5. Linear depiction of dates discussed in the text.

Starry Deer Crocodile date 9.12.15.0.0 on Piedras Negras Stela 6: discussion

Maya Long Count 9.12.15.0.0, 2 Ajaw 13 Sip is carved on the front of Stela 6, a “niche” stela where the ruler sits encircled in a skyband, a Starry Deer Crocodile below the skyband, and a Principle Bird Deity at the top of the stela with twisted cords that stretch out over the top part of the skyband. The terminal date, 9.12.15.0.0 correlates to an Eta Aquariid meteor shower on 687 April 12/13 (April 13 at 4:36am local time) at a solar longitude of 43.9°, the very same solar longitude⁸ of the mythological Eta Aquariid shower in 3298 BC (Kinsman, 2015). The significance of equal solar longitudes is that the Earth is in the exact same position in sidereal space (in relation to the stars) on both dates, or to put it another way, the companion number connecting the two dates is an exact multiple of the Earth’s sidereal year. That companion number in decimal form is 1,455,182 days; $(1,455,182) = (3984)(365.256526)$. Since the actual value of the sidereal Earth year is 365.25636, the error is nearly 4000

⁸ Solar longitude is simplistically a point in sidereal space defined by a position on a 360° circle about the Sun. See Jenniskens, 2006:158-159 and Kinsman, 2014b:44-45, figure 4, for elaboration.

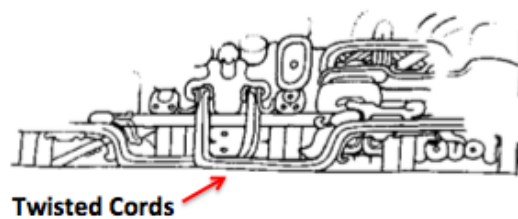
years is less than one day, a quite remarkable figure. If the distance number was 1,455,181 days, or one day less, the length of the sidereal Earth year would figure to slightly less than 365.25636; therefore, save for one day less, the value for the Maya calculated sidereal Earth year could not be more accurate. The companion number 1,455,182 also conforms to the 43 day additive formula discussed above for converting 166 haab's to 166 sidereal years by a multiple of 24, only here it appears that the Maya may have refined 43 days to slightly more than 42 and a half days: $[(24)(166)(365) + (24)(42.583) = (24)(166)(365.256526)]$. See figure 6 below.

Eta-Aquariid, solar longitude 43.9°
12.10.12.14.18



Palenque T.XIX PNG St 6
 3298 BC Mar 18.4 687 Apr 13.4
 12.10.12.14.18 -----> 9.12.15.0.0
 = 1,455,182 days
 = (3984)(365.256526)
 = (3984)(365) + 1,022
 = **(24)(166)(365) + (24)(42.583)**

Starry Deer Crocodile



Eta Aquariid, solar longitude 43.9°
Piedras Negras Stela 6
9.12.15.0.0

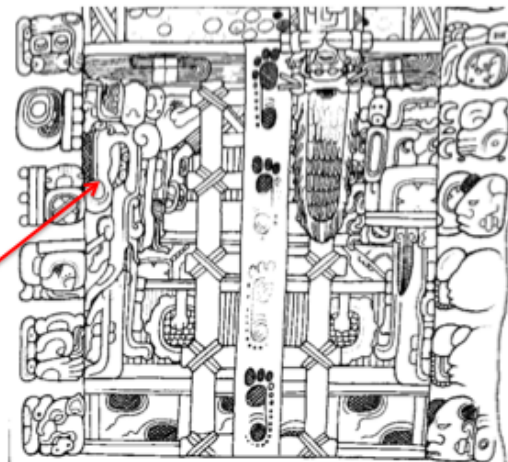


Figure 6. Relationship of the ISIG date 9.12.15.0.0 to the Starry Deer Decapitation pre-era date 12.10.12.14.18. The Starry Deer crocodile is found both on Piedras Negras Stela 6 and the text from the Temple XIX platform as are the twisted cords representing fire-drilling on Stela 6 and fire-drilling in the platform text (*joch-k'ahk'*, passage S-2, E6)(drawings by David Stuart). Fire-drilling and twisted cords have been linked to fiery meteors by Taube (2000:294). Dates shown in decimal form, i.e. Mar 18.4 and Apr 13.4, refer to the decimal equivalent of a 24 hour period, in this case the time is UT (Universal Time), 5 hours more advanced than local time, i.e. March 18.4 is 4:36 AM local time Palenque and 9:36 AM UT.

Determining the 12.10.12.14.18, 1 Etz'nab 6 Yaxk'in "Ring" base date

Given the accuracy of the numbers in the above discussion, the author believes it is evident that the important cycles to be considered in determining the appropriate "ring" base date are the Jupiter sidereal cycle (4332.762 days as determined by the Maya), the haab' cycle of 365 days and the Earth sidereal year of 365.256526 (as determined by the Maya) days. However one problem arises in that both the length of the Jupiter sidereal cycle and the Earth sidereal cycle involve fractions, thus making divisions into prime factors a difficult task. Examining Lounsbury's Table 1, we can see that except for a few cases, most companion numbers have several prime factors and those cases involve a ring number from the range of 17 to 2,200, most being in the hundreds, and therefore the majority of companion numbers have properties that involve multiples of many of the common Maya cycles as discussed above. However, there are three cases that Lounsbury considers "apparent exceptions or possibly 'negative' instances," which he does not believe carry enough weight to negate his hypothesis about ring numbers in general (p. 222). In fact, these cases bear a similarity to the task at hand in this paper. In the case of companion number 10.13.13.3.2, 1,538,342 both on Dresden page 31aC and 63c Red, 1,538,342 breaks down into the factors (2)(13)(59,167) (Lounsbury, 1976:223, Table 1). Lounsbury's comment is "Unless a component of such magnitude [59,167] were of interest in the computation, there would be no apparent reason for having such a large ring number," (1978:806). The ring number associated with this interval is also very large, 51,419, which should also be another clue that the cycle associated with these numbers is also very large. In fact, in this example, $1,538,342 = (355)(4333.358)$ where 4333.358 is very close to the sidereal cycle of Jupiter, 4332.589, although investigating this relationship on these Dresden pages is for the moment beyond the scope of this paper. On page 62E of the Dresden, the companion number of 1,272,921 = (3)(13)(127)(257) (Lounsbury, 1976:223, Table 1), but also breaks down into (3485)(365.257), close to the Earth sidereal year of 365.25636.

Dresden page 63C is interesting because it is the only column that has two companion numbers interlocked as a black number and a red number, both employing a single ring number, mentioned above, 51,419 or 7.2.14.19. This case is rather fortuitous because the dates under discussion, Piedras Negras Stela Six, 9.12.15.0.0 and the fire ceremony 9.15.4.15.17 and their relation to the mythological Starry Deer decapitation date 12.10.12.14.18 fit the same format as the red and black numbers on 63C. To wit, the author has constructed a hypothetical column in red and black shown in comparison with 63C (see figure 7 below). Although there is no evidence whatsoever to say that the Maya actually formatted the data in this manner, it is interesting to see the comparison, i.e. two separate companion numbers and terminal dates combined with a single ring number.









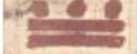



























10		10.13.13. 3. 2 DN - 7. 2.14.19 Ring 10. 6.10. 6. 3 TD		10	10.4.12. 0.19 DN - 9. 7. 3. 2 Ring 9.15. 4.15.17 TD
10				10	
13		Terminal Date 10. 6.10. 6. 3		4	Terminal Date 9.15.4.15.17
8 (corrected 13)		13 Ak'bal (1 K'ank'in)		2	6 Kaban (5 Yaxk'in)
13		Companion (Distance Number) (Long Round):		12	Companion (Distance Number) (Long Round):
3				2	
3		10.13.13.3.2 = 1,538,342 = (2)(13)(59167) = (355)(4333.358) = (355)(4332.589) + 273 days Jupiter sidereal cycle		0	10.4.12.0.19 = 1,473,139 = (340)(4332.762) = (340)(4332.589) + 59 days Jupiter sidereal cycle = (4036)(365) (Haab cycle - 1day)
16				3	
2				19	
4				2	
3 Chikchan (8 Sak)		10.13.3.16. 4 DN - 7. 2.14.19 Ring 10. 6. 1. 1. 5 TD		2 Ajaw (13 Sip)	
13 Ak'bal (1 K'ank'in)		Terminal Date 10.6.1.1.5		6 Kaban (5 Yaxk'in)	10. 2. 2.3.2 DN - 9. 7.3.2 Ring 9.12.15.0.0 TD
7				9	Terminal Date 9.12.15.0.0
2				7	
14		3 Chikchan (8 Sak)		3	2 Ajaw (13 Sip) Long Round 10.2.2.3.2 = 1,455,182 days = (3984)(365.256526) (3984)(365.25636) = 1,455,181.3 days Earth sidereal year = (3984)(365) + 1022 = (24)(166)(365) + (24)(42.583)
19		Companion (Distance) Number Long Round 10.13.3.16.4 = 1,535,004 = (233)(6588) = (233)(6585.3) + 629 days Saros cycle?		2	
4 Ajaw				4 Ajaw	
8 Kumk'u				8 Kumk'u	

Figure 7. Two companion numbers, red and black, using a single ring number on Dresden page 63C compared to the author's construction of two implied companion numbers connecting terminal dates 9.15.4.15.17 and 9.12.15.0.0 to an implied ring base date of 12.10.12.14.18, the Starry Deer decapitation date (Dresden codex images from Förstemann, 1880, courtesy of famsi.org). Green or blue font indicates actual values of sidereal cycles. The Saros cycle of 6585.3 days involves the natural harmony among three of the Moon's orbital periods, the Synodic Month (New Moon to New Moon) = 29.530589 days, the Anomalistic Month (perigee to perigee) = 27.554550 days, and the Draconic Month (node to node) = 27.212221 days (NASA/JPL website, eclipse.gsfc.nasa.gov, accessed 19 May 2015). Practically, the number 6588 days possibly indicated on 63C seems somewhat inaccurate for Maya calculations; therefore the author only mentions it as a remote possibility.

Now the question is, if the above cycles such as the Jupiter sidereal, Earth sidereal and the haab' are used in determining the ring number, are those cycles large enough by themselves to guarantee that only one of those cycles could be factored within the ring number? In fact, none of the cycles by itself is long enough to fit this criteria, and therefore at least two cycles need to be considered together. Since the fire ceremony companion number of 1,473,140 = (4036)(365) = (2)(2)(1009)(365) and 1,473,140 = (340)(4,332.765) = (2)(2)(5)(17)(4,332.765), with the common factor of (2)(2) for each cycle, the haab' and the Jupiter sidereal year will commensurate four times during the length of the companion number, or every 368,285 days. With the ring number of 9.7.3.2 = 67,382, the date of 12.10.12.14.18 is the date closest to but less than era day for commensuration of the two cycles, thus satisfying the criteria.

The companion number 1,455,182, related to the Terminal Date 9.12.15.0.0, breaks down into $(2^3)(3)(2)(83)(365.256526) = (24)(166)(365.256526)$ as discussed above. Although this companion number seems to be only concerned about the sidereal Earth year, it is worth noting that 83 sidereal years equals 7 sidereal cycles of Jupiter, so $(24)(2)[(83)(\text{sidereal Earth year})] = (24)(2)[(7)(\text{sidereal Jupiter cycles})]$, so Jupiter appears in the sky in the same position relative to the stars every 83 years (Earth sidereal), or about every 30,316 days. Since the ring number is 67,382 days, the cycle of 30,316 days could have occurred twice within that time span before era day, thus neither the Earth sidereal year nor the Jupiter sidereal cycle nor their combination would be a limiting condition on the ring number.

Therefore, summarizing for the ring base date of 12.10.12.14.18, the combination of the Jupiter sidereal cycle and the haab' cycle that commensurate only 4 times within the companion number from 12.10.12.14.18 to 9.15.4.15.17, seems to be the determining factor in computing the ring number.

Determining a new “implied” companion number: discussion of the Initial Date of the Temple XIX platform.

The distance number between the Starry Deer decapitation date and the initial date is 12.10.12.14.18 – 12.10.1.13.2 = 11.1.16, or 3,996 days. If one disregards 12.10.12.14.18 and uses 12.10.1.13.2 as the ring base date, the implied ring number computes to 9.18.4.18, or 71,378 days. Therefore, any cycle or combination of cycles that makes up any companion number needs to be longer than 3,996 or 71,378. The author has already discussed the major events and cycles connected to 12.10.12.14.18: no similar extra long cycles seem to be connected to 12.10.1.13.2; its seemingly only “redeeming” quality is that its tzolk'in date is 9 Ik'. There is a preponderance of 9 Ik' dates at Palenque (Stuart, 2005:183) and thus the best companion number seems to favor a pairing with another 9 Ik' date. Any combination of 9 Ik' dates of course involves the Sacred Almanac, the 260 day Tzolk'in, where 9 Ik' will occur every 260 days, with prime factors of $(2^2)(5)(13)$. Higher cycles including those factors are $520 = (2^3)(5)(13)$, $780 = (2^2)(3)(5)(13)$, $1820 = (2^2)(5)(7)(13)$, $2,340 = (2^2)(3^2)(5)(13)$, $4,680 = (2^3)(3^2)(5)(13)$ [Lounsbury, 1978:787] and $11,960 =$

$(2^3)(5)(13)(23) = (46)(260)$ [www.famsi.org/research/Vanstone/2012/]. The interval of 71,378 is too large a number since the largest of all the multiples of 260, 11,960 can fit more than once within 71,378, thus the author favors the smaller 3,996 day interval between 12.10.1.13.2 and 12.10.12.14.18 where there are but two possible cycles, 4,680 or 11,960. The interval 4,680 may be ruled out since it is a Venus correction factor and thus 11,960 seems the better choice.

There are at least six 9 Ik' dates at Palenque that should be considered, four on the Temple XIX platform and two on the tablet of Temple XVII, not including a deep time date on the tablet from Temple XIV (Stuart, 2005:183-185). The author lists these six dates and their relationships with each other in Table 1 below. Several possibilities are connected by a multiple of 11,960, and just this mere fact alone might suggest that the cycle of 11,960 is the proper choice. The cycle of 11,960 days, $(46)(260)$ or 1.13.4.0, equals 405 lunations and is the length of the table that Thompson calls the "Lunar Tables" on Dresden pages 51-58 where dates indicating eclipses might be visible (1972:71).

9.14.10.4.2	9 Ik' 5 K'ayab	jdn: 1984768	Acc. A.M.N. III (T. XIX platform, numerous)	(6)
9.2.16.4.2	9 Ik' 15 Wo	jdn: 1900528	260 days added to (4) (Temple XVII)	(5)
9.2.15.9.2	9 Ik' end Yax- k'in	jdn: 1900268	Establish Lakam Ha' (Temple XVII)	(4)
2.0.0.10.2	9 Ik' Seat Sak	jdn: 872488	Acc. of Triad Progenitor (Tab. Cross, T. XVIII jamb, T. XIX, Pal. House E)	(3)
1.18.5.3.2	9 Ik' 15 Keh	jdn: 859748	Birth of GI Triad Deity (Tab. & Alfardas Cross, TFC, T. Sun, T.XIX plat.)	(2)
12.10.1.13.2	9 Ik' 5 Mol	jdn: 512908	Acc. GI (T.XIX platform)	(1)

(6) - (3) = 1,112,280 = (93)(11,960)	(T.XVIII Jambs, Lounsbury:220)
(2) - (1) = 346,840 = (29)(11,960)	(Stuart, 2005:77-78)
(4) - (2) = 1,040,520 = (87)(11,960)	(6) - (1) = 1,471,860 = (17)(37)(2,340)
	(5) - (1) = 1,387,620 = (593)(2,340)
(4) - (1) = 1,387,360 = (116)(11,960)	(3) - (1) = 359,580 = (461)(780)

Table 1. Combinations of 9 Ik' dates from Palenque inscriptions using multiples of the tzolk'in 260 day cycle: 11,960 = $(46)(260)$; 2,340 = $(9)(260)$; 780 = $(3)(260)$. The abbreviation jdn stands for Julian Day Number, a continuous number counting in one day increments used by astronomers, similar to the Maya long count.

Two questions need to be answered before the companion number can be determined: 1) which 9 Ik' terminal date should be connected to the "ring" number and, 2) what event or events do the terminal date and "new" ring base date have in common? By examining Table 1, it can be seen that (6) – (1) and (5) – (1) should be immediately ruled out because the largest cycle is 2,340 days, meaning the cycle would occur twice in the 3996 day allowable time period. (2) – (1) is a possibility because this companion number is 29 times the desired 11,960 interval, however, the date for (2) is also a mythological date, the birth of Triad Deity GI and thus there would be no connection to a contemporary Maya date. (3) – (1) can be ruled out because the interval is a multiple of only 780 days and (3) is a mythological event. Even though (6) – (1) has been ruled out, it is tempting to reconsider because (6) is the date, 9.14.10.4.2, 9 Ik' 5 K'ayab that Ahkal Mo' Nahb' III acceded into rulership, which would be a strong bond to (1) because that is the date that GI also acceded into rulership. In fact, the author considers an alternative solution below. However, strictly according to Lounsbury's methodology, by process of elimination (4) – (1) emerges as the best candidate. Event (4) is the date that Lakam Ha' (ritual center at Palenque) appears to have been established, 9.2.15.9.2, 9 Ik' End of Yaxk'in, as recorded on the tablet of Temple XVII (Stuart, 2005:184-185, Figure 149). So perhaps Palenque considered the establishment⁹ of Lakam Ha' on a par with the accession into rulership of GI, or possibly the "accompanied by *ch'ok Ahkal Mo' Nahb' I*" in the establishment by the current ruler, Butz'aj Sak Chiik.

If (4) – (1) is chosen (called here solution 1), $1,387,160 = (116)(11,960)$, the question might be asked how would the intervals of 11,960 be counted backwards from 9.2.15.9.2? Thompson points out that multiplication tables "frequently lie between IS [Initial Series] and LR [Long Reckoning] on the one hand and sacred almanacs and 364-day years on the other," and that these multiplication tables are most likely used for calculations involving those same numbers (1972:22), though Lounsbury adds, "One may suppose that these tables were used in the computations involved, or that they were supplied to enable a user of the codex to make other similar computations for similar or related purposes," (1976:212). Similarly, tables of multiples of 11,960, 1.13.4.0, are found in the eclipse tables pages 51-58 (see for instance Thompson, 1972:71-73; Schele and Grube: 1997:169; Bricker and Bricker: 2011:253). Whatever the intended purpose in relation to the eclipse tables, these multiples could easily be used to calculate the 116 number of 1.13.4.0 intervals required to count backward from 9.2.15.9.2. One need not calculate laboriously using single intervals of 1.13.4.0 because several multiples are listed. For instance, 39^{10} intervals are listed in the table on page 51, $(39)(1.13.4.0) = 3.4.15.12.0$. Since $(3)(39) = 117$, three of these intervals could

⁹ "to establish," or "being founded" is the tentative meaning that Stuart has ascribed to glyph T550 (Temple XVII Tablet, B5).

¹⁰ The 39th multiple seems to befuddle Bricker & Bricker as they state, "The highest listed multiple is the 39th, and we cannot suggest why this should be listed. Depending on whether this is treated as an uncorrected or a corrected multiple, it would start in AD 2032 or AD 2065!" (2011:298). In fact, the 39th multiple suits the author's purposes just fine, going back into mythological time only three times 39 multiples to arrive within one cycle of the desired date.

be subtracted from 9.2.15.9.2 followed by adding a single interval, 1.13.4.0 to give a total of 116 intervals arriving at the initial date:

$$\begin{array}{r}
 9.2.15.9.2 \\
 - 3.4.15.12.0 \\
 \hline
 5.17.19.15.2
 \end{array}
 \quad
 \begin{array}{r}
 5.17.19.15.2 \\
 - 3.4.15.12.0 \\
 \hline
 2.13.4.3.2
 \end{array}
 \quad
 \begin{array}{r}
 2.13.4.3.2 \\
 - 3.4.15.12.0 \\
 \hline
 12.8.8.9.2
 \end{array}
 \quad
 \begin{array}{r}
 12.8.8.9.2 \\
 + 1.13.4.0 \\
 \hline
 12.10.1.13.2
 \end{array}$$

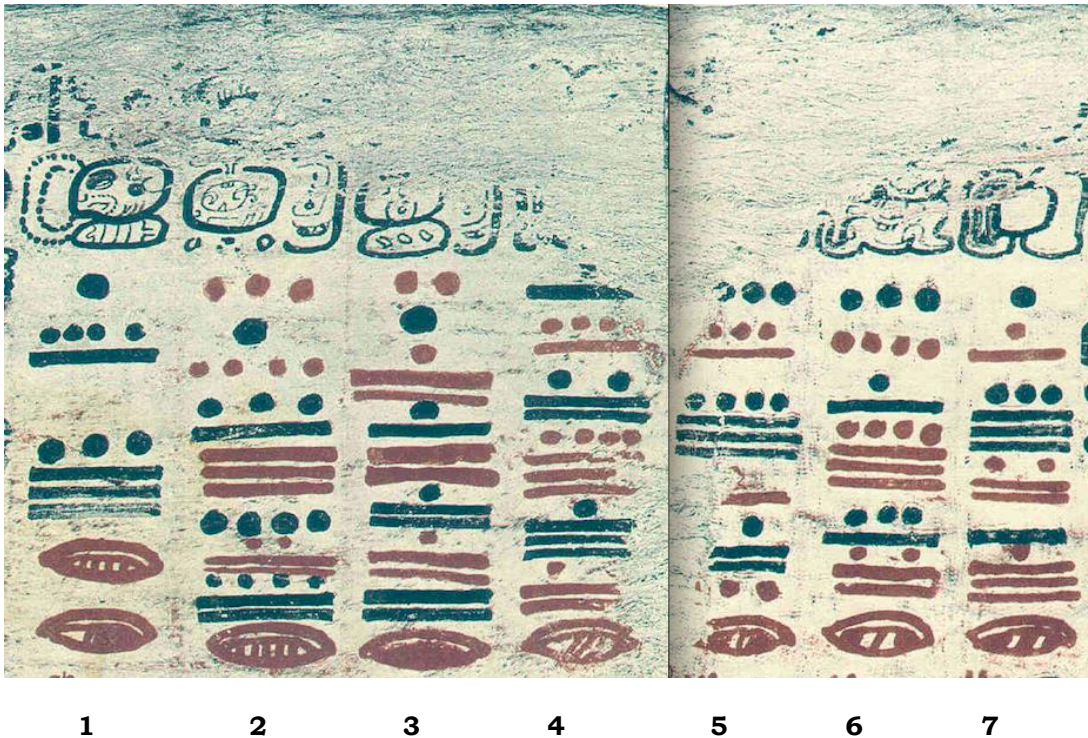


Table 2. Table of Multiples from Dresden pages 51 and 52 (Tzolk'in dates below numbers not included)(red zeros used for both black and red numbers)(left to right, starting with column 1 and reading from top to bottom): column 1 (black)--1.9.18.0.0 [(18)(11,960)]; **column 2 (red)—3.4.15.12.0 [(39)(11,960)], column 2 (black)—1.8.4.14.0 [(17)(11,960)]; **column 3 (red)**—2.11.10.11.0 [(31)(11,960) + 260], column 3 (black)—1.6.11.10.0 [(16)(11,960)]; **column 4 (red)**—9.19.12.0 [(6)(11,960) + 120], column 4 (black)—6.12.16.0 [(4)(11,960)]; **column 5 (red)**—8.6.2.0 [(5)(11,960)], column 5 (black)—4.19.12.0 [(3)(11,960)]; **column 6 (red)**—4.19.12.0 [(3)(11,960)], column 6 (black)—3.6.8.0 [(2)(11,960)]; **column 7 (red)**—6.12.16.0 [(4)(11,960)], column 7 (black)—1.18.5.0 [(11,960 + 1820)].**

In an alternate solution (called here solution 2), the author considers that 9.14.10.4.2, 9 Ik' 5 K'ayab, the accession of Ahkal Mo' Nahb' III is the important

terminal date¹¹. In this case, we conveniently take what is called the 31st multiple + 260 days¹², 2.11.10.11.0 (red distance number from page 51 of the codex) and subtract it three times from 9.14.10.4.2. The result of this operation yields 1.19.18.7.2, a long count date which results from a subtracted distance number of [(93)(11,960) + 780 days], fortuitously in the ballpark both for the accession of Triad Progenitor and the birth of GI, and, interestingly enough, 30 straight multiples of 11,960 (1.13.4.0) from the initial date of the platform. In fact, using the long count date of 1.19.18.7.2, we can add 2.3.0 (780 days) to get 2.0.0.10.2, the accession of the Triad Progenitor, or subtract 1.13.4.0 (11,960 days), to get 1.18.5.3.2, the birth of GI Triad Deity. Calculations are shown as follows [(the author used 6 times the interval of [(5)(1.13.4.0) = 8.6.2.0] to get (30)(11,960)]:

9.14.10.4.2	7. 2.19.11.2	4.11. 9. 0. 2	1.19.18.7.2	1.19.18.7.2	1.19.18.7.2
- 2.11.10.11.0	- 2.11.10.11.0	- 2.11.10.11.0	+ 2.3.0	- 1.13.4.0	- 2. 9.16.12.0
7. 2.19.11.2	4.11. 9. 0. 2	1.19.18.7.2	2.0.0.10.2	1.18.5.3.2	12.10.1.13.2

9.14.10.4.2	2.11.10.11.0	2.3.0	1.13.4.0	2.9.16.12.0 = (6)[(5)(1.13.4.0)]
Ahkal Mo' Nahb III	= (31)(11,960)	= 780	= (11,960)	= (6)(8.6.2.0) (see table)
Accession	+ 260 days	days	days	= 2.9.16.12.0

Thus the only difference between solution 1 and solution 2 is that a slight shift needed to be made before reaching era date (that is, at a date later than 13.0.0.0.0) to shift from one set of multiples of 11,960 to another. But this shift was rather serendipitous because the multiple of 31 times 11,960 had an additive of 260 days (directly from the table of multiples on page 51 of the codex), so that when used 3 times, the additive was (3)(260) or 780 days, which conveniently set up long count date 1.19.18.7.2, directly between the accession of the Progenitor and birth of GI; also 30 multiples of 11,960 from the initial date 12.10.1.13.2. The important point is that the shift was made to a different series of 11,960 multiples at a date *later* than era date so that the cycle of 11,960 was maintained in all the calculations *earlier* than era date. This allowed for a 9 Ik' tzolk'in date on 12.10.1.13.2 after the last 11,960 cycle overlapped 12.10.12.14.18. Whether the Maya actually used this method for calculation is not known, but it would have been easy enough for them to do and all the multiples used in these calculations are found in the tables including additives, which some past interpretations of the multiple table have considered aberrant.

¹¹ While 9.14.10.4.2 correlates to the date of annual meteor showers that the Maya most likely would have observed in the AD 700's (Shower 32, see Jenniskens, 2006:610, Table 1), the author believes it more likely the Maya considered the 9 Ik' date more relevant in this case.

¹² The additional 260 days added to the 31st multiple was considered an error by Thompson (1972:71) and also Schele and Grube (1997:169) and thus each changed the multiple from 2.11.10.11.0 to 2.11.9.16.0 so the computation was exactly 31 multiples of 11,960, but Bricker & Bricker used the added 260 days for future corrections to the eclipse table (2011:252).

Summary

Producing a rationale for the initial date of the platform found in Temple XIX was rather complex because two separate dates preceded era date 13.0.0.0.0 whereas in Lounsbury's computation for the initial date of the Temple of the Cross there was only one date. Lounsbury had only a short assumed ring number of 6.14.0, which called for the highest order cycle of $(2^2)(3^2)(5)(7)(13)$ using all the prime factors permitted in his case, or 16,380 days, or 2.5.9.0. In the platform's case, first the companion number had to be computed from the planetary sidereal cycle of Jupiter and the haab' cycle, commensurate only four times in the length of the implied companion number relative to the Starry Deer Crocodile date, 12.10.12.14.18. The important point here is that *both cycles, the 365 day haab' and the 4332.762 sidereal cycle of Jupiter have to be taken into account to compute a proper ring base date, otherwise, each cycle by itself is too short. This fact alone may say that the Maya were aware of the sidereal cycle of Jupiter.* This is akin to Lounsbury using all the prime factors permitted in computing 2.5.9.0. It was found too that a highly accurate Earth sidereal year was calculated from Piedras Negras niche Stela Six, 9.12.15.0.0 backwards to the Starry Deer crocodile date, where both dates correlated to a solar longitude of 43.9°, indicating an Eta Aquariid meteor shower on both dates. Once the decapitation date of the Starry Deer crocodile, 12.10.12.14.18 was justified, an earlier ring base date of 12.10.1.13.2, the accession of GI Triad Deity, was computed with the help of the eclipse table of multiples of 11,960 days or 405 lunations. 11,960 days is a multiple of 260 days $[(46)(260)]$ so that 9 Ik' will repeat on every cycle of 11,960 as well as 260 days. The author offered two solutions, solution 1 and 2. Solution 1 had the advantage of a straight application of the 11,960 day (length of the eclipse table, 405 lunations) interval but the disadvantage of connecting two possibly unrelated events, the establishment of Lakam Ha' on the terminal date to the accession of GI on the mythological implied ring base date. Solution 2 had the advantage of connecting the accession of Ahkal Mo' Nahb' III on 9.14.10.4.2, 9 Ik' 5 K'ayab to the accession of GI on the mythological ring base date, 12.10.1.13.2, 9 Ik' 5 Mol but the disadvantage of shifting the 11,960 day series to another 11,960 day series which was unorthodox if one follows Lounsbury's reasoning. Even with the shifted 11,960 day series, the author favors solution 2 because it ties together two accessions, Triad Deity GI and Ahkal Mo' Nahb' III. There did not seem to be a similar astronomical event on either 9 Ik' date in either solution. All computations used values printed in the 11,960 multiples table from pages 51 and 52 of the Dresden codex. In fact, once it is known that the length of the eclipse table is 1.13.4.0 (11,960) days, then any multiple of 1.13.4.0 can be easily computed from the multiples listed in the table. It may be noteworthy what previous investigators (Thompson, Bricker and Bricker and Schele and Grube) have considered about the three so-called errors in the multiples: all three agreed that the multiple of $(6)(1.13.4.0) + 120$ days was in error, but only Bricker and Bricker agreed that the addition of 260 days to the 31st multiple was correct (see note 11), and all agreed there was no problem with the addition of 5.1.0 (1,820 days) to the basic length of 1.13.4.0. The fact is, as the author's solution 2 shows, the Maya may have had more than one use in mind when developing the tables. The author's methods were only hypothetical but could have easily been used by the Maya.

Notes

All of the data concerning the Earth sidereal cycle of 365.256536 related to the distance (companion) number between the Starry Deer Decapitation date 12.10.12.14.18 and the Piedras Negras Stela 6 date 9.12.15.0.0 and the Jupiter sidereal cycle and haab' anniversary date between the fire-entering ceremony on 9.15.4.15.17 and 12.10.12.14.18, including the apparent formula for computing the Earth sidereal year, $(24)(2)(83)(365) + (24)(2.583) = (24)(365.256526)$ were presented on April 10, 2015 at "In the Realm of the Vision Serpent: Decipherments and Discoveries in Mesoamerica, A Symposium in Homage to Linda Schele," at California State University, Los Angeles. Data on meteor showers were also presented, including the mythological Eta Aquariid meteor shower possibly post-dicted by the Maya on 12.10.12.14.18 and a contemporary Eta Aquariid meteor shower possibly observed by the Maya at Piedras Negras on 9.12.15.0.0, 687 April 13/14.

Besides the sources already discussed, additional discussions on ring numbers may be found in Callaway (2011:145-168) and Grofe (2007:55-58, 112, 130, 177, 202-234, 237-265).

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