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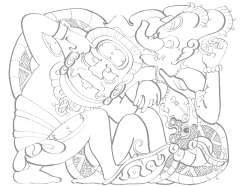


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## INTRODUCTION



Just before dawn, a Maya king sat ready with his troops, awaiting the sighting of Venus as morning star before consenting to engage his enemy in warfare—or so a number of studies would have us believe. According to conventional interpretations, Chak Ek' (the Maya name for Venus) would have to show his celestial face in order to generate an omen favorable for entering battle. Thus, the astronomer's grave responsibility was to make accurate predictions of Chak Ek's visibility so that his king and the king's army would not have arisen early for nothing.



Such a practice—that of preparing for what recent studies have called the “star war” —represents a type of labor often attributed to the ancient Maya astronomer.



Indeed, numerous studies have attempted to show that ancient Maya kings set their political and ritual events according to celestial periodicities (Aveni and Holting 1994; Closs 1994; Dütting 1985; Martin 1996; Schele and Freidel 1990; Tate 1985; against the “star war” interpretation, see Aldana 2001b, 2005a). These studies begin by choosing a correlation between the Christian calendar and the Maya Long Count.<sup>1</sup> They then attempt to reconstruct the night skies observable to the ancient kings on the dates of the recorded ceremonies or events. Although straightforward in approach, these studies produce results that cannot be accepted unequivocally at least until a day-for-day calendar correlation is proven beyond a reasonable doubt. Several competing studies, however, show that the validity of the calendar correlation most often invoked is still in question.<sup>2</sup> At some level, then, we must be wary of the specific findings and eventual interpretations produced by methodologies that are utterly dependent on the accuracy of the calendar correlation utilized.<sup>3</sup>

A different approach to revealing the work of the ancient Maya astronomer avoids the calendar correlation entirely. Popular during the early twentieth century when computers were not available to reproduce hypothetical historical night skies (making the search for correlations between astronomical events and historical records excruciatingly tedious), this method holds the potential for more stable interpretations since the results would not change with a change in calendar correlation. In the 1930s, John Teeple (1931) used this method effectively to show interesting patterns within the lunar records of the Classic period. Almost fifty years later, Floyd Lounsbury (1980) used a similar approach to reveal an astronomical component to hieroglyphic treatments of mythology. Both of these studies (covered in detail in Chapters 2, 3, and 4) suggest a more sophisticated job description for ancient Maya astronomers by revealing their concern with mythology and political rhetoric alongside their purported appointment-making duties. Moreover, Teeple’s and Lounsbury’s studies will remain relevant regardless of any future calendar correlation revisions.

Despite the value of these studies, they, too, have left out what I consider to be a critical aspect of analysis. Like many others, they rarely refer to specific historical individuals or their social, religious,

and political contexts with regard to the theories proposed. At some level, these omissions may result from the relative scarcity of scholars trained both to read the hieroglyphic inscriptions and to understand the ancient practice of astronomy. On another level, however, the oversight has been methodologically intentional, following an effort to create direct associations between hieroglyphic records and natural phenomena. Rhetorically, such an approach might be considered a revelation of the *science* of astronomy, intentionally leaving out the human agents who enacted it, but in this book I take precisely the opposite approach.

In the pages that follow, I argue for a very specific role of astronomy to the reign of K'inich Kan B'ahlam, tenth<sup>4</sup> ruler of a Classic Maya city then known as B'aakal (now known as Palenque). In doing so, I take an approach inspired by recent studies in the history of circum-Mediterranean-derivative (cMd) science.<sup>5</sup> These studies demonstrate that the practice of science and the developments that derive therefrom are best understood by examining the historical context—physical, political, social, religious, and economic—in which they were enmeshed. The point is only accentuated, I argue, because we still are coming to an understanding of the type of sciences under study. That is, the discipline of archaeology has revealed much about the social structure and general development of Maya culture, but we are only just beginning to use hieroglyphic decipherment to understand the intellectual history of these people.

Through a close reading of several hieroglyphic texts from Palenque, I work through the recovery of a calendric and astronomical development to unpack the broader intellectual agenda of a set of historical Classic Maya rulers. This scientific lens allows for the recognition of a consistent message delivered by three specific kings and expressed in architecture, art, and science for their contemporary commoner, noble, and royal audiences. In turn, this focused study reveals two larger themes within Maya civilization. First, examination of this royal agenda reveals the Classic Maya kings' efforts to maintain and exercise power on both local and international levels. Second, the scientific development reveals a secret language utilized by the nobility to restrict the size of the community with access to the throne. Such a language has already been well documented for Postclassic and Post-

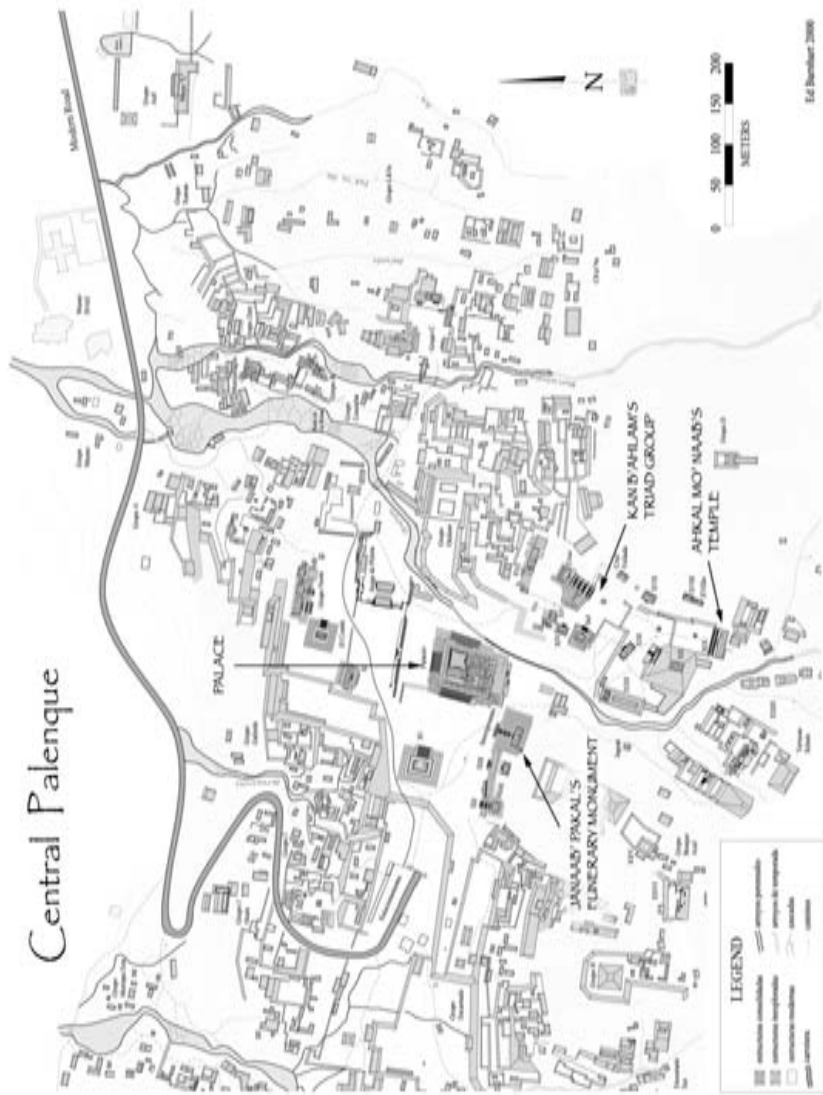
contact times; this book extends the practice backward at least to the Late Classic—albeit in a newly recognized form that I call K’awiilil Zuyua.<sup>6</sup> In order to begin this treatment of the history of Palenque and the decipherment of the enigmatic 819-day count, we must first address the broader context surrounding such an endeavor.

### SOME CLASSIC MAYA HISTORIOGRAPHY

Janaab’ Pakal is probably the best-known of the ancient Maya kings.<sup>7</sup> The Mexican archaeologist Alberto Ruz-Lhuiller uncovered his sarcophagus in 1952, setting off a still-active public fascination with the archaeological site in eastern Chiapas, Mexico, known as Palenque (see Figure 0.1). Janaab’ Pakal’s achievements—and their significance to his successors—form the nucleus of this study. Yet Janaab’ Pakal was only one of more than fourteen rulers of this ancient city and one of some hundreds of men and women who directed Maya cities as *ajawtahk* over the more than 600-year Classic period.<sup>8</sup> The difference, however, between what contemporary scholars know about Janaab’ Pakal and his peers and what Ruz understood in the 1950s has everything to do with the maturation of Maya hieroglyphic script decipherment during the 1980s and 1990s.

Although few dispute that Ruz and others, notably the U.S. archaeologist Gordon Willey, transformed our appreciation of Classic Maya culture by turning their attention to non-royal lives, the decipherment of Maya hieroglyphic writing has provided the most transformative window into ancient Mesoamerican society. The texts produced by ancient Maya scribes for the ruling elite have given us access to indigenous thoughts recorded for indigenous audiences. On the most practical level, this information allows epigraphers to recover Classic Maya political structures and records of the events that maintained them. Indeed, scholars have trained their attention on this material since the 1980s, some of which will be reviewed in this chapter.<sup>9</sup> Yet the decipherment also allows for a substantially more subtle investigation into Classic Maya thought and expression. Herein lies the value of the historical endeavor. Through the subtlety and detail of a focused historical case study, we gain a vista into the political and religious world of the ancient Maya as they intended to preserve it.

FIGURE 0.1: Site map  
of Palenque



As a cultural body, the Classic Maya thrived from about A.D. 250 to 900 in the region of Mesoamerica that has now been split up into the Mexican states of Yucatán, Campeche, Quintana Roo, and Chiapas and the countries of Belize, Guatemala, and parts of Honduras and El Salvador (see Frontispiece). As a subgroup of larger Mesoamerica, the Classic Maya maintained one of only two phonetically based writing systems upon which the Maya elite relied for political, economic, and religious legitimation.<sup>10</sup>

Key in deciphering this hieroglyphic script was Heinrich Berlin's (1958) recognition of a glyphic compound that had a structure and site distribution, suggesting it served as an identifier of Classic Maya cities. Uncomfortable with calling this glyphic compound the "name" of a given city, Berlin instead referred to it as an *Emblem Glyph*<sup>11</sup> (see Figure 0.1). Historiographically, the acceptance of the Emblem Glyphs' significance forced a shift in the basic interpretation of Maya hieroglyphic writing—namely, that their content did at some level reflect mundane, political interests.<sup>12</sup>

Since Berlin's work in the 1950s, epigraphers have been able to separate the Emblem Glyph compound into its three basic elements.<sup>13</sup> The main sign indeed may be considered the name of the polity, but the framing elements are read *k'ujul* ("holy"<sup>14</sup>) and *ajaw* ("ruler"), such that the Emblem Glyph for Palenque would have been read as "K'ujul B'aakal Ajaw," or "holy lord of Palenque." The implications arising from this reading are at least twofold. For one, in Classic Maya cities, politics and religion were not separated. Also, we now recognize that the carved human figures that accompanied the hieroglyphic inscriptions, especially on public monuments, are portraits of precisely the *ajawtahk* for those particular cities (see Figure 0.2).

Beyond representing the protagonists of the iconography and inscriptions, the content of the texts tells us that more often than not these *ajawtahk* were genealogically related. Most frequently, the throne was passed from father to son, although brothers sometimes succeeded brothers and nobles (including women) not within the immediate ruling family occasionally came to power in the forging of alliances, both local and international (Ardren 2002; McAnany 1995:24–26).<sup>15</sup> In each case, accession to power was recorded as *chumwan ti ajawlel* ("becomes seated into rulership"), *k'alaw ju'un tu b'aah* ("s/he ties the headband





FIGURE 0.2: Copán Stela H bearing an image of Waxaklajuun Ub'aah K'awiil dressed as the Maize God



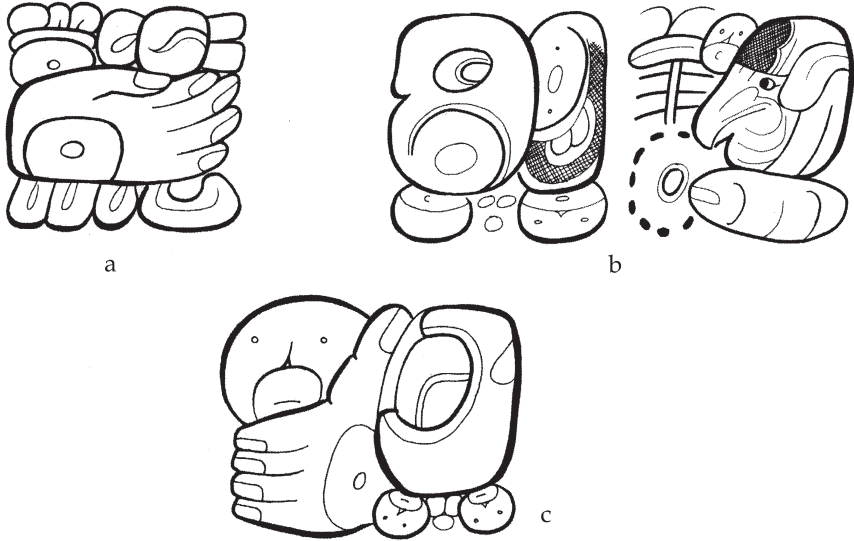


FIGURE 0.3: Various aspects of accession for Maya *ajawtahk*: (a) *k'aljiiy sak ju'un*; (b) *chumlaj ta ajawlel*; and (c) *ch'am k'awiil*

on oneself”), or *ch'amaw k'awiil* (“s/he receives *k'awiil*”) (see Figure 0.3). Any one of these phrases signified the ruler’s new place within the royal dynasty.

As elaborated thus far, Classic Maya political organization does not appear radically different from what we understand of Renaissance European or pre-Imperial Chinese political organization—kings ruling various lands tied together within dynasties. The parallel remains strong as we consider both intra- and inter-polity relationships. Namely, dynasties were part of larger noble classes forming the elite society of ancient Maya cities. Here again, the hieroglyphic texts are indispensable in giving us the names of various titles held by the non-ruling elite. Marc Zender’s recent dissertation (2004) has shed substantial light on these titles, but common readings in the literature include, for example, *sajal* (“feared”) as a title for a military leader (Schele and Mathews 1998:339n44). *Aj k'ujuun*, *aj tz'iib*, and *itz'aat*, on the other hand, are titles that refer to learned ones and artists (Coe and Kerr 1998:89–101; Jackson and Stuart 2001). In martial or artistic

cases, the titles reflected membership in a royal court, which recently has been the subject of serious investigation both archaeologically and epigraphically (Inomata and Houston 2001; Martin and Grube 1995).

Inter-polity relationships are a second major theme of the hieroglyphic texts. Here the reader confronts connections characterized by three terms: *yajaw*, *yichnal*, and *u kab'ijiiy*. The first is simply the possessed form of the term for “ruler,” *y-ajaw* (“the ruler belonging to”). This title signifies that the nobleman using it, the *yajaw*, is subject to another hierarchically superior political agent. Smaller cities, for example, were often led by “rulers” who were the *yajawtahk* of larger, more powerful cities (Martin and Grube 1995). The two other terms reflect similar relationships but in more oblique fashion. *Yichnal*, for instance, translates as “in the presence of.” Such a record might give prestige or recognition to either party and does not necessarily reflect a hierarchical relationship. The last phrase, *u kab'ijiiy* (“under the auspices of”), does carry with it a relative ranking. Here, the secondary polity acts *u kab'ijiiy* a larger polity – often in matters of war (Martin and Grube 1995).

Although not preserved within the inscriptions recovered thus far, trade tied the cities to each other and maintained connections throughout larger Mesoamerica. Elite goods, such as quetzal feathers, jade, and obsidian, were traded over large distances. Many of these trade relationships remained friendly, others undoubtedly induced conflict, and one is truly enigmatic. The connections between the great city of Teotihuacan and the Classic Maya have fascinated scholars for decades and have again come to the forefront of Mesoamerican research.<sup>16</sup> The historical record within hieroglyphic texts has already radically transformed our understanding of this relationship (Aldana 2003b; Braswell 2003; Harrison 1999:82–91; Stuart 2000a), and the next set of archaeological findings will further elucidate precisely what types of social linkages existed between these two distinct cultural groups.

There is no question that trade was a particularly important factor in the development of Palenque. At the western entrance to the Maya region and just off the Usumacinta River – a major trade route – Palenque held a powerful geographic position throughout the Classic period. We will see that such a position was also very likely the cause of

conflict with their Usumacinta neighbors, such as Piedras Negras and Yaxchilan. We will also see that the influence of Teotihuacan reached even into the affairs of Late Classic Palenque.

Finally, and for this manuscript of great import, the hieroglyphic inscriptions record many of the rituals conducted by Classic Maya *ajawtahk* in the maintenance of their authority. The most common of these rituals (recoverable from the surviving record) derived from Classic Maya calendrics and formed the basis of Classic Maya monumental culture (Justeson and Mathews 1983). After *ajawtahk* were seated, for example, their tenures were validated through the performance of a *k'altun* ("stone binding") or *chumtun* ("stone seating") at the next major period end, either the end of a thirteenth *tun* or the end of a *k'atun*<sup>17</sup> (Schele and Mathews 1991). We will see some of these records explicitly in Chapter 4 and how they characterize "normalcy" in Classic Maya society. Although Palenque *ajawtahk* were anomalous in not erecting stelae for each major period end, hieroglyphic records in other forms at the site make it clear that the rituals were still performed.

Not entirely dissociated from these *k'altuns*, hieroglyphic inscriptions also record rituals of the maintenance of each Maya polity's cosmos. For the Maya, the cosmos consisted of three realms.<sup>18</sup> The region below the surface of the earth was the Underworld. The region above the reach of the highest trees constituted the Upperworld. And the region in between was, appropriately, the Middleworld. All three levels of the cosmos were inhabited by different communities. Most members of these communities made a single realm their permanent home, but some members had the ability to move between realms or at least communicate across their borders (Aldana 2005b).

One such border was breached upon death. A person's dead body was placed below the surface of the earth such that a part of that person entered the community of the Underworld. Through the enacting of certain rituals, members of the Middleworld (the living) were able to communicate with their deceased ancestors (Klein et al. 2002; McAnany 1995:29; Schele and Miller 1986:175–185). As explicated by Patricia McAnany, elite state religion was, then, a vast elaboration on a more ancient domestic spirituality (1995:53). Namely, monumental pyramids were conceptualized as mountains, extending this cosmo-

logical realm such that deceased rulers placed therein were entering a ritually controlled region of the Underworld. Moreover, the temples atop these pyramids functioned as caves, allowing for communication with deceased rulers and other members of the Underworld community (Houston 1996).

A portal provided the means by which this communication occurred, allowing access to the “center/heart” of a ritual space; often hieroglyphic inscriptions use the phrase *tan yohl ch'en* (“at/in front of the center of the cave”) to describe the location of the ritual. Such usage directly parallels Evon Vogt’s ethnographic research with Tzotzil Maya during the 1960s. Vogt (1976:6) describes Christian crosses as “doorways” that allow for communication as the performer kneels “in front” of the portal – *tan yohl witz* (“in front of the heart of the mountain”).<sup>19</sup> Formalized communication through this portal, and thus between cosmological communities, constituted a fundamental aspect of Maya royal ritual.

To complicate cosmographical matters, it appears that the Maya saw the night sky as a reflection of the Underworld. When full, the moon took the character of the Jaguar God of the Underworld – the ruling celestial body, twin of the Sun. Also, God L, one of the highest ranking lords of the Underworld, usually possessed a numbered *chan* (“sky”) glyph in his headdress.<sup>20</sup> Additionally, the Milky Way was seen as a great starry caiman, twin reflection of the crocodile forming the earth’s back (Aldana 2001b; Stuart 1995a, 2003). Through this cosmic relationship, the Maya gained insight into the activities occurring within the Underworld by increasing their understanding of the inhabitants of the night sky – a strong impetus for developing an interest in astronomy.<sup>21</sup>

## THEORETICAL CONSIDERATIONS

So the hieroglyphic record has already done much to illuminate the lives of the ancient Maya, and the epigraphic recovery of this information is both important and exciting. Yet there is even more that can be learned from this record. As noted by Stephen Houston as early as 1993, there is a simple matter of disciplinary expertise that holds potential for providing further insight into Classic Maya history.

Namely, it is one endeavor to linguistically and sociologically extract information from a set of hieroglyphic records; it is another to treat them historically. This observation is not trivial. Especially when taking into account recent theoretical work on the social maintenance of language (Bourdieu 1977; Latour 1987; Lyotard 1993; Mignolo 2003; Sandoval 2000), the hieroglyphic texts allow for a wide range of intellectual inquiry into ancient Maya experiences. Moreover, although several anthropologists (often epigraphers) have developed an interest in Maya history (see Grube 1996; Houston 1993; Martin 1996; Martin and Grube 1995, 2000; Stuart 2000a) and although historians have appealed to a poststructural revelation of agency among Precontact indigenous people (see Restall 1998; Clendinnen 1987), the two agendas rarely come together.

Furthermore, historians readily acknowledge that their own perspectives prevent them from ever objectively reconstructing historical events but that the awareness of this limitation is what allows for valuable scholarship (Novick 1988). Positioned within the disciplines of Chicana/o and Indigenous Studies, my own work is not guided by a "salutary nonsense"<sup>22</sup> but instead recognizes that all scholarship is deeply embedded within a cultural and material context consumed and interpreted by myriad public communities. The choices regarding to which communities one seeks to be accountable constitute a choice of aesthetic. My work must meet the rigors of the academic community to be considered acceptable, but it also must take into account those communities that are implicitly affected by its publication. Within Ethnic Studies, then, *accountability* may be seen as an alternate constraining mechanism to the *objectivity* of cMd scholarship. Furthermore, I suggest that accountability may provide an even more rigorous check than objectivity alone. Examples may be readily found, but one of the most glaring comes from the scholarship on Aztec culture.

In 1977, Michael Harner proposed that residents of Tenochtitlan, the capital of the Aztec Triple Alliance, practiced cannibalism in order to compensate for a diet deficient in protein. This article was published by *American Ethnologist* and soon caused controversy (Hunn 1982; Ortiz de Montellano 1978; Price 1978). My point here is not about the arguments back and forth, especially since scholars (and, more importantly,

indigenous people of the Western Hemisphere) have recognized for some time that the “three sisters” (corn, beans, and squash) are sufficient to maintain life without supplemental protein. Instead, I suggest that Harner’s argument was perfectly acceptable under the framework of objectivity as a salutary nonsense, because he may easily claim to have been uninfluenced by the need to portray the Aztecs in a certain way and so only “assessed the data” (however it may have been collected). But clearly his article would not have been acceptable under the guidance of an accountability to communities other than those academic. That is, the argument only stands if one is predisposed to consider the “barbarity” or “savageness” of the Aztecs—an association that has existed in cMd cultural imaginaries since being constructed by sixteenth-century Spaniards.<sup>23</sup> In this and myriad other ways, appeals to objectivity have perpetuated inaccurate stereotypes and silenced dissenting voices inside and outside the academy. I suggest that an alternate choice of aesthetic would have had Harner concerned with the potential influence of this construction on his own “hypothesis” and so held him to a more rigorous standard.

Of course, accountability might be manipulated or otherwise subverted in many of the same ways as objectivity. For one, taking into account the consuming community might lead one to an overly sympathetic portrayal—perhaps even an outright attempt to create a “more positive” image than the data bear out. Within a postmodern context, however, such inability to define a single “correct” aesthetic is unavoidable. The most one can hope for is that any given scholar approaches his/her data with an intellectual honesty and a self-critical eye, regardless of methodological perspective, *and* openly recognizes the ramifications of his/her assumptions. Then, accountability is guided by the aesthetic a given scholar wishes to follow.

For the work presented here, my own sense of accountability—my guiding aesthetic—predominantly means three things: (1) I have avoided any gratuitous appeal to human sacrifice or shamanism as ready crutches that would play to the “mysterious” character of the ancient Maya within contemporary American cultural imaginaries; (2) I have emphasized historically contextualized human agency over Structuralist determinacy; and (3) I include ancient Maya scribes in my imagined audience.<sup>24</sup>

I have aimed thusly to develop an accountable historical context that will stage the treatment of Classic Maya intellectual inquiry. As a visual clue to recognizing this positioning, I have included two types of illustrations in this book. The first set is the standard-format archaeological drawings graciously provided by Merle Greene Robertson; the second was drawn in my own hand, pointing toward the filter impossible to remove in the realm of interpretation.

## SCIENCE AT PALENQUE

As for the more specific task of considering an ancient science, we must take into account recent developments in the history of science that have demonstrated a need for viewing science as a social enterprise (e.g., Biagioli 1999; Latour 1987; Shapin and Schaffer 1985). The situation is now decidedly complex. We are attempting here to retrieve both the historical context for intellectual activity and the intellectual activity itself, which is part of the fabric of the original context. Although this observation complicates matters, it also provides us with a robust check on our work. We can no longer consider, for example, the practices of astronomy without considering the social processes supporting them or the historical events of which they were a part. As will be treated further in Chapter 2, astronomy, history, politics, and religion all must be taken together as responding to and influenced by common sociological pressures mediated by individual choice.

To contemporary historians of science, that the aforementioned disciplines both respond to and are influenced by sociological pressures and individual choice is a fundamental principle of investigation and might be considered obvious. Some of the reasons I make this point here—and a suggestion as to why the first attempt at a history of Classic Maya astronomy was not attempted until 2001 (Aldana 2001b)—can be found in the historiography in Chapter 2.<sup>25</sup> Here it is sufficient to note that when this approach is applied to the so-called 819-day count, two major themes emerge from Palenque's hieroglyphic inscriptions.

The first theme parallels the work already published on Palenque's history (Martin and Grube 2000; Robertson 1983; Schele and Freidel 1990; Schele and Mathews 1998). Namely, the Late Classic Palenque



rulers found themselves in a position in which they were forced to legitimize their right to rule. We will see that both the motivation for this legitimation and the means behind its retrieval differ from previous interpretations, but the basic concern with local perspectives remains. The second major theme I recover from this geographically and temporally focused study is that the Palenque *ajawtahk* were also working to acquire a prominent position within *international* Maya society. Both of these themes became priorities during the reigns of two *ajawtahk* in particular, and both were realized through an astronomical development patronized under their tenures.

The larger motivation for this manuscript, therefore, is to explore the pressures on a given historical ruler and the means by which he negotiated them – a balance between cultural determination and individual human agency. In this case, we find that an important component of one ruler’s exercise of agency found expression through the 819-day count. Because this count has proven enigmatic for so long and because it is powerful in revealing the agenda of this ruler, we will spend considerable effort treating this calendric construct. Its real value, however, is in providing us with a view into elite Maya society – in particular, the means by which the ruling elite limited power to a relatively small portion of the nobility. The material record makes it clear that the ruling elite maintained a coherent assemblage of symbols rhetorically supporting their societal positions. The continuity in usage of some of these symbols is transparent, as in the images patronized by Janaab’ Pakal and his son Kan B’ahlam. For instance, the images stuccoed on the walls surrounding Janaab’ Pakal’s sarcophagus all carried the same two symbols of power: the manikin scepter (or K’awiil staff) and a shield bearing the image of the Jaguar God of the Underworld (see Figure 0.4). The son, Kan B’ahlam, dedicated two of his three major architectural constructs to the same two symbols – the Temple of the Foliated Cross to K’awiil and the Temple of the Sun to the Jaguar God of the Underworld (see Figures 4.1 and 6.4).

The question is, however, to what extent did this iconographic or material coherence reflect a crafted, historically motivated intellectual agenda. That is, do we see ancient Maya *ajawtahk* mechanically manipulating the same symbology – akin to Venus interpretations of the star



FIGURE 0.4: A seated lord holding a K'awiil staff and a Jaguar God of the Underworld shield, from the walls of Janaab' Pakal's sarcophagus chamber

war—or can we see an individual *ajaw* grappling with historical contingency through creative and unique means? Through the research compiled here, I argue for a specific creative spurt underlying some of the thematic coherence of the architecture and iconography of Late Classic Palenque. Here, I suggest that the 819-day count constituted an invention within a ritual language used by the ruling elite to hold power. We know from Postcontact sources (e.g., the *Books of Chilam Balam* and the *Popol Vuh*) that an esoteric language known as Zuyua formed one means of limiting access to rulership. In this book, I argue that the earlier Classic Maya also maintained such a language and that an extensive consideration of the 819-day count gives us a view

into one regionally and temporally restricted version of the language K'awiilil Zuyua. Thus, although an explanation of this calendric construct consumes a large portion of this text, its importance lies in its ability to reveal a more subtle version of Classic Maya intellectual history.

Chapter 1 sets up the treatment of the first (the local) theme by reviewing Janaab' Pakal's historical context. Set in the middle of the Classic period (ca. A.D. 650), the chapter introduces the ninth ruler of the Palenque dynasty, Janaab' Pakal, and the political situation within which he took the throne. In this chapter, I take apart Linda Schele and David Freidel's genealogically preoccupied interpretation of Janaab' Pakal's motives through use of recent reconsiderations of royal succession and a close reading of the hieroglyphic inscriptions. The result is a shift in attention away from dynastic sequence and toward the outcome of a lost military battle as understood within international political tensions. By the end of this chapter, we are introduced to the key protagonist in this history — Janaab' Pakal's eldest son, Kan B'ahlam — and the conditions under which he acceded to the throne. These conditions are important because they shed light on the motivation behind Kan B'ahlam's scientific patronage.

As a prelude to treating the nature of specific astronomical developments under Kan B'ahlam's reign, Chapter 2 considers the development of Mayanist scholarship on astronomy since the nineteenth-century work of Ernst Förstemann (1906). In this chapter, I argue that the absence of a history of Maya astronomy results from sociological issues among scholars investigating the ancient Maya, and not from lack of data. Emphasizing that local studies now will prove more enlightening than global modeling has been, I argue that the work of Classic Maya astronomers is still not well understood despite the longevity of its consideration. Furthermore, in Chapter 2, I detail the method utilized to recognize the first astronomerological puzzles as well as the ensuing methodology marshaled to recover the extent of the historical project patronized by Kan B'ahlam. I suggest that, in general, astronomical interpretation is inherently underconstrained — a condition producing the paradoxical situation in which the image of the astronomer remains consistent across studies but the specific astronomy recovered rarely does. I then suggest that the incorporation

of further constraints will aid the endeavor of recovering Maya astronomy and discuss the specific development of the recovery contained herein.

Chapter 3 takes up the historical challenge of Chapter 1 and the methodological challenge recognized in Chapter 2 through an exegesis of three tablets housed within Janaab' Pakal's funerary monument, known as the Temple of Inscriptions. By contemplating these documents as a whole—rather than selectively mining them to corroborate externally derived hypotheses—we find that Janaab' Pakal's main concern was the reconstruction of the city's religious charter after the city was compromised by military defeat. Moreover, although modern approaches emphasize the sociological motivations for religious activity, the texts capture a profound concern with the *practice* of ritual activity. This aspect, too, must be taken into account.

Secondarily in Chapter 3, we find astronomical records supporting the rhetoric of precisely a religious legitimation within the texts. Chapter 3 begins the tandem exegesis of an astronumerology—an arithmetic language built around the periods of the planets. In this chapter, we encounter the first intellectual forays into the production of history using this mathematical language and the means by which the astronumerology was intended to be recovered. Key here is the recognition that the astronumerological language was deployed within hieroglyphic puzzles and that it served as one component in the *ajaw-tahk's* efforts to reestablish the city after defeat.

Chapter 4 applies the methodology from Chapter 2 to recover the utility of the long enigmatic 819-day count. Here we enter deep into the intellectual world of Late Classic Palenque. In particular, we find that what scholars had previously considered to be mathematical errors within the texts of Kan B'ahlam's architectural masterpiece were actually the bases of astronumerological puzzles. These puzzles grew out of the practice recognized in Chapter 3 but were here elaborated to a much greater extent. Also in this chapter, we confront the identification of Kan B'ahlam's intellectual collaborators, members of his royal court who were working toward this historical and astronomical construction.

Chapter 5 demonstrates that Kan B'ahlam's astronumerological intent played a role within a much larger project. Here we con-

front the metaphor of a mythological Creation behind his artistic and architectural patronage. This chapter further addresses the second major theme of the book, showing that Kan B'ahlam sought to ensure Palenque's status within international Classic Maya society. Specifically, the appeal to Classic Maya mythology argues that despite the city's peripheral geographic location and critical military defeat to another major city, Palenque was still a Classic Maya polity.

In Chapter 6, I look closely at the mythological appeal both as it was recorded in the hieroglyphic inscriptions and as it was reified within an esoteric astronumerological language as subtext. This chapter demonstrates that a central metaphor guided the intellectual work of Kan B'ahlam's royal court and that astronomy played an important role in its elucidation. Methodologically, this mythological consideration provides corroboration that the breadth of Kan B'ahlam's intellectual patronage grew out of a single vision.

Chapter 7 places astronumerology within the larger scope of Maya traditions. Here we find that although apparently quite esoteric, this mathematical language fits well among other recorded forms of Maya intellectual recreation. In particular, we find that the colonial Maya language of Zuyua provides an excellent framework for understanding the recovered astronumerology. Through Zuyua, we find that astronumerology's purpose was not only to help secure Palenque's place in Classic Maya society but also to ensure that it maintained that position for generations to come. Furthermore, we confront a set of clues suggesting that the basis of this astronumerology was no isolated endeavor by the *ajawtahk* of Palenque but part of an international alliance operating on political and religious levels.

Finally, the Epilogue broadly argues that this study reveals an "agency" within science/mathematics, and that such an agency would accord well with Kan B'ahlam's epistemological perspective.

With this roadmap, I lead the reader on a journey into modern interdisciplinary research. Because of its interdisciplinarity, I expect and welcome scholarly challenges and corroborations from different analytical lenses of the history I present here. It is my hope, however, that at some level the scope of this interdisciplinarity would look natural or "disciplinary" to the ancient Maya who originally composed the art, science, and literature treated herein.

## NOTES

1. The Maya Long Count is the superstructure that anchors Classic period calendrics. See the prefatory material for an explanation.

2. The standard correlation is actually a family of solutions known collectively as the Goodman-Martínez-Thompson correlation (GMT). The correlation constant amounts to the number of days that must be added to the integer equivalent of the Long Count in order to produce a Julian date. The three members of the GMT family (each corresponding to a different prioritization of supporting data) are 584,283, 584,284, and 584,285. A good recent review of the correlation problem is given in Lounsbury (1992). For challenges to the GMT, see Aldana (2001a), David Kelley (1983), J.E.S. Thompson (1960:303–310), and Brian Wells and Andreas Fuls (2000).

3. See, for example, Aldana (2001b, 2005a) in which I demonstrate that the “star war” is, in fact, unfounded.

4. The numbering of Janaab’ Pakal as ninth departs from convention but follows a hieroglyphic record naming Kan B’ahlam the tenth member of the dynasty. The rationale for following the inscription and going against convention is given in Chapters 2 and 4.

5. The term *Western* in reference to *European* is particularly inappropriate when considering civilizations of the Western Hemisphere. Moreover, to use simply *European* leaves out Europe’s origins and various distinct contributors. Although not entirely satisfactory, I use *circum-Mediterranean-derivative* to include the contributions of Egyptian and Islamic cultures.

6. I realize that the term *K’awiilil Zuyua* is a mestizaje of languages since *Zuyua* is Yucatec Maya, and *K’awiil* is a Classic period deity in Classic Ch’olti’an; however, the term gets as close as possible to the concept I am trying to capture.

7. Most popular texts follow Linda Schele in referring to this king simply as Pacal (Schele and Freidel 1990; see also Coe 1993; M. Miller 1999). For a list of names and their variants in the literature, see the Note on Names in the frontmatter.

8. *Ajaw* is the Classic Maya term often translated as “king/queen” or “ruler.” The plural form of *ajaw* takes the suffix *-tahn* (Houston, Robertson, and Stuart 2000, 2:25).

9. For a more detailed review of this organization, see Chase and Chase (1992); Coe (1993); Culbert (1991); Inomata and Houston (2001); Martin and Grube (2000); Schele and Freidel (1990); and Schele and Mathews (1998).

10. The other phonetically based writing system is denoted here as the Epi-Olmec or Isthmusian script. Although it has not been deciphered yet, it appears to have worked along phonetic lines. John Justeson and Terrence Kaufman (1992) have attempted the most recent decipherment.

11. For the most part, each city possessed its own Emblem Glyph. We will encounter two notable exceptions in Chapters 1 and 4.

12. See Coe (1992) for an entertaining account of the history of Maya hieroglyphic decipherment. For the shift in interpretations of Maya astronomy over time, see Rice (2004) and Chapter 3.

13. Despite my heavy reliance on hieroglyphic texts as primary source material, I generally will not reference the epigraphers behind the various decipherments being used because that information would shift the focus of the text to the epigraphers. Moreover, other sources already perform this function, most notably Martha Macri and Matthew Looper's recent catalog (2003). Interested readers should see Michael Coe's work on the history of the decipherment (1992) and the footnotes of any of Linda Schele's popular works, which are steeped in decipherment attributions (Freidel, Schele, and Parker 1993; Schele and Freidel 1990; Schele and Mathews 1998).

14. The adjective *k'ujul* derives from the noun *k'uj*, which is generally glossed as "god" or "deity." Matthew Looper (2003) uses "blood," following Linda Schele and Mary Miller (1986).

15. See Chapter 1 and later in this introduction.

16. David Stuart (2000a) has recently summarized the Maya hieroglyphic and archaeological evidence for connections between the two civilizations. Excavations are currently underway at Teotihuacan that appear to demonstrate connections to the Maya within funerary data (see <http://archaeology.asu.edu/teo/moon/moon.en/moon.en.htm>).

17. The end of the thirteenth *tun* shared the *chol qij* with the end of the prior *k'atun*, for example, 9.8.0.0.0 **5 Ajaw** 3 Ch'en and 9.8.13.0.0 **5 Ajaw** 18 Tzek.

18. This description generally holds for most indigenous people of the Western Hemisphere.

19. I use *witz* here since the shrines mark religiously important mountains, or *witz*.

20. The *muwaan* ("hawk") sometimes substitutes for *chan*.

21. The Epilogue explains my rationale behind using quotation marks with the term *astronomy*.

22. "Salutary nonsense" is how Peter Novick (1988:7) describes the role of objectivity in cMd history.

23. See Aldana (2006b). The construction itself is quite intriguing. Sixteenth-century Spaniards had at least two reasons for creating the savagery of the Aztecs: (1) as a rationale for conquest; and (2) as a rejoinder to the Christian Reformation. The construction of the Other and Orientalism followed with the European Enlightenment period. Finally, modern notions of "prog-



ress” require that earlier civilizations be seen as inferior. One way to ensure the “backward” character of ancient Mesoamerica is to cast it as “barbaric,” “savage,” and, by corollary, “mysterious.”

24. By using the term *imagined audience*, I am recognizing that the representation of the readers for whom I write can never accurately match the readers themselves. Any audience for whom I write must be imaginary either because I cannot accurately know its composition or because even those I do know may be disposed other than how I would expect them to be at the time of their reading. As a rhetorical guide, therefore, I include in this imagined audience an interest in what ancient Maya nobles might have considered interesting or entertaining in portrayals of themselves.

25. Floyd Lounsbury recorded a chronology of Maya astronomical developments in 1978, but it would be a stretch to consider it a history.