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Vera Tiesler
Andrea Cucina
Editors

New Perspectives on Human Sacrifice and Ritual Body Treatments in Ancient Maya Society

 Springer

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Cover illustration: (Figure 6.4 from book) Decapitation ritual on Santa Rita was wall, Mound 1. After Gann, 1900: Pl. 31

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To Professor Arturo Romano Pacheco

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1

New Perspectives on Human Sacrifice and Postsacrificial Body Treatments in Ancient Maya Society: An Introduction

ANDREA CUCINA AND VERA TIESLER

1.1. Human Sacrifice

Our interest in sacrifice and sacrificial behavior received a boost in June 2001, during a visit to Professor Arturo Romano's lab in Mexico City. There we were to examine the remains of a female Maya dignitary from the ancient Maya city of Palenque, Chiapas, called the "Red Queen." The remains of the noble woman and her two companions had been discovered by archaeologists of the Instituto Nacional de Antropología e Historia (INAH) 7 years earlier inside a sacrophagus tomb next to the Temple of the Inscriptions and now rested in the renowned anthropologist's lab. Upon assessing the skeletons of the Red Queen's attendants, we soon came across unmistakable and undeniable cut and stabmarks. The anatomical arrangement of the two skeletons inside the tomb implied that both corpses had been deposited on the ground before the chamber was sealed, each at one side of the sarcophagus. The forearms of one individual still appeared crossed behind the back. The joint skeletal and taphonomic evidence left little doubt on the violent treatment received by the Red Queen's companions, thus providing novel insights into ancient sacrificial behavior surrounding noble funerary ceremonies (Cucina and Tiesler, 2006; Tiesler et al., 2002).

Up until now, studies on sacrifice and sacrificial body treatments from the Maya archaeological record have relied heavily on indirect indications, such as multiple interments in supposedly nonfunerary contexts, irregular placings of skeletal remains, along with sex and age profiles, and nutritional status. The reasons for the dearth of published skeletal data on *perimortem* violence and related posthumous processing are numerous. The poor preservation of skeletal material especially in the Maya Lowlands with its hot and humid climate, puts important limitations on any endeavor to evaluate anthropogenic marks as acts reminiscent of sacrificial and postsacrificial behaviors are not likely to leave traces on the record. This has led to a general lack of that kind of evidence that accounts for sacrificial or otherwise violent conduct.

Other skeletal information has received little importance in earlier works as proof of sacrifice. Such is the case of the numerous burials and caches containing isolated skulls with the associated upper neck vertebrae. Some authors have

inferred from these arrangements that the individuals had died due to beheading (see, for example, Ruz, 1991; Welsh, 1988), although alternative processes, like natural disturbances or posthumous body manipulation cannot and should not be discarded. Relevant in this particular example is, for instance, that the first cervical vertebra usually remains united to the skull long after the rest of the spine has decomposed. This natural phenomenon implies that even in advanced states of decomposition skulls may retain the atlas vertebra as they separate from the postcranium during skeletonization or while being transported (Duday, 1997).

In line with the above drawbacks is the lack of interdisciplinary communication in dealing with this topic of Maya archaeological research, which has resulted in diverse parallel interpretations of the different lines of positive and negative evidences on ancient sacrifice and violent behavior. As a matter of fact, at present no systematic or unified approaches exist toward the study of sacrifice in the Maya realm, a situation that differs somewhat from other Mesoamerican areas, namely the Aztecs, where different evolutionary, functional and, more recently, hermeneutical frameworks have been put forth to explain its role within a coherent sociocultural scheme.

Only recently has the scholarly community of Mayanists become aware of the enormous potential that the integrated evaluation of the skeleton in its depositional taphonomic context (osteotaphonomy) conveys in the reconstruction and interpretation of ancient Maya society (Buikstra, 1997; Tiesler, 2004; Webster, 1997). McAnany (1995:63) argues to the point that “ambiguity in the interpretation of skeletal material indicates an area of research in which advances in methods of interpretation are urgently needed while we still have access to the skeletal remains of the ancestors of the contemporary Maya.” Luckily, for researchers, no NAGPRA-like proposals are on the horizon yet in this part of Latin America, at least in the near future.

Lately, the lack of direct indications of ritual sacrifice has induced a number of scholars to assert that many of the assemblages formerly ascribed to sacrificial behaviors might as well have resulted from funerary customs rather than the immolation of a living victim. Many authors argue that, beside sacrifice, a wide array of protracted mortuary treatments and unrelated cultural behavior may account for some of these mostly disarticulated remains (Becker, 1992, 1993; Chase and Chase, 2003; Fitzsimmons and Fash, 2003, Gillespie, 2001, 2002; Houston et al., 2003; McAnany, 1995, 1998; McAnany and López, 1999; McAnany et al., 1999; Weiss-Krejci, 2001, 2003). Recently, Weiss-Krejci (2003) has called into question the sacrificial origin of many of the undisturbed, multiple burials that had formerly been assigned sacrificial status. In the case of the stuccoed box containing the skeletal remains of five or six individuals sealing Pakal’s funerary chamber, she proposed as an alternative scenario that this symbolic energy-laden space was used not as a sacrificial retainer but an area for burying members of Pakal’s “house”. Her interpretation stands in contrast to the recent reevaluation of Ruz’s original drawings and the direct examination of parts of the skeletal remains which appear in concordance with the original inter-

pretation as a simultaneous, multiple deposit that most likely served the sacrificial purpose originally ascribed by Ruz (Cucina and Tiesler, 2006). This and other cases illustrate the present difficulties in reconciling different data sets in benefit of viable, differentiated inferences of ancient Maya ritual behavior as ascertained from the archaeological record.

Unsurprisingly, this situation is somewhat different from the scholarship of other regions of Mesoamerica, namely the Central Highlands. Here, detailed colonial accounts (Durán, 1993; Sahagún, 1932) inform on the calendar of religious occasions for sacrifice, on the festivities and forms of the killings and the associated acts of cannibalism, skinning, and trophy display. Despite some form of exaggerations and ethnocentrism, there is no doubt about the large scale and key role that sacrificial practices played in many Highland societies. Along with iconography and the numerous archeological findings, the Central Mexican ethnohistoric literature has granted a much more holistic picture of violent ritual behavior than is the case for the Maya area. Apart from the conspicuousness of the topic, this is probably why this cultural Mesoamerican phenomenon has been investigated intensively within the sociocultural landscape of the Central Highlands. In doing so, authors have adhered to some central *Leitmotive*, like ideology, worldviews, and religion (Carrasco, 1999; González, 1985; Matos, 1986; Román, 1990; see also Boone, 1984). Others have focused on the role of violence in the politics of expansionism, supremacy, and military expression of power, along with ecological concerns (Davies, 1981; Demarest 1984; Harner, 1977; Sugiyama, 2005).

If documentation has been and continues to be the main source of information in the study of ritual sacrifice and associated body processing in Mesoamerica, lately also the direct analysis of human remains has acquired enormous value in the detection and interpretation of the protracted treatments of corpses that could stand for sacrificial and postsacrificial conduct (Malvido et al., 1997; Pijoan, 1997; Pijoan and Lizarraga, 2004; Talavera et al., 2001; Turner and Turner, 1999). Particularly the last decade has witnessed a shift in the osteological approach for the interpretation of sacrifice in Mesoamerica, as human taphonomy has eventually gained a substantial role in the study of possible sacrificial behaviors. A key strength in this pioneering, mainly Mexican-based, line of research is its combined reliance on four pillars of evidence: human taphonomy, historical documentation, iconographic evidence, and material culture (in the form of lithic implements or contextual information). On the downside, the recognition of sacrificial behavior or corpse manipulations in the Central Highlands still awaits a unified set of expected correlates and pattern recognition, an aspect that seems more advanced in studies conducted on the North American and Andean mortuary record (see Buikstra in this volume). It is also conspicuous that the “data rich” investigative environment that characterizes the study of Central Highland assemblages has not yet produced debates on their funerary vs. nonfunerary status in the manner that characterizes Mayanist research (Grégory Pereira, Linda Manzanilla personal communication, 2006).

As stated, Maya human taphonomy has not received much attention in the reconstruction of mortuary behavior possibly related to sacrificial violence when compared to the Central Mexican Highlands. Some recent findings and approaches hold promise, however (see Tiesler in this volume, for an extended review). Our own encounter with skeletal marks of violence on the human remains from Palenque some 5 years ago reinforced our awareness of the factual dimension of human sacrifice documented by iconographic and colonial compilations for the Maya realm. It followed that skeletal evidence for sacrificial behavior and related body manipulation had to be present in the archaeological record but had not been systematically defined yet. Our discovery thus led us to examine systematically several skeletal collections from the Northern Petén area and northern Yucatán. The results of these investigations and the information supplied by our fellow contributors will be evaluated and interpreted at length in this volume to promote a more comprehensive understanding of human sacrifice and ritual body manipulation in the Maya realm.

1.1.1. The Scope of this Book

This volume grew specifically out of the results of a symposium on human sacrifice and postsacrificial body treatments in ancient Maya society that united scholars working in different fields of Maya research on the central question related to the scope and dynamics of ancient Maya sacrificial behavior. Held during the Annual Meeting of the Society for American Archaeology in 2005, the symposium promised to provide new information and novel perspectives on human sacrifice and ritual body processing, centering on the recognition of taphonomic patterns. It addressed explicitly the discussions surrounding cache-burial identifications, along with the potential meanings and procedures that make up body part interments. The contributions proposed and applied a broad array of concepts derived from taphonomy and bioarchaeology, along with epigraphy, art, and historical sources. The chapters encompass ritual behavior and meaning, indications of *perimortem* violence, posthumous heat exposure and body processing, and provenance of sacrificial victims and their living conditions.

It is not the purpose of this volume to solve or even reach a consensus on the ongoing debate on the presence of postsacrificial vs. burial deposits from the Maya archaeological record. Each scholar contributing to the scientific debate on this important topic in the Maya area brings in his/her own theoretical background, working hypotheses, and in-field observations. These ideas and notions are the product of years of thorough research and academic exchange. There was consensus by all participants on two issues, however. The first states that it would be a gross oversimplification to use the label of “sacrifice” for every human assemblage outside the scope of burial classifications. Jane Buikstra’s comments at the end of the symposium addressed specifically the need to evaluate alternative explanations and to demonstrate models and not just assume them to be true (Buikstra, 2005). Second, it is also a mistake to deny completely the reality of such practices for the lack of direct proof. The lack of data has to

be interpreted with caution because absence of evidence not always means evidence of absence.

The central goal of this book is to contribute to the advancement of the discussion and understanding of Maya sacrifice and posthumous body manipulation. This goal can be broken down into three objectives. First of all, this volume wants to make a set of organized analytical criteria available that have not yet been employed systematically and methodically in Maya archaeological reconstruction. They derive mainly from taphonomic research and a model of sequenced ritual behavior with its corresponding taphonomic and depositional signatures of the skeletal remains. It is not enough to underscore that data processing should not be limited to the aseptic, dust- or mud-free, high-tech lab environment but should start in the field. It is only here and in close collaboration among all specialists, that the relevant taphonomic, artifactual, and contextual information is retrieved.

A second goal concerns interdisciplinarity. Like other lines of evidence, skeletal information can only have meaning when evaluated jointly and critically with evidence produced by other lines of research. Only a truly open-minded and integrated interdisciplinary approach can develop a wide-angle view of the complex biocultural framework that characterizes Maya archaeology and bioarchaeology. This approach should *not* be confined to the exchange of empirical information and technical know-how, but should include combined, ideally shared frames of reference for interpretation. Only this extended approach will secure a fuller exploitation of the area's abundant and rich database suitable to shift research questions and truly advance our understanding of ancient Maya cultural dynamics and their social undercurrents (see also Webster, 1997:6).

Finally, we hope that the contributions in this volume set the stage for a systematic examination of anthropogenic indicators in Classic and Postclassic Maya sites. We hope these studies provide a starting point for future broad assessments of the archaeological and bioarchaeological record, directed toward a broader appraisal of funerary and nonfunerary patterns. On an inferential level, we hope to advance the discussion concerning context and programing practices including ritual postsacrificial processing in ancient Maya society.

1.1.2. The Contributions

The book is structured along the lines of the central goals described earlier. The initial chapters deal with broader analytical and methodological issues, followed by Classic and Postclassic evidence for sacrifice and postsacrificial processing. These are critically explored as to which alternative funerary scenarios are to be evaluated to give way to more regionally generalized issues of provenance, social, and health status of nonfunerary individuals. A joint discussion at the end of the volume puts the scope and reach of this work into an updated, supraregional perspective.

Chapter 2 by Vera Tiesler provides some theoretical bases for the interpretation of funerary and nonfunerary ritual behavior. The author brings in new data and

theoretical concepts on posthumous human body treatment among the Classic period Maya, from a combined taphonomic, osteological, and archaeological perspective. This contribution is designed to include methodological assistance in the assessment and interpretation of different posthumous body treatments and the potential funerary vs. nonfunerary practices that may have originated them. For this purpose, Tiesler proposes a set of osteotaphonomic correlates derived from funerary practices in contrast to sacrificial practices, resting upon religious-philosophical frames of reference. Also, she discusses the concept of death and burial in the Maya area, the institution of and occasion for human sacrifice and posthumous body treatment (defleshing, exposure to fire, dismemberment among others), and their respective biocultural signatures. The case of a juvenile retainer burial from Becán exemplifies some of these phenomena. Here, the osteological, taphonomic, and architectural lines of information are combined to recreate the likely ritual scenarios that accompanied the youngster's death and the manipulation of his remains.

A novel approach to the issue of witches and witchcraft among the ancient Maya is pursued by Lucero and Gibbs in Chap. 3. The authors explore specifically the possibility of witch sacrifice and that of innocent victims, basing their study on the attributes of skeletal remains encountered in caves. Natural caves, as well as cenotes, are conceived as portals to the underworld. These places house powerful spirits and are, therefore, sacred but at the same time dangerous. Sorcery is carried out in caves, where the "good" people do not enter. For this reason, as Lucero and Gibbs propose, caves may have been used to accommodate not only the ancestors, but also the remains of killed witches. Taphonomic and demographic arguments are employed to provide elements that recreate the potential role of witchcraft associated with cave deposits.

The skeletal remains from the caves of Actun Tunichil Muknal and Actun Uayazba Kab in central Belize are illustrative. The two environments provide opposite scenarios, as the remains encountered in the former do not appear to have been buried properly, whereas those in the latter appear to contain regular interments. The taphonomic and archaeological evidence is employed to sort the different forms of funerary rituals. In addition, the authors consider the demographic factor an important element to distinguish the ritual sacrifice of innocents from witch sacrifice aimed at "punishing" the individuals for the threat they represented in life. The infants and subadults might have been chosen as innocent victims to be immolated to the gods, while the adults are thought to have been selected on a community-wide consensus. They (the witches) might have been dangerous to the community and therefore removed from it through ritual killing. Unfortunately, the heavy calcite deposits on the bones in caves impeded the recording of any cultural mark attributable to violence. On the contrary, the remains in Uayazba Kab cave had all been interred properly, which leads the authors to interpret the cave site as a place ". . .for funerary rites and the creation of ancestors. . ."

In the contribution by Harrison-Buck, McAnany, and Storey (Chap. 4), human remains together with archaeological material are informative of social and political circumstances. Two deposits at the Hershey and Pakal Na sites (both from Belize's Sibun Valley) reflect contrasting messages of empowerment and conquest. These deposits, dating to the Late-to-Terminal Classic transition, highlight connections to distant polities to the north and to the west during a period of political reorientation in the valley. In the first case (Hershey site), disarticulated human remains were encountered during excavations, along with smashed ceramic serving vessels and other finely made artifacts. The individuals do not appear to have been sacrificed and the authors infer from the archaeological and skeletal evidence that this assemblage resulted from a victorious tomb desecration event accompanied by feasting and the destruction of the site core. The archaeological, taphonomic, and epigraphic evidences are discussed jointly to provide a convincing case for a termination deposit directly related to conflict and disempowerment, which marked the final stages of a political elite conquered by newcomers. The context from Pakal Na contrasts with the assemblage from Hershey, despite the similarity in terms of geography, chronology, and ceramic artifacts. The primary burial presents a high status individual who had been interred along with four other individuals. The osteotaphonomic analysis reveals a complex funerary ritual and posthumous body manipulation. In opposition to the Hershey tomb desecration, the authors argue that the tomb manipulation at Pakal Na reflects the veneration of an important ancestor, maybe even someone coming from the same northern area as newcomers. Rather than disempowerment, the evidence from Pakal Na points to new political alliances with the north (namely Chichén Itzá) during the Late-to-Terminal Classic transition.

Medina and Sánchez (Chap. 5) address the use of fire and direct body manipulation in *postmortem* rituals resting upon the evidence from the Classic Maya sites of Calakmul and Becán. Fire was of paramount importance in ancient Maya ritual traditions and abundantly depicted in scenes of sacrifice, while it is scarcely if ever encountered in regular funerary contexts during the Classic. The authors' analyses shed light on heating procedures by distinguishing between exposure of whole bodies vs. that of bones, by inferring the types of fires and temperatures, their contexts and spatial associations along with the related cultural motivations and dynamics. These data, together with the physical evidence on defleshing, disarticulation, and skeletal reuse at the two sites provide novel information on ritual conduct in the power centers of the northern Petén and explore the feasibility for inferring ritual cannibalism.

Vail and Hernández's work (Chap. 6) introduces the role of sacrifice in the second millennium AD. The two scholars explore the pictorial references of sacrifice during the Late Postclassic founded on a detailed examination of Maya codices and mural iconography. Their comprehensive analysis attempts to establish links with calendrical cycles, iconography, and hieroglyphic captions to assess why, when, and how the Postclassic Maya engaged in human and animal

sacrifice. The manuscript describes a variety of sacrificial events that are decidedly useful as alternative models on which to build archaeological and osteological expectations. Sacrifice is depicted here in an array of fashions, not all of them lethal, even though ritual immolation did represent an important component. Human sacrifice was specifically scheduled for termination rituals marking the end of the *tun* and *k'atun*. Although the images refer to the Postclassic and Contact period, they allude to the long-standing importance of sacrifice and its practice long before to the second millennium AD.

Chapter 7 by Miller focuses on the abundant bulk of representations of skulls and sacrificial rituals in Chichén Itzá. Here, not only the recurring carved representations of crania that appear on many of the site's structures made an impressive visual impact, but also the bony remains including skulls and long bones were on display. The author underlines depersonalization in the sacrificial expressions of death. In contrast to most scenes from the Classic period, there are no references to names or other evidence that could identify specific individuals. Chichén's massive display of skulls, for example, manifests the power of the Itzá to intimidate enemies as well as citizens. Death and its imagery, in the form of actual skulls or sculpted representations, are at the same time relics of successful battles as they are daunting reminders of the authority of the Itzá led regime. Interestingly, Chichén's depictions mark a clear-cut change in the expression of local power from the southern Maya centers during the Classic period. In the Classic, power was centered on the single person, it was personalized, and representations of sacrifice acted as witnesses to the individual's supremacy, as were the important warriors that were destined to be sacrificed.

Chichén Itzá is also the object of Chap. 8, that addresses sacrifice and ritual body mutilation in the human skeletal remains recovered from the Sacred Cenote. The author's detailed analysis encompasses all the possible direct and indirect marks or "signatures" of sacrificial rituals from the collection retrieved during 1960s by a team led by Piña-Chan. The demographic structure of the remains, once again, rejects the authenticity of the myth of female virgins being sacrificed at the site. The skeletal sample pertains to individuals of both sexes and all age groups, though the majority of the remains belong to subadults and, among the adult segment, to young males. Despite the damage that the material suffered during the recovery process (an airlift sucked up some of the remains), the author manages to reconstruct different scenarios that might have occurred at the edge of the cenote. He promotes the idea of dismembered corpses thrown into the sinkhole, taking into account the cut and stab marks encountered on some of the remains. The majority of the remaining pieces did not present specific signs of violence. Additionally, several bilateral bony segments could be paired, likely indicating that whole bodies were deposited in the cenote. Unfortunately, objective factors hampered a thorough osteotaphonomic and archaeological analysis; nonetheless, the skeletal evidence provided by Anda permits a rather comprehensive view of the broad array of sacrificial rituals that had been performed at this important Postclassic center.

Studies on Postclassic osteotaphonomy have been undertaken also by Hurtado, Cetina, Tiesler, and Folan in Chap. 9. The authors analyze the funerary and nonfunerary human remains unearthed in the central, administrative, ceremonial, and residential areas of Champotón, situated along the Gulf Coast in the state of Campeche. This chapter is the result of extensive research that includes detailed taphonomical and in situ recording, followed by lab analysis. The results are supported by a detailed study that benefits fully from the scope of the different lines of evidences explored. The authors set out to provide a working model to distinguish funerary from nonfunerary remains and, on this basis, describe and interpret the combined archaeological, taphonomic, and skeletal evidences. They manage to provide a convincing case not only on rituals, particularly for *Xipe Totec* sacrifices performed at the site, but also on the social and political dynamics that led to the formation of the skeletal assemblages at Champotón.

In Chap. 10, Serafin and Peraza examine the varied mortuary complex from the late Postclassic center of Mayapán. The authors' findings of anthropogenic marks document both ancestral body treatments and postsacrificial behavior, and use contextual and ethnohistorical information to infer the different possible cultural motivations. As the authors demonstrate, the mass grave of Mayapán's central Structure Q.152 shows similarities to postsacrificial assemblages from other Maya sites, mainly to the *tzompantli* of Iximché, Guatemala. The strategic location of these potentially war-related mass deposits within the site's core links them directly to the governing elites and the institutional.

Cucina and Tiesler address health and social status issues of the so-called nonfunerary or "problematical" deposits (Chap. 11) recovered at several Classic period sites. The colonial records report that sacrificial victims were often fringe members of the society, though also war prisoners and people kidnapped during raids were favorite sacrificial targets. This study distinguishes among elite, commoners, and nonfunerary deposits from contextual evidence, and analyzes them in terms of their mortality, nutrition, and health. The results indicate variable but overall poor health and nutritional status of the group that apparently did not receive proper burial. It tends to fall within the commoners' range of variability with some exceptions for the adult males. One thing for certain, the elite were the healthiest, at least according to the authors' results. Reasons and occasions for sacrifice were multiple, as were the targets. The hypothesis that fringe and unhealthy members of the society were selected for sacrifice can be true, but is surely not the only one. Individuals imprisoned during warfare or kidnapped from other villages were likely normal members of their own societies, which is evident by the overlapping variability between commoners and the problematic sample. Nevertheless, some results contradict colonial records that state that individuals were selected for sacrifice because of their good health, regardless of sex. Interestingly, nonfunerary males were healthier than the nonfunerary females, suggesting that they may have been victimized under more specific circumstances.

Chapter 12 by Price, Burton, Wright, White, and Longstaffe focuses on stable isotopes of strontium and oxygen to detect the presence of foreigners among sacrificial victims recovered from Tikal, Kaminaljuyu, and Teotihuacán. They provide detailed information on this relatively new methodological approach for the Maya area that permits the reconstruction of migratory patterns and individual movements and provenance. The three case studies provide heterogeneous results, indicating different patterns in the selection of sacrificial victims.

Chapter 13 by Jane Buikstra provides a unified perspective on the advances made by the contributors of this volume, centering on the methodological question as the main issue, as well as the applications and future prospects in Maya research. Buikstra starts out by comparing research on sacrifice and violence in the Maya realm to that conducted in other cultures of the New World, namely the Andes and North America. As she discusses the focus, accomplishments, and limitations of each contribution, she explicitly addresses the points that need to be taken into consideration for future skeletal studies of Maya ritual behavior. They encompass expectations for sacrificial contexts, clear understanding, and distinction of what is funerary and nonfunerary, and the exploration of the basic biographic data, their meaning in terms of the political, religious, social, and cultural contexts which originated the entombments.

In conclusion, this volume highlights that skeletal and taphonomic studies of sacrifice in the Maya region are still in their initial phase. It will take time to acquire a deeper knowledge of the cultural meanings and physical manifestations involved in ritual violence and of unrelated acts of funerary behavior. As we argue, it will only be possible to discern and interpret past mortuary behavior through the holistic analysis of skeletal remains within a broader archaeological and sociocultural framework. With this perspective, we hope that the approaches presented by the chapters in this volume may inspire fruitful discussions, constructive criticism, and, most of all, a fresh look at the millennium long traditions of the ancient Maya and their cultural meanings.

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2

Funerary or Nonfunerary? New References in Identifying Ancient Maya Sacrificial and Postsacrificial Behaviors from Human Assemblages

VERA TIESLER

2.1. Introduction

Four decades ago, Alberto Ruz's comprehensive compendium on pan-Maya burial traditions *Costumbres funerarias de los antiguos mayas* ("Ancient Maya burial customs") drew attention to the complexity and diversity of the area's past funerary record (Ruz, 1968). His all-embracing collection of data, organized according to the then popular cultural-historical mind frame, still stands as a basic source of reference, anticipating what has become a systematical study of the Maya mortuary complex. Archaeological research, supplemented by written and iconographic information, has now granted a broader understanding of the scope of ancient Maya ancestral practices, together with their underlying eschatological codes and social conditions (see, for example, Ciudad et al., 2003; Cobos, 2004; McAnany, 1995; Welsh, 1988a).

Less understood are the many human clusters in the archaeological record that do not clearly denote ancestral practices. Regarding the multifaceted nature of the Maya mortuary complex, we could make a point by stating that most of the human assemblages recovered from precontact Maya contexts lack clear funerary status. The many human disposals that appear in caves and sink holes, multiples and mass deposits, figure among those, to be discussed extensively in subsequent chapters in this volume. Some of the above contexts have been assigned potential sacrificial status, yet without being able to reach a broad agreement in the scholarly community.

Here, I have opted, for practical reasons, to deal with human assemblages of presumably extrafunerary nature according to three broad categories: cache remains, isolated bone scatters, and primary disposals. The first category, cache remains, identifies the scattered, intermingled, and incomplete human assemblages in clearly offertory arrangements that have habitually been tagged as "caches." These identify human clusters explicitly or implicitly as ceremonial artifacts, a notion essentially distinct from the reverential statuses implied by funerary disposals.¹ Naturally, this dualistic nomenclature comes short of benefiting all assignments of human assemblages, as already acknowledged by William Coe who stated that separating

these two categories (i.e., caches and burials) "... may be misleading in attempts to explain ancient Maya ritual behavior" (Coe, 1965; see also Coe, 1959). The problems inherent in this either/or assignment have triggered concerns for oversimplification and have led some authors, like Marshall Becker, to propose alternative appreciations on these human assemblages. His view of human ritual deposits is not dichotomic, rather it is a broad continuum with some burials appearing as a cache and others as caches combined with a burial (Becker, 1992, 1993).²

The working definition for our second category of controversial human deposits, isolated bone scatters, is even more unspecific. Loosely labeled as "concentrations," "miscellaneous human remains," or "problematical deposits," this group is made up largely of random bone scatters in the fills and construction middens of Maya sites. The clusters mostly consist of small quantities of intermingled skeletal material unlikely to represent burials (see for example Becker, 1993; Coe, 1990; Iglesias, 2003; Kunen et al., 2002; see also Medina and Sánchez in this volume). The labeling as "problematical" admits, per se, the impossibility of assigning a clear pattern to isolated human components beyond suggesting a series of potential formation processes that could relate to ritual or domestic refuse discard, recycling of human bones and teeth for artifact production, or protracted funerary practices. In recent years, the mortuary pathways of this type of human concentrations have been examined more closely in ancient ceremonial dumps. Attempts to disentangle their ritual meanings have been approached from their depositional histories, symbolic spaces, or underlying agential behaviors (Kunen et al., 2002; Mock, 1994; Walker, 1995; Walker and Lucero, 2000).

The third category of debatable human assemblages concerns primary (disturbed or undisturbed), but mostly complete disposals that show ignoble handling or at least lack clear evidence of ancestral treatment. It includes container burials and mass graves, considered by many authors as sacrificial depositories (see, for example, Fowler, 1984; Ruz, 1968; Welsh, 1988a,b). However, the absence of direct indications of violent forms of death, which hampers any secure interpretation in the great majority of cases, has recently caused a dispute on their sacrificial origin. Doubts have been cast specifically on the authenticity of companion sacrifice in royal tombs from several Maya sites, including Tikal's Tomb 10 or Palenque's great mausoleum of Janaab' Pakal inside the Temple of the Inscriptions (see Weiss-Krejci, 2003). The debate challenges the often arbitrary inferences of companion sacrifice from multiple internments, like those proposed by Welsh (1988a,b) or Ruz (1968) for lack of sufficient evidence. The very concept of "funerary attendants" has been questioned in many examples of alleged companion burials (Weiss-Krejci, 2003; see also Cucina and Tiesler, Chap. 1 in this volume).

Attempts to gain a subtler understanding of nonancestral human assemblages have proliferated especially in the past decade. As we have seen, the new recreations stress notions of continuity and correspondence between offerings in general and funerary internments, much different from the initial tenets of dualism. Both have been conceived jointly as markers of sacred spaces, material witnesses of an evolving built environment and of political involvement, or simply as "earth offerings" (Becker, 1992, 1993; Lucero, 2003; McAnany, 1998; McAnany and

López, 1999, McAnany et al., 1999). At a time when the difficulties inherent in Maya mortuary reconstruction are ever more apparent, cognitive and especially agential approaches have acquired resonance in the academic community. They attempt to imbue ritual human deposits with ideological significance and to gain a subtler understanding of the diversified ritual behaviors that once originated from the material record (Gillespie, 2001, 2002; Joyce, 1999, 2003a,b; Kunen et al., 2002; Lucero, 2003; McAnany, 1998; McAnany et al., 1999; Walker, 1995). These novel frames of references are pursued by some contributions assembled in this volume.

In sum, current work on Maya nonancestral mortuary conduct has successfully addressed many old and new *caveats* and brought forth useful working frameworks for understanding ritual functions of human deposits within Maya constructed spaces and cosmology.

However, some of the readings of their depositional histories fail to address precisely the question of their potentially sacrificial vs. nonsacrificial origin. This is neglectful of the fundamental underlying dichotomy between ancestral practices as opposed to postsacrificial processing, and natural death as opposed to death originating from ritual violence. Therefore, the recognition and interpretation of postsacrificial deposits vs. proper burials or those stemming from other unrelated conducts, and the identification of ritual, violent vs. natural death still appears, at best, ambiguous in much of the recent work.

One root of these shortcomings is the neglect of the skeletal data, reduced by the notoriously degraded state of preservation of the subject matter, hampering severely direct examinations of culturally inflicted lesions. Likewise, the diversity and complexity of ancient Maya mortuary conduct and its manifold material expressions limit in practice the possibilities of finding any unique, distinctive patterns in the skeletal record. Methodologically, the strong reliance on documentary and contextual data, coupled with the neglect of direct biographic and taphonomical evidence, has resulted equally detrimental for a full appreciation of ancient mortuary pathways and a skewed or erroneous view of the types of conduct they may represent.

Studies or even references to culturally inflicted *peri-* or *postmortem* skeletal marks are still very few in Maya research (see for example Buikstra et al., 2004; Cucina and Tiesler, 2006; Massey, 1994; Massey and Steele, 1982, 1997; Mock, 1994; Tiesler, 2002; Tiesler and Cucina, 2003; Tiesler et al., 2002; Wurster, 2000). They have not been scrutinized systematically yet in Maya research as opposed to other cultural areas, namely the North American Southwest and Europe and, to a lesser degree the Mesoamerican Highlands. In these regions, pattern recognition has been successfully put to work in the interpretation of anthropogenic bone modifications (Botella et al., 2000; Pijoan and Lizárraga, 2004; Talavera et al., 2001; Tiesler, 2004; Turner and Turner, 1999; White, 1992). I argue that in practice this situation has led to a chasm between the iconographically based affirmative interpretations of sacrificial behavior (see for example Boone, 1984; Martin and Grube, 2000; Miller, 2003; Schele, 1984; Schele and Miller, 1986; Stuart, 2003; Taube, 1994, 1999), and the reluctance among some archaeologists to accept the vestiges of ritual killings or otherwise violent conduct as such. Specifically, earlier sacrificial

appraisals of incomplete or irregular primary arrangements, namely the ones described for Tikal (Coe, 1990) or Palenque (Ruz, 1992), have recently been discarded for lack of proof at a time when alternative explanations abound. These seem to favor a broad range of more reverential posthumous treatments (Becker, 1992; Chase and Chase, 1996, 1998; Fitzsimmons, 1998; Fitzsimmons and Fash, 2003; Gillespie, 2001, 2002; McAnany, 1995; McAnany et al., 1999; Saul and Saul, 2002; Weiss-Krejci, 2003; see also Chase and Chase, 2003; Tiesler, 2004; Tiesler and Cucina, 2003, for different views).

Here I wish to contribute a set of osteotaphonomic correlates of funerary vs. sacrificial practices, derived from religious-philosophical references adapted to the region. They are designed to assist in the recognition and interpretation of different posthumous body treatments and the potential funerary vs. nonfunerary conduct they may represent. Some of these are put to work in this chapter, others later in the volume.

2.2. Meanings and Expressions of Sacrificial vs. Funerary Behavior

I begin with the premise that most of the attributes of funerary and postsacrificial human placements stem from ritualized conduct, i.e., human behavior that enacts elements of a shared ideology. In the following paragraphs I outline some key codes of ritual behavior that underlie each of these. The concepts encompass by no means the actual range of ancient ritual behavior but those features that anchor the expected and divergent skeletal, artifactual, and contextual patterns to be discussed.

2.2.1. *Maya Death and Burial*

Like in other hierarchical societies (Carr, 1995; Pader, 1982), the broad scope of funerary traditions known for the Maya realm range from the varied, spontaneous, or semiformalized family practices to the symbol-laden, state expressions of dynastic ancestral veneration. Here, the dead were not buried in cemeteries but were most likely laid to rest within close range of their living descendants and, although to a lesser extent, in the ceremonial edifices and public spaces of site cores. A vigorous cult for individual paramounts evolved toward the Classic period, which clearly surpassed long-standing family traditions, on par with developing political hierarchy and centralized rulerships. In the mortuary record, this tendency finds its expression in the richly furnished elite mausoleums, often motivated by the commemoration of deceased lineage members in the form of public performances apt to highlight supreme political, religious, and military authority (Inomata and Triadan, 2003; Lucero, 2003; McAnany, 1995).

Regarding reverential corpse treatment, we know several forms of body preparation during the Classic period. They include, among the others, carefully placing the body inside the funerary space in a supine or flexed arrangement. Embalming and

wrapping procedures were practiced in some areas, along with the application of pigment. Other body treatments, such as predepositional defleshing and dismemberment, have not yet been clearly identified in the burial record of the Classic period. Not even does cremation stand as a widely spread funerary practice during that time, despite the mentions that refer to fires in and around tombs (Eberl, 2005; Fitzsimmons, 1998; Stuart, 1998). As in other Mesoamerican cultural settings, cremation appears to have become a regionally shared tradition only later (Iglesias, 2003; Landa, 1982 [sixteenth century]; Ruz, 1968).

A great variety of postdepositional manipulations of ancestors (i.e., the processing of disarticulated remains) is known for the Maya area. These include the painting of bones, the extraction (reduction) or introduction of skeletal parts, individual and collective reburial, and reuse of single bones as relics. These were destined to be venerated in temples and altars or to accompany later primary interments of family members (Chase and Chase, 1998, 2003; McAnany, 1998; McAnany et al., 1999; Ruz, 1968; Sharer and Traxler, 2003; Welsh, 1988a). More ignoble disturbances took the form of desecration and looting, or construction activities that unintentionally damaged the grave long after its location had been forgotten.

2.2.2. *Human Sacrifice as an Institution*

Different from the heterogeneous ancestral expressions known in the Maya area and different from animal sacrifice, we assume that human ritual sacrifice and, albeit to a lesser extent, postsacrificial body treatments identify an extreme of institutional and highly redundant ritual performances, controlled by the elite in power. The term “sacrifice” comes from the Latin *sacer facere*, which means “to make holy” (Bell, 1997; Hubert and Mauss, 1964). Most theological and anthropological works communicate that the central distinctive feature of sacrifice is the consecration that goes with it. A recurrent theme in sacrificial descriptions states that the victim, now associated with supernatural status, is immolated and offered to the gods. As such, human sacrifice is considered a supreme ritual form by societies which stage it for the termination of a man’s life while the offering of its vital essences (sometimes consumed collectively or burnt) allows for the ultimate communication and exchange with the sacred (Beattie, 1980; Bell, 1997; Bourdillon, 1980; Rappaport, 2004).

Available historic and iconographic information on the ancient Mayas conveys the idea that their performance of human sacrifice did not make an exception to the above statements (Helfrich, 1973; Moser, 1973; Nájera, 1987). Here, human ritual killings were carried out by a squad of religious specialists, with close ties to the circles holding political, military, and religious power (Boone, 1984; Nájera, 1987; Schele and Miller, 1986). Colonial Yucatecan sources generally refer to the *Ah Kin* or high priest assisted by one or more *Nacomes*. It is also evident that strict frames of conduct regulated ritual killings. A set of rules and general concerns were closely followed by all participants before, during, and after the performance of human sacrifice to ensure the effectiveness of the rite (López, 1989, 1998; Nájera, 1987).

The sacrificial choreography was usually preceded by a number of preparations including fasting and autosacrifice, and initiated with the presentation of the victim. The ritual killing and endowment followed, and the vital essences of the body were collected and handed to the high priest who offered them to the gods while invoking the supernatural (Landa, 1982 [sixteenth century]).

2.2.3. *Occasions for Human Sacrifice*

Within this frame of behavior, variation is introduced depending on the rituals that accompanied the sacrifice, the occasions that prompted them, the regional setting, and the epoch. As in other traditional societies, there is a plethora of *leitmotifs* for ritual ceremonies in Mesoamerica, which also holds true for their sacrificial forms. Retrospectively, it is problematical in most cases to assign any specific message or purpose associated with ancient ritual executions, more so from the pictorial or archaeological record (but see Vail and Hernández for inferences on sacrificial forms from codices).

Therefore, I will attempt to distill some broad categories of ritual action that may be relevant for the understanding of the area's ancient cultural complexes (Bourdillon, 1980; Beattie, 1980; Bell, 1997; López, 1998; Rappaport, 2004). Most Maya religious motifs fit in with the notion of "communion sacrifice." Sacrifice benefits communion between humans and gods to renew the cosmos and thus secure common well-being. Many propitious, prophetic, and dedicatory ritual conducts, captive killings, and calendrical ceremonies dedicated to certain presiding deities fall into this category (see also Vail and Hernández in this volume). Such are the ceremonies dedicated to God A for example, who is represented with skeletal attributes and frequently appears together with Chac in scenes of sacrifice and mock self-decapitation (Miller and Taube, 1993; Robicsek and Hales, 1981, 1984; Taube, 1992, 1994). God A appears closely related to God Q who also exhibits the accoutrements of death and sacrifice. The latter is commonly depicted with a flayed or fleshless face, similar to the attributes of his emulated Postclassic counterpart *Xipe Totec*, the flayed god of the Aztecs (González, 1985; Matos, 1986; see also Hurtado et al. in this volume). Blindfolded by a facial band, he is equipped with a burning torch, sacrificial knives, and other stone implements suggestive of ritual execution. Like the adopted Xipe cult during the Postclassic period, God Q appears related to a series of postsacrificial rituals, including flaying, defleshing, and ritual consumption.

A different form of sacrifice is delineated by the notions of prestigious killings. They are destined to individual paramounts and important events in Maya royal life (enthronement, deaths etc.), more than collective well-being. They underline the superiority and power of the receiver, and appear primarily related to individual benefit and needs at the same time that other themes designating religious sacrifice are absent (Bourdillon, 1980). In the Maya realm, this notion is expressed for example by aristocratic companion sacrifice (Cucina and Tiesler 2006; McAnany, 1995 see Medina and Sánchez in this volume).

Sorcerers' killings, as part of witchcraft or black magic, and expiation (i.e. judicial) executions identify additional categories related to the theme of human sacrifice (Beatty, 1980; Bourdillon, 1980; Bell, 1997). While the former is performed in secret and does not respond to community values or interests, the latter (executions of deviant individuals) designates corrective, retaliatory responses. Killings of harmful or potentially harmful members of the community serve as corrective measures to re-establish harmony and, at the same time, secure the continuity of the collective well-being. Evil forces exerted by certain individuals are eliminated by ending their lives, by removing them from the society, and sometimes by physically destroying their bodies by mutilation or fire, themes that will be explored by Lucero and Gibbs in the volume.

A similar notion is expressed during the so-called "disjunction sacrifices," despite its impersonal quality (Beattie, 1980). Disjunction rituals are not motivated by contact and union with spiritual powers but instead seek to destroy or at least remove them from society, which in turn identifies termination rituals among the Maya and, in fact, the pan-Mesoamerican sphere (McGee, 1998; Mock, 1994; Sugiyama, 1998; Vogt, 1998).

2.2.4. *Sacrifice and Violence*

As in other cultural settings that stage human sacrifice, a *kratophonous* (destructive) or *cathartic* element is introduced during the metamorphosis of the victims, who lose their personal human qualities during their transformation into impersonators of the sacred (Hubert and Mauss, 1964; Walker, 1995). The culmination of the ceremony was sometimes anticipated by prolonged torture and humiliation, as Schele (1984) documents in her survey of the iconographic record. Genital mutilation and blood-letting of bound war captives appear especially recurrent as pictorial motives in ritual scenes. A recurring motif is also established by the visual destruction during immolation itself, achieved by arrow wounds, decapitation, and heart excision, or by throwing the victim down from temple facades or into cenotes. Now "broken," the body of the victim is left while producing a violent outpouring of blood – the essence of life and sustenance to the gods. This theme is apparent in the scenes from Piedras Negras and the Dresden Codex. Taube (1999:228–239) associates Postclassic period heart excision with the mutilated earth goddess at Chichén Itzá, who are represented as being cut in two by a pair of bladed serpents. Colonial descriptions are consonant with the pictorial evidence, when referring to victims rolling down the temple stairs immediately after death (Landa, 1982 [sixteenth century]).

2.3. Funerary or Nonfunerary: Skeletal and Contextual Correlates for Ancient Ritual Behavior

From the previous discussion, it follows, at least in principle, that most of the sacrificial practices of the Maya are expected to produce patterns in the material record that differ from reverential mortuary assemblages. For the purpose of

clarity, I will discuss Maya standard funerary or nonfunerary practices within broad categories of sequenced expected operational components along the *peri-* and *postmortem* time line. They are intended to differentiate each stage of sacrificial and funerary behavior documented in the region's ethnohistorical and iconographic record (Table 2.1). This classification is designed to provide analytical elements in the correlation of past activities and the skeletal marks it might have produced. Considered along with other indicators, the taphonomical signatures produced by *peri-* and *postmortem* manipulations (Table 2.2) should assist in the distinction between behavior related to ritual slaying or postsacrificial body manipulations, and other, unrelated, treatments.

2.3.1. *Death and Perimortem Violence*

As noted above, conventional Maya mortuary research tends to assign unnatural death to those contexts that lack a clear funerary status. The scholarly community considers irregular and ventral positioning as evidence, indicating an ignoble treatment of the deceased (whose body appears to have been carelessly deposited into a mortuary depository). In primary contexts and especially in tombs containing multiple burials and elaborate accoutrements, the presence of sacrificial victims has been assumed on the grounds of positioning (or, rather, lack of positioning), and contextual evidence when successive interments can be ruled out. The entangled primary interments of various individuals arranged around one centrally placed skeleton, age, and nutritional profiles and the negative evidence of associated funerary objects have been cited specifically as clues to unnatural death (Chase and Chase, 2003; Cucina and Tiesler, 2006; Fowler, 1984; Ruz, 1968; Welsh, 1988b).

Probably the most direct evidence of ritual slaying is provided by skeletal indications of *perimortem* violence although the term "*perimortem*" is problematic by definition, as it admits the investigator's inability to discriminate modifications that have occurred right before and after death (Sorg and Haglund, 2002:8). However, in most cases, *perimortem* trauma is distinguishable from practices of clearly posthumous nature by evidence of implied conduct and by the vehemence of the action that they indicate. Although the form and cause of death cannot be ascertained from their presence alone, *perimortem* violence, by definition, is apt to leave unhealed impact lesions in the form of fractures, stab marks, and sharp and blunt force trauma. The pattern left by these lesions differs from the surface alterations produced by body dismemberment, removal of soft tissue, or long-lasting exposition, whose nature is clearly posthumous.

As regards our own research in the northern Petén area, we have documented a series of cases allusive of blunt and sharp force trauma at Calakmul and Becán, in the Mexican state of Campeche, and Dzibanché in Quintana Roo. Additional evidence was collected from the burial compounds associated with the sarcophagi of Janaab' Pakal and of the so-called "Red Queen" (Structure XIII sub), from Palenque, Chiapas. The samples from these sites were studied systematically in terms of their depositional processes, biovital attributes, minimal number of individuals per context, and body parts represented. The evaluation of disposition and

TABLE 2.1. Sequenced sacrificial and funerary conduct and sets of indicators

Time sequence	Biographic profile	Form of death	Predepositional body treatment	Primary deposition	Postdepositional manipulation	Secondary deposition
Expected funerary attributes	- All age groups	- Natural	- Embalming	- Single	- Removal/extraction of body parts	- Single or multiple successive
	- Both sexes	- Accidental	- Cinnabar application	- Body placement and offerings	- Desecration	- Bone arrangement and offerings caching
Osteologic/ tafonomical correlates	- No information	- Dismemberment?	- Dismemberment?	- Association to living spaces, interment	- Bone relics	- Association to living spaces, container
	- Sex/age distribution	- Cremation (Predominantly Postclassic)	- Adornments	- Body arrangement	- Disturbance	- Bone arrangement
Expected attributes in post-sacrificial deposits	- Predominantly 2nd and 3rd infancy adolescents and young adults	- Constriction effects	- Pigmentation	- Funerary container and associated artifacts	- Missing body segments	- Funerary container
	- Mostly male	- Associated artifacts	- Heat exposure (>600 °C)	- Location	- Worked bones and teeth	- Location
Osteologic/ tafonomical correlates	- Violent	- Butchering	- Butchering	- Single or multiple (complete/incomplete)	- Reduction	- Single or collective incomplete disposal
	- Non-natural	- Dismemberment	- Dismemberment	- No body arrangement or subst. offerings	- Extraction	- No bone arrangement or offerings
Osteologic/ tafonomical correlates	- Signs of perimortem violence (cut or stab marks on skull, ribs, sternum and vertebrae)	- Skinning	- Skinning	- Association to public-ceremonial spaces	- Desecration	- Discarded in public domain, ritual spaces, refuse middens
	- Sex/age distribution	- Defleshing	- Defleshing	- Simple interment or placing above ground	- Re-use of bone segments	- No bone arrangement, isolated bone
		- Consumption	- Consumption	- Irregular arrangement	- Disturbance	
		- Burning	- Burning	- No funerary container	- Missing body segments	
		- Cut marks, slicing, percussion, fractures	- Cut marks, slicing, percussion, fractures	- No/few associated artifacts	- Worked bones and teeth	
		- Heat exposure (<600 °C)	- Heat exposure (<600 °C)	- Location		

TABLE 2.2. Sequenced sacrificial procedures and potential skeletal marks

<i>Postmortem</i> interval	Depositional sequence	Conduct	Possible skeletal indications
<i>Perimortem</i>	Predepositional	Death by arrow wounds	Unhealed stab wounds, mostly in the trunk area
<i>Perimortem</i>	Predepositional	Stoning	Unhealed blunt force trauma mostly on skull
<i>Perimortem</i>	Predepositional	Throat slashing	Unhealed sharp force trauma in bodies of cervical vertebrae
<i>Peri-postmortem</i>	Predepositional	Heart extraction	Unhealed sharp force trauma on the ribs, sternal bone, lower thoracic vertebrae
<i>Peri-postmortem</i>	Predepositional	Decapitation	Unhealed, sharp force trauma in cervical vertebrae, possibly mandible
<i>Peri-postmortem</i>	Predepositional	Butchery	Impact stabs and cuts mostly distributed on trunk, green bone fractures, crushing
<i>Peri-postmortem</i>	Pre-postdepositional	Burning	Charring, mostly low direct heat exposure (<600 °C)
<i>Peri-postmortem</i>	Predepositional	Disembowelment	Slicings on vertebrae, rib cage, and pelvic girdle
<i>Peri-postmortem</i>	Predepositional	Flaying	Slicings on skull and scapula/clavicle
<i>Postmortem</i>	Predepositional	Defleshing	Slicing and scratch marks on bone shafts, along muscle attachment areas
<i>Postmortem</i>	Predepositional	Disarticulation	Impact cuts, blunt force, breakage tends to be distributed around joints
<i>Postmortem</i>	Predepositional	Anthropophagy	Percussion breakage and abrasion, slicing cut marks on shafts and surrounding joints, spiral fractures, different forms of heat exposure, missing vertebrae, cut marks, pot polish
<i>Postmortem</i>	<i>Postmortem</i> , Post depositional	Bone recycling	Sawing, drilling, breakage, abrasion, polishing, chiselling, engraving, painting (preforms, finished forms, or discard)

state of articulation followed the criteria of the French *anthropologie de terrain* (Duday, 1997; see also Tiesler, 2004). The curated remains were scrutinized with magnifiers and tangential illumination for natural taphonomic and anthropogenic marks. The latter were recorded according to presence, location, and concentration, following the criteria described by Pijoan (1997), Turner and Turner (1999), and White (1992), and general forensic research. Taphonomic “signatures” were employed to testify the different forms of body treatments of a posthumous origin and those cases of probable violence surrounding time of death (see Table 2.2). A similar approach was taken in the recognition and interpretation of the Postclassic skeletal assemblages from Champotón, in the state of Campeche, Mayapán, and Chichén Itzá’s Sacred Cenote that will be discussed later in this volume by Anda, Hurtado et al., and by Serafin and Peraza.

Regarding the forms of *perimortem* trauma, we documented unhealed sharp force lesions reminiscent of throat slashing in an isolated skull deposit from Calakmul, Campeche (see Tiesler, 2002 for a lengthy description). The skull and its first three cervical vertebrae were located inside the fill of Structure II. The third vertebra had received a sharp, horizontal blow from the front (Fig. 2.1). Additional slicing marks on the first cervical vertebra and green bone fractures on the mastoid process suggest that soft tissue was subsequently removed, probably as part of a posthumous amputation of the head. A second example was reported for the juvenile companion (XIIIsub-1) of Palenque’s “Red Queen.” The completely slashed third cervical vertebra suggests in this case that the head was severed completely from the back (Cucina and Tiesler, 2006).

Additional cases of throat slashing are documented in the literature. Such a case is the Terminal Classic skull pit of Colhá, Belize (Massey and Steele, 1997).

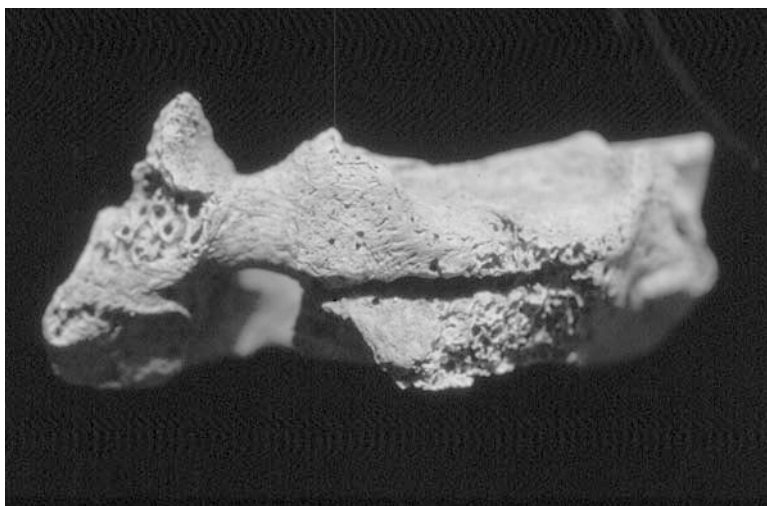


FIGURE 2.1. Slashed third cervical vertebra, Deposit IIa1, Calakmul (photo by V. Tiesler)

The authors describe horizontal cut marks on the upper cervical vertebrae, one of which (axis) received a blow from the front. Another case is described for the Motmot Tomb at Copán. Buikstra et al. (2004) document several skulls and neck vertebrae among the offerings of the burial, one of which exhibited cut marks on the ventral and lateral sides of the fifth cervical vertebra (Skull deposit 37–10). Two skull deposits that preserve their first cervical vertebrae from Postclassic period Topoxté, Guatemala (Wurster, 2000), also share the above pattern, with both showing cut marks on the third vertebral body. Also Postclassic are 44 decapitated or possibly decapitated skulls from Iximché in the Highlands of Guatemala (Whittington, 2003b:244–249). Whittington describes physical evidence in the form of missing portions of bone and sharp force trauma that left ragged edges and straight slicing marks on the base of the skull, on the back of the mandibular angle, and on the cervical vertebrae.

The recurring pattern of anthropogenic marks on the neck region, documented here, attests to throat slashing in some examples and beheading in others, even if it remains unclear in most of the cases whether it represents the cause of death or a posthumous amputation of the still fleshed head. Current understanding has related the latter practice to sacrifice, trophy taking, along with the selective retention of certain segments of the corpse as part of ancestral practices (McAnany, 1998; Welsh, 1988b). Weighing the contextual evidence provided for all the above examples of anthropogenic marks on neck vertebrae, sacrificial scenarios seem much more plausible here than ancestral ones. At the same time we may ask ourselves about the origins and ritual connotations of descriptions of ancient Maya skull deposits or headless remains which lack any certain reference to potential anthropogenic marks (see for example Ruz, 1968; Welsh, 1988a,b), an aspect that will be taken up again in Sect. 2.3.2.

Unhealed sharp force trauma is also evident in other parts of the body, mainly the axial skeleton. In the case of the Red Queen's female companion, the blows affect the ribs and the lower part of her spine. This pattern has been described extensively elsewhere as the probable result of sacrificial heart extraction and butchering (Cucina and Tiesler, 2006; Tiesler and Cucina, 2003). Later in this chapter, the inferred behavior will be put into context with a similar pattern documented for Becán's deposit (see also Medina and Sánchez in this volume).

Unhealed blunt force lesions and fractures were documented for Deposit 3008 (K/A-1) in the epicenter of Dzibanché, Quintana Roo (Tiesler, 1997a). The well-preserved skeleton of an adolescent female, who had been deposited face down into a chamber that was then sealed, displays green bone fractures on the skull and several ribs. Massive *perimortem* dental fractures occur on both sides of the mandibular and maxillary dentition (Fig. 2.2).

2.3.2. *Posthumous Body Processing*

Most of the anthropogenic surface marks found in the prehispanic record are of clearly posthumous nature. Traces left by body disarticulation, removal of soft tissue, and long-lasting heat exposure most likely stem from postsacrificial



FIGURE 2.2. Dental fractures, right mandible of Burial K/A-1, Dzibanché (photo by V. Tiesler)

practices or, although less documented, from those manipulations that once formed part of funerary and commemorative acts, as has been argued for the ancient Classic aristocracy (Becker, 1992, 1993; Chase and Chase, 1998; Fitzsimmons, 1998; Fitzsimmons and Fash, 2003; McAnany, 1998; McAnany and López, 1999; McAnany et al., 1999). Unlike *perimortem* violence, *postmortem* body processing is related only indirectly to the form of death, yet it provides an extraordinarily rich source toward the understanding of how both types of death articulate with the processing of corpses.

Relevant insights for interpreting Classic elite body manipulation are granted by iconography and epigraphy. Eberl (2005) provides an important starting point in epigraphic-related funerary research on the chronology of primary and protracted corpse treatments. It is based on more than 200 Classic Maya inscriptions referring to the death and veneration of important dignitaries, identifying primary interment and numerous types of secondary manipulation. The initial interment is identified by the so-called *muhk-aj* events, festivities held during the first 10 days of mourning, probably culminating a series of elaborate preparations. A second group of references falls between 100 and 400 days after death. This is the time mainly destined for accommodating the final resting place and its formal consecration through ceremonies involving smoke. No mention refers to any direct manipulation of the body in the course of this time interval, which most likely would be undergoing decomposition. Years after death, the commemorative events become less frequent. They take the form of *el naah* smoke ceremonies and secondary treatments of the now skeletonized body, including the recollection of bones and bundle redepositions. The author mentions the use

of red pigment (*nahb-aj*) for these late treatments, associated to the painting of funerary chambers and the skeleton. Similar patterns of postinterment activities have been described by Fitzsimmons (1998).

The mortuary pathways that are relevant for postsacrificial activities and their material expressions are prone to differ from ancestral contexts. According to colonial witnesses, a victim's body could have been granted a plain burial either without or with prior treatment. Nonancestral body manipulation and mutilation is amply documented both in images and colonial writings (Landa, 1982 [sixteenth century]; see Edmonson, 1984; Helfrich, 1973; Moser, 1973; Nájera, 1987; and Vail and Hernandez in this volume for extensive references). Both native and European colonial sources identify different forms of flaying and dismemberment, defleshing, and the ritual consumption of the remains. Apart from certain denominators associated with Postclassic *Xipe Totec* ceremonies or captive sacrifice, no predictable behavioral patterns have been specified that could account for the actual diversity of postsacrificial treatments that have left their traces in the skeletal record, constituting challenges for future research in the Maya region. Regarding defleshing, one reference is worth mentioning to illustrate ancient behavioral patterns. Juan de Morales Villa Vicencio (1937; see also Helfrich, 1973) comments in his account on the Spanish "entrada" (entrance) in pristine Lacandon land in 1586, that a group of Spaniards came upon a place where a sacrifice had been conducted. He details that the party was to find the abandoned body of a sacrificed boy, whose left forearm had been deprived of soft tissue between the wrist and the elbow. A Spanish soldier had received a similar treatment after having been killed.

Regarding the physical evidence of body processing, each procedure leaves a specific signature in the skeleton (Table 2.2). Whereas flaying is likely to produce marks mainly on the skull and to a lesser degree on shoulder blades and clavicles, disarticulation commonly results in incisions, fractures, and blows around the joint areas. Defleshing implies the detachment of muscular masses and surrounding connective tissue from bone shafts. The skeletal traces reminiscent of flaying or defleshing are consistent with the Maya iconographic depictions and the colonial accounts. The majority of these indications come from mass graves, like the ones documented from Colha, Belize and Iximché, Guatemala, or the scattered irregular assemblages from Kohunlich, Calakmul, and Becán, as part of ritual debris or offerings (Massey and Steele, 1997; Tiesler and Cucina, 2003; Whittington, 2003a,b). Several contributions in this volume deal with the patterns and meanings of such marks in nonfunerary contexts.

Less warranted is the validation of defleshing in the record as part of past ancestral treatments, at least for the Classic period. More than indications of differential preservation or missing skeletal segments (which in any case would more likely manifest dismemberment and not defleshing), research has not supplied the direct skeletal evidence of dismembered or defleshed ancestors in primary or secondary contexts as of now (but also see Medina and Sánchez, and Serafin and Peraza in this volume). Some mentions of traces reminiscent of defleshing, like those documented for Calakmul's lavish tomb from Structure VII, have been dismissed as rodent marks (Folan et al., 1995; Tiesler, 1997b). Potentially

different is the situation in the group of isolated skulls, mandibles, and long bones, some of which bear scrapings and cut marks allusive of the processing of fleshed segments.

Although debated, indications of soft tissue removal in combination with fractures and burning have been inferred as a by-product of ritual ingestion following sacrifice (Helfrich, 1973; Nájera, 1987; Tourtellot, 1990:109). Colonial accounts on postsacrificial ingestions have been interpreted in this sense as motivated by the desire to acquire the spiritual power of the victim. Landa (1982 [sixteenth century]) and other chroniclers (Casas, 1958) mention that body parts of the slain victims sometimes were distributed among the participants for consumption. Similar to the Aztecs, heads, hands, and feet seem to have been preferred portions to be cooked prior to ritual consumption, as stated by Casas (1958:152). For other areas, mainly North America, a set of taphonomic criteria has been proposed for identifying cannibalism from the skeletal record. These include *perimortem* breakage, boiling or burning, anvil abrasions, cut marks, under representation of certain anatomical portions, and pot polish (Botella et al., 2000; Hurlbut, 2000; Turner and Turner, 1999; White, 1992). Additional parameters derive from the cultural perturbations of human assemblages from the area, some of which have been applied by Medina and Sánchez later in this volume in an attempt to provide possible explanations for the patterns of anthropogenic marks observed in Calakmul and Becán.

The ritual notions of exposing corpses, body parts, or skeletal remains to direct or indirect heat deserve separate scrutiny. Smoked bones show characteristic surface features, and colors differ from those exposed to open fire (300–700 °C) and calcination (>600 °C). Differences are also evident when comparing the traces of exposure on fleshed vs. dry bone; traces of boiling are generally less evident (Botella et al., 2000; Buikstra and Swegle, 1989; Herrmann, 1988). Whereas cremation was amply practiced during the Postclassic period (Iglesias, 2003; Landa, 1982 [sixteenth century]; Ruz, 1968), the evidence of the fire exposure of primary remains is rare in the funerary category before the second millennium AD. Despite the Classic period references to fire ceremonies in and around tombs (Eberl, 2005; Fitzsimmons, 1998; Stuart, 1998), no convincing case can be made so far for noble corpse incineration. Conversely, many cache assemblages of intermingled multiple and isolated human remains, like those recorded in Piedras Negras (Coe, 1959) and Tikal (Coe, 1990), do show the vestiges of having been exposed to fire. Our own research equally documents the charring of human remains in offertory contexts and undefined assemblages of the Classic period northern Petén (Tiesler and Cucina, 2003). Questions related to cultural connotations of different types of the firing of fleshed and dry skeletal remains will be proposed here by Medina and Sánchez in Chapter 5.

2.3.3. *Primary and Secondary Disposal and Disposal Spaces*

As we have seen from the above, disposal spaces, body arrangement, and anthropogenic bone marks provide key information for assigning potential postsacrificial status and inferring ritual behaviors, at least in primary interments and functionally

defined contexts that stem from the closing acts of offertory ceremonies. Disposal as part of sequenced construction offerings in palaces, temple areas and, to a lesser degree, in residential compounds, may provide indications on ritual meanings and differentiated depositional histories (Helfrich, 1973; Mock, 1994; Nájera, 1987). Construction fill, debris, or disposal on top of floor, especially in liminal spaces, such as building entrances or central axes, have also been associated with postsacrificial offertory practices. These findings, together with the moment of deposition in a construction or demolition sequence, may provide important clues to recognize such ritual behavior as dedication or termination events (Becker, 1992; Chase and Chase, 1998; Kunen et al., 2002; Lucero, 2003; Walker, 1995; Walker and Lucero, 2000, see also Harrison-Buck et al., and Vail and Hernández in this volume).

A second recurring pattern explored further in this volume, is provided by “caching” along with the physical separation of remains from settlements, which are sometimes transported great distances before being deposited in caves, caverns, or in cenotes (Scholes and Adams, 1938; see also Harrison-Buck et al. and Anda in this volume). This notion equally poses questions on the circumstances of ritual deposits and on how generalized the ancestral uses of caves and sink-holes really were.

Different from most religiously motivated sacrifices, we have linked the purpose for attendant sacrifices to specific ritual demands during elite mourning and commemoration. Ritual killings in the course of funerary preparations or commemorations are thus apt to be recognized in the archaeological record in the form of companion or retainer burials within or adjacent to the principal interment. Common signatures have been discussed at length elsewhere, along with alternative mortuary interpretations (Cucina and Tiesler, 2006; Ruz, 1968; Tiesler, 2004; Weiss-Krecji, 2003; Welsh, 1988a,b).

Further down the *postmortem* time line stand the secondary and tertiary assemblages that have been clearly disturbed, removed, and relocated. Here, the contextual assignment becomes a more problematic undertaking, especially in Maya archaeology with its host of protracted treatments. Body parts or bone segments may have been processed in different ways. The pieces may have ended up as isolated secondary bone clusters or included in other burial contexts, like in the case of the cached secondary remains that appear associated with many complete, primary deposits. Also isolated segments contained in cached spaces, articulated or not, worked or unworked, pose questions regarding their prior transformation processes. These range from the simple redisposal to the recycling of skeletal parts as raw material to make ritual or ornamental artifacts and domestic tools. Naturally, this situation poses difficulties for the recognition of prior burial status or any predepositional inferences, as will be argued later in the volume. For instance, no straightforward explanations exist to account for the isolated phalanges and finger deposits within burials and caches. Maybe with the exception of those modified skull pieces that are identified in the literature as “trophy skulls,” no warranted interpretation has been assigned to the status of the human “raw material” that has been worked into domestic and ritual objects and which makes its entrance into the record as waste pieces, offerings, and debris.

Maya iconography and colonial documents provide evidence of trophy skulls taken from war captives in the form of shrunken heads, skull caps, and jaws as part of the dress worn by the victorious captor (Landa, 1982 [sixteenth century]). Other human artifacts have been identified as the presumable vestiges of relic veneration, similar to the stuccoed skulls described by Landa. The determination of some of these ritual artifacts as “trophies” or “relics” is ambivalent and in some cases debatable (see for example Hammond et al., 2002; Robicsek, 1991; Harrison-Buck et al. in this volume, for discrepant interpretations). A fortunate exception is the recent finding of a femur fragment that was recovered from the accoutrements of the recently discovered mausoleum prepared for Ek Balam’s protagonic governor *Ukit Kan Le’k Tok’* (Lacadena, 2002). This left proximal femoral segment of a robust adult was carved into a perforator. Its long inscription states that it belonged in life to *Ukit Ahkan*, identified as the father of the famous royal, thus linking physically the acclaimed relationship between *Ukit Kan Le’k Tok’* and his ancestor.

In the case of termination rituals and of what could be interpreted as domestic or ceremonial debris, we infer from the above that they are apt to leave disparate deposits, in part burned, intermingled with animal remains, mutilated, fragmented, scattered, or otherwise destroyed (see Gómez et al., 2003; Kunen et al., 2002; Massey and Steele, 1982, 1997; Walker, 1995; Walker and Lucero, 2000). These should indicate potential nonfunerary status along with those taphonomic signatures on the skeletal surfaces that have a nonfunerary connotation, like signs of *perimortem* violence, charring, defleshing, or flaying, even if alternative funerary or circumstantial scenarios cannot be clearly discarded. More than any other context, dispersed deposits of this kind should therefore be discussed thoroughly considering the manifold processes of skeletal manipulation and reuse, from which they might stem. Only the critical weighing of all feasible alternatives makes for plausible inferences of different notions of ritual behavior they may express.

As I have argued above, solely the joint recreation of differentiated skeletal, cultural, and spatial patterns will ensure a truly fruitful cultural appreciation of human remains and their depositional trajectory. The reconstruction and interpretation of the Late Classic Deposit no. 1003, from Becán, Campeche, which I will refer to in the following paragraphs, illustrates the complexity of the series of processes that resulted in its context and the challenges involved in their cultural interpretation.

2.4. The Depositional Trajectory of Deposit 1003, Becán, Campeche

Recently, an INAH team of archaeologists led by Luz Evelia Campaña encountered the remains within Structure X in Becán’s core (Campaña, 2002; Tiesler and Campaña, 2006). The semicomplete skeleton rested on a bed of silex nuclei at the bottom of a staircase accessing an inner room inside a sealed substructure. Some of the bones were collected from outside the anatomical space occupied by the body. Others were retrieved from within the debris on the staircase’s first step,

while a last group of remains was encountered still further away in the eastern part of the room. Two supernumerary left hand metacarpal bones, belonging to a second individual of adult age, were also registered.

2.4.1. *The Mortuary Compound*

Despite the perturbation, several taphonomic indications suggest that decomposition had occurred in situ (see Fig 2.3). The bones of both feet maintained their

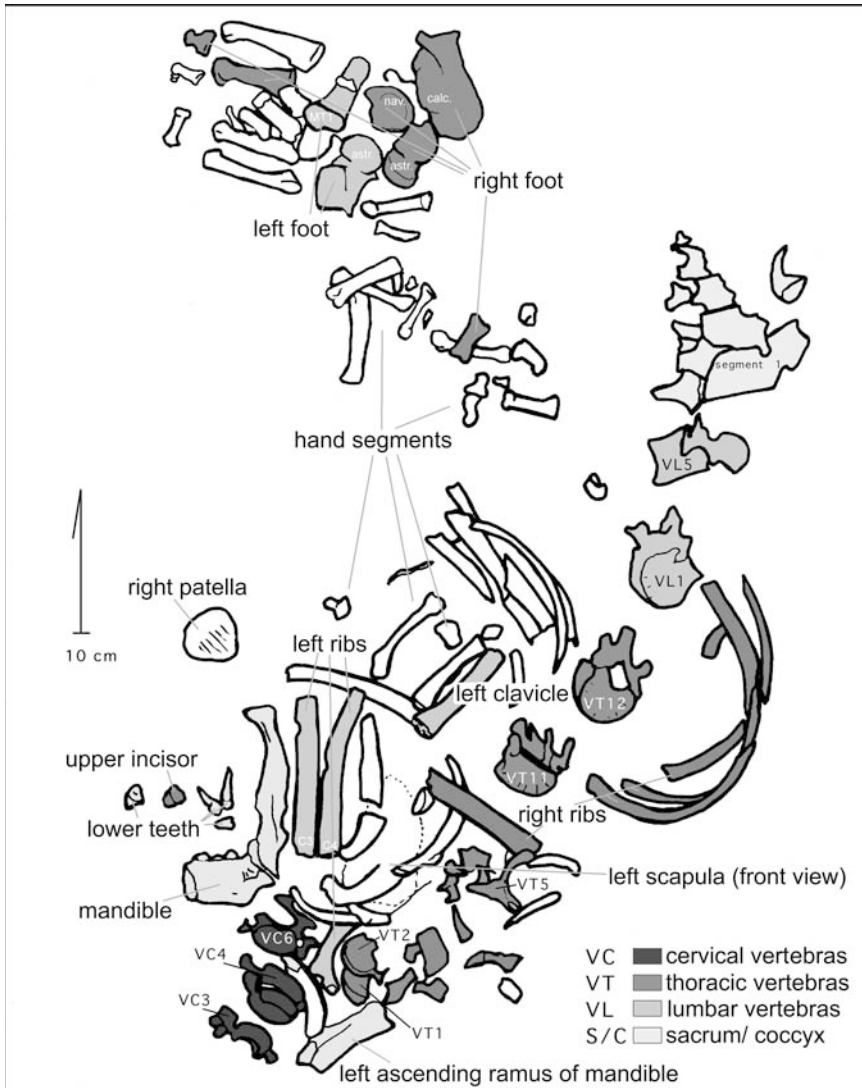


FIGURE 2.3. Arrangement of human remains, E1003, Becán (drawing by V. Tiesler)

anatomical correspondence. Other bony segments of the axial skeleton, although disturbed, showed a distribution that is characteristic of a decomposition in empty space and a fully flexed, seated position. Notwithstanding the good preservation of the bony material, segments of the trunk, and of hands and feet, the skull and most of the long bones are completely absent: Of the latter, femurs, tibiae, fibulae, radii, the left patella, the right humerus, and the diaphysis of the left humerus are missing. The cranium is completely absent, except for both upper central incisors and an upper third molar. This situation finds its possible explanation in the conical morphology of their roots. The three teeth had likely fallen out of their sockets after decomposition but before the skull had been detached. All mandibular teeth were present and were found in close proximity to the cervical vertebrae.

The disturbances in an anciently sealed context, along with the almost complete absence of the long bones and the skull, all segments that show the greatest resistance to natural decay, is only explainable if the skeletal assemblage was revisited and some parts removed. This event must have occurred in the time interval between body decomposition and the collapse of the roof of the substructure (Campaña, 2002; Tiesler and Campaña, 2006).

2.4.2. *The Skeletal Remains*

The skeletal analysis indicates a probable male of 15–18 years. The morphological study focused on the trunk for lack of the axial skeleton and skull. Inflammatory changes are evident on the lower ribs (7–12) as well as the lower thoracic vertebrae (9–11). In the former, the lesions affect the inner faces of the ribs associated with the pleura. The lesions on the vertebrae are distributed on the left side of the segments' bodies without involving the vertebral apophysis. In the ninth thoracic vertebra, the inflammatory lithic process had led to a 15 mm wide cavitation (Fig. 2.4). Its edges indicate an incipient reactive formation (sclerosis) without evidence of remodeling in the surrounding areas. The alterations are associated with a reduction of the height of the vertebral bodies, and probably caused pain and limited the movement of the individual's spine. Taken together, the physical evidence suggests the youngster suffered from an infection of the lower mediastinum, which should have involved the pleura and lungs. Infectious processes like this have been linked to brucellosis, equinococcus, tuberculosis, or mycotic infection (Aufderheide and Rodríguez, 1998; Ortner, 2003). Unfortunately, the incompleteness of the skeletal remains does not permit registering the pattern of bone involvement, which hampers a more secure diagnosis.

Lesions of a different origin affected the twelfth thoracic vertebra. Three unhealed, sharp force lesions, produced in fresh bone, appear on the left costovertebral junction of the vertebral body with no evidence of any bone reaction (Figs. 2.4 and 2.5). The three regular cut marks penetrate 1–3 mm deep into the bony tissue. The lesions appear to have been inflicted with an axe-like cutting implement that impacted the bone directly rather than slicing it. Tension fractures in fresh bone were detected on four ribs. Ribs 5 and 6 are affected on the right side, and ribs 6 and 7 on the left side.



FIGURE 2.4. Thoracic vertebrae with signs of inflammatory disease (TV9), deformation (TV11), and cutmarks (TV12), E1003, Becán (photo by A. Cucina)

The type and topography of the lesions are similar to others documented in two (possibly three) primary attendant disposals of dignitary's tombs from Palenque and Calakmul, discussed extensively in other works (García and Granados, 2000; Tiesler and Cucina, 2004, 2006). While sacrifice is usually inferred by analogy, these burials provide a more solid case to infer violent death. Other nonsacrificial mortuary activities, like ancestral eviscerations have been contemplated as alternative explanations, but are not plausible given the contexts and the violence of the impacts, which would counterindicate any ancestral behavior.

The pattern, shared by the four specimens, consists of rectilinear, smooth, one-to-three mm deep cut marks along the left side of the lower thoracic vertebrae. Their morphological features indicate that the marks had been inflicted from the front of the trunk with a cutting tool handled like an axe. From this topographical and functional perspective, and taking into account that they occurred in

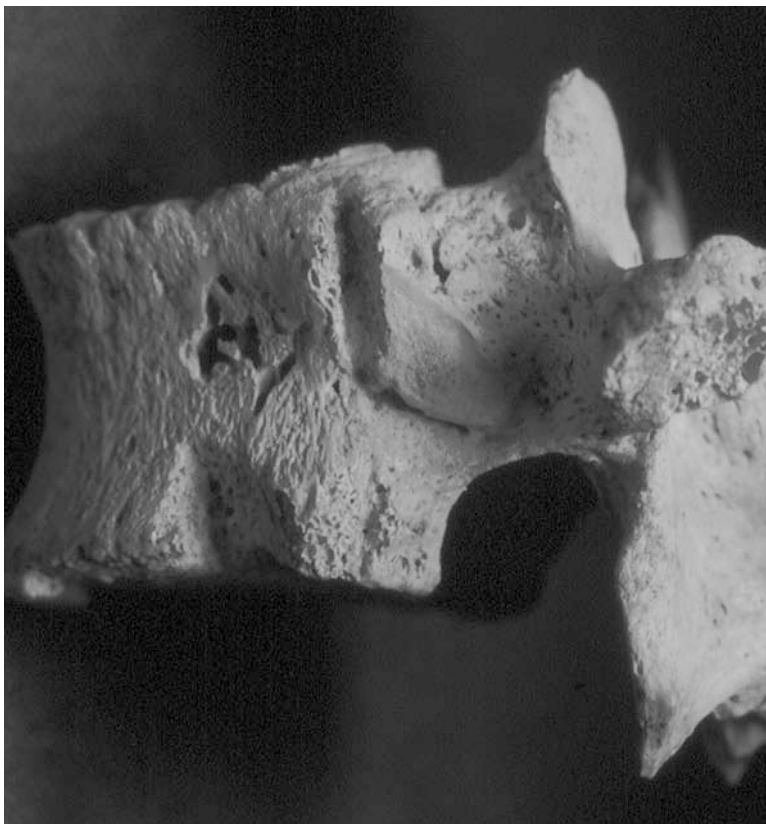


FIGURE 2.5. Twelfth thoracic vertebra with sharp force trauma, Deposit E-1003, Becán (photo by A. Cucina)

fleshed bodies, the marks were likely produced by the violent opening of the trunk from below the rib cage. We infer from this situation that the subsequent extraction of the heart, accompanied by blindly severing its anchoring tissues and blood vessels, was responsible for the traces of sharp force trauma encountered in the spine. Without refuting the practice of other procedures, we argue that this technique was the easiest and quickest way to access the heart once the victim had been placed in an over-extended, supine position (Tiesler and Cucina, 2006).

2.4.3. *Contexts for Body Processing and Ritual Meaning*

Together with the ritual behaviors that took place before the deposition of the body inside Structure X, it is worth examining the possible motivations behind the action. They can be suggested by the architectonic and spatial context in which the body was discovered. This was in an antechamber, a corridor leading

to a sealed power center, similar to other access spaces in which terminal offerings were encountered on the floor (Campaña, 2002; Lucero, 2003; Mock, 1994; Walker and Lucero, 2000). Additional clues are provided by the bed of silex on which the body had been laid. Apparently, the placement of abundant lithic materials like this confirms a pan-Mesoamerican tradition, as highlighted by the many offerings and funerary chambers throughout Mesoamerica in which large amounts of obsidian and silex have been found, a custom filled with symbolism (Lucero, 2003; Miller and Taube, 1993). Silex was used to start fires and was thought to rise to the surface by will of Tlaloc, the god of lightning and thunder. Ancient societies personified and worshipped the material itself, which played a role in human sacrifice and symbolized the debt humankind had toward the gods (Miller and Taube, 1993), a connotation that is coherent also in the context from Becán.

Regarding the activities that led to the deposit E-1003, the primary placement of the corpse must have occurred toward the end of the Late Classic (AD 750–850) and most likely formed part of a construction event (Campaña, 2002). Before the access to the inner chambers was to be sealed, the body was left on the bottom of the staircase on the main axis of the structure. This area provided the passageway accessing the inner spaces, a liminal space according to ancient ideology. This particular context, along with the indications of *perimortem* violence plus the abundant presence of silex suggests that the primary disposal of E-1003 was part of some type of termination ritual. Like other Mesoamerican cultures, the ancient Maya too celebrated the abandonment of a structure or the end of a calendar period with termination rituals, during which they “killed” some of its manifestations (Miller and Taube, 1993:163–164). This could be accomplished in different ways. Termination events are linked to the breakage of pottery, symbolic decapitation of figurines, the burning of offerings, and the mutilation of a stela or portraits of previous rulers. According to prehispanic and colonial sources, termination rituals could have been accompanied by the sacrifice of animals and humans, similar to our case. The *Chilam Balames* confirm the wide distribution of the practice by mentioning recurrent events of this type celebrated during the end of the *katunes* (Edmonson, 1984:91–93).

Some of the biographic data of the individual at Becán may also be relevant to explain the boy’s role in this act, although no single attribute by itself is able to warrant any conclusive arguments. First, the individuals’ age falls within the age group that is mostly represented in nonfunerary contexts in the Maya area while, at the same time, not much else is represented in natural mortality profiles. In opposition to natural demographic parameters, male individuals between the age of 5 and 20 years predominate in nonfunerary contexts, as indicated by the age distribution from Classic and Postclassic companion burials or as indicated by the age profile from the Sacred Cenote (Anda et al., 2004; Tiesler, 2004; see also Anda in this volume). The colonial record on human sacrifice stages predominantly juvenile male victims (Scholes and Adams, 1938; see also Anda et al., 2004; Nájera, 1987). From the above described lesions, we also assume that at the time of death, the individual had been suffering from a

chronic infectious process that had reached the pleura and probably the lungs, indicating that severe health problems troubled the last months of his life. We pose the question as to whether or not the deteriorated physical conditions might have been a factor that selected the boy for ritual death (see also Cucina and Tiesler, Chap. 11 in this volume).

Once access to the substructure was sealed, the corpse rested undisturbed for some time until gradual decomposition, disarticulation, and skeletal reduction was completed. The removal of skull and long bones must have occurred years later during a revisit. At the same time, we can rule out natural phenomena, like rodent activity, as alternative agents responsible for the reduction, since almost no vestiges of gnawing or scratch marks were observed. Maybe this second event was not directly related to the ritual act that prompted the boy's presence in the first place. However, the combined scattering and extraction of bone segments do not make a plausible case for looting but rather point, once again, to a ritually motivated activity. We suppose that it was during the revisitation to the access hall that the offerings were laid down close to the entrance. Although we can only speculate on the circumstances of this event, we infer that it happened during a time of social unrest, as the ritual was conducted during the last moments of Becán's sequence. The structure started to collapse shortly afterward (Campaña, 2002) and by AD 950, all the buildings in the area of Structure X lay in ruin like the majority of the site.

As I have attempted to illustrate with this case study from Becán, it is only through an approach of combined taphonomical, artifactual, and contextual lines of evidence that we can reconstruct the depositional histories and make inferences on their ritual implications. It should be noted that the E-1003 deposit is not the only context that shows vestiges of anthropogenic marks. In the course of the study of the predominantly isolated scatters of human bones that abound in Structure X, other marks of posthumous body manipulation were documented, including burning, flaying, defleshing, dismemberment, and recycling of human bone for tool manufacturing (Tiesler and Cucina, 2003). Their behavioral implications and ritual meanings are explored by Medina and Sánchez in this volume.

2.5. Closing Remarks

The main goal of this chapter has been to provide new data and innovative ideas on ritually motivated body treatments in the Maya realm. I structured their potential material expressions according to a basic framework of sequenced behavior, derived from a combined taphonomic, osteological, and archaeological perspective. Applied to the skeletal research in the Maya region, I argue that this approach holds much promise for inferring the circumstances surrounding death, for interpreting primary manipulation and further removal of human body parts in terms of its ritual functions.

Conducted jointly with archaeological and historical research, systematic taphonomic approaches that combine decompositional reconstruction while

scrutinizing anthropogenic marks, have much to offer for a better understanding of postsacrificial and funerary body manipulations or, for that matter, other unrelated activities of legal, catastrophic, or accidental nature. Despite its promises, the reconstruction of posthumous body manipulation suffers from the limitations of taphonomic research in the area, particularly in ambiguous or isolated bone assemblages. The lack of clear distinctions in many human bone clusters is prone to leave room for speculation and ambiguity. These aspects and the incomplete record imply the need for careful case-by-case evaluations of the various relevant data sets for a critical re-evaluation of the literature and the suitable osteotaphonomical register of mortuary compounds. In practice, guidelines and defined, standardized protocols should be followed for the taphonomic recording of skeletal segments. The participation of personnel trained specifically in physical anthropology and taphonomic research should be mandatory in those archaeological projects that are prone to deal with human skeletal vestiges. As regards *post-mortem* skeletal manipulation, future work should focus on the detailed examination of different forms of posthumous body processing, such as dismemberment, flaying, thermal exposure, and reuse of body parts or bones and their contextual implications.

In synthesis, refinement is needed in the procedures employed in recording and interpreting human remains from tomb contexts, offerings, and problematic human assemblages. Their characteristics should be grouped according to the expected and observed ranges of sequenced ritual conduct, that go beyond many of the conventional classifications that still tend to reduce its expression to an aggregate of static material elements. In this work, taphonomy has been employed jointly with other lines of evidence to reconstruct and interpret different forms of ritual body manipulation and in particular sacrificial behavior in the hope of providing a starting point and frame for the subsequent chapters in this volume. Recurrent themes in some of the chapters that form this volume are likewise depositional trajectories and their contextual expressions, along with the inference on form of death and patterns suggestive of *perimortem* and *postmortem* violence vs. ancestral, reverential conduct. Besides their sacrificial association, the question of how different treatments relate to the practices documented for the Maya area, are explored by each of the contributions.

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Endnotes

1. We define funerary customs here as those behaviors that express reverential treatments of the living toward the deceased members of society.
2. His views are derived mainly from the examination of complete and incomplete human deposits within the construction sequences at Tikal.

3

The Creation and Sacrifice of Witches in Classic Maya Society

LISA J. LUCERO AND SHERRY A. GIBBS

Thou shalt not suffer a witch to live – Exodus 22:18

3.1. Introduction

Worldwide, witch persecution occurs in times of trouble including untimely deaths, drought, floods, famine, and disease (e.g., Bacigalupo, 2005; Krug et al., 2002; Sanders, 2003). Supplications are made to no avail. It is not the fault of gods or ancestors; consequently, there is no other way to explain the disastrous events other than to blame mortals (Evans-Pritchard, 1979). Someone has brought misfortune to the community, and they must pay, often violently. Witches, whether or not the term exists in any given society, can be defined as people who are blamed and punished for perceived or real problems by community census. We explore this phenomenon in ancient Maya society after a brief discussion of witches and their treatment cross-culturally.

Throughout the world, latent jealousies and fears are first expressed in rumors and gossip that quickly can develop into witchcraft accusations “at times of unusual or epidemic deaths” (Stewart and Strathern, 2004:7). In sixteenth and seventeenth century England, for example, the belief in witches “helped to account for the misfortune of daily life” (Thomas, 1970:54), as well as the unexplainable. One had no recourse if it was God’s will; however, if a person believed that a witch was at fault, they could do something about it (Thomas, 1970:68). In Central America, misfortune and disease often are attributed to witchcraft (Pitt-Rivers, 1970). The search for scapegoats then begins (Stewart and Strathern, 2004; e.g., Krug et al., 2002:128).

Who is accused of witchcraft and why? Sometimes it is people on the fringes of society or strangers; sometimes it is people who are too successful (Gluckman, 1965:59) or too miserly (p. 69). Un-neighborly behavior can lead to witchcraft accusations, and those accused typically were those who were dependent on others such as elderly women and widows and the indigent (Macfarlane, 1970; Thomas, 1970). Or sometimes it is healers or shamans; after all, “. . . the same power(s) harnessed today in a healing ceremony may be used

to injure tomorrow” (Walker, 1998:247; e.g., Knab, 1995). Sometimes it is loners, the deformed or someone different including dwarves, innovators, deviants, and so on (e.g., Stewart and Strathern, 2004:64). Often it is someone different, or someone who is perceived as behaving differently. In many areas women are often accused, widows in particular, as was the case in sixteenth and seventeenth century England. In Tanzania, witchcraft accusations provide a means to frighten widows from their land so their heirs can inherit. In several polygynous societies, co-wives often accuse one another of causing illness or other misfortunes to protect their interests and those of their children’s over those of their co-wives (Gluckman, 1965:223–226). Clearly, people accuse others of being witches for various reasons, real or perceived; and the outcome is often similar cross-culturally – witches are punished to restore order. Some witches are expelled from the community (e.g., Sanders, 2003), ostracized (e.g., Darling, 1999), fined (e.g., Darling, 1999; Sanders, 2003), tortured (e.g., Darling, 1999), or killed (e.g., Darling, 1999; Walker, 1998). We focus on the last option, the killing of witches.

Pearson (1993:203) notes that the dead are “manipulated for the purposes of the survivors,” and that such funeral ceremonies are the result of “political decisions.” The same holds true for witches; their *postmortem* treatment befits their status as a person who has caused grief (e.g., Walker, 1998:246), which is what we explore among the ancient Maya. In Africa and Asia, “Sorcerers and witches must endure gruesome ordeals of proof and subsequent violent murders” (Walker, 1998:267). In parts of Africa, killed witches are not accorded “proper” treatment and burial rites: they are left out in the bush, exposed to the elements (e.g., Goody, 1970). In Europe, witches, and others who threatened the beliefs or power of the Church, were tortured and often publicly executed; they were drowned, burned alive, beheaded, or torn a part (Walker, 1998). They were then laid to rest – or unrest – in unmarked graves on unconsecrated grounds. Witch killings also occurred in US Southwest pueblo societies, where witchcraft was believed to have been an inherited power. Consequently, sometimes several family members were accused and punished. People then killed the accused, often violently; they clubbed or stoned them and afterward dismembered them. Dismembering witches was a way to neutralize evil power, not to mention humiliating the person and serving as a warning to other witches (Walker, 1998). In some instances Pueblo executioners also pounded the witch’s corpse or burnt it (Darling, 1999). Bodies were left to rot, or were buried in shallow graves. They were not accorded the same burial “rite of passage” as nonwitches.

In this paper, we explore Classic Maya (ca. AD 250–850) witch killings, which we argue may explain some nonfunerary deposition of human skeletal remains in caves in the southern Maya lowlands. Caves, considered both sacred and dangerous places, provided the perfect place to conduct ritual violence, as ethnohistoric and ethnographic records indicate. We compare human remains from two caves in central Belize, Actun Tunichil Muknal and Actun Uayazba Kab. Our focus is on the context of remains, especially since in many cases cave environments make it impossible to conduct detailed osteological analysis.

3.2. The Maya

Maya ethnographic and colonial documents show that witchcraft accusations and killings have a long history. For example, Evon Z. Vogt notes several instances of witchcraft among the Zinacantecos of highland Chiapas, and also under what conditions witchcraft accusations arise. For instance, when people come to the Ceremonial center from different villages for major rituals, “There is always the danger . . . that harmful witchcraft rituals may be carried out by envious members of other lineages” (Vogt, 2004:44). Witchcraft also occurs within communities, and “If someone has sinned and is condemned by his kinsmen and neighbors as a witch or is murdered, public denunciation and ritual neglect may characterize the funeral, and the soul is banished to *K’atin-bak* (Vogt, 1993:23)” – a “place warmed by bones” and “a deep hole inside the earth” (Vogt, 1998:29). In Chiapas, people believe that *naguals* (a Nahuatl word), animal spirits or companions, are involved in sorcery (e.g., Redfield, 1941:326). Combat between *naguals* brings misfortune and disease (Pitt-Rivers, 1970). In the Yucatán, there is a common belief that people can turn themselves into animals in the night for the purpose of evil – that is, sorcery (Redfield, 1941:307–308). It is rare in parts of Chiapas to accuse women of witchcraft because it is believed that they do not have enough spiritual power to do evil (i.e., powerful enough *naguals*) (Pitt-Rivers, 1970:193). However, in colonial Mexico, Lewis (2003:107) notes that women were often accused of witchcraft, which “was something of an idiom for cultural anxieties mapped onto women.” Singled out were women who were unmarried, poor, or widowed (p. 111). This selection process occurs at present as well, as is the case in the town of Dzitas, Yucatán, where women, especially outsiders, are perceived as possible witches (Redfield, 1941:151).

Witches typically are accused by individuals, but usually are identified and condemned by community consensus (Nash, 1970:278; Pitt-Rivers, 1970). Violence against witches also occurs. Spanish chroniclers noted this phenomenon whereby elderly women were selected by villagers as scapegoats in times of trouble and stoned to death (Tozzer, 1941:117, n. 535, Appendix B). In her book on the Tzeltal Maya of Amatenango, Chiapas, June Nash (1970:244, Table 29) notes that of the 36 homicides she recorded, over half had been accused witches, and many were men ($n = 19$ or 53%). And of the nine *curanderos* on the list, all had been accused of practicing witchcraft. In an Associated Press release dated September 16, 2002, a recent attack is detailed: “Unidentified gunmen burst into the home of an alleged practitioner of witchcraft in the southern state of Chiapas and shot to death four adults and wounded five other people, including two children.” The report goes on to note that there have been several people killed as witches in the past decade in Chiapas. It also takes place throughout Mexico (Table 3.1) and Central America.

The list of cases in Table 3.1 continues to grow. These cases, as well as the ones briefly described above, illustrate that Maya witches and violence against them have been around for a while, and likely have prehispanic roots.

TABLE 3.1. Examples of witch killings in Mexico. (<http://www.illusions.com/burning/frampage.htm>)

-Josephine Arista, burned at the stake in Ojinaga, Mexico, 1955.
-Benita Sabina, killed as a witch in Alfajayucan, Mexico, 1956.
-Christina Trajo, killed as a witch in Alfajayucan, Mexico, September 8, 1956.
-A woman was stoned to death by a mob in Mexico in 1981 “after her husband accused her of using witchcraft to incite the attack on Pope John Paul II.”
-Six members of the Maquixtle family in Vicente Guererro, Mexico, killed as witches in 1996, including the husband, wife, and their four children.
-Domingo Shilon, stoned to death and hacked with machetes in San Juan Chamula, San Cristobal, Mexico, 2003.

It would be easy to assume that witchcraft is a Spanish import (see Buikstra in this volume). However, since witchcraft persecution is a worldwide phenomenon, one would be hard pressed to think the Classic Maya were any different, whether or not they had a word for “witch.” To illustrate its probable long history in Mesoamerica, we present as an analogous case the belief in co-essences (*wayob*), or supernatural spirit companions. Gossen (1994) convincingly argues that animal spirit companions, co-essences, or *naguals*, have a deep history in Mesoamerica, with roots going back to Olmec times (ca. 2000 BC) (e.g., were-jaguar iconography) – and perhaps even earlier. Early evidence includes an inscription on the Tuxtla statue in Veracruz, Mexico dating to AD 162 that reads, “The animal soul companion is powerful” (Juteson and Kaufman 1992, 1993:170 cited in Gossen, 1994:560). Evidence is also found in Classic period Maya texts on portable (e.g., ceramic vessels) and nonportable (e.g., carved monuments) objects with the *way* glyph, which translates in several Mayan languages as “supernatural spirit companions or “co-essences” possessed by living things” (Sharer, 1994:619). Its frequency and context indicate to Houston and Stuart (1989:13) that “Classic Maya beliefs would seem to coincide with general patterns of Mesoamerican thought.” Gossen provides several examples of its existence from the Aztec period up through colonial times and the ethnographic present. In San Juan Chamula, Chiapas, Mexico, where Gossen has conducted most of his research, when someone and their animal soul companion die prematurely, it is due to the intervention of a witch who, unlike nonwitches who only have one animal soul companion, has more than one, including animals that are co-essences only of witches. “[T]he factors that determine individual fate and fortune are always to be understood and reflected on as phenomena that are *predestined* but also, secondarily, *subject to the agency and will of others*, both human and supernatural” (Gossen, 1994:566; emphasis original).

We include a discussion of animal soul companions and concomitant beliefs because of the strong possibility that the existence of witchcraft, like that of *naguals*, has a deep history in Mesoamerica. If this indeed were the case, it adds credence to the hypothesis proposed here that witch killings also have a long history as a type of ritual violence. And there is little doubt that ritual violence

occurred. The issue is how to distinguish different kinds of ritual violence – how does one distinguish a sacrificial victim from a witch? This is a crucial question since witches and sacrificial victims in one sense can be perceived as one and the same. People can be sacrificed for the same reasons witches are killed – to restore order or normalcy in the face of misfortune. For example, Bishop de Landa in colonial Yucatán noted several instances where people were sacrificed when the rainy season was overdue, or during a famine (Tozzer, 1941:180); victims, often young people (e.g., slaves, children) were thrown into cenotes – a portal to the underworld, as are caves. A difference between sacrifice and witch killing is that in the latter case the person killed is perceived as having caused the problem(s), whereas in the former case the person killed is an innocent whose death is believed to change the course of misfortune. Finally, evidence from ethnohistoric and ethnographic records also suggests a long history of the belief in witchcraft's association with caves (Vogt and Stuart, 2005). In caves (vs. architecture), infants, children, and young adults may have been sacrificed as innocents (see Scott and Brady, 2005), where some adults may have been killed/sacrificed as wrongdoers (i.e., witches).

3.2.1. *Caves: Places of Danger, Sorcery, and Witches*

To the Maya, caves are portals to the underworld or Xibalba, and thus are sacred but dangerous places (Bassie-Sweet, 1991; Vogt and Stuart, 2005). For example, in the Yucatán caves are believed to house disease-producing forces (Redfield, 1941:239). Items imbued with sacred and dangerous qualities are deposited in caves. For example, the Lacandon Maya disposes of terminated or deactivated god pots – *incensarios* – in caves because they are still considered dangerous objects (McGee, 1998). In Amatenango, Chiapas, the Maya believe that “dangerous spirits” live in caves and hills (Nash, 1970:23).

The ambiguity of caves and ritual specialists is also a common belief among the Maya (e.g., Prufer, 2005; Prufer et al., 2003). As a matter of fact, anyone with any degree of specialized skill or power over others can be a suspect. These include political specialists – that is, those who have official duties and responsibilities, such as the *cofradía* in Highland Guatemala and the *calpule* in Tzeltal communities, and those who work in the domestic realm including healers, shamans, and mediators with the earth deities, and other similar positions. Prufer et al. (2003:231) write:

Although all of these specialists make appeals to earth-focused deities and may visit cave entrances, springs, or other natural features as part of their duties, they rarely, if ever, venture into the dark zones of caves. Those activities are the purview of very specific types of practitioners. . . . With notable exceptions. . . . specialists who venture into caves, or who directly intervene with cave-associated deities such as the *witz*, frequently are distrusted, feared, or otherwise marginalized. . . . Among the Tzotzil, caves are feared for their association with sorcery and because they are portals to dangerous Earth Lords. . . . “Good” Tzotzil [sic] *h'iloletik* [healing shamans] are reputed to have no knowledge of how caves are used, although some secretly use caves to recover souls taken by witchcraft. . . .

The ambiguity of caves is illustrated in several ways. For example, caves are associated with witches in Zinacantan (Haviland, 1977:83), and people believe that witchcraft ceremonies take place within caves (and in cemeteries). “Soul loss can . . . occur when an evil person performs a witchcraft ritual in a cave to “sell” the inner soul to the Earth Lord, who then uses the person as a servant” (Vogt, 2004:30). For example, in Chiapas in 1996, “a mob beat and hanged a man they accused of drawing his victims’ souls into bottles and hiding them in a cave” (*AP*, Sept. 16, 2002). Christine Eber (1995:152) notes that among the Tzotzil Maya of San Pedro Chenalhó, Chiapas, there is a belief that witches use caves, the “Earth Lord’s domain,” to perform rituals using candles, rum, and incense to sell a neighbor’s soul. Linda Brown (2004) also found this to be the case in highland Guatemala, where people perform the *mal entierro* (evil burial) ceremony in caves to kill perceived enemies. Interestingly, Adams and Brady (2005) found through a survey of ethnographic literature that women largely were prohibited from using caves.

The Maya dispose of “witches” in a nonfunerary manner as well. For example, at the height of the paramilitary killings in Zapatista Chiapas – by *cortacabezas* or head cutters – two teenage males from San Pedro Chenalhó were stoned to death for bringing discord to the community by bragging about being Zapatista supporters (Christine Eber, personal communication to Lucero, 2005). Their bodies were unceremoniously dumped in a crevice – another opening in the earth. In another case detailed by Gossen (1994) that took place in 1648, people witnessed a battle between animal or spirit companions – a lion (puma) and tiger (jaguar) – of two Pokomchi Maya of Guatemala. One died of his wounds and the other eventually was hanged for the “murder,” and his body placed in a shallow grave in a ditch rather than in the church cemetery.

These cases illustrate that Maya accuse others of various actions or events that they believe bring misfortune to individuals or to the community. They also show that a common response is to kill those believed responsible for perceived or real problems. The Maya dispose of the remains in a nonfunerary manner by placing killed witches (and sacrificial victims) in openings in the earth, especially caves – a long-standing tradition and likely one with prehispanic roots.

3.3. Classic Maya Witches

Prehispanic Maya funeral rites include the burying of the deceased in house or shrine floors or other architectural settings, typically with offerings (e.g., McAnany, 1995). Human remains showing “hasty disposal,” and/or consisting of disarticulated remains might comprise those “. . . who were perhaps regarded as nonpersons” (Geller, 2004:422), such as children, slaves – or, as we argue, witches. Geller (2004:301–308), in her work comparing burial patterns and skeletal remains from several sites and contexts in northwestern Belize, discusses partial remains as possibly indicating veneration, mutilation, or remembrance. She also notes the difficulty of distinguishing between them. Context, however,

might provide useful clues (see Scott and Brady, 2005; Tiesler, and Medina and Sánchez in this volume; Moyes and Gibbs, 2000).

Human remains in nonfunerary or nonburial contexts, such as partial remains on or underneath architectural floors, might reflect the remains of sacrificial victims, while similarly placed remains on surfaces in caves might reflect the disposal of witches. It has largely been assumed that ritual violence only involves the sacrifice of innocent victims (see Tiesler in this volume). Witch killings, however, need to be considered as a possible explanation for some violent deaths, or even as a type of sacrifice – specifically of a noninnocent person, or one who is perceived as being malevolent by his or her peers. The challenge is to distinguish one from the other; in such cases context becomes just as critical as evidence of violence, especially since the latter occurs to both the innocent and “guilty.” Tables 2.1 and 2.2 list several types of violent deaths and associated physical evidence; taking this evidence into account, as well as the context of remains, is critical to distinguish sacrificial victims from possible killed witches. And it is important to keep in mind that not all forms of ritual violence leave telling evidence; “strangulation, disembowelment, or imprisonment in a cave leave little or no signatures” (Scott and Brady, 2005:276).

The remainder of this chapter largely is from the research of one of the authors (Gibbs, 2000). The practice of placing humans inside caves has been recorded since Spanish contact (e.g., Bishop de Landa; Tozzer, 1941:188, 200), and archaeologists have been aware of this practice for over a century (e.g., Awe et al., 1997a,b; Blom, 1954; Brady, 1989, 1995; Brady and Stone, 1986; Butler, 1934:223; Gibbs, 1997, 1998a,b; Gordon, 1898:146; Márquez et al., 1982; Mercer, 1975:161; Pendergast, 1971; Reents-Budet and MacLeod, 1997; Ricketson, 1925; Scott and Brady, 2005; Smith, 1953, 1954; Thompson, 1897; Thompson, 1970, 1975).

As Table 3.2 demonstrates, the majority of remains found in the caves listed are from surface contexts (55%, $n = 17$) rather than formal burials. The remaining contexts include surface and burials (10%, $n = 3$), urns or burials (26%, $n = 8$), and unknown contexts (10%, $n = 3$). It is necessary to note that not all of the caves listed in Table 3.2 have been excavated, and thus the actual number of burials is unknown. We are not suggesting that all surface remains represent sacrificial victims and/or witches; however, we are suggesting a re-evaluation of human remains recovered from surface contexts.

Unfortunately, in most cases the sex of the individuals is unknown or not recorded. Of the few surface remains identified, 15 are male and 16 are female; subadults were noted in 37 cases, as were 49 adults. For the sake of comparison, of the identified buried remains, there are 10 females, 12 males, 18 subadults, and 44 adults. Due to the limited information, it is not possible to present firm conclusions. However, the human remains found in caves on surfaces begs the question of why the Maya deposited people (or killed them) in such dangerous places as caves, whether they be ancestors, sacrificial victims, or witches. This behavior clearly is prevalent through space (Guatemala, Mexico, and Belize) and time (Preclassic through Postclassic periods). More research on remains in caves is needed to conduct a proper comparison with residential or architectural

TABLE 3.2. Southern Maya Lowland Caves with human remains (compiled from Gibbs, 2000: Tables 1 and 2)

Cave	Period	No. of remains	Context	Age ^a	Sex	Location	Reference
Zopa Cave, Chiapas	NA	1	Surface	NA	NA	NA	Blom and LaFarge (1926-27)
Huxjal, Chiapas	NA	Several	Surface	NA	NA	Crevice	Blom (1954)
Lake Lacandon, Chiapas	NA	Several	Surface	NA	NA	NA	Blom (1954)
San Felipe, Chiapas	NA	3+	Surface	NA	NA	NA	Blom (1954)
Petroglyph, Belize	Classic	23	Surface	13 S, 10 A	4 males, 3 females	3 different loci	Reents-Budet and MacLeod (1997)
Yaxteel Ahau, Belize	Late to Terminal Classic	13	Surface	5 S, 8 A	2 females	Ledge 2	Owen and Gibbs (1999)
Chapat, Belize	NA	Several	Surface	NA	NA	NA	Jaime Awe, pers. comm. to Gibbs
Barton Creek, Belize	NA	31 analyzed	Surface	14 S, 17 A	6 males, 7 females	2 ledges	Owen (2005)
Petz, Belize	Late Preclassic to Terminal Classic	6	Surface	2 S, 4 A	2 males, 2 females	Eastern most chamber	Healy et al. (1996)
Skeleton, Belize	NA	1+	Surface	NA	NA	40 m down	Flavell et al. (1994)
Perdido, Belize	NA	Several	Surface	NA	NA	NA	Rushin-Bell (1982)
Bone, Belize	NA	2+	Surface	NA	NA	NA	Dougherty (1985)
Kabal, Belize	NA	1	Surface	1 A	NA	NA	McNatt (1986)
Nighthouse, Belize	NA	1	Surface	NA	NA	Sinkhole	McNatt (1986)
Cactus, Belize	Late to Terminal Classic	23	Surface	1 S, 22 A	NA	NA	Walters and Weller (1990)
Honey Bear, Belize	Late to Terminal Classic	Several?	Surface	NA	NA	NA	Walters and Weller (1990)
Cueva de los Muertos, Belize	NA	Several	Surface, crevices	All	NA	NA	Rushin-Bell (1982)
Moxviquil, Chiapas	Classic	8+	Surface and 3 tombs	All?	NA	NA	Blom (1954)

Tunichil Muknal, Belize	Classic	15	1 burial, 14 surface	7 S, 8 A	3 males, 2 females	Entrance and 500 m inside	Awe et al. (1997a), Gibbs (1997, 1998a,b)
Naj Tunich, Guatemala	Late Preclassic to Late Classic	21	3-6 tombs, surface	9 S, 12 A	NA	Various	Brady et al. (1992), Brady and Stone (1986), Stone (1989, 1992, 1995)
Cienguilla, Chiapas	Terminal Classic	Several	Cremations in urns	NA	NA	Rock shelter, walled in	Blom (1954)
Chiptic, Chiapas	Postclassic?	NA	Cremations in urns	NA	NA	NA	Blom (1954)
Colonia Vitorico, Chiapas	Postclassic?	NA	Cremations in urns	NA	NA	NA	Blom (1954)
Grajales Trabajo, Chiapas	Contact?	NA	Cremations in urns	NA	NA	NA	Blom (1954)
Eduardo Quiroz, Belize	Late Preclassic to Postclassic	6	Burials	3 S, 2 A	2 males	Chambers 1, 5	Pendergast (1971)
Uyayzba Kab, Belize	Classic	12	Burials	6 S, 6 A	1 male, 2 females	Just off entrance	Gibbs (1998a,b)
Piedras Negras, Guatemala	NA	1	Burial	1 A	1 male?	NA	Coe (1959)
Caves Branch, Belize	Middle Preclassic to Postclassic	150+, 32 analyzed	Burials	9 S, 23 A	5 males, 8 females	Against back wall	Bonor (1989), Glassman and Bonor (2005)
Pusilha, Belize	NA	NA	NA	NA	NA	NA	Bonor (1989)
Tzimin Kax, Belize	NA	NA	NA	NA	NA	NA	Bonor (1989)

^aS = subadult; A = adult

burials. Burials in structures typically represent ancestor veneration (McAnany, 1995) – what does this fact signify regarding the role of the deposition of the dead in caves?

We explore this crucial issue through a discussion of human remains from two caves in central Belize, Actun Tunichil Muknal and Actun Uayazba Kab.

3.4. Actun Tunichil Muknal and Actun Uayazba Kab

Actun Tunichil Muknal and Actun Uayazba Kab are located in central Belize (Fig. 3.1). While they differ geomorphologically, as well as in the activities conducted in them, both were predominantly used during the Classic period, most notably in the Late Classic (AD 700–900) based on ceramic analysis (Moyes, 2001). Actun Uayazba Kab is located approximately 700 m south of Actun Tunichil Muknal along Roaring Creek, and roughly 800 m west across the river from the small settlement of Cahal Witz Na (Place of the Mountain Houses).

3.4.1. *Actun Tunichil Muknal (Cave of the Stone Sepulcher)*

Tom Miller first explored Actun Tunichil Muknal in 1986 (Miller, 1989, 1990) and Dr. Jaime Awe and the Western Belize Regional Cave Project (WBRCP) began excavations in 1993, which continued through 1998 (see Awe, 1998; Awe and Conlon, 1997; Awe and Lee, 1999; Moyes, 2001).

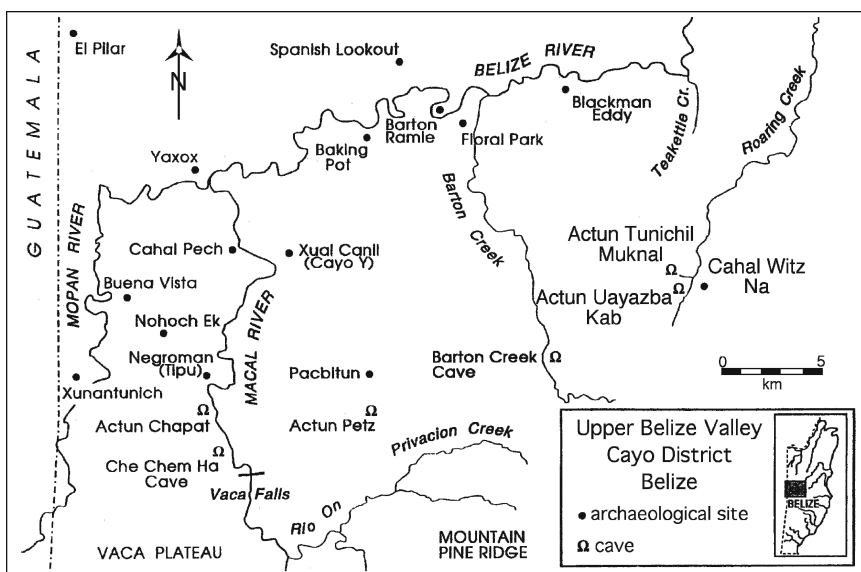


FIGURE 3.1. Map of Belize with cave sites. Courtesy of Dr. Jaime Awe, director of the WBRCP

Actun Tunichil Muknal is approximately 5 km deep with a perennial stream flowing through the main cave passage (Awe et al., 1997a). Four distinct activity areas have been identified (Fig. 3.2). The Upper Entrance Chamber is located just north of the Stelae Chamber. The remains of a low masonry platform have been identified, as well as a *jute* shell cache. A burial containing the remains of at least one adult was found in the southeastern part of the chamber. Unfortunately, this chamber had been looted, which exposed the remains and numerous ceramic sherds. This is the only section of the cave that dates to the Early Classic period (Awe et al., 1997a).

Ceramics from the Sinkhole Entrance and Tunnels date to the Late Classic period. The third area is the Stelae Chamber, which is approximately 450 m from the entrance. This chamber is actually a small ledge roughly 10 m above the stream that supports two carved slate monuments or *stelae*, a smaller carved slate slab, ceramic sherds, and two obsidian bloodletters. This area also dates to the Late Classic period.

High above the main passageway is the Main Chamber, which actually is comprised of a large chamber with small adjoining rooms and alcoves ca. 200 m long and ca. 50 m wide (Awe et al., 1997a,b; Moyes, 2001) (Fig. 3.3). Within this complex of rooms are the remains of 14 individuals, several in inconspicuous places. Skeletal remains of both sexes range in age from 1 year to a middle-aged adult (Table 3.3).

Remains vary in degrees of preservation and visibility. The fact that the remains were left out in the open in a wet and humid setting has resulted in quite different taphonomic processes than in traditional burials buried in the floors of structures (see Roksandic, 2002; Tiesler, 2004). Occasional water flow has resulted in most of the bones being encrusted with layers of calcite, as commonly found in other caves (see Blom, 1954; Brady et al., 1995; Butler, 1934; Healy

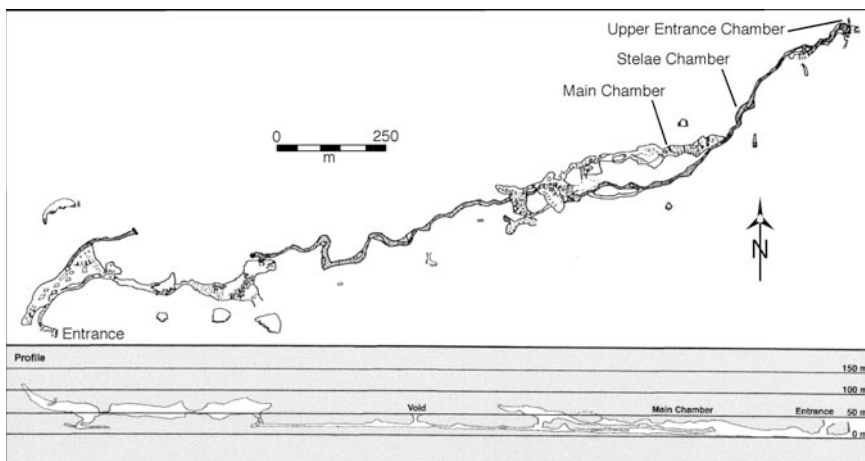


FIGURE 3.2. Actun Tunichil Muknal. Courtesy of Dr. Jaime Awe, director of the WBRCP

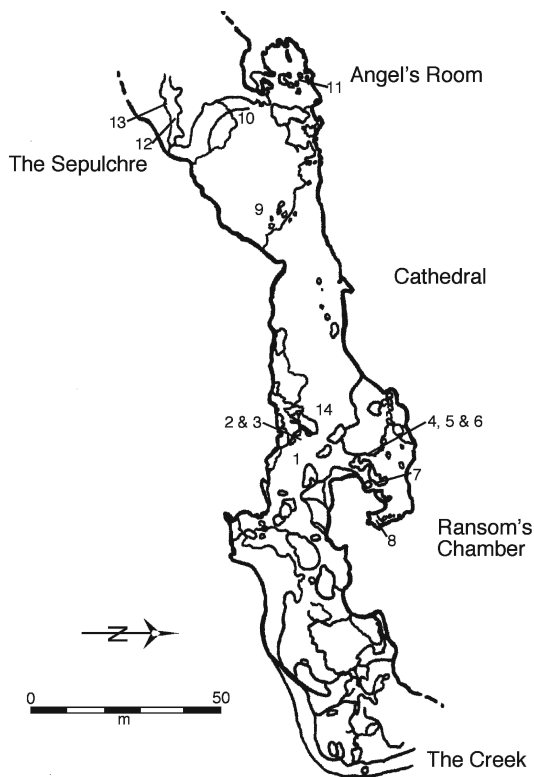


FIGURE 3.3. Main Chamber, Actun Tunichil Muknal. Courtesy of Dr. Jaime Awe, director of the WBRCF

et al., 1996). The remains of all individuals thus are largely cemented to the surface, making any detailed analysis nearly impossible. The wet and damp environment also affects their condition. It is difficult to determine whether or not individuals were placed in water (specifically, intermittent pools). Taphonomic pressure of water may have caused partial displacement and co-mingling. A few bones may have floated within the rimstone dams (formed during water evaporation when calcium carbonate precipitates) in which they were placed with minor water flow, thus limiting the movement of the remains (Moyes and Gibbs, 2000). Consequently, the remains are likely in their original position with only slight displacement. For example, water activity probably mixed the three infants found in the alcove (#4, #5, and #6). Some skeletons are heavily encrusted with flowstone, indicating they were laid down in areas of periodically active water flow. In some instances the accretion of calcium carbonate on the skeletal remains has, unfortunately, exaggerated the size and shape of some of the bones, making any attempt at sexing and aging nearly impossible. Other skeletons had only a thin coating of calcium carbonate, which allowed their sexing and aging.

TABLE 3.3. Human remains in the Main Chamber of Actun Muknal, Tulum (from Gibbs 2000:96–111; 173–178)

Individual no.	Location	Condition	Age	Sex	Modification	Trauma	Position	Grave goods
1	Surface	Fragmented, embedded in calcite, covered in calcite except cranium	30–40 yrs	~Male	Cranial-tabular oblique, dental filing-4 incisors, Type A-2 ^a	–	None	None
2 and 3	Surface	Fragmented, co-mingled; some encrustation, embedded in calcite	30–40 yrs	One is ~male	One has cranial-tabular oblique, dental filing-	–	None	None
4, 5, and 6	Alcove, Surface	Co-mingled due to water activity (seasonal flooding), wedged in floor	Two between 1 and 1.5 yrs; one between 2 and 2.5 yrs	NA	canine, Type A-2	Crania	None	None
7	Niche in small room, Surface	–	1 yr	NA	–	Crania	Extended, southwest	None
8	Small room, Surface	Heavy calcite encrustation; disarticulated	Adult	NA	–	Crania	Surrounded by breakdown boulders	None
9	Breakdown, Surface	Poor, fragmented; wet, crushed	40–44 yrs	~Female	–	Crania	Possible natural grave	None
10	Breakdown, Surface	Damp, disarticulated; bones cemented at surface	6–7 yrs	Male?	Cranial	Crania	None	None
11	Small room, Surface	Wet, fragile, no calcite coating	1.5 yrs	NA	–	Head smashed	Placed or dropped in small trench	None

(Continued)

TABLE 3.3. Human remains in the Main Chamber of Actun Muknal Tunichil (from Gibbs 2000:96–111; 173–178)—(Continued)

Individual no.	Location	Condition	Age	Sex	Modification	Trauma	Position	Grave goods
12	High alcove, Surface	Fragmented, encrusted up to 1 cm thick w/calcite; seasonal flooding	up to 15 yrs	NA	Cranial; tabular oblique	–	Possibly bound in flexed position, kneeling position facing wall	None
13	High alcove, Surface	Completely encrusted	20–23 yrs	Female	Cranial; tabular oblique	–	Supine, legs sprawled, right arm raised, southwest	None
14	Surface	Fragments; fragile; some encrustation	2 yrs	NA		Crania	None	None

^aRomero (1970)

There are over 200 vessels in the Main Chamber, and only four are complete (Moyes, 2001). While there are over 1,400 artifacts in the Main Chamber (Moyes and Awe, 1998), only a few (ca. 30) might be associated (defined as being within 1 m) with remains (#1–3), which Moyes and Gibbs (2000) suggest represent offerings, not grave goods. Not only does the lack of associated artifacts illustrate that the Maya did not place grave goods with the dead of Muknal, but that more precise dating of burials is impossible. As mentioned earlier, however, the majority of ceramics found date to ca. AD 700–900.

None of the 14 individuals recovered in this area were “buried;” instead, they were found lying on cave surfaces. Of the 14, six are infants under the age of 3 years, one is a child of roughly 7 years of age, and the remaining seven are adults ranging in age from their early 20s to approximately 40 years old. Of the adults, two likely are female and three likely male. The remaining two could not be sexed nor properly aged due to the extensive calcium carbonate build-up.

Only three of the individuals, two infants (#7 and #11) and one adult (#12), appear to be in any formal anatomical position. Individual 7, an extended infant, was concealed behind stalagmites in a niche in a small room with restricted access in the northeast wall of the Main Chamber. A teen (#12) (Fig. 3.4) appears to have been bound in a flexed position (hands tied at the back, perhaps kneeling facing the wall) and placed in a small, shallow depression on a high alcove only possible to reach by ladder. The small space might have required the Maya to place the teen in a flexed position, or even bundled. The remains are heavily encrusted with calcite. A child (#10) appears to have been placed or thrown down into breakdown (ceiling collapse debris, often large boulders) (Fig. 3.5). The

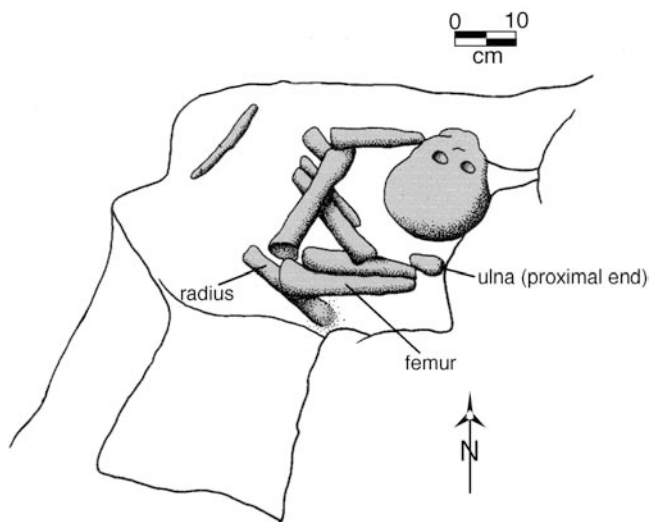


FIGURE 3.4. Individual #12. Courtesy of Dr. Jaime Awe, director of the WBRCF. Adapted from drawing by C. Helmke

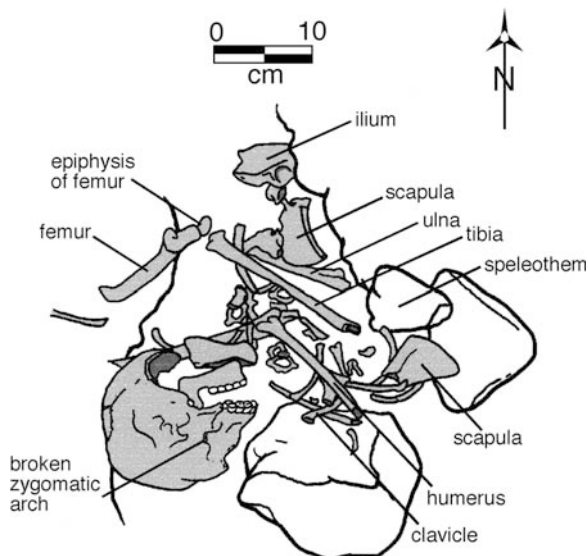


FIGURE 3.5. Individual #10. Courtesy of Dr. Jaime Awe, director of the WBRCP. Adapted from drawing by C. Helmke

bones were concentrated amongst the breakdown (ceiling collapse, often consisting of large boulder-size fragments). Because of the location of the remains, it is nearly impossible to determine how the individual was placed; however, the position of the bones may indicate a flexed, or even bundled, placement. Its encasement by large boulders likely protected the remains from too much displacement. While its relatively high location prevents seasonal flooding, water drips from the ceiling, resulting in the bones being cemented where they touch the surface (though the exposed bones are free from calcite). The child also exhibited evidence for cranial shaping, as well as a broken zygomatic arch indicating some type of violence.

Five of the seven adults show evidence for cranial deformation. The other two (#8 and #9) appear to have fractured crania and are either poorly preserved or heavily encrusted with flowstone. Only two adults (#1 and #2 or #3) have modified teeth – Type A-2 as defined by Romero (1970). Two adults (#8 and #9), the child (#10), and all of the infants appear to show evidence for trauma to their crania (though calcite encrustation makes analysis difficult) and are located in natural depressions and travertine pools which could have served as natural graves. One of the adults with cranial deformation (#13), likely a female, appears to have died in a rather violent manner (Fig. 3.6); however, due to the fact that none of the bones are exposed because of thick calcite deposition, it is not possible to determine cause of death. The position and appearance of the skeleton suggest a rapid placement, either by throwing or pushing her.

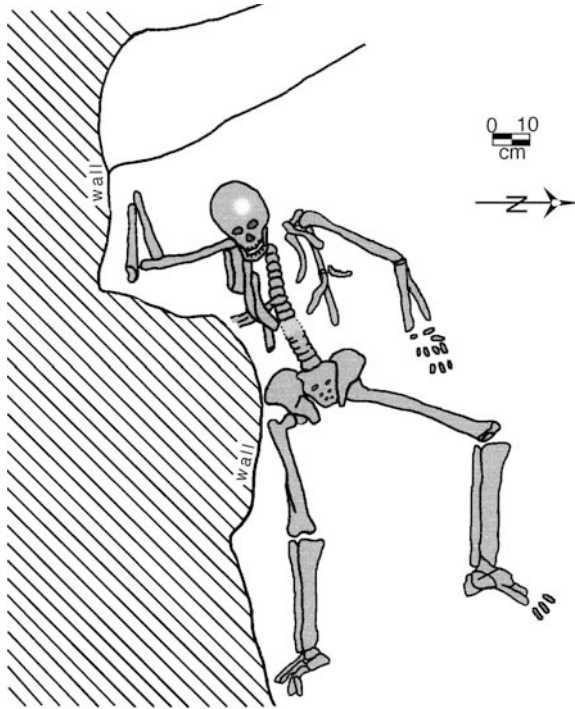


FIGURE 3.6. Individual #13. Courtesy of Dr. Jaime Awe, director of the WBRCF. Adapted from drawing by C. Helmke

In sum, of the 14 individuals, only three are in any obvious anatomical position, while the remaining 11 are somewhat haphazardly positioned, presumably either due to water activity, during subsequent visits by the ancient Maya to the cave, or because the Maya purposefully placed the remains as they are at present. The point is that they were not buried, and thus were more easily disturbed. No efforts were made to inter these deceased individuals. Some remains were hidden, while others were left out in the open. All age groups are represented, as well as both sexes. The remains have other things in common as well – most show evidence for trauma, especially to the cranium; or at the very least damage caused to the remains because they were left unprotected (e.g., Individual #11). The decedents also seem to represent a range of social groups since four of the adults, of both sexes, and a child showed evidence for cranial modification, often an elite practice (Tiesler, 2004).

These cases noticeably differ from the remains found within Actun Uayazba Kab, or Handprint Cave.

3.4.2. Actun Uayazba Kab (Handprint Cave)

Investigations at Actun Uayazba Kab began in 1997 after having been first identified in 1996. As a result of extensive looting, the cave floor is littered with artifacts and human bone. The areas most disturbed are the Burial Alcove, just north of Entrance 1, Entrance 2, and the Southern Chamber, south of Entrance 2 (Fig. 3.7). Fragmented human remains were found on the surface in both the Burial Alcove

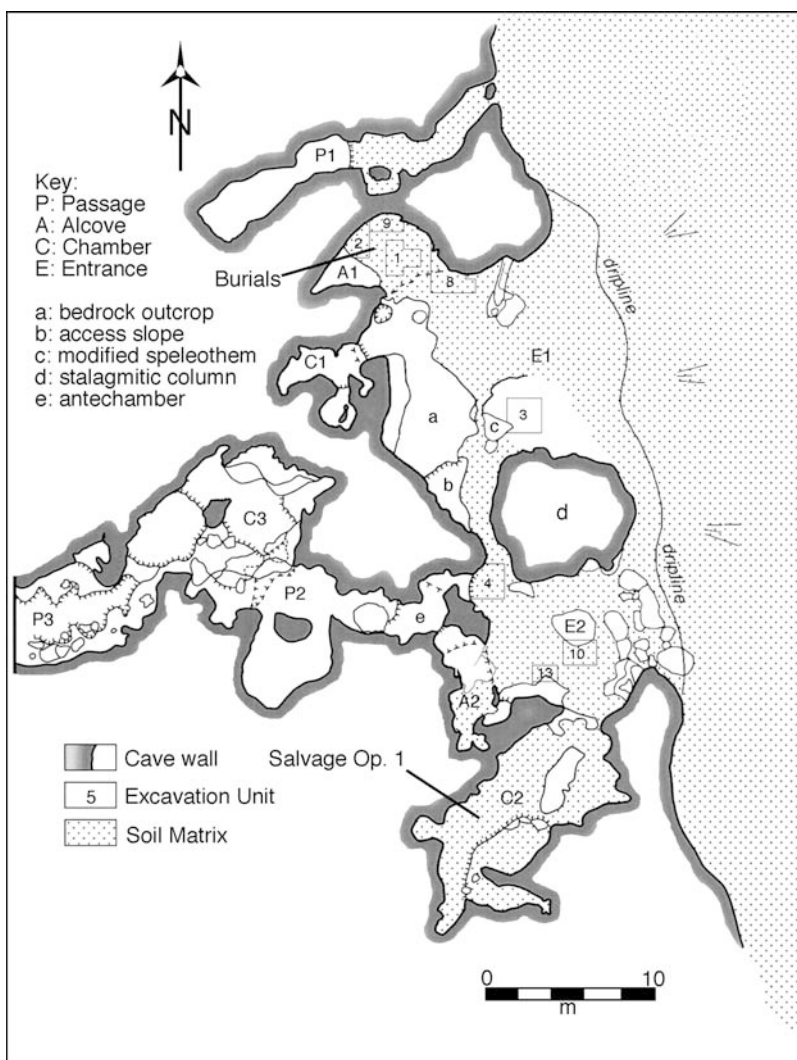


FIGURE 3.7. Actun Uayazba Kab. Burial Alcove is labeled as A1 and Southern Chamber as C2. Courtesy of Dr. Jaime Awe, director of the WBRCP. Adapted from drawing by C. Helmke and C. Griffith

and the Southern Chamber. However, due to time constraints, burial excavations were only conducted in the Burial Alcove, upon which we focus here.

The cave is located ca. 700 m from the mouth of Muknal along a ridge. It is a much smaller cave than Muknal, and is actually more of a rock shelter with two large entrances, side by side, joined together by a short hallway in the back. Uayazba Kab is dated to the Classic period, particularly the Late Classic (ca. AD 700–900). Unlike Tunichil Muknal it contains a variety of elaborate petroglyphs, carved anthropomorphic masks, painted triangles, footprints, and negatively painted handprints. Actually, if one looks up to the cave from the base of the hill, the cave itself peers out like a face, or a skull. The iconography inside the cave suggests that the Maya may have used it for water and ancestral rites, and even perhaps for elite rituals (Helmke and Awe, 1998).

Several units were excavated in the Burial Alcove to determine if the looters missed any burials (Ferguson, 1999; Griffith, 1998) (Fig. 3.8). Seven burials were exposed that included both sexes ranging in age from an infant to a 40-year-old adult (Table 3.4). Other than Burial 98-2, all burials were located underneath a plaster floor, through which the Maya had dug to place the decedents.

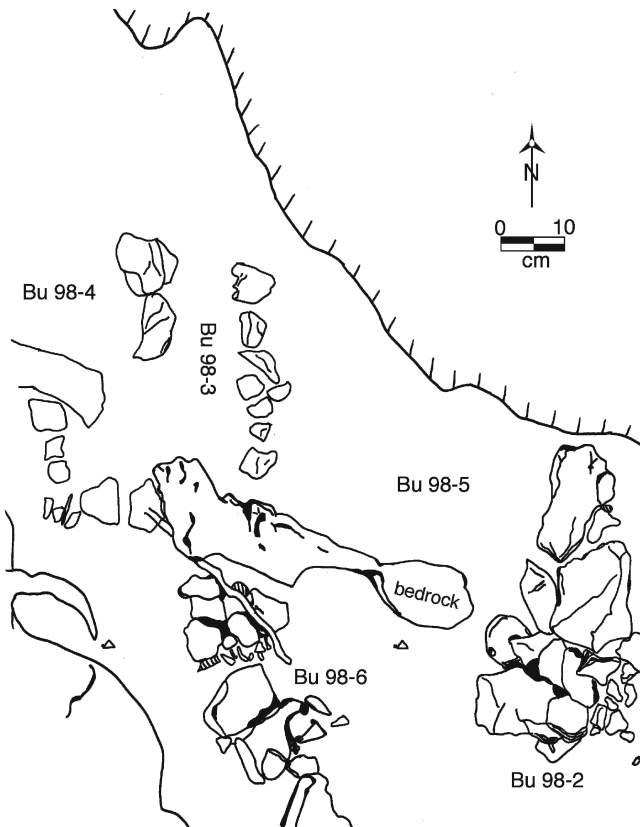


FIGURE 3.8. Burial Alcove, Actun Uayazba Kab. Courtesy of Dr. Jaime Awe, director of the WBRCF. Adapted from drawing by J. Ferguson

TABLE 3.4. Human remains from Actun Uayabza Kab (from Ferguson 1999; Gibbs 2000: Table 3)

Burial no.	Grave type ^a	Condition	Age	Sex	Orientation	Position	Direction	Grave goods
UK-BA-Burial 1	Pit	Fragmented	40 yrs	Male	Prone	Flexed	East	<i>Jute</i> , chert flakes, pyrite, quartz, slate
98-1	Simple crypt	Lower portion missing due to looting; cranium fragmented	Adult	Female	Prone	Extended	West	None; chert flakes, conch shell, and quartz crystal above burial
98-2	Crypt, surface	Fragmented	20 yrs	Female	Prone	Semiflexed	Northeast	<i>Jute</i> , celt, manos, stone ball, basalt
98-3	Cist	Good preservation but fragmented	16–25 yrs	Male	Prone	Flexed	Northwest	<i>Jute</i> , lithics, ceramics
98-4	Cist	Pelvis, trunk in good condition, the rest fragmented	20 yrs	Female	Supine	Flexed	Southeast	Ceramic cache; sherds from one vessel
98-5	Crypt	Poor preservation; pelvis and lower limbs missing	Mid-adult	Male	Prone	Flexed	East	NA
98-6	Pit with rock aligned north–south	NA	Infant	NA	Prone	Flexed	Southeast	<i>Jute</i> , quartz crystal, ceramic sherds, obsidian blade, faunal remains, chert blade between legs

^aExcept where noted, all burials are underneath a plaster floor

We describe a few of the burials to highlight their different contexts to remains found in Tunichil Muknal (see Ferguson, 1999). Burial 98-2 was defined by a series of positioned rocks forming a partial crypt containing the remains of a semiflexed adult female facing northeast (Fig. 3.9). Lying above the burial was a large amount of *jute* shell, a celt, and two manos. The Maya capped the burial with limestone boulders, river cobbles, and a speleothem (38 × 29 cm), which eventually crushed the cranium. Other associated artifacts include obsidian blade fragments, a quartz crystal, drilled obsidian eccentric, conch shell fragment, worked crystal prism, and a polychrome basal flange sherd. Burials 98-3 and 98-4 were located quite close to each other. Burial 98-3 is a cist burial with a flexed adult male, prone and head to the northwest, as well as *jute* shell, ceramics, and lithics. Another cist burial (Burial 98-4) contained the flexed remains of an adult female, supine and head to the southeast. A ceramic cache was found near this burial, which consisted of sherds from a single vessel. Burial 98-5, a pit burial, contained the flexed remains of an adult male, supine, with his head to the east. Another crypt burial, Burial 98-1, contained the extended remains of an older female adult, prone, with her head to the west. There were no obvious associated grave goods, though chert flakes were collected from immediately above the grave, as well as a conch shell and quartz crystal. Infants are also buried; in one example (Burial 98-6), a simple pit demarcated with several stones aligned north-south contained the remains of a flexed infant, prone and head to the southeast (Fig. 3.10). Associated artifacts include quartz crystal, *jute* shell, sherds, an obsidian blade, faunal bones, and a chert blade located between the infant's legs.

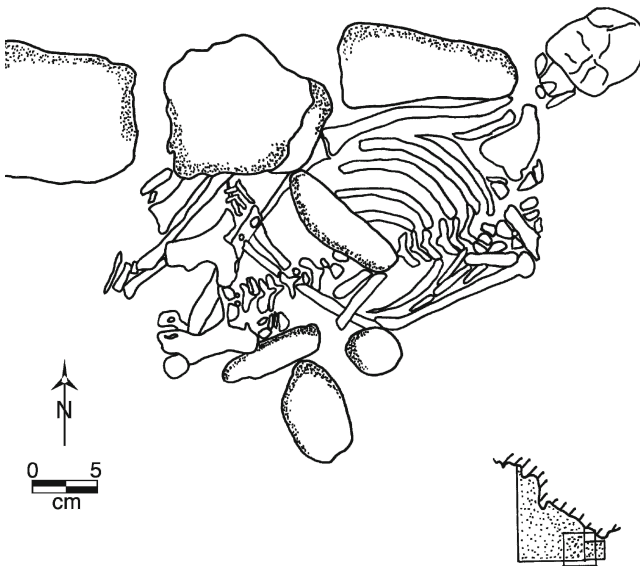


FIGURE 3.9. Burial 98-2. Courtesy of Dr. Jaime Awe, director of the WBRC. Adapted from drawing by J. Ferguson

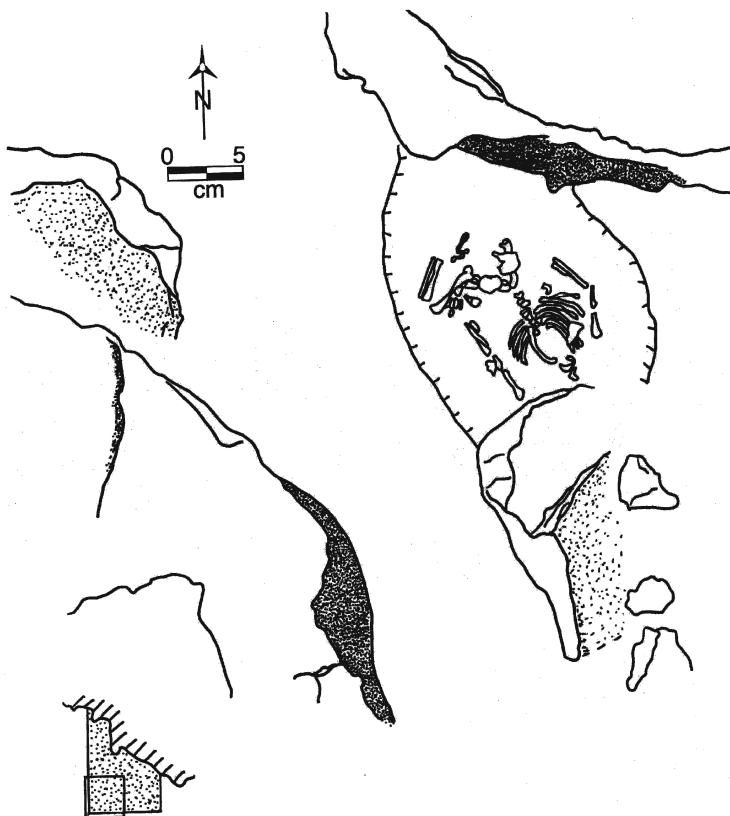


FIGURE 3.10. Burial 98-6. Courtesy of Dr. Jaime Awe, director of the WBRCF. Adapted from drawing by J. Ferguson

In sum, the Maya interred people in the Burial Alcove and included grave goods as part of the funeral rite. None of the remains show evidence for trauma, which could indicate nonviolent death and ancestor veneration rather than any form of ritual violence. Most of the remains consist of adults of both sexes, and there is one infant present. The question to ask is why these individuals were buried in a cave at all. As mentioned earlier, the iconography may indicate water and ancestral rites. If the former, then perhaps some people were sacrificed; if the latter, then the Maya selected some people to become ancestors by interring them in sacred places.

3.5. Discussion and Conclusions

Adult males and females, juveniles, and infants are found in Actun Tunichil Muknal and Actun Uayazba Kab in west-central Belize. Major differences are context (surface or subsurface), evidence for trauma (present or absent), and

grave goods (present or absent). Why were people treated differently at death at the two caves? Were the dead of Tunichil Muknal all innocent victims? Or were some guilty, or at least perceived as being guilty (i.e., witch persecution)?

Actun Uayazba Kab, located closer to a settlement (Cahal Witz Na), demonstrates more evidence for funerary rites and the creation of ancestors, who were kept relatively close to the living in a “lineage mountain.” Most individuals were *buried* beneath a plaster floor, along with offerings. In contrast, Actun Tunichil Muknal goes deeper into the mountain – that is, closer to the sacred – and is dangerous. The dead were not accorded traditional burial rites; they were perhaps killed and then placed on the surface – without offerings. These people were left exposed without any protection from the elements or the perilous underworld. These individuals could have been sacrificial victims; just as vessels were terminated or killed, so too were humans. If this were the case, who was chosen and why? Under what circumstances are human sacrifices necessary? It likely would take something drastic to result in the killing of a person who was a member of the community – not an every-day kind of problem. It also could be that individuals in both caves were left as offerings to the gods of the underworld, or Chac the rain god, or the maize god, especially in times of trouble or misfortune. For example, in colonial Yucatán, Bishop de Landa noted that the Maya would make pilgrimages during famine when they “were reduced to eating the bark of trees” (Tozzer, 1941:180) to the Sacred Cenote at Chichén Itzá to pray and offer sacrifices for rain. Caves may have served a similar purpose, and in some instances infants, children, and some adults may have been selected for sacrifice because of their innocence and purity (e.g., Anda, and Hurtado et al. in this volume; Moyes and Gibbs, 2000).

Some of the adults in Tunichil Muknal, however, could have been selected because of a community-wide consensus that a particular person’s death would restore order – which might explain the evidence for violence and the haphazard placement of the remains. Perhaps they represent not just offerings, but punishment for the perceived threat they presented in life. This is witchcraft persecution: the punishment of someone to bring things back to normal. Their bodies were disposed of in the same place they were believed to have performed the malevolent ceremonies that brought ill fortune to the community. By killing or sacrificing someone, the Maya deactivated their evil power. And just like the Lacandon abandoned deanimated pots in sacred caves because they are still dangerous, the same goes for malevolent persons – witches; the evil power with which they – and their bodies – are imbued demanded a similar fate.

By offering such individuals, who perhaps were thought to have acted against the gods, the living condemned their spirits to the malevolent gods of the underworld. Or, just as the hero twins of the Maya creation story killed the “evil” gods of the underworld by refusing to bring them back to life, the same could have been done to “witches” by not allowing their spirits to be released, not allowing them to travel into the “after-life,” thus ending their life all together. Perhaps sending such witches into caves was a way of sending them “back,” or giving them up to some of the potential evil dwellers residing in the underworld.

Or perhaps the Maya wanted to ensure that upon a witch's death their spirit would go directly to the underworld – the place where souls were believed to have traveled upon death – and not continue wandering around the earth wreaking havoc.

In conclusion, there are thousands of caves in the southern Maya lowlands, and most, if not all, contain offerings. A majority of caves have human remains, some of which were enclosed in urns or subsurface burials, and some of which were not. The physical removal of the dead from the community and the living to places such as caves, also deemed as sacred places in the landscape, separated the individual from their social positions within the community – either emphasizing their importance, or removing them all together and negating their position. Why people were disposed of rather than buried has been the main focus of this paper – to explore the possibility that Classic Maya witches existed. The prevalence of witch persecution and witch killings cross-culturally, including throughout Mesoamerica, past and present, demands that we consider that not all sacrificial victims were chosen for their innocence.

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4

Empowered and Disempowered During the Late to Terminal Classic Transition: Maya Burial and Termination Rituals in the Sibun Valley, Belize

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The *peri-* and *postmortem* treatment of human remains speaks directly to social and political conditions as both Verdery (1999) and Weiss-Krejci (2004) have shown. Unfortunately, the ability of archaeologists and osteologists to correctly link human remains with political and social circumstances has been limited by under-developed and under-applied forensic techniques compounded by the poor preservation of skeletal remains in the humid, tropical Maya lowlands (see Tiesler in this volume, for expanded discussion). Another factor – insufficient analysis of archaeological context – often hinders a full appreciation of the political and social circumstances surrounding the treatment and deposition of human remains. Elsewhere, McAnany (1995) has drawn attention to the methodological ambiguity surrounding the distinction between the remains of human sacrifice and those of protracted, but reverential, mortuary practices. The joint biocultural approach advocated in this volume and followed in this chapter aims to increase the precision of our forensic methods of skeletal analysis while also sharpening the focus of archaeological contexts in which skeletal materials are found.

Two contrastive archaeological contexts – an elaborate mortuary deposit and a collection of human bone that appears to be a conquest-linked termination deposit – form the basis for this study of the treatment of human remains. The contexts were discovered during the excavation phase of the Xibun Archaeological Research Project (XARP) at two Maya sites called Hershey and Pakal Na, both located in the Sibun Valley of Belize. This study emphasizes the critical importance of archaeological context and the profound contribution of Maya ancestral remains to an in-depth understanding of the past. In addition to human remains, iconography, ceramics, and radiocarbon assays are brought to bear on the shifting alliance structure of the Late-to-Terminal Classic transition (ca. AD 700–900) – when the power and reach of the Petén contracted while the northern Yucatec powers expanded.

4.1. The Sibun Valley in Local & Regional Perspective

Positioned in the eastern Maya lowlands (or the Belize Zone), the Sibun Valley is strategically located relative to the highly navigable Inner Channel of the Caribbean Sea (Fig. 4.1). The valley is linked to the Petén – and its many powerful Classic Maya centers, such as Tikal and Naranjo – via the Belize Valley, which is the proximate drainage immediately to the north. The Inner Channel of the Caribbean Sea provides access via maritime transport to northern Yucatec

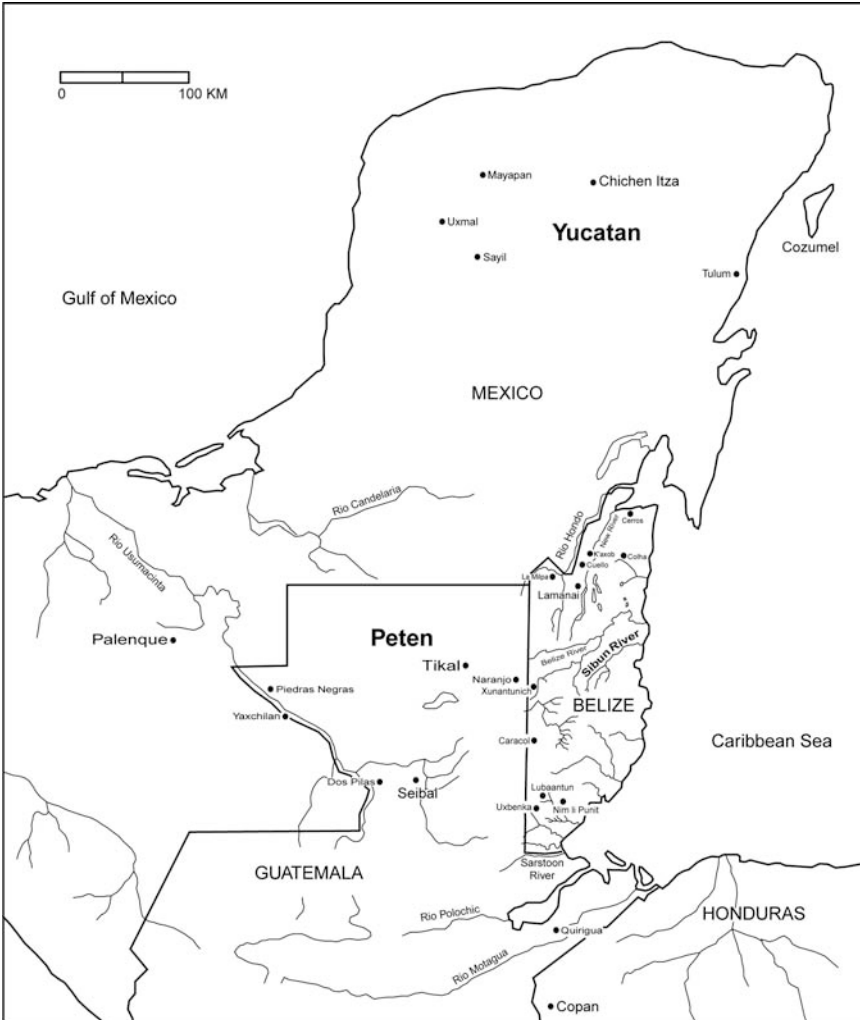


FIGURE 4.1. Map of the Maya area, highlighting the location of the Sibun River Valley. Note the location of Petén and northern Yucatán (map prepared by B. Thomas)

capitals such as Chichén Itzá. Elsewhere, we (McAnany et al., 2002:123) have discussed the political and economic significance of the Caribbean watershed valleys that “supported large populations on soils that were capable of producing highly desirable luxury crops – such as cacao – yet monumental architecture and hieroglyphic texts, *sine qua non* of political power in Classic Maya society, are underrepresented suggesting peripheral political status.” In contrast, the core areas in which Classic Maya royal courts flourished – central Petén and northern Yucatán – were not zones of prolific cacao production. Given the appetite of royal courts for cacao, some type of core–periphery relationship between the Sibun Valley residents and the core areas can be postulated for Classic through Colonial times (Jones, 1989; McAnany, 2004; McAnany et al., 2002:128).

Significantly, the bulk of construction within the valley dates to Late and Terminal Classic times (AD 600–900) with sparse repopulation of the valley during Late Postclassic and Early Colonial times. McAnany and others (2005) have suggested that this settlement history can be attributed, in large part, to the volatile flooding regime of the Sibun River. As such, the valley is not well suited for maize agriculture but sturdier tree crops that can survive the seasonal flooding and then flourish on the soils enriched by the overbank events.

4.2. The Hershey Site in the Sibun Valley

The Hershey site, so-named for the surrounding cacao orchard once owned by Hershey Foods, is located at the base of the Maya Mountains in the upper portion of the valley (Fig. 4.2). This site occupied a strategic position in the circum Maya Mountains trade routes (Graham, 1994; McAnany et al., 2002, 2005). Thomas (2005) has noted that Hershey, the largest site in the Sibun Valley, exhibits architectural styles that resemble those of Classic period Petén. Most notable in this respect is a small ballcourt (King, 2004) situated immediately to the southeast of the main pyramid (Fig. 4.3) – an arrangement that is analogous to the Temple 1 plus effigy ballcourt complex of Tikal and more generally to the size and locations of ballcourts at Belize River sites to the northwest, such as Xunantunich and El Pilar (Leventhal and Ashmore, 2004:Fig. 10.1; Ford, 2004: Fig. 15.2).

A pattern of large-scale architecture built within a compressed time frame at Hershey is similar to the tempo of construction at Xunantunich during the Late Classic (see Fig. 4.1). During this time period, carved monuments at Xunantunich indicate that the Petén capital of Naranjo likely controlled this sizeable polity in the Belize River valley (Fields, 2004; Leventhal and Ashmore, 2004). Direct relations between the Belize River area and Naranjo also have been detected at the site of Buenavista, where a polychrome cylinder vase with a hieroglyphic text band identifies the vessel owner as that of a ruler from Naranjo (Houston et al., 1992; Tascheck and Ball, 1992). At the Hershey site in the Sibun, a similar emblem-glyph on an incised sherd was found while cleaning the front façade of the main pyramidal structure in Group B (Morandi, 2004 [Fig. 4.4]). The ceramic sherd bears a portion of the crossed band emblem glyph of Naranjo surmounted by a late

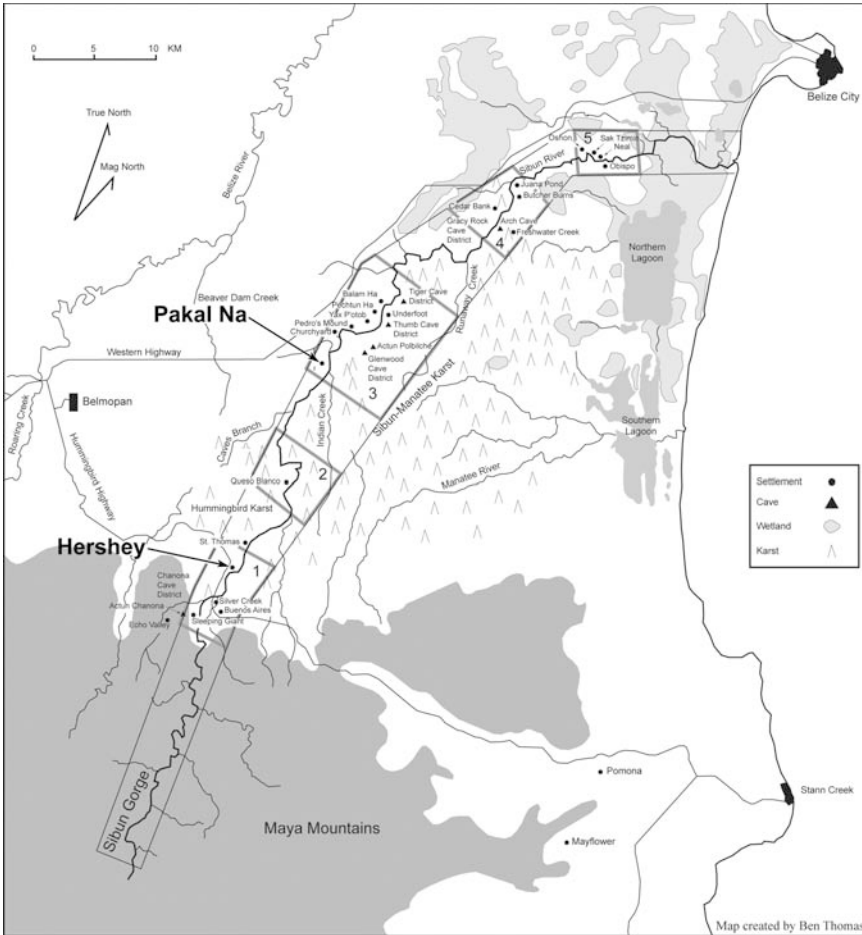


FIGURE 4.2. Map of the Sibun Valley and ancient Maya settlements (map prepared by B. Thomas)

version of the “k’ul ajaw” prefix (Stephen Houston personal communication, 2003). This evidence suggests that the political influence of Naranjo extended to the south of the Belize Valley, perhaps in an effort to control the circum Maya Mountains trade routes and the areas of prolific cacao production.

4.3. A Deposit of Terminal Conflict and Disempowerment at Hershey

The Hershey site was the regional center for the upper Sibun Valley and served as the residence for ruling elites who may have originated from the Petén – certainly the pottery shows strong affinities with Petén (Tepeu) ceramic complexes. With

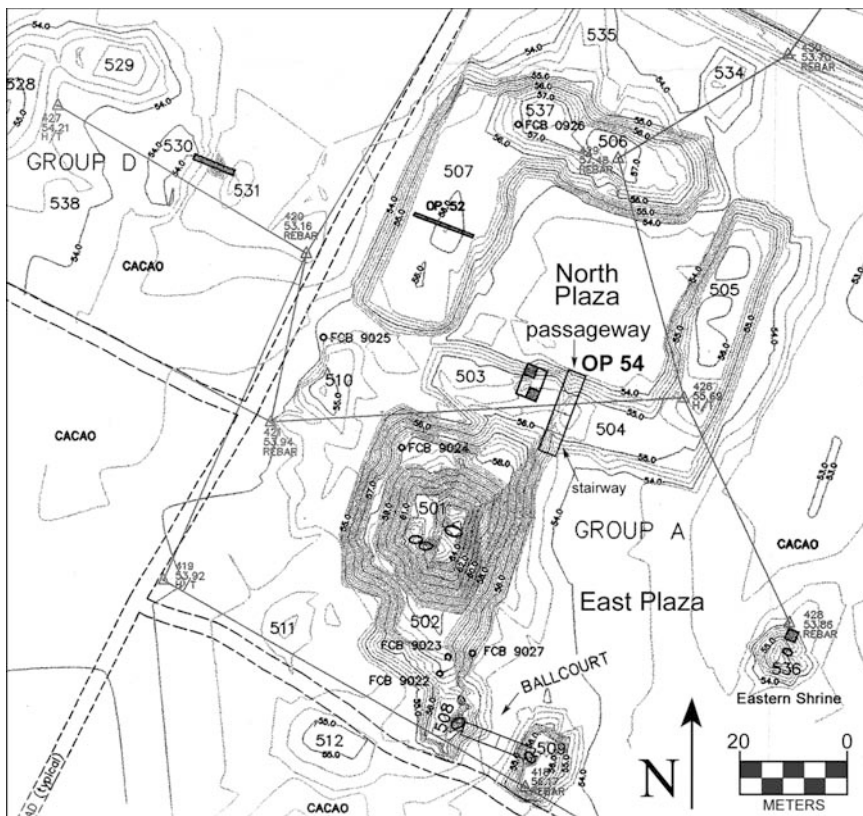


FIGURE 4.3. Map of Group A at Hershey with passageway excavation unit, Operation 54 (after Morandi et al., 2003: Map Sheet 2, modified by E. Harrison-Buck)

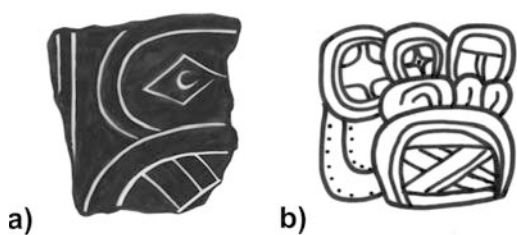


FIGURE 4.4. (a) Ceramic sherd from Hershey with a portion of the Naranjo emblem glyph (illustration by C. Cesario). (b) Naranjo emblem glyph (illustration by E. Harrison-Buck)

the onset of the Classic-period political collapse (ca. AD 800), however, the fulcrum of power shifted and many of the ruling institutions that were central to the Late Classic ideology, centered in the Petén heartland and emulated at sites like Hershey, appear to have lost their vitality. The political turbulence of the Late-Terminal Classic transition – a time when northern Yucatec capitals strengthened as the

influence of the Petén waned – is indicated in poignantly human terms from material excavated in Group A at Hershey (refer to [Figs. 4.3 and 4.5](#)). From a narrow passageway that links the main elite residence (North Plaza) to the ballcourt area (East Plaza), excavators uncovered disarticulated human bone that had been deposited directly beneath the collapse of the passageway masonry (Harrison-Buck and Cesario, 2004). Over 1,200 fragments of human bone were recovered from small clusters situated both on the surface of the elevated corridor and mixed within a 10–15 cm deep layer of debris that covered both the North and East plaza floors adjacent to the passageway. The fact that the skeletal material had been deposited directly on top of the passageway floor suggests that the area was actively maintained when the human remains were placed there. This inference is supported by the results of two AMS radiocarbon assays on charcoal from the passageway. The first sample (AA58926) was directly associated with one of the bone clusters and yielded a 2-sigma calibrated age range of AD 758–891. The second sample (AA58927), originating from the subfloor ballast, yielded a 2-sigma calibrated age range of AD 761–895, and is statistically inseparable from the first date. This finding indicates that very little time elapsed between the uppermost floor construction within the passageway and the scattering of human remains on top of that floor and adjacent plaza surfaces.

While there is evidence of erosion on the bones, along with a good deal of rodent gnawing, the human bone is exceptionally well preserved. From the widely scattered clusters of bone, Storey has identified the partial remains of six individuals: an 18-month-old child, a 6 to 7-year-old, a 9 to 10-year-old, two late adolescent/young adult individuals (one perhaps 18–24 years of age and the other 20–35 years of age), and one individual 40–60 years of age. While these ages are preliminary, the age profile of the human remains bears an uncanny resemblance to an extended family grouping. The teeth from several different individuals in this group share the same “T”-shaped filing patterns and drilled holes for now missing inlays. Notably, an isolated tooth with the same filing pattern and an intact jade inlay was found sealed beneath the passageway floor in a context that resembled a dedicatory cache more than a termination ritual. While tooth modification is not necessarily an indicator of high rank (see Whittington and Reed, 1997), the dental modifications indicate that these were elite individuals, privileged to display the same “T”-shaped incisors as K'inich Ajaw, the sun god, framed by possible jadeite inlays on their canine teeth. The similar filing patterns among these individuals suggest a measure of longevity in the practice of dental modification among what may have been the chiefly line at Hershey.

Cut marks were identified on the skull of the 20 to 35-year-old late adolescent/young adult male individual. The frontal of the skull was nearly intact and was found directly on the surface of the elevated passageway (see [Fig. 4.5](#)) and the partial mandible of this individual, showing cut marks suggestive of defleshing, was also recovered from the North Plaza area, adjacent to the passageway. The partiality of the skull and the presence of defleshing marks suggest dismemberment and flying. Storey notes that this individual is represented by about 20% of the total skeletal elements, including vertebrae fragments and some of the

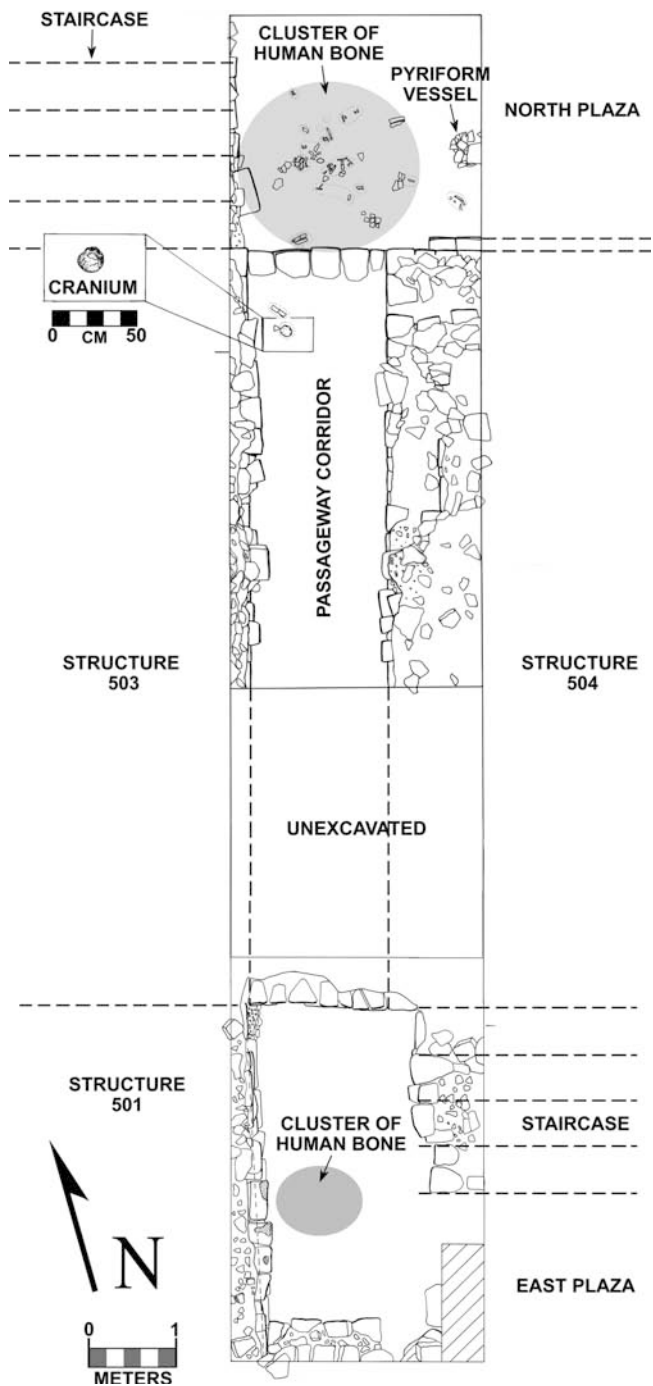


FIGURE 4.5. Plan view of the passageway at Hershey exposed in Operation 54 (illustration by E. Harrison-Buck and C. Cesario)

torso, but the skull is represented only by portions of the frontal, parietal, and partial mandible body. Like the other individuals in this context, the bones were extremely fragmentary, but well preserved.

Of the six individuals, most of the deposit probably belonged to the two oldest adults (mostly postcranials comprising long bone and torso fragments), while the other late adolescent/young adult (only a few cranium pieces and teeth) and all juveniles (teeth and a few pieces of long bone diaphysis) were very poorly represented. Only the two better-represented older adults had any paleopathological indicators on their bones, including healed slight infection, caries, and the younger adult (25–35 years of age) had healed porotic hyperostosis from childhood anemia. The remains appeared fairly healthy, although the paucity of skeletal elements probably underestimates the lesions that might have been present.

There is no evidence of sun bleaching or weathering, so the bones were not exposed long on the passageway surface, but appear to have been quickly mixed with a layer of artifacts and covered over by the surrounding structure tumble. There are several processes that may have contributed to the final “look” of the deposit, including human break up of the original skeletal elements, damage caused by structure fall, the general loss of preservation from the tropical climate, and of course, the further damage and loss from bioturbation of the deposit. All of these taphonomic signatures are likely to be implicated here, but separating these out poses a difficult task. Each must be considered in an interpretation of the deposit of human remains from Hershey.

There are several possible scenarios that explain the creation of the Hershey deposit, although each scenario suggests a violent, conquest-linked event. One possibility is that the human remains represent sacrificed individuals who were dismembered shortly after death, with some pieces removed as war trophies or souvenirs and others scattered about the passageway. With time and humid tropical conditions, the sacrificed individuals were reduced to the clusters of bone fragments that were recovered in the passageway excavation. If this was the case, one should find definite kinds of modification to the human remains, such as cut marks, percussion marks, marks of defleshing, and breaks characteristic of fresh bone (White, 1992; see also Tiesler in this volume). Cut marks and percussion marks from defleshed individuals are generally focused near the ends of long bones, logical places for taking a body apart, and multiple cut marks in an area are typically parallel (White, 1992). Also, the finding of animal gnawing would not be unexpected, especially if these were somewhat loosely buried by structure fall for some time. A second possibility is that the human remains represent secondary (already defleshed) skeletal remains exhumed from burials and tossed somewhat unceremoniously into the passageway and broken up more quickly by deliberate desecration and subsequent structure fall. Again, animal gnawing might be expected, and the fragmentary nature of individuals might be due to whatever skeletal elements were selected in the exhumation process. Chopmarks might be more random, in that tools were used to fragment already skeletonized bone. In this case, signs of dismemberment, defleshing, and fresh bone breakage would not be expected.

The Hershey deposit seems more compatible with the second scenario. Although there are few real joint ends preserved necessary for identifying cut marks and percussion marks at the end of bones, there are some possible chop marks. However, these appear to be randomly distributed on the bone shafts and more likely were caused by structure fall. There is a lot of animal gnawing, but this could just as well have occurred in the original context of a burial interment prior to exhumation. More importantly, the fragments are small and lack breakage patterns characteristic of fresh bone. There are defleshing marks on one of the six individuals and that is the only possible contradiction to the hypothesis of deliberate destruction of skeletonized individuals. However, limited skeletal remains of this individual (roughly 80% missing) makes it difficult to distinguish between the two alternatives: that among the human remains, this is the only example of a potential living, executed individual showing signs of trophy taking, or that the marks were done in the process of preparing a curated, honored individual for final burial in a tomb (that was later disturbed).

Overall, the broken, disarticulated nature of the entire assemblage of human bone lack characteristics indicative of human sacrifice. Despite the fragmentary state, the bones are in an excellent state of preservation. The evidence suggests that the remains of all six individuals could have been entombed, skeletonized, and later exhumed and scattered in the passageway during an act of conquest. Cranial fragments are generally lacking, but there are 28 loose premolars and molars out of the 42 teeth recovered. These teeth are much more likely to fall out of skeletal mandibles than fleshed ones. Although excavations at Hershey have not uncovered any desecrated tombs, there is a disturbed series of coarse-masonry “rooms” located high on the western flank of the main pyramid in Group A not far from the passageway. The notion that these clusters of human remains represent the aftermath of despoiled ancestral tombs is further supported by the fact that a number of finely made smashed ceramic vessels and seven marine shell ornaments (two shell tinklers, a tubular bead, a circular perforated bead, a perforated shell, and two shell pendants) were associated with the bone clusters – an indication that a number of the original elite burial accoutrements were scooped up when the bones were exhumed.

Recently, Barrett and Scherer (2005) reported an osteological analysis of a deposit of human bone found scattered on a platform near the base of a stepped pyramid at Colha, Belize that may be comparable to the Hershey deposit. Just west of the site’s main ceremonial plaza, the human remains were deposited on the terminal surface of the platform mixed with numerous artifacts and building collapse debris. Barrett and Scherer (2005) interpret the deposit as being the result of a mass accumulation of bodies with no evidence of true funerary treatment. Like the Hershey deposit, the bones were very disarticulated and fragmentary and represented only partial remains of multiple individuals. While the Hershey deposit only comprises six individuals, the bone fragments from the Colha deposit represent a total of 25 individuals. However, like Hershey, the bone fragments are limited in number (a total of 2,418 fragments), small in size (mostly less than 5 cm in length), and seem to lack breakage patterns characteristic of fresh bone.

Barret and Scherer (2005) do note some cut marks on cranial fragments, and also some on postcranials, although only one individual is mentioned. Barret and Scherer (2005) interpret the deposit, along with the better known skull pit (Massey, 1989), as evidence of final acts of violence against the Colha population as the site was razed in the Terminal Classic. The deposit at Colha may represent the remains of sacrificed individuals, but an alternative explanation is that they represent exhumed burials that were desecrated and scattered along the public ceremonial platform at Colha during an act of conquest.

Tomb desecration, as well as the sacrifice of entire royal families, is not unknown for the Maya area (Ambrosino, 1997; Mock, 1994, 1998a; Schele and Freidel, 1990). Supported by a wealth of ethnographic and ethnohistoric accounts that link conquest with defacement of ancestral tombs, scholars have argued that disentombing elite ancestors served as a symbolic act of conquest that sought to undermine the legitimization of a royal ancestral line (Ambrosino et al., 2001:119–120; Freidel, 1998:192–193; Mock, 1998a:118–119; Pagliaro et al., 2001:80–81). At the northern Yucatec site of Yaxuna, evidence of a ransacked tomb and extensive site destruction, attributed to a warring event between Yaxuna and Chichén Itzá in the Terminal Classic period, may be analogous to the termination deposit uncovered at the Hershey site. A re-entered tomb (Burial 25) was found within one of three desecrated rooms along the southwestern side of Structure 6F-68 in the North Acropolis at Yaxuna (Ambrosino, 1997, 1998; Ambrosino et al., 2001; Suhler et al., 2004). “The skull and parts of the upper torso were removed and the rest of the upper torso left in a jumble around the entry hole, grave offerings were removed and smashed, and a fire was lit in the entry hole” (Ambrosino et al., 2001:119–120). Intense fires were burned in both the crypt and the room and large holes were dug through each of the three-room floors. Human bone, whole vessels, fragments, and large amounts of elite items and other material (manos, metates, projectile points, jade implements, shell, and animal bone) were smashed and scattered throughout the rooms and along the front of the building, indicative of a desecratory termination deposit (Suhler et al., 2004:475).

Pagliaro and others (2001:77) define a desecratory termination ritual deposit as “the result of purposeful destruction and manipulation of material culture for the furtherment of goals aimed at destroying the supernatural power of a defeated community or faction. These rituals resulted in the formation of deposits that were used to ‘kill’ the animate supernatural power of an object, person, place, or portal to the otherworld.” These deposits are distinguished from midden or reverential deposits on the basis of several contextual criteria outlined by Pagliaro and colleagues (2001:79–80); these include: intensive burning, intentional structural damage, pot smashing and scattering, rapid deposition of material, dense concentrations of large sherds with sharp, angular breaks, and large quantities of “elite” artifacts.

Unlike most domestic trash deposits, desecratory termination ritual deposits can also include primary- or secondary-context human remains and may involve “purposeful disturbance and/or desecration of elite burials as well as the remains

of ritually sacrificed elite inhabitants of a Maya community” (Pagliaro et al., 2001:80). In contrast to most midden deposits, which are often located around the outside of structures, desecratory termination deposits are typically located within architectural boundaries (Pagliaro et al., 2001:79). Mock (1998b:6) notes that often dedicatory and desecratory termination deposits were purposefully placed at liminal interstices or key points of transition in architecture that show change, such as intersections (e.g., building and plaza centerlines) or openings (e.g., stairways and entrances). This was the case with the skull pit, another desecratory termination deposit from the Maya site of Colha where 20 adults and 10 children were decapitated and flayed and their skulls interred in a shallow pit adjacent to the stairway of an elite structure in the ceremonial center (Massey, 1989; Mock, 1994, 1998a; Steele et al., 1980). Archaeological evidence suggests that this event accompanied widespread destruction of the site, perhaps representing a violent conquest and sacrifice of elite members of the Colha community at the end of the Classic period (Mock, 1998a:115; Hester, 1985).

Alongside human remains, one of the most easily recognizable traits of a conquest-linked desecratory ritual deposit is the presence of smashed and widely scattered ceramics where sherds refit from different levels and widespread areas (Pagliaro et al., 2001:80). Ceramics from middens, on the other hand, are generally worn, more fragmentary, and cannot be refit and are deposited in a relatively localized area. Stanton and Gallareta Negrón (2001:232) note that the presence of smashed elite items, such as fancy serving vessels, associated with desecratory termination rituals may represent conquest-linked feasting events carried out by the victors of a warring event. Often, in these contexts local ceramics are found smashed and interspersed with foreign-made items. Suhler and colleagues (2004:474–475) refer to the latter as “signature materials” in that such artifacts are intrusive in the local assemblage and “occur in contexts that demonstrate the dominance of their makers while ritually overpowering an enemy place.” In the case of Yaxuna, Sotuta ceramics – signature wares of Chichén Itzá – were associated with the Terminal Classic site destruction and tomb desecration event, and were not found in any earlier deposits at the site (Suhler et al., 2004:456–458; Stanton and Gallareta Negrón, 2001). Whole ceramic vessels, some of which appear to have been grave offerings from Burial 25, were found smashed in front of the room interspersed with smashed Sotuta ceramics. Suhler et al. (2004:474–475) argue that the destructive context and evidence of “signature material” at Yaxuna demonstrate that the invaders stemmed from Chichén Itzá.

Like Structure 6F-68 at Yaxuna, the passageway at Hershey and the adjacent plaza floors were covered with a high density of smashed serving vessels and other elite items, co-mingled with disarticulated human bone. The context of the Hershey deposit is significant, located within a narrow passageway that represents one of the few restricted entrances into the main elite residential compound (refer to Fig. 4.3). The depositional pattern is similar to the Colha and Yaxuna desecratory deposits, both located in the elite ceremonial center of each site and associated with important architectural complexes (stairways, platforms, and rooms). Both the context and the contents of the widely scattered deposit at

Hershey are not suggestive of a midden or dedicatory deposit, but rather, reflect the criteria of a desecratory termination ritual (Pagliaro et al., 2001).

The Hershey assemblage consists primarily of finely made serving vessels including numerous ring-based dishes and several pedestal-based pyriform or bottle-shaped vessels, probably all locally produced. Other artifacts mixed within the terminal debris suggest foreign-made objects and may represent so-called signature material of the invading party. One example that does not appear to be a local artifact is a gouged-incised spindle whorl. This object displays a bird motif that is stylistically similar to numerous examples found at Chichén Itzá and the nearby Balankanche Cave (Andrews, 1970:Figs. 38a-i and 39a; Bolles, 1977:237-239). Additionally, one sherd associated with the terminal deposit at Hershey is clearly a northern import, possibly from Chichén Itzá. The sherd is decorated with a black trickle design that is distinctive of slatewares from the Sotuta and Cehpech ceramic complexes of northern Yucatán (Smith, 1971).

In addition to the smashed artifacts and well-preserved bones of elite individuals at Hershey, several other pieces of evidence support the notion of a termination event linked to conquest. Like the floors of the rooms in Structure 6F-68 at Yaxuna, large holes were found dug into areas of the plaza floors around the north and south entrances of the passageway, suggestive of intentional structural damage. Additionally, sizeable fragments of slate were recovered from the plaza areas leading to the passageway in association with the bone clusters. These slate fragments could be the remains of stelae, similar to stone monuments found at nearby sites to the north and south of the Sibun valley, particularly the Stann Creek Valley (Graham, 1994:289). Smashed or defaced stone monuments found at Maya sites, such as Tikal and Copán, often are cited as evidence of violence and martial activity during the Classic period (Friedel, 1998:192-193; Mock, 1998a:118). In the case of Copán, Schele (1991:5) observed, “the act of defacing as a part of ending the life of things like buildings and objects was so pervasive and fundamental to Maya thought that it functioned as a metaphor for the ending of the Copán dynasty.” Finds of smashed slate fragments and intentional structure damage at Hershey lend further support to the notion that the Late Classic political regime at Hershey came to a violent end.

This terminal deposit in Group A at Hershey marks the final occupation and abandonment of the site core. The desecratory termination event may be linked to a political reorientation that is evident in the middle and lower reaches of the Sibun Valley, where increased coastal and northern interaction is evident at the end of the Classic period. Several sites in the middle and lower reaches of the valley contain circular shrine structures (Harrison-Buck, 2004; Harrison-Buck and McAnany, 2006). Round structures are frequently interpreted as a “Maya architectural form introduced at Chichén Itzá” (Kowalski et al., 1994:281); when found in other parts of the lowlands, circular shrines imply interaction with this northern center. Additionally, there is an influx of new ceramic types in the middle and lower reaches of the valley that contain northern attributes, such as basin and basal break bowl forms with thick bolstered rims and pyriform-shaped vessels (see Brainerd, 1958:47). These new ceramic forms depart from the Tepeu/Spanish Lookout

tradition, which dominates the Hershey site and the Belize Valley and Petén region further to the west, and point to an increased northern interaction in the Sibun Valley by Terminal Classic times (Harrison-Buck and McAnany, 2006).

4.4. A Mortuary Deposit from Pakal Na: Empowered by a Northern Alliance

While the Hershey site appears to reflect a power shift and collapse of Petén-affiliated alliance structures at the beginning of the Terminal Classic, XARP excavations of more modest-sized sites in the middle and lower reaches of the Sibun Valley indicate that these settlements survived this period of decline and thrived during the Terminal Classic period (AD 780–900). This late florescence appears to mirror the rise and historical trajectory of sites in northern Yucatán (Andrews et al., 2003). Fueled by the growing hegemony of the north, the coastal Caribbean trade network assumed an increased importance (Andrews et al., 1988; Freidel and Sabloff, 1984; Guderjan and Garber, 1995; Masson and Mock, 2004; Sabloff and Rathje, 1975).

At the mid-valley site of Pakal Na, there is evidence of this late florescence and coastal interaction (see Fig. 4.2). Within Structure 130 (the largest at the site), an elaborate mortuary deposit was intruded into the eastern (front) central axis of this elongated platform (Harrison, 2002; Harrison and Acone, 2003; Storey, 2004 [Fig. 4.6]). Both the quality and nature of the grave offerings, including evidence of *postmortem* body processing and the extended period over which the mortuary ritual occurred, indicate that the central individual (Burial 1-A) was of high rank and possibly a prominent warrior. The style and content of grave goods again point to northern influence, likely stemming from Chichén Itzá.

The large burial pit at Pakal Na measures roughly 1.3 m wide, 3 m in length, and over 1 m in depth (refer to Fig. 4.6). The burial includes a total of five individuals: a primary interment (1-A) who was accompanied by the partial remains of four other individuals represented by discrete clusters of disarticulated human remains (1-B, 1-C, 1-D, and 1-E), which includes one individual represented by a carved human skull mask. Most appear to be male and older than 35 years of age (the sex of one individual is undetermined); the primary interment (1-A) was probably over 60 years of age at death and possibly a four-ka'tun lord.

The main interment (1-A) was laid out in an extended position with his legs crossed. The old male was a robust individual, showing pronounced muscle attachments on the shoulder girdle and a prominent *linea aspera* of the femur. Thus, an active lifestyle is indicated, which might be expected of a successful leader and warrior. The skull of Burial 1-A had been removed and replaced with an inverted bowl. The left arm and a portion of the torso and right forearm were also missing.

The disarticulated remains of Burial 1-B were located just east of Burial 1-A. 1-B included a skull with atlas vertebra and pieces of the left shoulder. Considerable wear on the teeth (one drilled for an inlay) and the closure of some sutures indicates that Burial 1-B was an older adult, probably the oldest of the

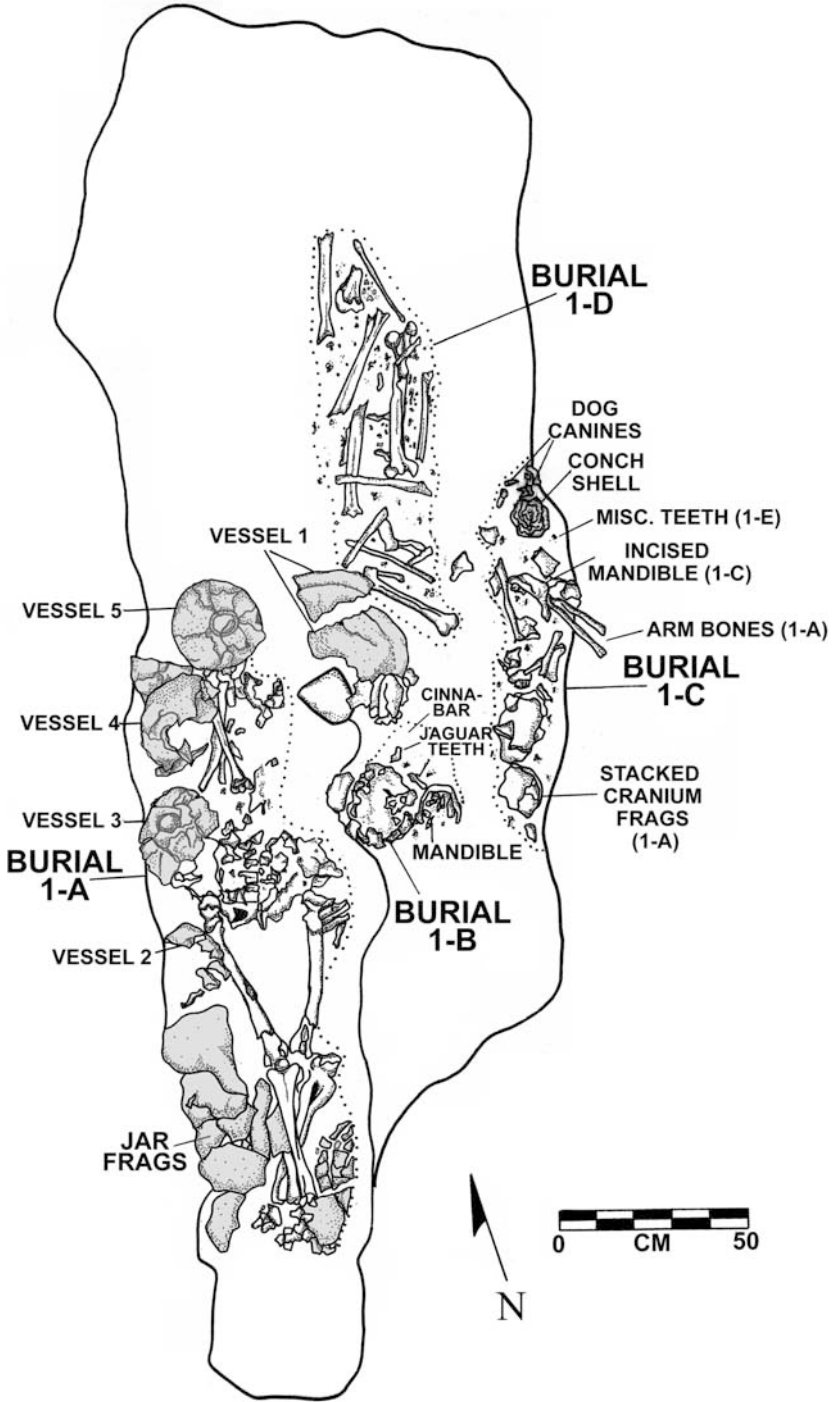


FIGURE 4.6. Plan view of the Pakal Na burial (illustration by K. Acone and S. Morandi)

secondary interments. The morphological features of the skull suggest a more gracile male, indicating that the skull did not belong to the 1-A interment. Drilled jaguar teeth and a 5–10 cm thick deposit of cinnabar found over a 20 cm diameter area were associated with the skull.

Burial 1-D, located just north of 1-B, may be part of the 1-B individual, but there is a clear separation between these two bone clusters (Fig 4.6). Thus, 1-D has been treated as a separate person. 1-D consists primarily of arm and leg bones with few other skeletal elements and they appear to have been scattered, rather than bundled.

The Burial 1-C deposit, like 1-D, did not appear bundled, but rather, was a collection of bones with associated grave goods that had been placed on an earthen shelf on the eastern side of the mortuary pit. During analysis, the skull of Burial 1-A was identified within the 1-C deposit. There was no skull modification, but two upper anterior teeth had been drilled for inlays. Additionally, the left arm, most of the right forearm, and parts of the cervical vertebrae of Burial 1-A was found in deposit 1-C. Grave goods found associated with this deposit include four perforated dog canines, the inner spiral of a Queen Conch marine shell, and the fragments of a carved skull mask (see Fig. 4.6).

Other human remains within the 1-C deposit included six teeth, mostly molars and premolars. These remains represent another separate individual and are designated 1-E. No cranial fragments could be linked to this individual, so it appears to be a deposit solely of teeth from a middle-aged to older individual; sex is undetermined.

Mortuary ritual surrounding the main interment (1-A) included the burning or smoking of the deceased, which likely included torching a wooden litter upon which the old male had been placed (see Medina and Sánchez in this volume, for discussion of human remains exposed to fire). Charcoal was scattered throughout the base of the pit, particularly under the lower legs of Burial 1-A where a dense, 15-cm thick deposit of charcoal had accumulated on top of a bed of large sherds from a red-neck, striated jar (the sherds also were blackened and coated with charcoal residue). The bones of the focal individual bear evidence of smudging and scorching from smoke, although the bone is well preserved and is not calcined as it would have been if cremated. A charcoal sample (AA55938) collected from the burned wood beneath the legs of the primary interment yielded a 2-sigma calibrated radiocarbon date range of AD 687–959. Another sample (AA55936) with a calibrated range of AD 776–979 was associated with a later construction episode that capped the burial pit. Examined together with the ceramic assemblage, the Pakal Na burial appears to date to the Late-to-Terminal Classic transition.

Further evidence of posthumous manipulation of the primary interment is provided by traces of red and yellow ochre paint on the bones, some in places like the promontory of the sacrum that could only be accessed if bones were exposed and physically removed. Despite removal and painting of the bones, mortuary specialists preserved the articulated position of the skeleton (see Fig. 4.6).

Notably, all individuals (including that represented by the skull mask) show significant dental calculus deposits. This not only indicates poor dental hygiene practices among these populations, but also signals a highly acidic diet that can result from ingestion of large amounts of protein (Hillson, 1996). This dietary indicator plus the robust health and advanced age of the primary interment suggest that these interments were individuals of high status, at least as adults. Additionally, teeth from 1-A and 1-B had been modified through filing or inlays, perhaps originally of jade. The main interment and the other individuals had clear evidence of healed infections. Again, it is probably a tribute to the generally good lifestyle and prestige accorded to these individuals that they were able to survive systemic infection.

The complex mortuary ritual probably included the following events. First, Burial 1-A was placed, likely on a perishable litter, in an extended position on his back with feet crossed and hands placed on the pelvis. Ceramic sherds and some stone were used to line the area where the main interment was placed. The body appears to have been left to skeletonize prior to burial. A thick bed of charcoal underneath the legs of the main interment indicates an episode of intense burning and smudging on the bone attests to the smoking of the body, a process that would have expedited the defleshing of the body. At some point, the skeletal elements were individually removed, painted, and the bones then repositioned and the articulation of the skeleton preserved. At this stage, the left arm, the cranium, and parts of the torso and right forearm were moved and placed on the ledge in deposit 1-C. The left humerus within 1-C matched the undisturbed right humerus of 1-A. A robust cranium, also likely belonging to 1-A, was found stacked in the southern end of cluster 1-C and may have been partially bundled as a stack of vault pieces, although other elements of 1-A (arm and torso bones) appear to have been scattered in this area (see Fig. 4.6). The evidence indicates that the skull of 1-A was purposefully removed from the body and broken, perhaps to weaken its power before final interment. At this point, or perhaps earlier, additional human remains (1-B, 1-D, and 1-E) were added to the base of the burial pit, along with grave offerings, including the skull mask and the four ceramic vessels (Vessels 2–5) placed along the centerline of the main interment (refer to Fig. 4.6). As the large burial pit was being in-filled, a number of finely made ceramics were smashed and scattered throughout the fill, including large fragments of Vessel 1 which were found between 20 and 50 cm above the human remains.

All individuals in the Pakal Na burial appear to have been in a skeletonized state (i.e., defleshed) when they were interred and the burial pit backfilled. Apparently, the disarticulated individuals (1-B, 1-D, and 1-E) had been curated and likely functioned as burial furnishings for the primary interment. These could represent sacrificial victims or war trophies of the main individual but are just as likely to represent a group of venerated ancestors who may have served to ritually charge the burial ground. The curated remains of Burial 1-B with offerings of jaguar teeth and cinnabar especially favor this interpretation. Furthermore, the joints of at least seven leg and arm bones from the various skeletal deposits are well preserved and do not show any signs of cut marks suggestive of dismemberment and mutilation.

The skull mask, on the other hand, is covered with cut marks and was probably the victim of *perimortem* violence.

The carved human skull mask, found in bone cluster 1-C, is the most notable grave offering within the Pakal Na burial (Figs. 4.6 and 4.7). The mask is similar, though far more elaborate, to skull masks found with Classic period elite burials at the site of Copán in Honduras (Storey, 2005) and those at the Terminal Classic site of Xochicalco in the central Mexican highlands (Hirth, 1989). Trophy masks



FIGURE 4.7. Views of the Pakal Na skull mask: (a) Carved mat motif on the top of skull (top) and carved symbol on the glabella (bottom). (b) Cartouches on the mandible (photographs by P.A. McAnany, illustration by K. Acone)

were worn as pectorals by elite warriors and likely were fashioned from captives taken in war. The only age indicator on the Pakal Na specimen is moderate tooth wear, which probably indicates a young to middle-aged adult at the time of death. The marks of skinning are very clear, indicating that the head of the decapitated captive was flayed and the skull carved shortly after death. Along the jaw line, there are vertical cut marks where the mandible was defleshed (see Fig. 4.7b). Additionally, the bone appears to have been “smoked”; areas of scorching are concentrated on the interior surface of the skull, with only limited scorching on the exterior surface. The skull mask could have been ceremonially burned as part of the mortuary ritual or perhaps the head was burned to reduce the presence of soft tissue. Once skeletonized, the back half of the skull was removed and the edges polished. Then, the top of the skull was carved with a mat motif and drilled holes placed at the interstices of the woven design (Fig. 4.7a). Triangular designs line the sides of the square-shaped mat motif. Mock (1997:177, Fig. 12) describes a similar design as fire elements that are paired with a mat motif on Terminal Classic Palmar Orange polychrome pottery from Northern River Lagoon (a coastal site in northern Belize) and notes the link between the mat design and rulership (Mock, 1997:177; see also Tedlock, 1985:345). The mat design is complemented by another iconographic element, the smoke affix of the Mayan *k'ahk'* glyph carved on the glabella and centered between the eye sockets (Fig. 4.7a). This element also resembles the serpent tongues that form part of the warrior-on-serpent images seen in both the Lower and Upper Temple of the Jaguars (Ringle, 1998:Fig. 16d,e; see also Tozzer, 1957) at the northern site of Chichén Itzá. There is some evidence of incising on the infraorbital area as well, so all of face was probably decorated, but only small fragments of this portion of the skull were preserved.

Two cartouches containing animal imagery – canines or felines paired with an unidentified avian species – were carved on each side of the mandible of the Pakal Na skull mask (Fig. 4.7b). Additionally, the partial remains of other cartouches that appear to contain the same imagery are visible on the sides of the cranial portion of the skull mask, along the edge of the mat motif. This avian and canine or feline imagery is likely analogous to the paired images of jaguars and eagles found in Late–Terminal Classic iconography at Chichén Itzá, such as the images on the *tzompantli* or Temple of the Skulls and the adjacent Platform of the Eagles where both animals are seen devouring sacrificial human hearts (see Tozzer, 1957:Fig. 86). Thought to relate to military sodalities at Chichén Itzá, similar paired zoomorphic imagery has been reported from Terminal Classic and Early Postclassic sites farther a field, including Xochicalco (Ringle et al., 1998:Fig. 11d), Cacaxtla (Nagao, 1989:Fig. 4), and Tula (Healan, 1989: Fig. 3.8) in the Mexican highlands.

The mandible of the Pakal Na skull mask was drilled in several places along the inferior margin (Fig. 4.7b). Feathers or other decorative elements could have been attached to the mask, or the mandible could have been attached to the skull and worn around the neck of the warrior, presumably by the individual who had claimed the life of the captive. According to Hirth (1989:76), trophy heads

validated a warrior's capture of a sacrificial victim and accorded him elevated status through successful participation in warfare. With evidence of foreign connections and martial prowess, it is no surprise that the focal burial – an older male – received elaborate mortuary treatment upon his death. During the Late Classic period, skull masks as burial offerings and extended mortuary ritual involving elaborate body processing, such as the smoking and painting of bones, appear limited to high-ranking individuals and members of royal families (Storey, 2005). Such royal treatment has been documented for the ruling elite at a number of large Classic Maya centers, including Copán (Storey, 2005), Piedras Negras (Fitzsimmons, 1998), and Caracol (Chase and Chase, 1996). The Pakal Na mortuary facility, located at a modest-sized Maya site, provides information on changes in socio-political organization at the end of the Classic period, when successful warriors even in peripheral settlements might be accorded high status. Conceivably, the social hierarchy in the Sibun Valley was impacted by shifting regional power structures at the end of the Classic period, when Petén-affiliated alliances collapsed and new political and economic relationships with northern polities, like Chichén Itzá, may have been formed.

Two of the five complete vessels associated with the elaborate burial at Pakal Na may provide further evidence of northern influence in this part of the valley during the Late–Terminal Classic transition. Vessels 3 and 4, positioned along the centerline of the primary interment (see Fig. 4.6), are pyriform-shaped vessels with prominent pedestal bases. Both of these vessels contain a series of large dimple impressions and one features X-incisions around the circumference of the vessel. The two vessels, which show signs of scorching, are unusual in form and surface decoration. Importantly, LeCount (1996:157) notes that cylinder vases are the most common drinking cup in the central Petén and barrel-shaped vases are popular in the Belize Valley, but pyriforms are rare in both areas. A variant of this form is more common in northern Yucatán during the Late and Terminal Classic periods (see Branierd, 1958 and Smith, 1971). Although probably locally produced, the presence of pyriform-shaped vessels in the Sibun Valley suggests the development of a new interaction sphere at the end of the Late Classic period that departs from the Tepeu/Spanish Lookout tradition and may be further evidence of growing ties with the north. The two vessels may have served as drinking cups for cacao – an important ceremonial beverage and a crop grown locally in the Sibun Valley. They compare favorably with the pyriform drinking cup depicted on an unprovenienced vessel (in Dumbarton Oaks Collection in Washington D.C.) that features cacao pods and a version of the maize deity (Coe and Coe, 1996:45; Martin, 2006).

4.5. Discussion

Both contexts – the human remains scattered in the passageway of the Hershey site and the deep burial pit of Pakal Na – contain pyriform vessels. At Pakal Na, the vessels were complete when interred and likely contained liquid (perhaps the

cacao drink) while those found at Hershey were broken and co-mingled with disarticulated human remains. As this study illustrates, differential contexts containing the same type of artifacts can indicate starkly different circumstances and relationships (see also Stanton and Gallareta Negrón, 2001). Although the pyriform vessels appear to be locally produced, the introduction of new pottery styles points to new influences in ceramic production stemming from northern Yucatán, and signals a departure from a Petén-affiliated (Tepeu) ceramic tradition in the Sibun Valley during the Late–Terminal Classic transition. The presence of a northern-style spindle whorl and a sherd with trickle ware decoration are likely Yucatec imports and offer further evidence of a northern interaction at Hershey. Stanton and Gallareta Negrón (2001) suggest that contexts of desecratory termination ritual in which finely crafted serving vessels and elite imported goods are found may be considered “a particular class of ritual feasting that occurred after conquest events and violent internal factional conflicts” (Stanton and Gallareta Negrón, 2001:230; see also Bey, 2001). In contradistinction, when similar elite goods are found in caches, burials, or “non-destructive” feasting deposits, they may suggest gift-giving and alliance with an outside power (Stanton and Gallareta Negrón, 2001:230).

Employing this model, we propose that the pyriform drinking cups and the skull mask incorporating northern-style militaristic iconography found associated with an important deceased warrior and ruler of Pakal Na may indicate a northern allied relationship or even that he was a Northerner himself. Isotopic and strontium analyses are in progress and will surely shed more light on the origins of this formidable warrior and the accompanying individuals (see Price et al. in this volume). The inclusion of a skull mask suggestive of captive-taking points to the changes in the socio-political organization, emphasizing increased conflict and warfare during the Late–Terminal Classic transition, and a shift in political and economic alliances in this part of the Sibun Valley. A contrastive but coeval deposit was recovered from the Hershey site. Finely made serving vessels and other objects (including some “signature material” pointing to northern influence) found smashed and scattered in a passageway leading to the primary elite residence is suggestive of a conquest-linked event involving outsiders, perhaps allies of the northern Yucatec capital of Chichén Itzá. These items could have been used – even specially manufactured – for a conquest feast at the Hershey Site sponsored by the perpetrators. Desecrated feasting debris co-mingled with intentional structural damage and disarticulated human remains serve as another materialization of the profound socio-political changes taking place during the Late–Terminal Classic transition, but suggest a different outcome in the upper part of the Sibun Valley.

As Pagliaro and others (2001:77) observe, “although the destruction and material patterning associated with . . . rituals linked to warfare and dominance may superficially resemble reverential termination ritual deposits, desecratory termination deposits present an archaeological signature that is contextually distinct from these acts of veneration.” Careful examination of the context, composition, contents, as well as condition of associated artifacts and human bone can aid in

the identification of these different classes of ritual activity. Elsewhere, Stanton and Gallareta Negrón (2001:232) argue that desecratory termination deposits represent the remains of a ritual practice “designed to ‘kill’ places or objects associated with defeated enemies.” Their conjecture is given further support by the finds from the Hershey site, where human remains of six disarticulated individuals associated with a high density of smashed elite goods were found scattered in a passageway leading to the elite residence. The fragments of bone and teeth (some filed and others drilled for inlays that were extracted before deposition) are well preserved; dental modifications displaying the T-shaped incisors of K’inch Ajaw and possible jadeite inlays suggest that these individuals were likely elite residents of the Hershey site. Several possible explanations could account for this deposit, including ritual human sacrifice of the head family of the Hershey site. Another likely explanation – and one that is pursued in this study – involves a victorious tomb desecration event accompanied by feasting and destruction of the site core.

The bleak historical trajectory of the Hershey site was not unique for the Maya area. Other examples of termination ritual, tomb desecration, and elite sacrifice linked with conquest events that correspond with site abandonment in the Terminal Classic period have been identified at numerous sites, such as Yaxuna, Colha, Copán, and Tikal, to name only a few (Fash et al., 2004; Mock, 1994, 1998a; Pagliaro et al., 2001; Suhler et al., 2004). The timing of the terminal deposit in the passageway at Hershey corresponds to the collapse of the site center much like, for instance, the Terminal Classic skull pit and large deposit of fragmentary human bone correspond with a site destruction event marking the end of the Classic period occupation at Colha (Barrett and Scherer, 2005; Hester, 1985; Mock, 1994, 1998a).

Within a larger regional context, the fate of the Sibun Valley residents appears to be a microcosm of larger forces at work in late Maya Classic society, a period characterized by increased warfare and large-scale political collapse, especially in the Petén region. Hieroglyphic texts compiled by Martin and Grube (2000) reveal the precarious position of Naranjo – a gateway site located in Petén, Guatemala immediately west of the Belizean border that sought to control the rich resources of the Caribbean valleys. Ten of 18 (56%) known hieroglyphic texts that feature Naranjo in reference to regional interaction contain statements of martial conflict (Martin and Grube, 2000:21). At Hershey, evidence of Late Classic connections with Naranjo and the violent termination event in the site core around the turn of the ninth century AD suggests that Hershey may have experienced some of the same martial conflict that ultimately resulted in the collapse of the Petén-affiliated center of Naranjo. The lack of Early Postclassic occupation at Hershey, coupled with the undisturbed nature of the passageway deposits, has resulted in an unusually crisp signature of terminal activities at this Petén-affiliated Classic-period center. Based on the manner in which human remains were incorporated into the termination deposit in the passageway, some residents of the Hershey site core either experienced a violent end or their ancestors were subjected to tomb desecration. In either case,

the message of conquest is clearly expressed, indicating the termination of the ruling lineage at Hershey.

Significantly, the radiocarbon assays for the Hershey site passageway deposit and the Pakal Na burial are statistically identical. Unlike Hershey, the mid-valley site continued to flourish into the Terminal Classic, as another episode of construction took place around the mid to late ninth century AD that capped the Pakal Na burial. Furthermore, evidence of shifting power structures and new political and economic alliances stemming from the north are expressed in the iconography of the Pakal Na skull mask, militaristic imagery found at Chichén Itzá that became widely shared throughout broad areas of Mesoamerica. Evidence of martial sodalities and acts of conquest involving a great many participants can be gleaned from the Late-to-Terminal Classic iconography of Chichén Itzá (Chase and Chase, 2004:20–21; Krochrock, 1988; Wren and Schmidt, 1991; see also Miller in this volume). Signs of captive-taking, higher acclaimed status, and possibly the introduction of martial sodalities at modest-sized, peripheral settlements like Pakal Na accompany the introduction of Yucatec-style circular architecture and ceramics with northern attributes at sites throughout the middle and lower reaches of the Sibun Valley. These developments occur precisely when the Hershey core and other Petén-affiliated centers collapse.

4.6. Conclusions

Together, osteological and contextual data suggest that political influence over the valley was actively contested at the end of the Classic period when the influence of the Petén – attested in ceramics and architecture – appears to have been challenged by the growing power of the northern Yucatec region, likely Chichén Itzá. The introduction of northern-style circular shrines, changes in the treatment of human remains and burial offerings, along with violent termination events index the social and political transformation and re-orientation of the Sibun valley inhabitants.

The two contrastive deposits from the Sibun Valley illustrate how modification of human remains through exhumation, burning, smoking, cutting, carving, and painting can be profoundly informative of larger political and social circumstances. As a strategic production area for cacao, the Sibun Valley seemingly became enmeshed in the larger webs of competing political spheres during a period of profound political and economic transformation. As Suhler and others (2004:483) note elsewhere, “clearly there was a price to be paid for living in a community, whether independent capital or vassal to outsiders, that was strategic in the commercial and political interests of regional powers.” The Sibun Valley study reveals the variability in elite response to outside influences and the complex factional relationships that existed in the Maya Lowlands during the Late–Terminal Classic transition. The contextual and material evidence from Hershey and Pakal Na, when framed within a regional picture that encompasses

hieroglyphic and iconographic evidence from both Naranjo and Chichén Itzá, provides support for a model of Lowland Maya geo-politics in which powerful rulers forged interpolity alliances, sponsored acts of martial aggression against enemy polities, and generally sought to control territories from which highly desired luxury goods – such as cacao – might be procured. In this way, Sibun cacao farmers became entangled in a larger web of ambition and – through their variable responses – found themselves either empowered or disempowered at the end of the Classic period.

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5

Posthumous Body Treatments and Ritual Meaning in the Classic Period Northern Petén: A Taphonomic Approach

CECILIA MEDINA MARTÍN AND MIRNA SÁNCHEZ VARGAS

5.1. Introduction

After death, people's bodies usually undergo cultural practices. These may vary depending on the circumstances of demise, the individual's role in society, and, most importantly, shared mortuary traditions. Posthumous body treatments usually follow scatological belief codes and also practical considerations, destined to preserve or, in some cases, transform or destroy the mortal remains of the dead as part of mourning and commemoration. Particularly within prehispanic Maya society, the importance of posthumous ritual resides in the preparation and protection of the immortal spirit until integrated into the world of the dead (Ruz, 1991). Apart from ancestral body manipulations, there are a series of treatments and contexts that lack clear funerary status. In the material record, these assemblages appear as isolated concentrations of remains that do not show any obvious *postmortem* attention directed toward the deceased (see Tiesler and Cucina, 2003; Tiesler in this volume).

It is problematical in principle to distinguish between different ritual conducts or unrelated fortuitous conditions, especially in secondary human assemblages. However, indirect indications, such as architectural association and use of space, may provide a start in distinguishing ancestral from circumstantial deposits or those that might stem from postsacrificial discard. In the latter case, it can be argued that the victims lose their human quality upon completion of the ritual and become a medium between man and the divine. Remains and contexts originated by these or unrelated activities (i.e., human bone debris, re-used human bone) are expected to exhibit patterns that differ from those displayed by common funerary treatment.

In this chapter, we wish to document and interpret the skeletal traces left by posthumous body manipulation in the northern Petén area. To this end we evaluate the frequencies and combinations of different anthropogenic marks and fire exposure evident in human skeletal remains from the Classic sites of Becán and Calakmul, both in Campeche, Mexico, and analyze their distribution patterns in different primary and secondary contexts. At both sites, most of the human remains were identified as ancestral contexts, while others lacked any clear

funerary connotation. We have included in this category dispersed secondary assemblages, as well as remains whose deposition appears either circumstantial or clearly offertory.

So far, Mesoamerican human bone taphonomy and cultural modification have been worked on extensively as part of Central Mexico's archaeology (Botella et al., 2000; Cid and Romano, 1997; Cid and Torres, 1997; López et al., 2002; Pijoan, 1997; Pijoan and Mansilla, 1997; Pijoan and Pastrana, 1981). There, scholars have come to determine different forms of body processing inflicted on sacrificial victims among the Aztecs or their pre-decessors. In the Maya realm, cases of posthumous bone modification have been addressed by recent studies, such as the work on the decapitated skulls of Colhá (Mock, 1994) and the companion contexts of the so-called Red Queen of Palenque (Cucina and Tiesler, 2006). The funerary use of fire has been documented in the form of cremated urn contents from Postclassic period Zacualpa, Guatemala (Wauchope, 1939). Recent research on the *peri- and postmortem* treatments in Classic Period sites such as Becán, Calakmul, Kohunlich, and Dzibanché (Tiesler, 1997a,b, 2001, 2002, 2003; Tiesler and Cucina, 2003), and skeletal assemblages from the Postclassic period from sites of Champotón and Chichén Itzá's Sacred Cenote, discussed in this volume by Hurtado et al. and by Anda, represent some of the studies of anthropogenic bone modifications in the area that have motivated also the present reevaluation.

5.2. Materials and Procedures

For the current study, human bones from the epicenter of two Classic period Maya sites were analyzed: Calakmul and Becán in Campeche, Mexico. Both cities are located in the northern Petén area, fringing the Central Maya Lowlands, and reached their maximum splendor during the late Classic period (Braswell et al., 2004). The big urban center of Calakmul governed over the regional polis of *Kaan* that is represented with a snake head glyph (Martín and Grube, 2002). This city was occupied from the Middle Preclassic (900–300 AC) to the Terminal Classic (695–909 AD) (Folan and Florey, 1985). The site's enormity is testified by its over 30 km² of urban space, its monumental architecture, and more than a hundred standing stelae (Folan et al., 2001).

Two skeletal collections comprise the available skeletal sample from Calakmul. The first was collected between 1984 and 1994 under the auspices of William J. Folan of the Universidad Autónoma de Campeche; the second one comprises material recovered between 1994 and 1999 by Ramón Carrasco and his team of the Instituto Nacional de Antropología e Historia. The examined skeletal material comes mainly from Structure II, which dominates the southern end of Calakmul's Great Plaza. The building, with at least three substructures, measures 120 m at the base and is 45 m high, standing out as one of the major constructions in the Maya realm (Carrasco, 1996, 2000; Martín and Grube, 2002; Rodríguez, 2000). Smaller samples come from centrally located Structures I, IV, XIII, and XV, along with two residential compounds.

The remains from Becán derive from Structure X and are dated to the Late Classic period, a time when the site came to dominate the Río Bec region (Webster, 1996). The huge compound consists of two levels and numerous rooms and is located at the side of the site's central plaza. Becán means "canyon formed by water" in Maya, named for one of the most outstanding features: a moat encircling the city's inner circle. The skeletal series under study was retrieved between 1999 and 2001 by the Archaeological Project of Becán (Instituto Nacional de Antropología e Historia) in charge of Luz Evelia Campaña. The remains come from the fills and middens of Structure X and consist of mostly isolated concentrations of unarticulated human and faunal bone fragments, found together with other organic and inorganic materials (mostly shell, lithic material, and coal).

For the purposes of this study, the contexts from Calakmul and Becán were divided into funerary and extrafunerary assemblages. The latter were then studied according to their cache or "problematical" status and compared to the funerary contexts. In the laboratory, each context was evaluated according to the number of fragments, their anatomical distribution, and anthropogenic indications. Macroscopic analysis was accomplished using a magnifying glass with indirect illumination. Bone segments were identified and lateralized, and the minimum number of individuals (MNI) determined for each context based on the duplication of bones and the "principles of second order" (Duday, 1997). Basic biographical data were determined using standard criteria (Buikstra and Ubelaker, 1994; Krogman and Iscan, 1986; McKern and Stewart, 1957; Meindl and Lovejoy, 1989; Stewart, 1997). This information was then entered into a database for inventory and processing.

Postmortem alteration was evaluated in each segment following the parameters proposed by Pijoan (1997) by dividing anatomical parts according to muscular and ligamentous insertion areas. Because of the fragmented state of most of the remains, each anatomically identified fragment was considered as a basic unit. In many cases, fragmentation and erosion limited observation of the bone's surfaces. Cut marks and fractures were differentiated using parameters provided by Botella et al. (2000), Turner and Turner (1997, 1999), and White (1992). Cut marks were analyzed and measured microscopically to determine characteristics such as width, length, and depth. With this information different posthumous treatments and patterns were determined.

Bones indicating exposure to high temperatures were scrutinized macroscopically according to surface color, texture, morphology, and fracture patterns, which relate to temperature, time, and type of exposure. In their classification we adapted the parameters put forth by Binford (1963), Buikstra and Goldstein (1973), Pijoan and Mansilla (1997), Reverte (2001), and Thurman and Wilmore (1980).¹ Three specimens exposed to heat, one from a cache, and two others derived from "problematical" deposits, were sectioned for histomorphological examination. We evaluated color changes, fracture patterns in Haversian canals, and the presence of lacunae in the osteon structure, following Herrmann (1977) and Pijoan et al. (2004).

5.3. Anthropogenic Marks in Ancestral Practices

Some 24 contexts make up the funerary sample. Some 22 burials containing 25 skeletons were available from Calakmul, which add to two funerary deposits with three skeletons excavated at Becán. The overall funerary sample adds up to 28 individuals of whom 25 are adults – among them 11 females and 10 males – and only three are subadults. Some 45% of all recovered bones and fragments of this sample ($N = 1,820$) belong to the trunk, another 47% to the extremities, and 8% pertain to the skull (Fig. 5.1), a relatively balanced pattern considering the degree of deterioration of most of the remains.

According to our results, the funerary deposits ($N = 1,820$ evaluated fragments) registered in this category did not exhibit anthropogenic traces in the form of fire exposure or cut marks, with the noticeable exception of one context, a male tomb burial from Structure XV. The incomplete skeleton displays cut marks in the anterior facet of a cuboid bone of the left foot, which had preserved relatively well (Fig. 5.2). The three cut marks on its navicular–cuboid articular surface probably stem from separating the left foot or parts of it from the body. It is worthy to note that the skeletal vestiges that were found associated with wooden remains, shells and needles, and a sectioned epiphysis of an infant tibia had been disturbed and repositioned in prehispanic times, limiting recovery to fragments of ribs, knee, mandible, and bones of the hands and feet (García and Schneider, 1996). The fact that no skull or long bone fragments were recovered equally hints at ancient postdepositional disturbances.

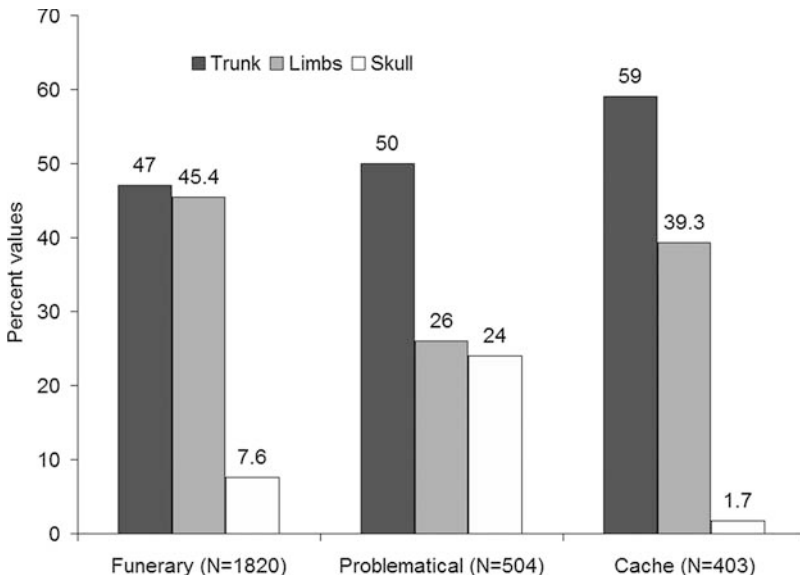


FIGURE 5.1. Proportion of anatomical parts (percentage) according to type of context

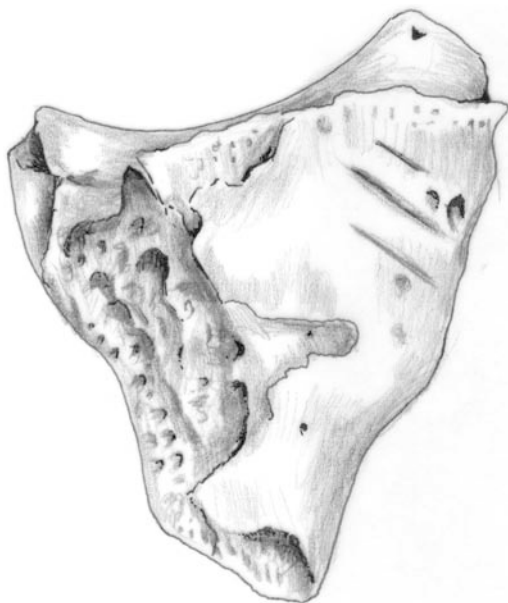


FIGURE 5.2. Anterior facet, cuboid bone, Burial XV-2, Calakmul (INAH; drawing by M. Sánchez)

5.4. Posthumous Treatments of Extradfunerary Deposits

5.4.1. *General Characteristics*

The total of 1,057 fragments in this category comes from 77 contexts. Of these, 42 assemblages are from Calakmul and 35 from Becán. The total MNI is 110, of which 72 come from Calakmul and 38 from Becán. In relation to age, 83 individuals were estimated as adults, 7 as juveniles, and 20 as infants (although these proportions are highly speculative given the nature of the assemblages and the scarceness of skeletal material in each context). Nine adults were identified as female and eleven as male, whereas another 90 cases could not be sexed due to age, fragmentation, and poor preservation. At Becán, 80% of the human assemblages with anthropogenic evidence were associated with faunal remains vs. 62% in Calakmul. Of all recovered bones and fragments ($N = 504$), 26% belong to the trunk, another 24% pertain to the skull and 50% to the extremities, a distribution which differs from that of the funerary sample.

Seven contexts in this category were classified as caches or container (companion) burials ($N = 403$ fragments). Five of these mostly male individuals – two adults, four juveniles, and one subadult – are from Calakmul and two from Becán. Some 59.3% of the fragments belong to the trunk, another 1.7% pertain to the skull and 39% to the extremities.

There is a notable difference between the mortuary categories in terms of presence of anatomical parts. Within the first category, vertebrae, ribs, pelvis, and breastbone remained, whereas trunk segments were much scarcer in the latter.

We think that the discrepancies mainly have to do with differential body part deposition, along with differences in preservation, especially since among the badly deteriorated “problematical” deposits substantially more tiny long bone fragments were counted.

5.4.2. *Patterns of Body Manipulation*

Anthropogenic marks in the skeletons may be classified in concordance to the time of infliction (*antemortem*, *perimortem*, or *postmortem*) (Haglund and Sorg, 2002), although it is difficult to identify a potential cause of death in most of these badly deteriorated and intermingled contexts. In the present series, it was possible to confirm lesions that probably stem from the time around death in two primary deposits. Both show sharp force trauma in the body of their twelfth thoracic vertebra, reported already by Tiesler and Cucina (2006), see also Fig. 2.5, who proposed that these lesions were inflicted during heart extraction after subdiaphragmatic opening of the thoracic cavity.

In this chapter, we will focus on those anthropogenic patterns that appear to have been produced after death. We will explore these marks according to the activities they most likely represent, such as flaying, defleshing, disarticulation, exposure to fire, and reuse of bony segment for the elaboration of artifacts.

5.4.3. *Skinning*

Flaying is prone to leave marks only on those bone surfaces that are adjacent to the skin and a bony surface serving as a support for the plane of the cutting instrument, meaning that flaying marks are identifiable mainly on the skull, and to a lesser degree also on shoulder blades and clavicles. However, they are rare in the postcranial skeleton (Botella et al., 2000). Marks of this type were found on one skull from Calakmul (Fig. 5.3), while no indications were documented in the sample from Becán.

5.4.4. *Disarticulation and Dismemberment*

In the case of disarticulation, the encountered marks commonly result from incisions that separate the soft tissues of articulations during the removal of body segments (Botella et al., 2000). Skeletal indications for this treatment appear in several parietal, temporal, and mandible segments from Calakmul with, again, no signs in the Becán sample. One mandible from Calakmul exhibits 30 small cuts on its right ascending ramus (Fig. 5.4). The deepest grooves are located between the mandibular angle and the neck of the mandibular condyle.

5.4.5. *Defleshing*

Several pieces indicate detachment of muscular masses and surrounding connective tissue from bone shafts. Comparing the presence of defleshing marks per

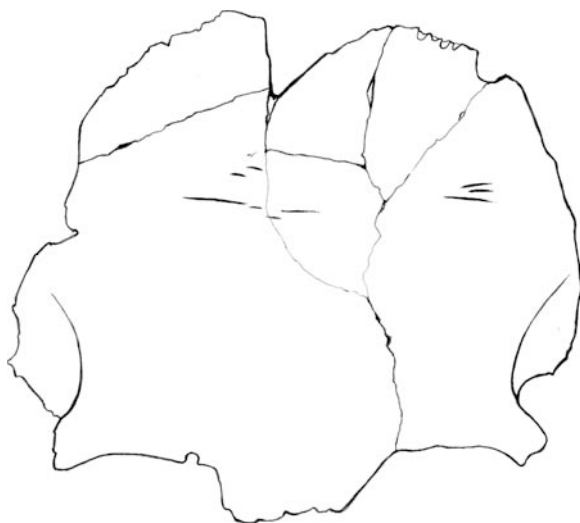


FIGURE 5.3. Frontal bone displaying cut marks, Deposit II-C2, Calakmul (INAH; drawing by M. Sánchez)

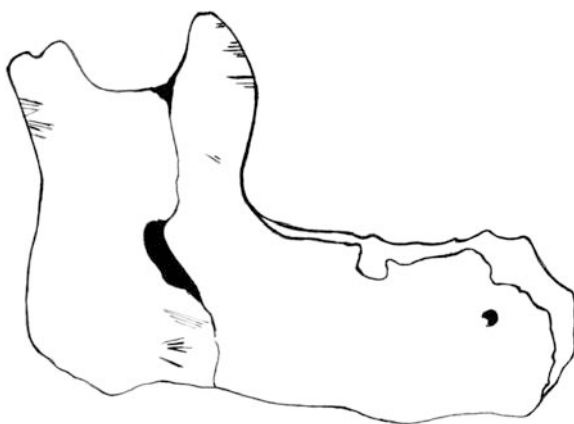


FIGURE 5.4. Mandible showing slicings across right ascending ramus, Calakmul (INAH; drawing by M. Sánchez)

segment shows that marks are more frequent in the arms than in the legs without being able to detect any side preference. The more commonly affected upper extremities are the humeri and the ulnae, while the radius appears less modified. One group of slicing marks is related to the area of insertion of the deltoid muscle, which affected one of six segments at Becán. A second group is located in the area of the brachial muscle and is represented, again, by 16.6% of the bone

($N = 6$). Two groups of three and six cuts cover the anteromedial surface of the diaphysis at the height of the insertion of the coracobrachial muscle.

In the inferior extremities only one case of probable defleshing was determined in one left fibula ($N = 21$), which shows cut marks surrounding the site of insertion of the extensor muscle group. The frequencies of marks alluding to the detachment of muscle tissue appear primarily in the superior extremities of both sides, indicating these are the preferred regions for this activity. As for the trunk, defleshing or possibly flaying marks were recorded on a left clavicle from Calakmul. It presents six deep, thin cuts, grouped on the superior surface close to the medial epiphysis in the area of insertion of the sternocleidomastoid muscle ($N = 2$). Apart from the extremities and the trunk, heads also seem to have been defleshed, at least in Calakmul. One skull from this site's "problematical" contexts exhibits cut marks that cover its malar and maxillary bones and probably testify to the clearing of the facial bones from the soft tissue. Another isolated skull vault, found together with three cervical vertebrae, shows slicing and blows on its first and third vertebra. These marks suggest that the head had been separated from the trunk and cleaned from the soft tissues of the neck (Tiesler, 2002).

5.4.6. *Fire Exposure*

The most abundantly encountered cultural modification is clearly fire exposure, which was present in 20 contexts, 17 of which are considered "problematical" and three as *caches*. Temperature alterations in cache remains were found in front of Stela 114 of Calakmul (Marcus and Folan, 1994; Tiesler, 2001, 2003), as well as one skull offering from Structure IV-B (Fig. 5.5) and the companion burial II-4b. The high affection by fire marks stands in opposition to the lack of any indication for use of fire in the funerary contexts of both sites, which counterindicates any use of fire for ancestral purposes. It is noteworthy that in the Maya area, cremation emerged as a more generalized tradition in the Postclassic period (Ruz, 1991). Of the "problematical" contexts from both sites involving high temperature alteration ($N = 17$), 88% are associated with worked animal bones, as well as ceramic fragments, lithics, and shell.

The exposed segments pertain mostly to the appendicular skeleton with 22% of the pieces belonging to the trunk, 62% to the extremities, and only 16% to the skull. Different from the "problematical" contexts, all three exposed human cache specimens imply that complete bodies or fleshed body parts were burned. Two of the primary cache deposits from Calakmul (one located in front of Stela 114 and the other being the companion burial II-4b) present all corporal segments (skull, trunk, and extremities) and were articulated when recovered, with abundant traces of coal recorded around the skeletons during the on-site registration (Medina et al., 2005a,b). Stela 114 was apparently burned with great damage to its base, in front of which a female body had been deposited, along with three vessels, two of which date to the Terminal Classic and the other, reused, to the Early Classic. The latter contained the remains of a snake and another unidentified reptile (Domínguez et al., 1995).

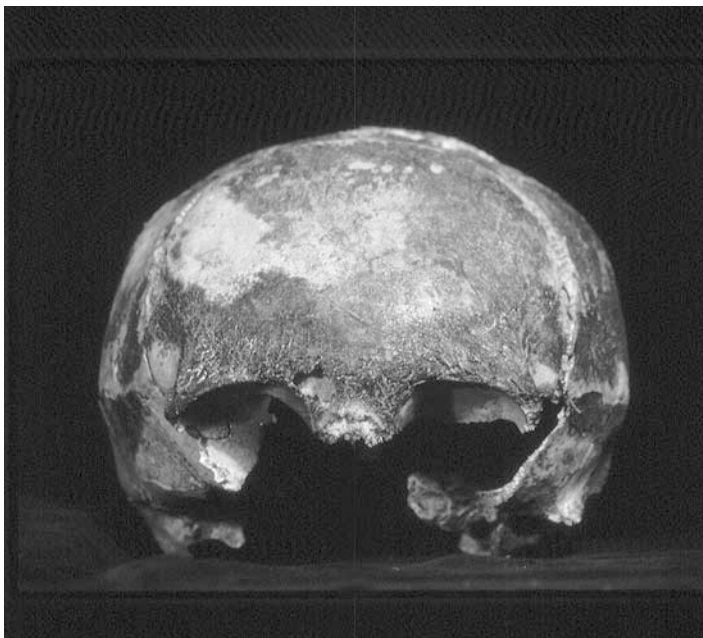


FIGURE 5.5. Charred skull from cache, Structure IV-B, Calakmul (INAH; photograph by V. Tiesler)

Thin sections from the cuboid bone of the individual from Stela 114 and the mandible of the head cache from Structure IV-B were selected for further analysis. The mandible shows only superficial charring. The cuboid is affected more deeply but does not show a stratigraphy of changing colors in the histological section that might indicate it had been heated when still fresh, which raises the question on the state of the women's body, along the *postmortem* time line, at the moment of exposure. Two sections from two "problematical" contexts (B10 and B30) were also sectioned for clarification of the heating procedures they underwent. Microscopically, both samples present a light brown external layer, whereas the internal layers are darker. An ample carbonized zone is apparent which displays the remains of the osteonic network and the formation of great lagoons. This indicates a temperature analogous to the results of the macroscopic evaluation.

5.4.7. *Cannibalism?*

In the nonfunerary categories, the presence of cut and fracture marks (Sánchez, 2006) seems to confirm the posthumous manipulation of the body presumably for ritual purposes although we have no precise clues as to the purpose of defleshing and skinning. We wonder therefore if ritual anthropophagy could have motivated some of the activities described above. Several assemblages were associated with animal bones, which in the case of Becán were commingled with the debris that

served to level up the patios at Structure X. According to the zooarchaeological analysis (Götz personal communication, 2004), the animals had been consumed because they exhibit marks of butchery and heat exposure; in other cases, they were reused as artifacts. In particular the deposit labeled II-2a from Calakmul called our attention. This context contained the remains of at least two individuals: one infant and one adult. In this place, several bones with cut marks and low-heat fire exposure were registered. However, the color distribution in the bones indicates that the process, which took place at a temperature between 300 and 500 °C, must have completely eliminated the soft tissue, making it unavailable for human consumption. This aspect introduced a cautionary notion on any inference of cannibalism. Some boiled bones were observed, even though also in this case the boiling process may not have been for cooking purposes, but rather for tool manufacturing. In the site of Calakmul (Fig. 5.6), these pieces were found

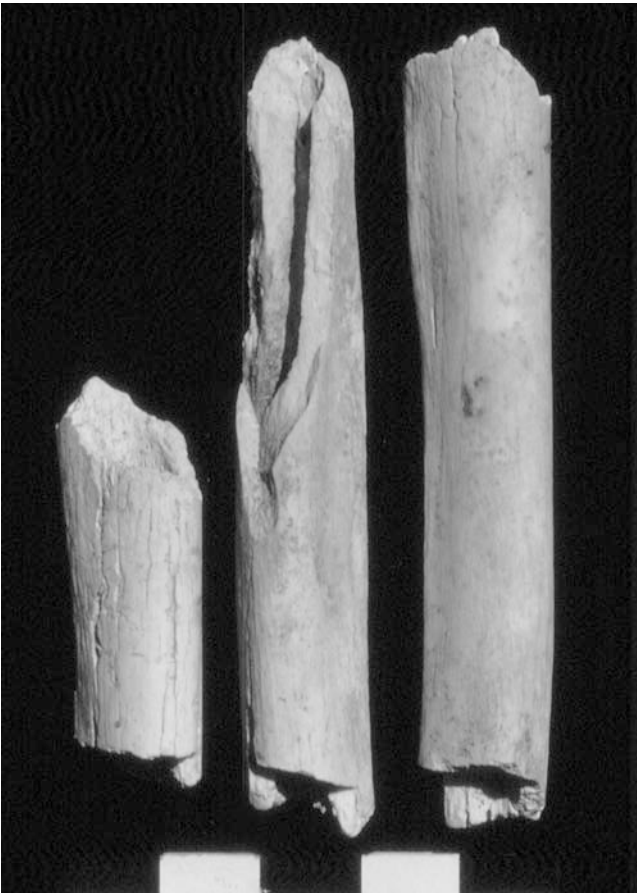


FIGURE 5.6. Superior extremities with traces of probable boiling, Calakmul (UAC; photo by V. Tiesler)



FIGURE 5.7. Parietal bone used as polisher, Deposit 1993, Becán (INAH; photo by V. Tiesler)

together with other discarded material, some of which showed traces of reuse (Sánchez, 2006). Last but not least, we cannot rule out the possibility that in some cases heat exposure may have been accidental.

5.4.8. *Reuse and Offering of Human Bones*

Several fragments from both sites display diverse treatments related to reuse and recycling of human bones that are in part associated with heat exposure. These appear in the “problematical” assemblages and include waste pieces and used objects made from human bone, which were discarded for unknown reasons. They include two artifact preforms from Becán, all epiphyses with cut marks, chipping and traces of polishing. At the site of Calakmul, similar fragments were found in both funerary contexts (i.e., the long bone tubes) and in the “problematical” assemblages. Following the finding of cultural modifications in funerary

contexts, we wonder how far the adding and removal of bony elements was part of any reverential tradition. Another type of discarded preform comes in the form of long bones with spiral fractures. These lesions were encountered at both sites, affecting 12.1% of the diaphyseal segments of what were mainly femurs. There was only one fragment from Becán made of a parietal bone (Fig. 5.7). This bony fragment was likely used as a polisher for soft materials and had been discarded after one of its planes had worn away (see also Tiesler et al., 2002).

5.5. Disposal of Bodies and Bones and Cultural Meaning

This study has intended to provide new elements for the study of ritual posthumous treatments through a combined osteological and contextual analysis. The results indicate that there is a greater presence of complete bodies or at least representative bony segments of skull, trunk, and extremities in proper funerary contexts than in human other sorts of assemblages.

When compared to nonfunerary remains, the lack of anthropogenic indications in the form of cut marks or fire exposure in the funerary contexts of Calakmul and Becán is conspicuous. There is no evidence of direct fire in the funerary remains either from cremation (600 and 800 °C) or incineration (higher than 800 °C). This agrees with other results concerning Classic funerary traditions in the Maya area (Iglesias, 2003; Romano, 1974; Ruz, 1991), while the cut mark found in one of the interred individuals confirms secondary extraction as part of an ancestral veneration. This hypothesis is consistent with the ethnohistoric and iconographic sources on reduction practices performed on the corpses (Landa, 1982; Nájera, 1987; Ruz, 1991). Regarding the sex and age profile of the funerary population, we observed the lack of subadults may be related to their intrinsic properties resulting in different states of preservation, and to the fact that the sample, which was retrieved from both public buildings and elite residences, is not a common funerary population.

Despite the limitations, the present work also underlines that “problematical” human assemblages have much more information to offer than previously believed. From the combined evidence of our work, we think that most of these, at least in Calakmul and Becán, come from debris and trash contexts, quite similar to the units described as ceremonial debris by other scholars (Duncan, 2003, 2005; Kunen et al., 2002; Walker, 1995; Walker and Lucero, 2000). Although it is difficult to separate between domestic or ritual trash, we consider that the isolated human clusters from Becán and Calakmul should be remnants of centralized ritual activities, since they were found in main buildings of the sites’ inner cores, places designated primarily for administrative and ceremonial functions. These skeletal remains present marks, as already has been indicated, whose origins extend from the time surrounding death to the reuse of the bones and which should derive from activities pertaining to the public sphere.

To interpret the present osteological and contextual evidence in a cultural framework, we consulted the ethnohistorical and Classic period imagery for possible meanings and motivations to find them closely related to postsacrificial

manipulations. According to the colonial information, the victim of sacrifice could be either the object of protracted rites, like skinning, dismemberment, consumption, or be discarded (Landa, 1982). As for the Classic period, both polychrome vessels (Maya Vase Data Base, Kerr, 1997; Taube, 1999) and hieroglyphic writings (Schele, 1984) make references to skinning, beheading of bodies, and exposition to fire similar to our findings. Fire ceremonies during the Classic period appear associated with ancestors, with gods A, K, Kawil, and Chac in the ancient god pantheon, and with their impersonating animals, such as the jaguar and the snake, which explains their presence in sacrificial events such as decapitation (Kerr, No. 5112) and stoning (Kerr, No. 7516). Among the characters present in the depicted fire rituals are dancers, musicians, priests, and kings, attesting to the public staging of those acts.

The iconographic and ethnohistorical sources provide a detailed depiction of the use of fire and other forms of body manipulation in sacrificial rituals (Fig. 5.8) that reflect the evidence found in several of the offertory and isolated human assemblages described in this work for Calakmul and Becán. Other examples of Classic Maya combined fire exposure and mutilation come from *Colhá*, where the skulls of 30 decapitated human individuals were found defleshed and partly burned, a scenario which was interpreted by the authors as a termination offering (Mock, 1998). Tiesler and Cucina (2003) document similar procedures as the ones described here in nonfunerary contexts from nearby Kohunlich in Quintana Roo, also testifying to the regional scope of the ritual complex during the Classic period. We ask ourselves how widespread these treatments (which we propose are related to postsacrificial ceremonies) really were, especially considering the lack



FIGURE 5.8. Representation of fire in the Maya art (redrawn by M. Sánchez from Kerr archive no. 1645)

of taphonomic information from large sites to the south, like Piedras Negras and Tikal, where numerous human deposits lacking clear funerary status have been recorded (Coe, 1965, 1990).

In closing, the human body played an important role in Classic Maya ritual activities. Presently, one can only surmise the patterns of contexts from the discussed cultural marks to intend reconstructing the diverse ritually motivated conducts. In this sense, we hope to have raised interest in this topic and its relation with the contextualization of the bone findings. Hopefully, this can motivate other researchers to expand on the present results in an effort to widen the scope of our interpretation of human body processing during the Classic period.

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Endnotes

1. In principle, it is difficult to differentiate if skeletal segments are exposed to fire while covered by soft tissues or not. Some authors (see Thurman and Wilmore, 1980) point to the fact that cremation of whole bodies can be traced in the skeletal record through specific markers such as indented fractures, diagonal gapping, and twisting, while “fresh bone” tends to exhibit fractures only in the epiphysis without showing the degree of deformation noticeable in fleshed parts. In turn, a higher degree of preservation is to be expected when burning dry bones. Size reduction is minimal and the gapping is only superficial. They also exhibit sets of slight longitudinal grooves while fractures and twisting are usually absent. In this case the trabecular bone remains unaffected (Stewart, 1979; Pijoan et al., 2004).

6

Human Sacrifice in Late Postclassic Maya Iconography and Texts

GABRIELLE VAIL AND CHRISTINE HERNÁNDEZ

6.1. Introduction

This chapter focuses on pictorial representations from the Late Postclassic Maya codices and other painted sources (murals) that depict violent acts of various types. Although it is not always possible to distinguish between different forms of violence (e.g., those associated with warfare vs. those involving ritual sacrifices to the deities), we have tried to limit our discussion to examples that clearly indicate sacrificial acts.

The Late Postclassic data examined in this chapter offer details about human sacrifice that are often not preserved in the archaeological record, including the types of implements used, the settings, and the role played by the various actors involved. As improved methods are developed for identifying signatures on bones as evidence of decapitation or heart extraction (see Tiesler in this volume, and Tiesler and Cucina, 2003), it may become possible to relate the archaeological data more directly to the types of contextual data that the codices and murals help us elaborate.

We begin our discussion with a brief overview of Late Postclassic codices and murals. Next, we examine violence and violent death from these sources in detail, grouped according to the method depicted (e.g., decapitation, spearing, heart extraction, etc.). We then turn, in the final section of the chapter, to the question of how the pictorial sources may be of help in interpreting burials and human remains that are believed to be sacrificial victims recovered from archaeological contexts.

6.2. Late Postclassic Maya Codices and Murals

The focus of our analysis is on examples of human sacrifice depicted in Maya codices (screenfold books) and murals from the Late Postclassic period. In the Maya area, codices were made from fig bark paper; the pages were then white-washed with stucco to create a smooth surface for painting. Members of the Maya

elite who were trained as scribes painted the blank pages with pictures, calendrical glyphs, and hieroglyphic texts used to schedule rituals and determine prophecies for particular time periods. Of the thousands of screenfold books believed to be in existence at the beginning of the sixteenth century (Boone, 2000:Chap. 1), only four from the Maya area have survived to the present day. Three, known as the Dresden, Paris, and Madrid codices, are housed in European collections; although their early histories remain undocumented, scholars believe that they were sent to Europe during the Colonial period (Chuchiak, 2004; Coe, 1989b). The fourth Maya codex (the Grolier) was found by looters exploring a cave in Chiapas, Mexico in the 1960s (Carlson, 1983; Coe, 1973). Whether it is prehispanic in date or a recent forgery is a question that continues to provoke debate among mayanists (Baudez, 2002; Carlson, 1983; Coe, 1973; Milbrath, 2002; Thompson, 1975).

Scholars generally attribute the extant codices to the Postclassic period (ca. AD 900–1520) on the basis of their painting style. Recent analyses suggest that they were painted in the northern Maya area during the latter half of the Postclassic period (e.g., H. Bricker and V. Bricker, 1983, 1992; V. Bricker and H. Bricker, 1988; V. Bricker and Vail, 1997; Vail and Aveni, 2004). The Maya codices share many similarities with murals found at Postclassic sites in Yucatán, including those from Tulum, Tancah, Santa Rita, and Mayapán (Staines, 2001; Taube, 1992). Like the murals, the Maya screenfolds reveal the influence of the Mixteca-Puebla or “International” art style (Boone and Smith, 2003; Robertson, 1970; Staines, 2001), which appeared at sites throughout much of Mesoamerica after AD 1100.¹

Information in the Maya codices is organized within the framework of astronomical tables and divinatory “almanacs” (V. Bricker and H. Bricker, 1992: 43–51; Vail and Aveni, 2004:Chap. 5). Almanacs place events of both a sacred and secular nature within the 260-day ritual calendar (the *tzolk'in*). They are formatted to integrate calendrical information with one or more pictures contained within a series of panels or frames, along with hieroglyphic captions. Priests, diviners, and daykeepers used almanacs to determine the most propitious days for specific activities of both a mundane and ritual nature. Some of the activities identified in Maya divinatory almanacs include rain-making ceremonies, planting and harvesting crops, deer hunting and trapping, care of stingless bees, carving deity images, and a host of preparations and ceremonies to commemorate the end of 1 year and the start of the next (V. Bricker, 1997; V. Bricker and Vail, 1997; Thompson, 1972:20; Vail, 1996:Chap. 1; Vail and Hernández, 2005, unpublished).

At the time of European contact, human sacrifice played an important role in the ceremonial life of the Maya of northern Yucatán. Death and violence are common themes in indigenous texts, such as those recorded in the Colonial period *Books of Chilam Balam* (Edmonson, 1984:94). Both explicit and implicit references to the ritual killing of humans and animals appear in these manuscripts; the most detailed description of human sacrifice occurs on the occasion of a *k'atun* ending (Edmonson, 1984:96–98).² Early Spanish chroniclers also attest to the practice of human and animal sacrifice in the *Relaciones Geográficas* (Garza,

1983: *Relaciones Histórico-geográficas de la Gobernación de Yucatán*), as does Fray Diego de Landa (in Tozzer, 1941 [c. 1566]). Landa's descriptions of Yucatec Maya culture in the early Colonial period give us a vivid account of some of the occasions and manners in which people and animals were dispatched in sacrificial rituals. Data from Landa and the other chroniclers are invaluable in helping to interpret evidence of human sacrifice dating to the period of time immediately prior to the arrival of the Spanish. Landa notes, for example, that sacrificial victims were frequently slaves captured in war or sometimes young children; methods of sacrifice described include heart extraction; being tied to a stake and shot full of arrows; being thrown from a great height onto a pile of stones; or being cast into the Sacred Cenote (Tozzer, 1941:115–121). The remains of sacrificed individuals were generally buried in the court of the temple, although Landa also mentions practices such as keeping trophies and cannibalism (Tozzer, 1941:120).

Representations of human sacrifice in murals and codices include the presentation of victims prior to their sacrifice, the sacrificial act itself (involving decapitation, spearing, and heart extraction), and the treatment of the body after death. Imagery portraying human sacrifice is common in Late Postclassic art and appears in a variety of forms and contexts within the codical almanacs (Table 6.1; see Figs. 6.4, 6.11, 6.16).

Sacrificial imagery from the Late Postclassic period can be linked to two distinctive calendrical cycles. As Classic period texts demonstrate, certain rituals were timed to coincide with specific intervals of the Long Count calendar (Schele, 1984), most commonly with *k'atun* endings (a period of approximately 20 years). During the Late Postclassic period, sacrificial rituals to mark the completion of *tuns* (the 360-day year) and *k'atuns* continued, as documented in the *tun* series of the Paris Codex (Love, 1994), as well as in the murals from Structure 1 of Santa Rita (Fig. 6.1), a site located on Chetumal Bay in present-day Belize.

Other types of period-ending rituals, associated with the 365-day solar year (*haab'*), represent the focus of the Dresden and Madrid codices, which can also be dated to the Late Postclassic period (see V. Bricker and H. Bricker, 1992; summary discussion in Vail and Aveni, 2004:Chap. 1). This correlates well with data from Landa, who describes a series of ceremonies related to the various “months” of the *haab'* (Tozzer, 1941:151–166).³ Human sacrifice formed an important component of the series of rituals associated with the end of 1 year and the start of the next, known to Mayanists as yearbearer ceremonies. We discuss specific examples of these rituals, which included decapitation and heart extraction, in the following section.

6.2.1. *Examples of Violent Death and Sacrifice from Late Postclassic Sources*

The capturing of prisoners, presumably for sacrifice, is a common component of Maya codices and murals dating to the Late Postclassic period. Although some of these representations show both the captive and captor (Fig. 6.2), as is common

TABLE 6.1. Representations of human sacrifice in Late Postclassic Maya codices and murals

Sources	Bound prisoner/ captive prior to sacrifice	Captor w/ prisoner	Heart extraction	Decapitation	Spearing
Madrid Codex	24c–25c; 33a [not bound]; 53a; 66a; 68b; 70a; 72b	79a; 80a; 83a–84a; 85a–86a; 87a–88a; 89a–90a?	75–76	34; 54b; 55b; 75–76; 88c	50a; 54c; 84a
Dresden Codex	3a; 37a	60b; 67a	3a	2a; 3a; 34a; 44a?	46–50
Paris Codex	7a				
Grolier Codex		1, 2?, 3–4, 6, 9		6	
Santa Rita murals	North wall, East: Figs. 1–9; North wall, West: Figs. 3, 6–7			West wall	
Sources	Axing (<i>ch'ak</i> verb)	Disemboweling	Skulls/ trophies and offerings of hearts	Miscellaneous (eye- plucking, stoning, pyramid sacrifice, water sacrifice, hanging)	Mummy bundles
Madrid Codex	34a; 61c		52a; 52b; 54b; 55b; 79a?; 80a?; 88a; 88c; 91b?; 105a?	32b; 35a; 50a; 54c; 86a; 87a; 91c	71a; 101a– 102a
Dresden Codex	2a; 42c	42c	25c; 26b; 27c	53b	
Paris Codex		19			
Grolier Codex					
Santa Rita murals					

in earlier Classic period portrayals, the majority show bound individuals alone (Fig. 6.3).⁴ An interesting variant on this theme occurs in the murals depicted on the east half of the north wall of Mound 1 at Santa Rita (see Fig. 6.1), where a series of figures are connected by a rope, which may be seen to bind their wrists. We interpret the dates associated with the individuals numbered from 9 to 1 as indicating that these figures were captives intended for sacrifice at *tun* intervals.⁵ The rope motif suggests connections to themes of cosmic creation, based on ideas

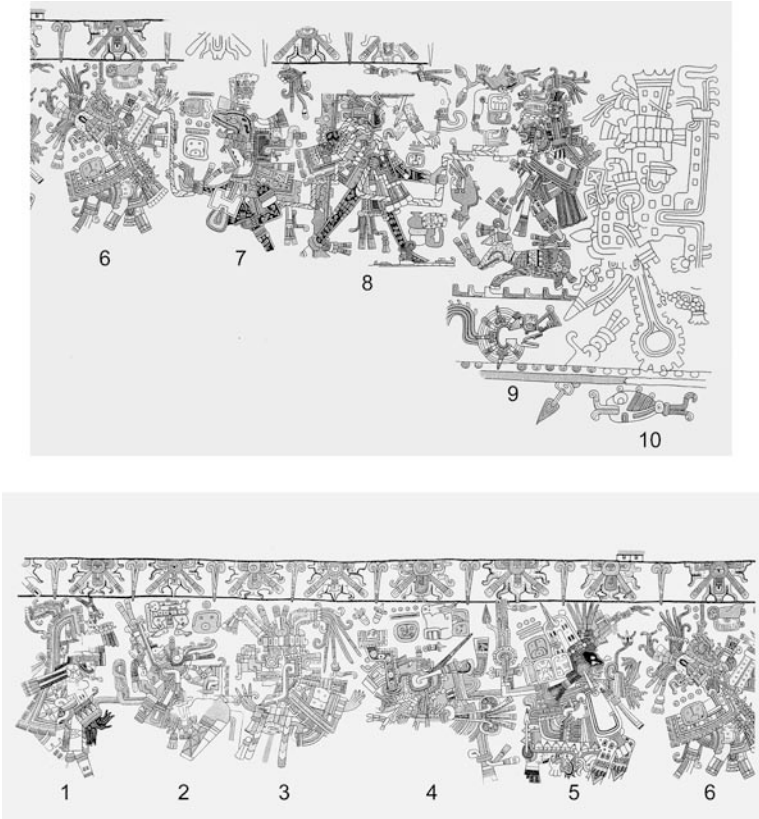


FIGURE 6.1. *Tun* series on east half of north wall of Mound 1, Santa Rita. Although the figures are numbered from left to right, the sequence of *tuns* actually progresses from right to left, meaning that the mural begins with individual 10 and ends with individual 1. We have separated the mural into two registers for illustration purposes, but it was presented as a continuous sequence in the original. After Gann, 1900:Pl. 29

of a cosmic “umbilical cord” (Freidel et al., 1993; Looper and Kappelman, 2001; Miller, 1982:Chap. 5), which is further supported by the glyphic captions associated with several of the figures. These represent toponyms which refer to various mythological places, including *na ho’ chan* “First Five Sky” (with individual 7) and *wuk ha’ nal* “7 Water Place” (with individual 6; see discussion in Vail, 2005 for further details). Additionally, several of the figures are associated with the ballgame, including individual 7, who wears a symbol replicating a ballcourt on his chest, and the maize god (individual 4), whose glyphic caption appears to read *pitzil nal* “ballplayer place.” Like the “umbilical cord,” these references to the ballgame suggest a link to creation mythology, as the ballgame forms a key component of the story of the Hero Twins – the mythic ancestors who created the conditions necessary for the creation of humans.



FIGURE 6.2. The taking of captives on M. 85a–86a. After Anders, 1967. Reproduced courtesy of the Museo de América, Madrid

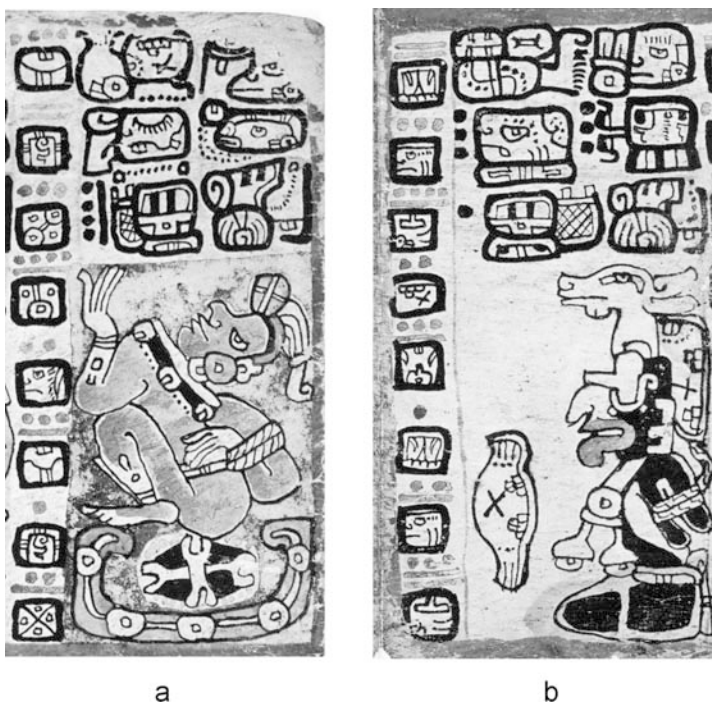


FIGURE 6.3. Examples of bound captives on (a) M. 66a and (b) M. 68b. After Anders, 1967. Reproduced courtesy of the Museo de América, Madrid

TABLE 6.2. Deities discussed in this chapter

Schellhas designation ^a	Yucatec name	Role
God A	Kimil	Death god
God A'	Kam or Akan ^b	Secondary death god
God B	Chaak	Rain god
God C	K'uh	Generic god (<i>k'uh</i> means god, sacred, holy)
God CH	Yax B'alam	Equivalent of Hero Twin Xbalanque from Popol Vuh
God D	Itzamna	Creator deity
God E	Nal	Maize god
God G	K'inich Ahaw	Sun god
God H	Nik	Wind and flower god
God I	Ix Kab'	Earth goddess
God K	K'awil	God of sustenance
God L/Z	??	Venus god
God M	??	Merchant god
God N	Pawahtun	Associated with yearbearer ceremonies
God O	Chak Chel	Female creator (and destroyer) goddess; associated with rains
God Q	Kisin	Underworld/punisher god
God S	Hun Ahaw	Equivalent of Hero Twin Hunahpu from Popol Vuh
God Y	??	Deer/hunt deity

^aThe custom of assigning letters to deities was first applied by Paul Schellhas (1904) as a means of classifying deities whose name glyphs could not be read. Schellhas' original system has since been revised by Zimmermann (1956), Kelley (1976), and Taube (1992)

^bThis deity's name has been read as Kam, meaning "death" (Vail, 1996, 2000), or as Akan, a god associated with alcoholic beverages (Grube, 2004)

The ultimate disposition of the Santa Rita captives and those depicted in the codices can be inferred from the 30 or so scenes (described below) that show violence leading to death (Table 6.3).

Decapitation

Pictorial representations suggest that one of the primary methods of sacrifice employed by the prehispanic Maya was decapitation (Robicsek and Hales, 1984:50; Schele, 1984:9). As we know from stories like the Popol Vuh⁶ and from Classic period pottery and carved monuments, decapitation was linked to rituals surrounding the ballgame. In the Popol Vuh, two of the principal characters are decapitated in the context of a ballgame contest against the lords of the underworld. This then became a mythic charter for the ballgame, where the losers could expect to be decapitated, as depicted in various Classic period contexts, as for example on the ballcourt panels from Chichén Itzá (see Figs. 7.2 and 7.3).

In this regard, it is of interest that two of the captives on the north wall of Mound 1 from Santa Rita are associated with glyphs and/or symbols suggestive of the ballgame. From this, we may speculate that sacrificial rituals, including decapitation,

TABLE 6.3. Captives and sacrificial victims in Late Postclassic Maya iconography

Where pictured	Victim	Captor/ aggressor	Type	Notes
D. 2a	Hun Ahaw		Bound captive; decapitated ^a	
D. 3a	Unid. male-1		Heart extraction?	Note that a tree grows from the victim's gaping chest.
D. 3a	Unid. male-1	Vulture	Victim's eye is being plucked from its face	Yearbearer associations?
D. 3a	Hun Ahaw		Bound captive; decapitated	Yearbearer associations?
D. 3a	Yax B'alam		Bound captive ^b	Yearbearer associations?
D. 25c		Sun god K'inich Ahaw	Human heart? as offering	Occurs in context of Dresden yearbearer almanac.
D. 26b		Sun god K'inich Ahaw	Human hearts? as offerings	Occurs in context of Dresden yearbearer almanac.
D. 27c		Death god Kimil	Human hearts? as offerings	Occurs in context of Dresden yearbearer almanac.
D. 28b		Death god (A')	Human? femurs as offering	Occurs in context of Dresden yearbearer almanac.
D. 34a	Maize god Nal		Decapitated	The maize god's decapitated head appears in a scene that has clear links to the yearbearer ceremonies in the Dresden and Madrid codices.
D. 37a	Chaak		Bound captive ^c	
D. 44a	Chaak	Unid. male	Decapitated?	The scene is somewhat eroded. It is unclear if the figure holds Chaak's decapitated head or has simply captured Chaak by the hair.
D. 46	K'awil	God L/Z	Speared victim	Occurs in context of rise of Venus as Morning Star.
D. 47	<i>chak b'olay</i> (jaguar or puma)	Lahun Chan (10 Sky)	Speared victim	Occurs in context of rise of Venus as Morning Star.
D. 48	Maize god Nal	Tawisikal (cognate of Tlahuitzcalpantecuhtli?)	Speared victim	Occurs in context of rise of Venus as Morning Star.
D. 49	Frog-like figure	Chak Xiwitel (cognate of Xiuhtecuhtil)	Speared victim	Occurs in context of rise of Venus as Morning Star.
D. 50	"Foreigner"	Kakatunal	Speared victim	Occurs in context of rise of Venus as Morning Star.

(Continued)

TABLE 6.3. Captives and sacrificial victims in Late Postclassic Maya iconography —
(Continued)

Where pictured	Victim	Captor/ aggressor	Type	Notes
D. 53b	Unid. female		Victim of hanging	In context of Dresden eclipse table. Not clear if self-inflicted or not.
D. 60a	Pawahtun	Unid. males (2)	Being threatened by warriors with upraised weapons	
D. 60b	Unid. male	Unid. male	Bound captive	Being presented to figure on palanquin.
D. 67a D. 74	K'awil	Chaak God L/Z	Bound captive ^d	With weapons suggestive of Venus warfare.
G. 1	Unid. male	K'awil	Bound? captive	Occurs in the context of a Venus almanac.
G. 3	Unid. male	Unid. male	Bound captive	Occurs in the context of a Venus almanac.
G. 4	Unid. male	K'awil	Bound captive	Occurs in the context of a Venus almanac.
G. 6	Unid. male	Death god Kimil	Decapitated	Decapitation of captive explicitly portrayed. Occurs in the context of a Venus almanac.
G. 9	Unid. male	Maize god Nal	Bound captive	Occurs in the context of a Venus almanac.
M. 24c–25c	Maize god Nal ^e		Bound captive	Occurs in context of yearbearer ceremonies; represents prophecy for maize crop for year
M. 32a		God L/Z		Carries weapons that may indicate represents Venus as Morning Star deity.
M. 32b	Unid. male	Chak Chel	Victim of drowning	Victim drowns in stream of water pouring from Chak Chel's open mouth.
M. 33a	Maize god Nal	Black Chaak	Chaak raises axe to strike Nal.	Chaak may represent Venus here.
M. 34a	Unid. male		Decapitated ^f	In context of Kawak yearbearer ceremony (see Landa's discussion in Tozzer, 1941:147).
M. 34b	Maize god Nal		Decapitated ^g	In context of Kawak yearbearer ceremony. Appears to represent prophecy for year (death of maize crop).
M. 34b	Rain god Chaak	Death god Kimil	Decapitated ^g	In context of Kawak yearbearer ceremony. Appears to represent prophecy for year (insufficient rain).

TABLE 6.3. Captives and sacrificial victims in Late Postclassic Maya iconography — (Continued)

Where pictured	Victim	Captor/aggressor	Type	Notes
M. 35a	Unid. male (painted red)		Thrown from a height onto a pile of stones/altar	In context of K'an yearbearer ceremony. See Landa's discussion of this event (Tozzer, 1941:143) and compare to similar ritual involving dog on D. 30a.
M. 38c ^h				
M. 50a	God M	Underworld god Kisin	Victim of spearing	Unclear whether an act of warfare or of sacrifice; may have yearbearer associations. Note also that Kisin holds a stone in his hand, as if about to strike God M with it.
M. 51b	Maize god Nal	God M	May be victim of attack by God M, who holds a flint blade concealed at his side	Yearbearer associations?
M. 52a		Underworld god Kisin		Carries spear and trophy skulls. ⁱ
M. 52b		Underworld god Kisin		Carries spear and trophy skulls. ^j
M. 53a	Unid. male (painted black)		Dead captive tied to spear	Yearbearer associations?
M. 54b	Unid. male (painted red)		Decapitated	Note the axe poised over the figure's neck.
M. 54c	God M	Underworld god Kisin	Being attacked by spear	Unclear whether an act of warfare or of sacrifice; may have yearbearer associations. Note also that Kisin holds a stone in his hand, as if about to strike God M with it.
M. 55b	Unid. male		Bound captive with axe poised over neck	Appears to be the same figure as that on M. 54b who has been decapitated.
M. 58b–59b ^k				
M. 58c	K'uh (godliness)		Bound captive? ^l	
M. 60c		Underworld god Kisin		Kisin holds a stone, like that being used to threaten God M on M. 50a and 54c.
M. 61c	K'uh (godliness)		Victim of axing ^m	
M. 66a	Flower god Nik? (painted red)		Bound captive	Wears death collar. Perched above cenote with crossed bones.

(Continued)

TABLE 6.3. Captives and sacrificial victims in Late Postclassic Maya iconography —
(Continued)

Where pictured	Victim	Captor/ aggressor	Type	Notes
M. 68b	Black God Y		Bound captive	Note deer headdress and stone perched on shoulders. May have yearbearer associations.
M. 70a	Black God Y		Bound captive	Associated with unid. bird. May have yearbearer associations.
M. 71a	Unid. male	Sun god K'inich Ahaw (painted red)	Mummy bundle	May have yearbearer associations.
M. 72b	Death god (A')		Bound captive	May have yearbearer associations.
M. 75–76	Unid. male (painted red)	Death god Kimil and underworld god Kisin	Heart extraction	May be associated with yearbearer ceremonies/ rituals performed in relation to 52-year Calendar Round.
M. 75–76	Unid. male (painted red)	Flower god Nik, unid. male	Decapitated	May be associated with yearbearer ceremonies.
M. 79a	Flower god Nik?	God L/Z	Bound captive	Astronomical context? Captive tied with rope; rope held by pincher of scorpion tail worn by God Z.
M. 79a		God L/Z	Holds trophy skull?	
M. 80a	Maize god Nal	God L/Z	Bound captive	Astronomical context? Captive tied with rope; rope held by pincher of scorpion tail worn by God Z.
M. 80a		God L/Z	Holds trophy skull?	
M. 83a–84a	Unid. male	God M	Captive tied to spear	Astronomical context? Note that God M has scorpion tail.
M. 84a	God M	Underworld god Kisin	Victim of spearing	Yearbearer associations?
M. 86a	Unid. male	Itzamna with Pawahtun headdress	Captive with rope around the neck held by second individual	Yearbearer associations?
M. 86a	Unid. male	Vulture	Victim's eye is being plucked from its face	Yearbearer associations?
M. 86a	Unid. male	Pawahtun	Captive with rope around the neck held by second individual	Yearbearer associations?
M. 87a	Unid. male	Vulture	Victim's eye is being plucked from its face	Yearbearer associations?

TABLE 6.3. Captives and sacrificial victims in Late Postclassic Maya iconography — (Continued)

Where pictured	Victim	Captor/aggressor	Type	Notes
M. 87a	Unid. male	Dog-like creature (opossum?) ⁿ	Captive grasped by hair	Yearbearer associations?
M. 87a	Unid. male	Dog-like creature (opossum?) ⁿ	Captive grasped by hair	Yearbearer associations?
M. 88a	Unid. male	Itzamna	Captive grasped by hair	Yearbearer associations?
M. 88a	Unid. male	Dog-like creature (opossum?) ⁿ	Captive grasped by hair	Yearbearer associations?
M. 88a	Unid. male	Kisin	Burning skulls	Yearbearer associations? May have yearbearer associations. See Landa's discussion of the Kawak yearbearer ceremonies (Tozzer, 1941:147).
M. 88c			Decapitated	
M. 88c		Vulture on skull		May have yearbearer associations. See Landa's discussion of the Kawak yearbearer ceremonies (Tozzer, 1941:147).
M. 89a	Earth goddess	Sun god K'inich Ahaw	Captive? grasped by arm	Yearbearer associations?
M. 89a	Maize god Nal	Itzamna	Captive? grasped by arm	Yearbearer associations?
M. 91c		Vulture	Plucking eye of captive?	Yearbearer associations?
M. 95b	Maize god Nal	God M	Possible victim of attack (God M holds flint blade in threatening gesture)	Yearbearer associations?
M. 96c ^o				
M. 101a	Unid. male		Mummy bundle ^p	Yearbearer associations?
M. 101a	Unid. male		Mummy bundle ^p	Yearbearer associations?
M. 102a	Unid. male		Mummy bundle ^p	Yearbearer associations?
M. 102a	Unid. male		Mummy bundle ^p	Yearbearer associations?
M. 105a		Death god Kimil	Holds trophy skull?	
M. 105b			Trophy skull and crossed bones as offerings	
P. 7a	Maize god Nal		Bound captive	Occurs on tun pages of Paris Codex. May represent the prophecy for that year.
P. 19	Unid. male	Jaguar	Being attacked?	Occurs in context of Paris yearbearer pages.

(Continued)

TABLE 6.3. Captives and sacrificial victims in Late Postclassic Maya iconography — (Continued)

Where pictured	Victim	Captor/ aggressor	Type	Notes
P. 19	Maize god Nal		Disemboweled	Occurs in context of Paris yearbearer pages.
SR, W. wall	God M	Unid. male	Decapitated	Occurs in the context of a period-ending ceremony associated with the <i>lahuntun</i> (10 <i>tuns</i>), or a half- <i>k'atun</i> period.
SR, W. wall	Sun god K'inich Ahaw	Unid. male	Decapitated	Occurs in the context of a period-ending ceremony associated with the <i>lahuntun</i> (10 <i>tuns</i>), or a half- <i>k'atun</i> period.
SR, E. half of N. wall	Unid. male		Bound captive ^q	In context of <i>tun</i> rituals.
SR, E. half of N. wall	Unid. male (scribe)		Bound captive ^q	In context of <i>tun</i> rituals.
SR, E. half of N. wall	Unid. male (ball-player?)		Bound captive ^q	In context of <i>tun</i> rituals.
SR, E. half of N. wall	Unid. male		Bound captive ^q	In context of <i>tun</i> rituals.
SR, E. half of N. wall	Unid. male		Bound captive ^q	In context of <i>tun</i> rituals.
SR, E. half of N. wall	Maize god Nal		Bound captive ^q	In context of <i>tun</i> rituals.
SR, E. half of N. wall	K'awil		Bound captive ^q	In context of <i>tun</i> rituals.
SR, E. half of N. wall	Sun god K'inich Ahaw		Bound captive ^q	In context of <i>tun</i> rituals.
SR, E. half of N. wall	God L		Bound captive ^q	In context of <i>tun</i> rituals.
SR, W. half of N. wall	Unid. male		Bound captive ^q	In context of <i>tun</i> rituals.
SR, W. half of N. wall	Unid. male		Bound captive ^q ; seated on scaffold	In context of <i>tun</i> rituals.
SR, W. half of N. wall	Maize god Nal		Bound captive ^q	In context of <i>tun</i> rituals. But note that maize god is being presented as if he is an offering, in a vessel with a Pop motif.

^aText reads *ch'akab' tu pach* “The nape [of his neck] was axed”^bThe caption tells us that Yax B'alam was captured (*chukaj*)^cThe caption tells us that Chaak was captured (*chukaj*)^dThe text here reads “K'awil was tied up”^eThe maize god Nal is depicted with closed eyes indicating death in a number of instances (see, e.g., M. 37b). We have not included these examples in our analysis because we follow earlier scholars in relating them to the death of the maize crop through various mechanisms (disease, pests, insufficient rain). Therefore, they do not seem to signal a sacrificial death^fHead replaced by expression *ch'akab'* “was axed”^gHead (minus body) appears

TABLE 6.3. Captives and sacrificial victims in Late Postclassic Maya iconography — (Continued)

^bOne interpretation of the text (see Vail and Hernández, 2005) suggests that it refers to the drilling and bleeding of particular deities. If this is the case, it may have an analogue to the Aztec New Fire ceremony, which involved drilling a fire on the breast of the captive before extracting his heart (Sahagún, 1953)

^cOther deities in this section (including God M) also carry spears. We have not included these examples, however, unless they also have trophy skulls

^dA number of almanacs show deities carrying skulls. In most cases, however, they alternate with other objects (such as tortillas) and are interpreted as prophecies for the time period in question, rather than as actual skulls

^eThis almanac includes six frames, each of which portrays a deity lying beneath a scaffold and another lying on top of it. Although the text includes a verb referring to death, the particular activity represented here remains unclear

^fThe illustration is eroded, but the text states that “The god was captured”

^gText includes the statement “The god was axed”

^hVail (in Vail and Hernández, unpublished) outlines her ideas that this creature, which appears in several almanacs in the Madrid Codex, is an opossum Mam, similar to those that appear in the upper register of the Dresden yearbearer pages

ⁱThis and a number of almanacs in this section portray T1016c (*k'uh*) heads, which represent deity images (“idols”). They are not decapitated heads

^jAppears in front of second figure, who is seated within a structure. It is not clear that these latter figures represent aggressors, or indeed that the dead individuals are sacrificial victims

^kNote, however, the foliation associated with the rope, suggestive of death leading to rebirth and regeneration

Abbreviations:

D. Dresden; G. Grolier; M. Madrid; P. Paris; SR Santa Rita

were timed to coincide with period endings and that ritually significant ballgames may have been held at specific intervals within the Long Count calendar.

The idea that decapitation was linked to period endings receives support from another scene from the murals painted at Santa Rita, this one from the west wall of Mound 1 (Fig. 6.4). Here, we see an unidentified deity holding aloft the decapitated heads of the merchant and sun gods. The date associated with the scene (8 Ahaw) is separated from the date to its left (7 Ahaw) by 10 *tuns*, or 3,600 days. This represents half of a *k'atun*, a period of approximately 20 years that had significance to the prehispanic Maya in terms of scheduling royal rituals. Opposite the individual with the decapitated heads, a variant of the merchant deity stands, holding an *incensario* in one hand, and playing a drum decorated with a skull with the other. As we discuss below, decapitation rituals in the Maya codices also occurred in the context of period-ending rituals and involved similar activities (burning incense and playing musical instruments).

Decapitation is the most common method of sacrifice depicted in the codices. Although most examples occur after the act itself has been accomplished, there is one example from the Grolier Codex that portrays the death god holding the victim's head, which has just been separated from the body with what appears to be a large knife (Fig. 6.5). Other examples of decapitation illustrated in the codices are associated with axes and/or the phrase *ch'akab'* “was chopped,” as

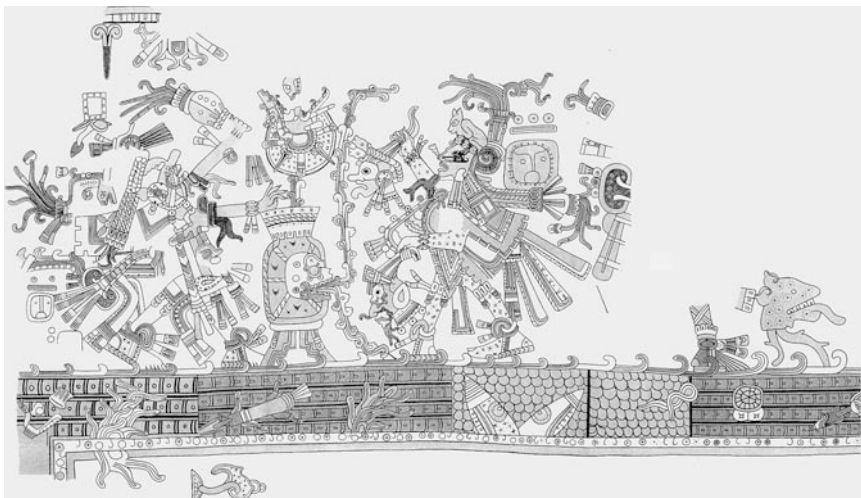


FIGURE 6.4. Decapitation ritual on Santa Rita west wall, Mound 1. After Gann, 1900:Pl. 31

may be seen for example on M. 34a (Fig. 6.6a), where a figure is seated.⁷ Its missing head has been replaced by two glyphs, an axe (*ch'ak*) and T526 (*kab'*).⁸ Combined, the two spell *ch'akab'*, graphically illustrating what has occurred to the victim.

This example occurs on the first of the four pages referring to yearbearer rituals in the Madrid Codex. These rituals encompass the five nameless days (*Wayeb'*) at the end of the year, when the deities and objects from the previous year received offerings before they were rendered ritually inert. Following this, new deities and ritual objects were installed on the first day of the new year.

Landa discusses various sacrificial events associated with the yearbearer ceremonies. In *Kawak* years, the priests and the lords conducted a procession which involved carrying a standard that held an image of the presiding deity, a skull and a dead man, and a vulture (*k'uch*), which served as a sign of great mortality. This description has been cited as evidence that the *Kawak* yearbearer ceremonies included decapitation, something that is seen not only in the illustration mentioned above, but also in the lower register of the same page (Fig. 6.6b), where the death god *Kimil* is associated with the decapitated heads of the rain and maize deities.⁹ This symbolizes, we believe, the death of the maize crop due to insufficient rain as the prophecy for *Kawak* years. These examples, therefore, appear to be linked to period endings in the *haab'* (365-day year), rather than those associated with the Long Count calendar. *Tun* and *k'atun* rituals are generally not pictured in the Dresden and Madrid codices, although they are the subject of 13 pages in the Paris Codex.

Two sequential almanacs in the Madrid Codex show what we believe is a prisoner about to be beheaded (on M. 55b; Fig. 6.7a) and the same captive after he has been decapitated (on M. 54b; Fig. 6.7b). An interesting feature of the victim prior to sacrifice is that he wears red body paint. The significance of this remains



FIGURE 6.5. The decapitation of a sacrificial victim on G. 6. Drawing by Christine Hernández, after Coe, 1973

uncertain (see Sect. 6.2.6), but it is mentioned by archaeologists as occasionally being associated with the ritual treatment of skeletal remains. Harrison-Buck et al. (Chap. 4), for example, point to bones recovered from the site of Pakal Na that were painted with red and yellow ochre.

The fact that an anthropomorphic bird, perhaps a vulture, is pictured in both almanacs carrying skulls suggests a link to Landa's discussion of the Kawak year-bearer ceremony (Bill et al., 2000). Similarly, Bill et al. note that the almanac on M. 88c (Fig. 6.8) also has links to Landa's discussion. The first of the five pictures shows a seated individual who has been decapitated, as well as a drum similar to

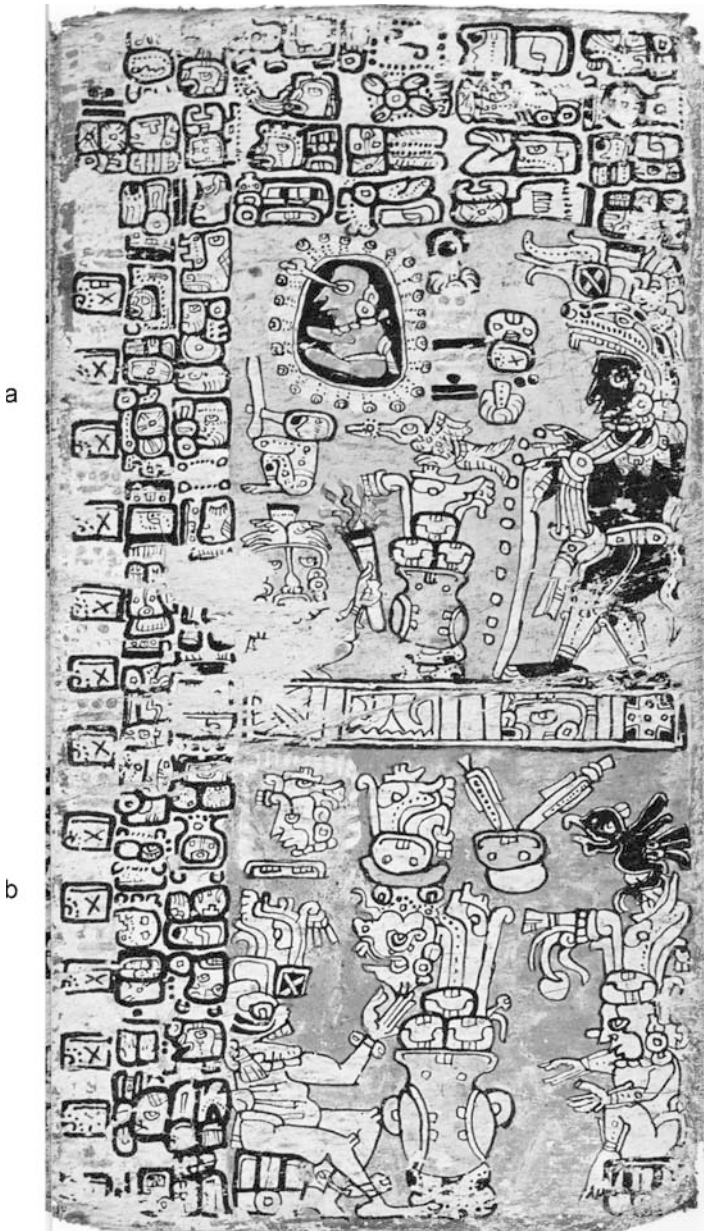


FIGURE 6.6. Decapitation associated with the Kawak yearbearer rituals on M. 34a and b. After Anders, 1967. Reproduced courtesy of the Museo de América, Madrid



FIGURE 6.7. Two adjacent almanacs showing the decapitation of a bound captive: (a) M. 55b, (b) M. 54b. After Anders, 1967. Reproduced courtesy of the Museo de América, Madrid

that associated with the yearbearer rituals depicted on M. 37. Three frames later, a bird, described in the text as a vulture, is pictured seated on a skull. In the final frame, the death god, the presiding deity for the Kawak yearbearer ceremonies (see M. 34b), is seated in a house, holding an unidentified object (which Bill et al., 2000 identify as a skull) in a sack.

Several other examples of decapitated individuals in the codices can be linked to yearbearer rituals, including those on D. 34a (Fig. 6.9b) and M. 75–76 (Fig. 6.10). D. 34a is especially interesting because it shows what we interpret as a yearbearer ritual within the context of the temple courtyard in which such ceremonies occurred. The focus of the scene is the pyramidal structure in the center, at the top of which rests the decapitated head of the maize god above a T526 (*kab'*) glyph. As the scene on M. 34a illustrates (see Fig. 6.6a), this refers to the passive verb *chak'ab'* “was chopped.” The flower-like element perched on the maize god’s

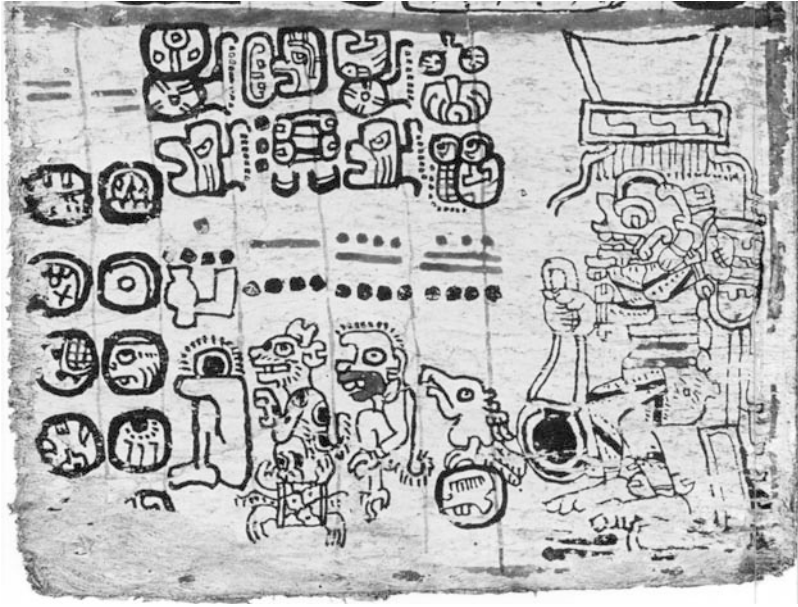


FIGURE 6.8. Iconography suggestive of the Kawak yearbearer ceremonies on M. 88c. After Anders, 1967. Reproduced courtesy of the Museo de América, Madrid

nose may be his soul leaving his body, as suggested by its resemblance to the *sak* glyph, which is used in Classic-period contexts in reference to death, or the extinguishing of the *sak nik nal* “white flower breath” or soul (Schele, 1992:43).

Surrounding the sacrificial scene are four Pawahtuns engaged in various activities associated with the celebration of the yearbearer rituals – playing musical instruments (lower right and lower left) and presenting offerings, including tortillas or tamales made of maize (represented by the three T506 glyphs in the vessel, lower left) and incense burning in a brazier. The two upper Pawahtuns hold objects symbolic of the yearbearer rituals – a staff and a rattle(?). This scene provides a number of details relating to one of the occasions on which decapitation was practiced that may prove useful to interpreting the archaeological record relating to victims of this type of sacrifice.

Other examples of decapitated figures in the codices include two depictions of Hun Ahaw, occurring on D. 2a and 3a (Fig. 6.11a,b). The text above the first of these tells us that “The nape [of his neck] was chopped.”¹⁰ This example is of particular interest given the story related in the Popol Vuh, in which Hun Ahaw [Hunahpu] represents one of the principal characters. Both he and his father the maize god [Hun Hunahpu] are decapitated in Xibalba as a result of their encounters with the lords of the underworld (Christenson, 2003; Tedlock, 1996). The fact that both are ultimately resurrected provides the rationale, we believe, for sacrificial rituals associated with period endings – they form a means of ensuring rebirth and new life in the time period (*haab’*, *tun*, or *k’atun*) ahead.

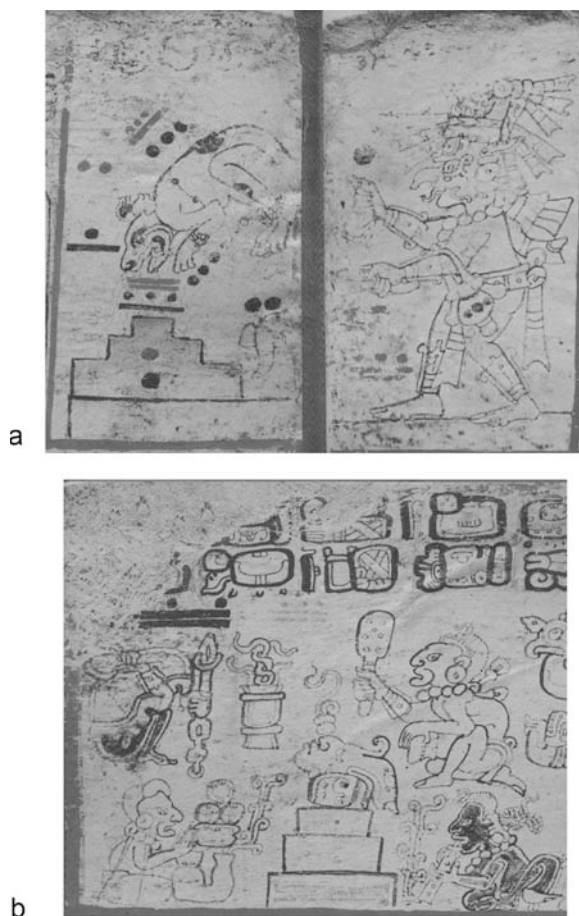


FIGURE 6.9. Sacrificial rituals on (a) D. 30a–31a and (b) D. 34a. After Förstemann, 1880

In addition to humans, the codices also show the decapitation of birds, possibly turkeys (as suggested by ethnohistoric accounts; see Tozzer, 1941:141, note 662), an activity associated with the inauguration of the New Year on D. 25–28 (Fig. 6.12, c register). As we discuss below, animal sacrifices take many of the same forms as human sacrifices and may, as various scholars have suggested, have been intended as a substitution or replacement for sacrificing a human victim (Tozzer, 1941:143, note 680).

As these examples show, decapitation can be linked to various ritual occasions – period endings based on the Long Count calendar or the 365-day *haab'*, or sacrifices associated with ballgame rituals. For this reason, it is important for those studying skeletal remains to look at the archaeological data with an eye to determining if sacrificial rituals occurred in such contexts. The scenes on D. 34a and the western wall of Mound 1 at Santa Rita provide additional data about the types

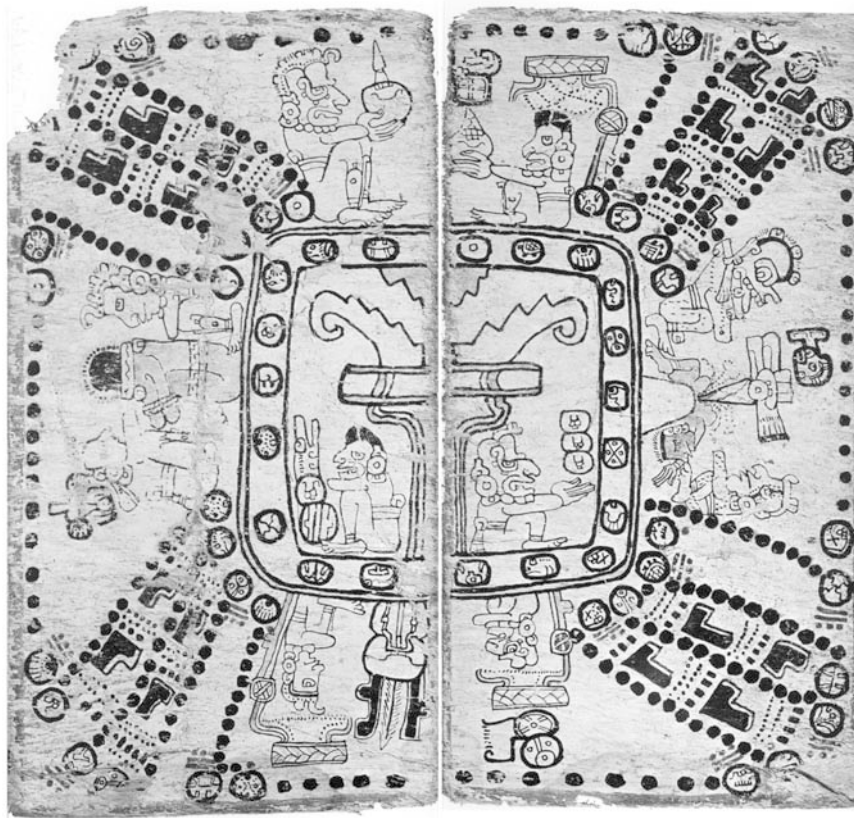


FIGURE 6.10. The four quadrants of the Maya world on M. 75–76. We interpret the sacrificial rituals pictured as occurring at the quarter-points of the 52-year cycle. After Anders, 1967. Reproduced courtesy of the Museo de América, Madrid

of activities associated with period-ending ceremonies and the contexts within which they occurred. Examples identified archaeologically as provisional victims of decapitation, as noted for example at Mayapán (Chap. 10) and Chichén Itzá (Chap. 8), should be assessed with respect to the painted sources to determine whether they may have had similar ritual associations.

Spearing

Another type of violent act pictured in the Late Postclassic sources involves spearing a victim. Although we normally think of this activity as related to warfare, in the codices it occurs in two principal contexts – on the Dresden Venus pages (Fig. 6.13), where it is linked to the appearance of Venus as Morning Star,¹¹ and in scenes involving Kisin as the aggressor and the merchant deity as his victim. The latter, we believe, may be associated with yearbearer ceremonies

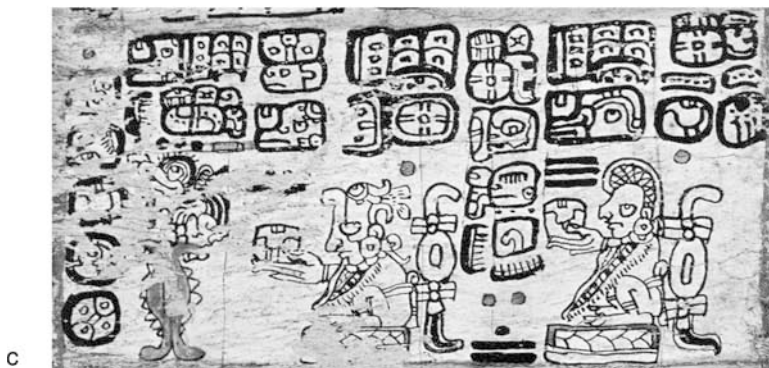
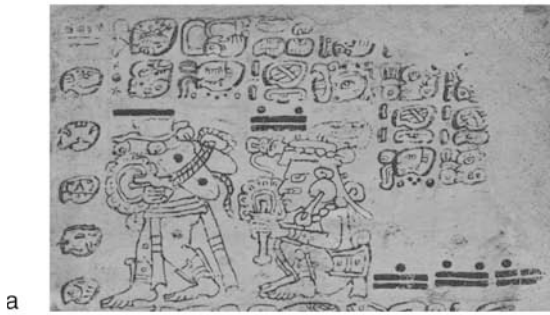


FIGURE 6.11. Maize and sacrifice iconography on (a) D. 2a, (b) D. 3a, and (c) M. 91c. After Anders, 1967 and Förstemann, 1880. Madrid image reproduced courtesy of the Museo de América, Madrid

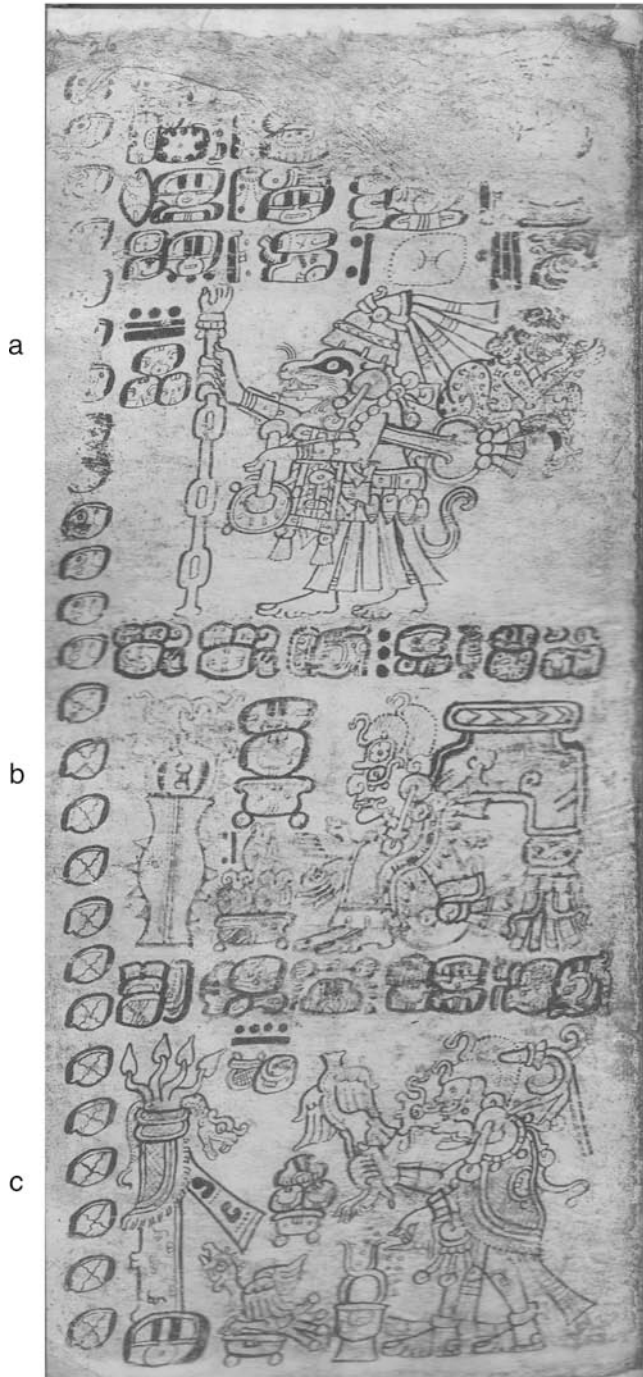


FIGURE 6.12. Yearbearer rituals on D. 26, featuring the sun god (b register) and K'awil (c register). The sun god is seated in front of a bowl with what have been identified as three human hearts, and K'awil holds a decapitated bird, probably a turkey. After Förstemann, 1880

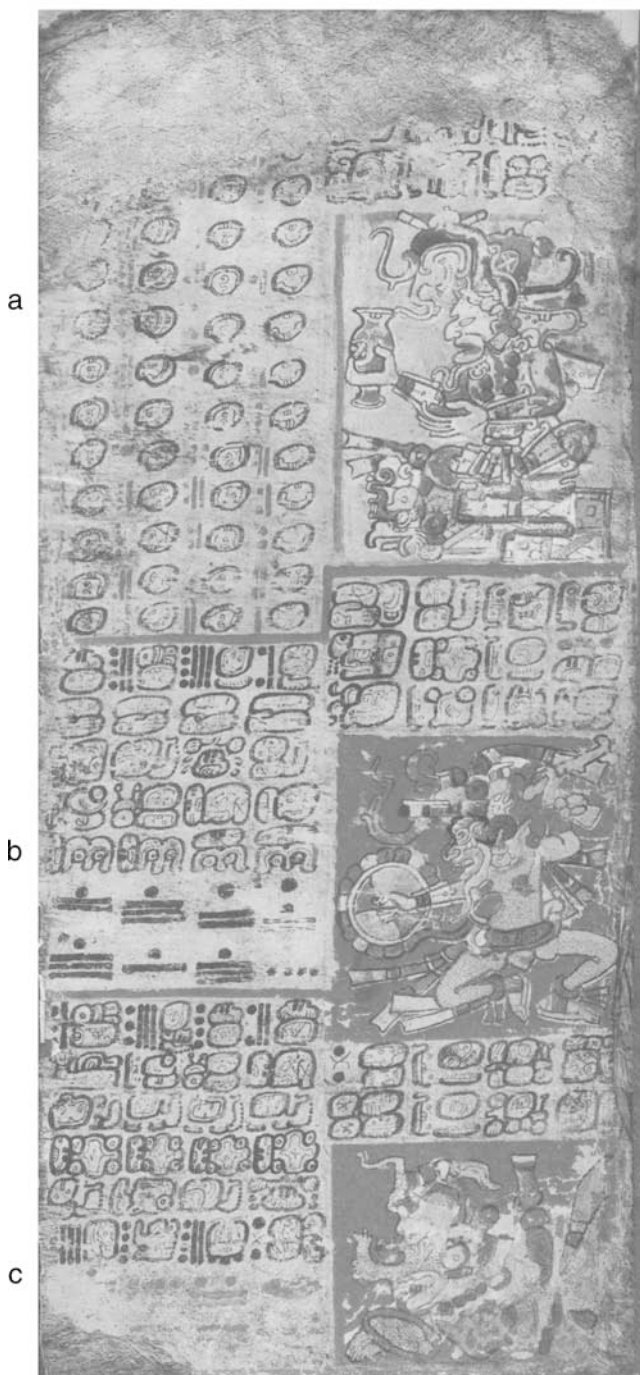


FIGURE 6.13. On D. 46, the black God L represents Venus as Morning Star (b register, right). The victim of his dart, pictured in the c register (right), is K'awil. After Förstemann, 1880

(see discussion in Bill, 1997; Bill et al., 2000). These scenes occur as part of a series of almanacs that feature these two deities in a variety of contexts in which they generally appear armed with spears or other weapons (Fig. 6.14). In one of these, found on M. 52a–53a, Kisin carries three skulls on his back (frame 1) – perhaps the trophy skulls mentioned by Landa (Tozzer, 1941:147) and depicted elsewhere in the codex as relating to the Kawak yearbearer ceremonies. In the same almanac, a dead captive is pictured, with his arms bound to a spear. It is interesting that this figure is painted black, the color associated not only with the merchant deity, but also with Kawak years.¹² This figure may be compared, for example, with the Pawahtun shown planting seeds on M. 34, the page associated with Kawak yearbearer rituals (see Fig. 6.6a). Other possible links to Kawak years on M. 52–53 are the presence of Kimil on M. 53b (last frame; see Fig. 6.14b) and the blue-painted figure on M. 53b (first frame; compare to M. 34a, where the individual seated within the black cartouche is painted blue).

Speared victims, both human and animal, are a theme explicitly linked with Venus in the Maya codices. On D. 46–50 (Fig. 6.13), for example, the right side of each page shows Venus in its manifestation as the Morning Star deity (b register), holding a series of weapons including spears or darts and an *atlatl*. The bottom register depicts the Morning Star’s victims, who include K’awil, a puma (*chak b’olay*), the maize god, a frog-like figure, and an unidentified figure identified as a “foreigner” (*tz’ul*) in the text.

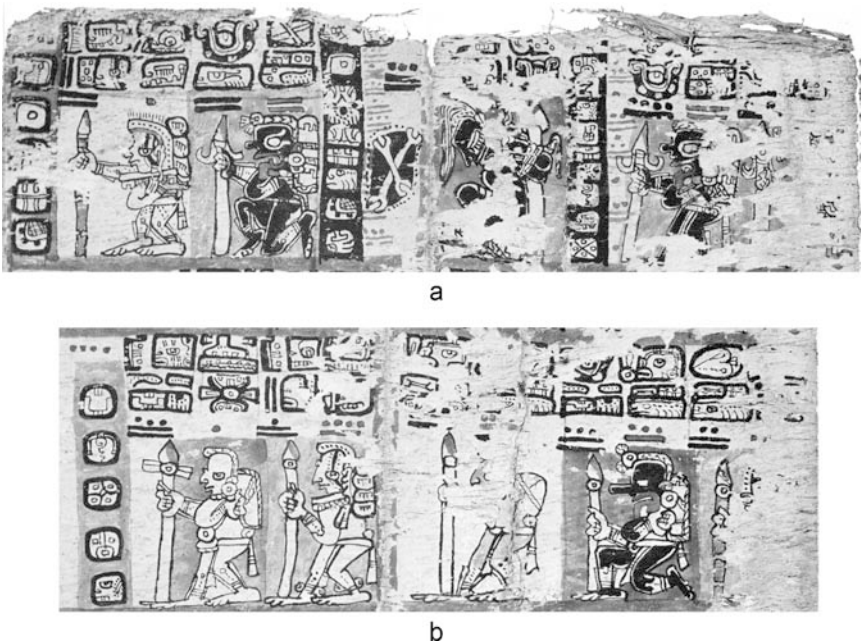


FIGURE 6.14. Deities with spears and trophy skulls on (a) M. 52a–53a and (b) M. 52b–53b. Note the dead captive in *a* (frame 3), who is bound to an upright spear. After Anders, 1967. Reproduced courtesy of the Museo de América, Madrid

These examples are important in that they point to violent acts (real and mythological) in association with astronomical events. Studies of Venus dates in the Classic period inscriptions likewise suggest that warfare was directed by significant stations of the planet (Carlson, 1993; Closs, 1979; Lounsbury, 1982), such as its first appearance as Evening Star (Schele and Grube, 1994). This warfare may very well have had ritual undertones, as the hieroglyphic texts on the Dresden Venus pages suggest that the spearing of victims was a necessary counterpart to alleviating the negative effects of *chak ek'* (the great star). Although there is insufficient data, it is possible to suggest that, like at the time of the year-bearer ceremonies, captives were sought prior to significant astronomical events so that they could be sacrificed to appease the gods. Data from the codices that help support this interpretation come from several almanacs in the Madrid Codex that portray deities who may have Venus associations with captives (e.g., M. 79a and 80a; Fig. 6.15). In this connection, it is interesting that the deities in question wear scorpion tails. We follow other researchers in equating the scorpion with the constellation pictured in the Paris “zodiac” on pages 23–24 (H. Bricker and V. Bricker, 1992:157; Vail, 1997:100–101). The association between black deities, Venus, and scorpions has been examined in detail by previous researchers (Closs, 1979; Carlson, 1993). We find it interesting that the possible Venus deities on these pages hold glyphs representing auguries in their hands (sacred foods in one hand and skulls in the other), and that God Z wears the head of God M at his waist on M. 79a. Another almanac in this series, on M. 83a–84a, shows God M, also with a scorpion tail, as the captor. He holds a spear to which a captive

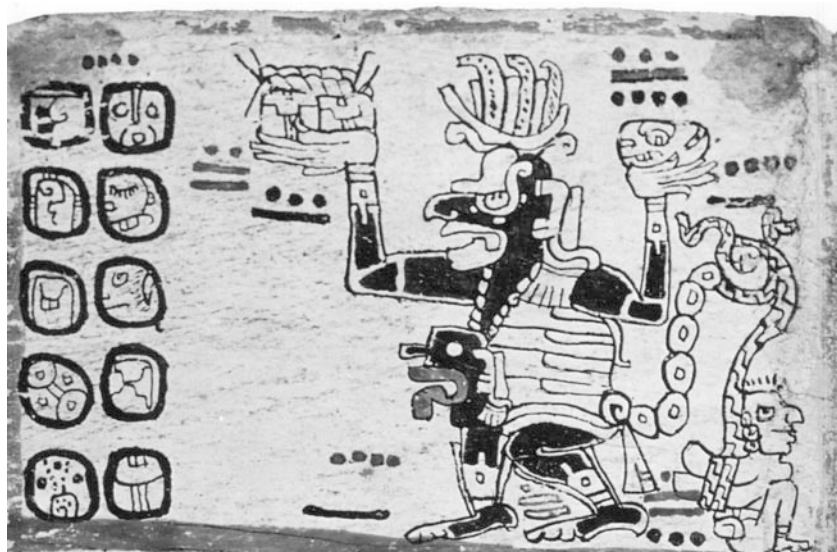


FIGURE 6.15. The black God Z, with a scorpion tail, to which a prisoner is tied on M. 79a. God Z holds various offerings, including a sacred bundle containing maize in one hand, and a skull in the other. He wears God M's head at his waist. After Anders, 1967. Reproduced courtesy of the Museo de América, Madrid

appears to be tied. This almanac has very close links to the imagery from the Grolier Codex discussed previously. Whether it relates to the taking of captives in association with significant Venus events or for sacrificial rituals tied to year-bearer ceremonies is a question that remains to be explored.

Heart Extraction

One of the methods of sacrifice discussed by Landa both in general terms and in connection with the yearbearer ceremonies involves the excision of a victim's chest to remove his heart. Landa provides the following description:

If the heart of the victim was to be taken out, they led him with a great show and company of people into the court of the temple, and having smeared him with blue and put on a *coroza*, they brought him up to the round altar, which was the place of sacrifice, and after the priest and his officials had anointed the stone with a blue color, and by purifying the temple drove out the evil spirit, the *Chacs* seized the poor victim, and placed him very quickly on his back upon that stone, and all four held him by the legs and arms, so that they divided him in the middle. At this came the executioner, the *Nacom*, with a knife of stone, and struck him with great skill and cruelty a blow between the ribs of his left side under the nipple, and he at once plunged his hand in there and seized the heart like a raging tiger and snatched it out alive and, having placed it upon a plate, he gave it to the priest, who went very quickly and anointed the faces of the idols with that fresh blood. [Tozzer, 1941:118–119].

Heart excision is only rarely portrayed in Classic period iconography (Schele, 1984:8). Examples are found on Piedras Negras Stela 11 (Schele, 1984:Fig. 1) and on several polychrome ceramics. Representations of heart sacrifice from the Postclassic period occur in both the Dresden and Madrid codices. Additionally, there is a detailed example of this ritual on a gold disk recovered from the Sacred Cenote at Chichén Itzá (Robicsek and Hales, 1984:Fig. 2).

M. 75–76 (Fig. 6.10) provides a graphic depiction of this method of sacrifice. Here, we see a victim stretched across an altar; a ceremonial flint knife has been plunged into his chest, from which blood spurts. The death of the victim is signaled by his closed eye, and it is of interest that he is painted red, rather than blue as noted by Landa. Red coloration is used on various occasions in the codices for victims of sacrifice (see, e.g., M. 66a) and is also associated with several death and underworld deities, including God A' and the sun god. On M. 75–76, Kisim and Kimil, both underworld gods, are shown presiding over the heart extraction. Only the victim, however, is painted red.

Landa mentions a ritual associated with the K'an yearbearer ceremonies that involved throwing a bound victim from a height onto a pile of stones in the temple courtyard, following which he was seized and his heart extracted (Tozzer, 1941:142–143). As Taube (1988:257) and others have noted, a bound victim has been thrown to his death on the K'an yearbearer page (M. 35) of the Madrid Codex (Fig. 6.16a). What is especially interesting about Landa's discussion is his comment that the victim to be sacrificed in this manner could be either a dog or a man. The Dresden Codex includes a scene very similar to that in the Madrid Codex (Fig. 6.9a), only in this instance, the bound victim is a dog. Chaak presides



FIGURE 6.16. Sacrificial ritual on M. 35, relating to the K'an yearbearer ceremonies. After Anders, 1967. Reproduced courtesy of the Museo de América, Madrid

over his ritual execution, and an axe at the base of the pyramid leaves no doubt as to the dog's fate.

This example, like the decapitated birds on D. 25–28, provides evidence that animals, as well as humans, played an important role as sacrificial victims (Table 6.4). Indeed, one of the victims of heart sacrifice depicted in the codices, in a scene very similar to that on M. 75–76, is a deer (on M. 42a). Other types of substitutions were also sometimes considered appropriate, as for example incense in place of human hearts or blood, or the spilling of one's own blood through autosacrifice (bloodletting). We explore this topic in more detail in Sect. 6.2.3.

Additional evidence for heart extraction in the Late Postclassic sources is provided by images depicted on the Dresden yearbearer pages (D. 25–28), which show rituals related to honoring the outgoing deity patron (represented by a

TABLE 6.4. Representations of animals as captives or sacrificial victims in Late Postclassic Maya iconography (selected examples)

Where pictured	Victim	Captor/ aggressor	Type	Notes
D. 3a	Frog or iguana?		Bound captive	
D. 25c–28c	Turkey?		Decapitated	Occurs in context of Dresden yearbearer pages.
D. 30a–31a	Dog	Chaak	Death through being thrown from height onto pyramid	See Landa's discussion of this event with respect to the K'an yearbearer rituals (Tozzer, 1941:143) and compare to M. 35a.
M. 39b	Deer	Deer with scorpion tail	Speared victim	Astronomical context? Suggested on basis of scorpion tail worn by upper deer.
M. 41a	Jaguar or puma		Speared victim	May have Venus associations.
M. 41b	Deer			Note deer wearing death-eye collar perched on top of two deer(?) skulls.
M. 42a	Deer		Heart extraction	
M. 43a		Dog-like creatures		The weapons being carried suggest the possibility that these animals may have associations with Venus as Morning Star.
M. 54a	Dog-like creature		Victim of axing	Yearbearer associations?
M. 55a	Dog-like creature		Victim of axing	Yearbearer associations?
M. 86a	Deer		Rope around neck being held by deity figure	Yearbearer associations?

“statue” of the deity, according to Landa) in the upper and middle registers and the inauguration of the new year, accompanied by the new patron, in the lower register.¹³ On three of the four pages, what have been interpreted as human hearts are shown (Taube, 1988:237), placed in bowls as offerings (on D. 25c, 26b, and 27c; see Fig. 6.12). This correlates well with the practice mentioned by Landa of placing the victim’s heart on a plate, or between two platters, and offering it to the “idols” as part of the yearbearer ceremonies (Tozzer, 1941:143, and note 684).

Extracting a victim’s heart is also mentioned as a common practice by chroniclers of the Aztec and other central Mexican cultures, including Durán and Sahagún. With respect to the Late Postclassic data under review, we would like to call attention to Sahagún’s discussion of the Aztec celebration to commemorate the completion of the 52-year cycle formed by pairing the ritual calendar of 260 days and the solar calendar of 365 days.¹⁴ The Aztec ceremony has much in common with Maya yearbearer ceremonies, in that both involved extinguishing fires, discarding household objects, lighting a new fire and burning incense, and renewing clothing and household items (Sahagún, 1953:25–32; Tozzer, 1941:151–152). Moreover, they both included sacrificial rituals. Sahagún (1953:25–26) notes that, on the day that the 52-year cycle ended, priests drilled a new fire at midnight on the breast of a captive, who was then sacrificed by having his heart removed.

We believe that the almanac on M. 75–76 (Fig. 6.10) can be interpreted in light of this ritual practice – i.e., that the heart excision associated with the northern quadrant was performed as a ritual to commemorate the completion of the 52-year Calendar Round. According to our model, the remaining three quadrants of the almanac represent other stations of the Calendar Round, celebrated at 13-year intervals in conjunction with yearbearer rituals. Sacrificial scenes, associated with the north (heart extraction) and south (decapitation), alternate with others that emphasize bloodletting implements and maize. We interpret these scenes as signifying the giving of blood by humans to the gods in return for maize, the substance that sustains humans and out of which they are made (Tedlock, 1996). The almanac as a whole thus serves as a cosmogram uniting time and space within a model in which the universe must be renewed through bloodletting (discussed below) or human sacrifice at 13-year intervals. The central space, which depicts Itzamna and his female counterpart seated beneath what may be a stylized representation of the world tree, is the place of regeneration and renewal. Itzamna holds aloft three T503 glyphs signifying “wind,” “breath,” and “life.”¹⁵ It is within this sacred space, we believe, that creation began.

Another almanac which emphasizes the same themes occurs on D. 3a (Fig. 6.11b). It mirrors the structure of M. 75–76 with its emphasis on the four world directions plus the center. Other similarities include the scenes of victims lying across “altars” with their chests cut open, the alternating emphasis on sacrifice and maize (suggested in the Dresden almanac by the deities depicted), and the tree imagery at the center of both almanacs. On D. 3a, the death of the individual in the center frame is very clearly linked to ideas of regeneration and rebirth, as suggested by the tree growing from the victim’s chest. This recalls the similar emphasis on these themes in the central compartment of M. 75–76

(see Fig. 6.10). In the Dresden almanac, the maize god Nal (lower left) and the god of sustenance K'awil (upper right) alternate with the Postclassic versions of the Hero Twins – Hun Ahaw (upper left) and Yax B'alam (lower right). The former appears to have been decapitated, whereas the latter has his arms bound behind his back in the manner of a victim before sacrifice, as does the animal figure (a frog or an iguana) which appears in front of him. Three of the four deities pictured, therefore, can be related to the story of creation in the Popol Vuh.

A scene analogous to the upper section of D. 3a, which shows a vulture perched on a ceiba tree with a human eye in its beak, occurs in an almanac in the Madrid Codex (M. 91c) that was first identified by Aveni et al. (1995) as cognate to the Dresden almanac (Fig. 6.11c). The two almanacs begin with the same column of *tzolk'in* dates, and both include alternating frames referencing gods of sustenance and underworld/death deities. The Madrid almanac depicts the maize and flower(?) gods holding maize glyphs (referred to in the text as *x-i'inah* 'maize seeds'); behind them, bloodletters appear (Vail and Hernández, 2005, unpublished). This imagery is very similar to that in the eastern and western quadrants of M. 75–76 (Fig. 6.10), where it appears to represent the exchange of blood for maize. Between the two pictures on M. 91c, there is another frame, consisting of a hieroglyphic text but no picture. This refers to both the sun god and the death god Kimil. The Madrid scribe, for reasons that remain obscure today, did not include the final frame necessary to complete the almanac.

6.2.2. *Imagery Relating to Other Types of Sacrifice*

A number of other types of violent death, some of which may represent sacrifice, are portrayed in Late Postclassic painted media. Without the presence of soft tissue, they may be difficult, if not impossible, to detect in the archaeological record, but nevertheless, they should be borne in mind when confronting physical evidence suggestive of violent death.

Practices depicted include disemboweling, seen on D. 42c and P. 19; axing on M. 61c, described as *ch'akab'* in the text,¹⁶ hanging on D. 53b; drowning on M. 32b; and being mauled by a jaguar on P. 19 (see Table 6.3). The two examples of disemboweling both involve the maize god; the latter takes place in the context of yearbearer rituals. The hanging on D. 53b and drowning on M. 32b are both of interest in that they involve female protagonists, unlike the other examples discussed. The victim of the former scene is a woman (either a human or a goddess); it is not clear, however, whether this image represents a suicide or a death at another's hands. On M. 32b (Fig. 6.17), the female deity Chak Chel is depicted in her guise as world destroyer (see also D. 74 and Taube's [1988:143–150] discussion of this almanac). Floodwaters pour from her mouth and between her legs, and a dead individual falls in the deluge being released from her open mouth, presumably the victim of drowning.

There are also several scenes showing individuals associated with scaffolds (see Table 6.3). What their purpose was, and whether they were used in sacrificial

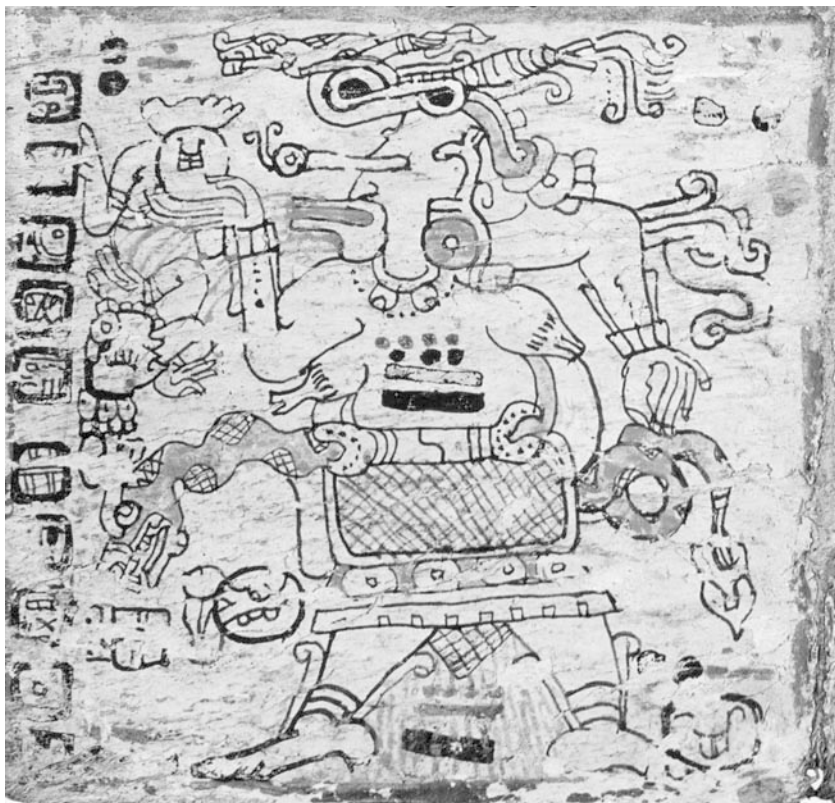


FIGURE 6.17. Chak Chel as destroyer on M. 32b, where water pours in a deluge from her lips and between her legs. Note the dead individual who is falling through the upper stream of water. After Anders, 1967. Reproduced courtesy of the Museo de América, Madrid

rituals, remains unclear. The example on M. 58b–59b is especially curious, as it shows deities both on top of and below the scaffolding device. The text is difficult to interpret but includes a verb based on the root *kim* “to die.” It may be a transitive, suggesting a reading such as “Individual A killed Individual B” (Vail and Hernández, 2005). This possibility remains to be further explored.

Finally, one of the bound captives in the Madrid Codex is shown poised over a cenote marked with crossed bones (Fig. 6.3a), suggesting that he will be (or has been) thrown into a cenote, much as Landa describes in relation to living victims (Tozzer, 1941:120–121). It is of interest here that he is painted red, which, as we discuss below, is the color reserved for sacrificial victims (usually those that are dead) and a specific class of deities with death/underworld associations.

6.2.3. *Substitutions for Human Sacrifice*

A number of almanacs, as we have seen, picture the sacrifice of animals instead of humans (see [Table 6.4](#)). Examples include the birds that are beheaded on D. 25–28, in the context of the Dresden yearbearer pages; the dog that is thrown onto a pyramid on D. 30a–31a, which can be compared to the similar scene on M. 35a involving a human victim; and the deer stretched over the altar on M. 42a with the sacrificial flint knife poised above its chest (see Pohl, 1981 for additional examples of prehispanic sacrificial rituals involving deer). Landa (Tozzer, 1941:114) discusses animal sacrifice, noting that “From some animals they tore out the heart and offered it. Other animals they presented whole, some living and some dead, some raw and some cooked, and they also made large offerings of bread and wine and of all kinds of food and drinks which they used.”

It may be possible to distinguish the remains of animals in the archaeological record that were sacrificed, as opposed to those that were killed in a more profane setting, as they will typically occur in nondomestic contexts (e.g., they may be present in burials or ritual deposits, rather than in middens associated with household refuse). This is a subject for further exploration by archaeologists and bioarchaeologists working in the Maya area.

Other types of sacrifice that do not involve the taking of human lives include bloodletting. Landa (Tozzer, 1941:113–114) notes that penitents sometimes pierced their cheeks, their ears, their genitals, or their lower lips; they also drew straw through holes made in their tongues. According to him, only men engaged in bloodletting rituals, although this statement is contradicted by data from the codices ([Fig. 6.18a](#)). Landa also describes a ritual in which the participants (all male)

gathered in the temple whereafter they were placed in a row. Holes were made in the virile member of each one obliquely from side to side and through the holes which they had thus made, they passed the greatest quantity of thread that they could, and all of them being thus fastened and strung together, they anointed the idol with the blood which flowed from all these parts. [Tozzer, 1941:114]

Letting blood from the ears and genitals is depicted in the Madrid Codex ([Fig. 6.18](#)), as is the rope ceremony mentioned by Landa ([Fig. 6.19](#)). We discuss this ceremony in detail in our forthcoming commentary of the Madrid Codex (Vail and Hernández, unpublished).

Texts such as the Popol Vuh, as well as contemporary Maya ritual practices, provide a means for placing nonhuman sacrifice in context. Following Landa, Tozzer (1941:141–142, note 670) describes the types of substitutions (e.g., of incense or maize dough for human hearts or of animals for humans) that were at times acceptable to the gods. McGee (1990:85) notes that, among the contemporary Lacandón, a red dye (*k'uxu*), or annatto (*Bixa orellama* L.), is used in many of the contexts in which the prehispanic Maya used blood, including the anointing of ceremonial objects and ritual participants. The Lacandón also believe that ritual foods made from maize represent the flesh of humans. This belief reflects that seen in the Popol Vuh, as well as in prehispanic sources (Vail, 2005).

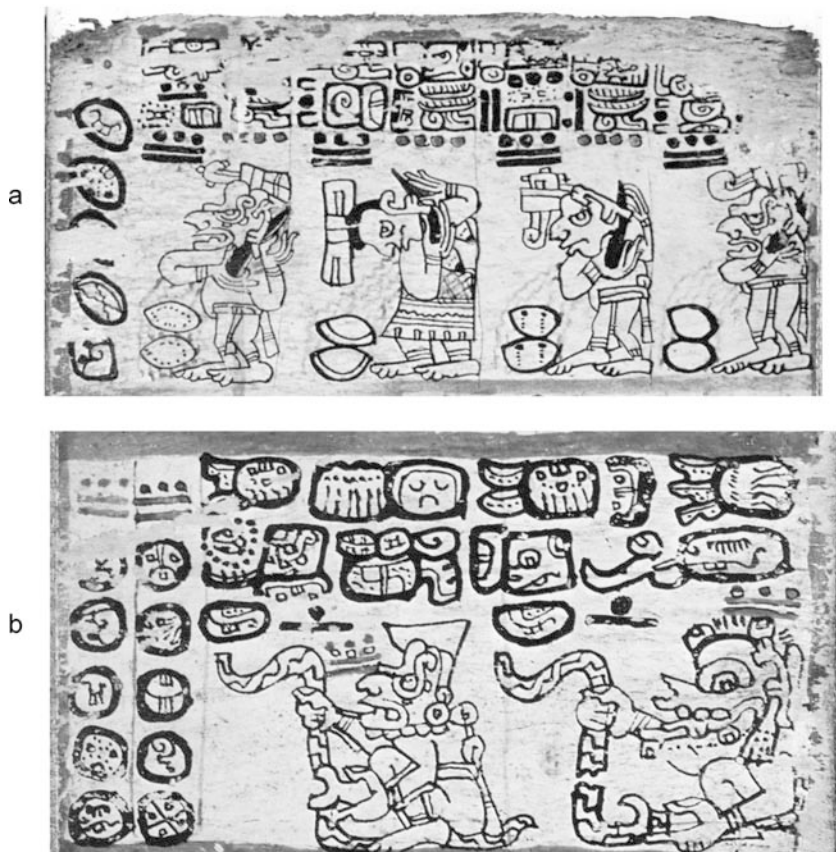


FIGURE 6.18. Bloodletting from the ears on (a) M. 95a and from the penis on (b) M. 82b. The figure in the second frame of M. 95a is a female. After Anders, 1967. Reproduced courtesy of the Museo de América, Madrid

The Popol Vuh also tells of the substitution of a heart made from the red sap of the croton tree for the heart of Lady Blood, who was condemned to death by the lords of Xibalba (Christenson, 2003:132–133).¹⁷

6.2.4. *Trophy Skulls and Body Parts as Offerings*

Human body parts, presumably from those who died in violent ways, occur in contexts suggesting that they were used as trophies or as elements in rituals. Examples include skulls being worn around the neck or carried on the back (e.g., on M. 52a, 52b, 79a); femurs that may represent offerings (e.g., on D. 28b, M. 105b); and the presentation of what may be human hearts to “statues” of deities (e.g., on D. 25c, 26b, 27c). Other examples can be found in [Table 6.3](#).

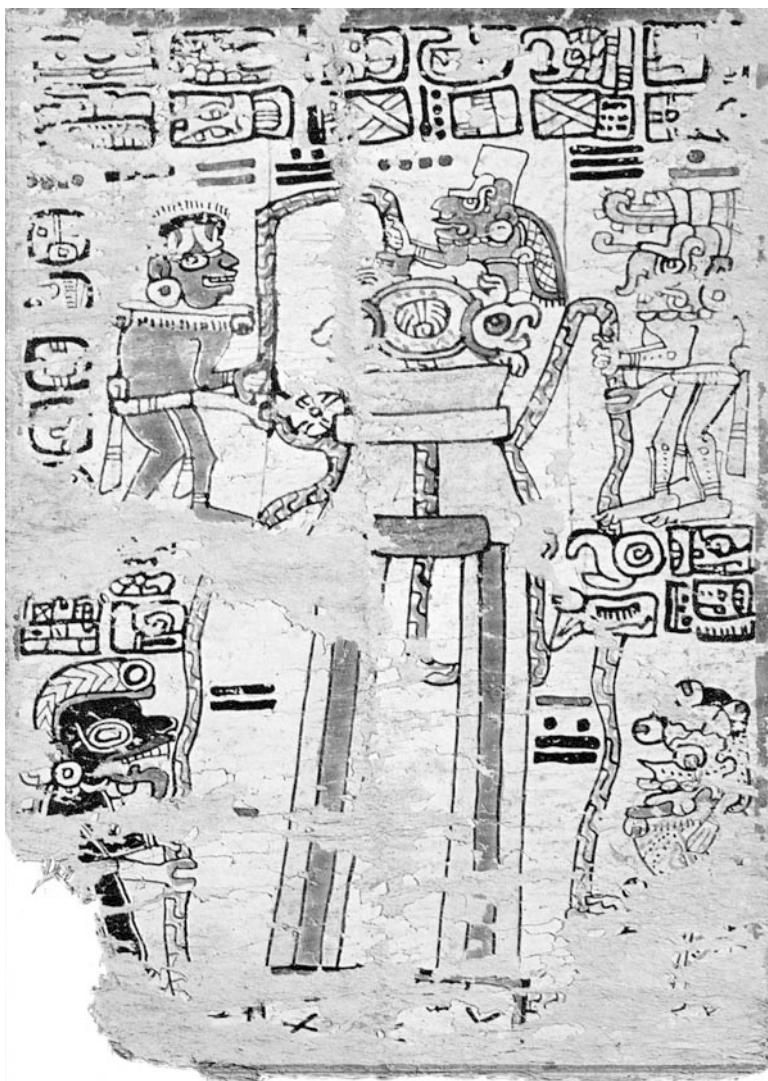


FIGURE 6.19. Rope ceremony described by Landa on M. 19b. After Anders, 1967. Reproduced courtesy of the Museo de América, Madrid

It is important to point out that there are a number of other representations of skulls (portrayed glyphically as either T736 or T1047) that are not meant to signify skulls as actual physical objects, but rather are used symbolically to indicate that the prophecy for a certain period of time involved death (e.g., on M. 93d–94d, where the “skulls” alternate with T506 glyphs representing maize or tortillas). For this reason, depictions of skulls in the codices must be evaluated on a case-by-case basis to determine their frame of reference.

6.2.5. *Treatment of the Body after Death*

Landa notes that sacrificial victims were sometimes flayed and their skins worn by priests, in a ritual similar to that associated with Xipe Totec festivals in central Mexico. Data reported by several of the authors in this volume confirm this practice in the Maya area. The body was usually buried in the temple courtyard, although Landa also mentions that cannibalism was sometimes practiced. The bones of slaves captured in war were kept as trophies for dances and other celebrations of victory (Tozzer, 1941:119–120).

Various individuals in the codices are depicted with a closed or *kimi* eye, signifying death (see, e.g., M. 93a, 94a, 94b). These figures are accorded no special treatment.¹⁸ Additionally, there are five examples of figures who are wrapped for burial (called “mummy bundles” in the literature) – one on M. 71a, who is shown head downward in front of K’inich Ahaw, and four on M. 101a–102a (Fig. 6.20), who are depicted in a seated posture and appear in front of a series of deities in thatched structures. In the first frame on M. 101a, the deity holds a maize or tortilla offering in his hand.

The practice of wrapping bodies in a woven shroud is a common one in the Maya area (V. Bricker and Bill, 1994, citing Welsh, 1988); Welsh notes that bodies treated in such ways may be flexed or extended, seated, prone or supine, or lying on their side. Burial customs varied by site and region, temporally, and also in terms of the age, sex, and social status of the deceased (Welsh, 1988). Slain captives, as we have seen, were generally accorded very different treatment from other deceased individuals.

Previous researchers have proposed that the figures bound for burial in the Madrid Codex are sacrificial victims who have been decapitated (Bricker and Bill, 1994). This is suggested by the calendrical associations of the almanacs that depict these events, but it remains conjectural in the absence of other evidence. We have seen that the skulls of decapitated victims were sometimes separated from the bodies and kept as trophies, as discussed by Landa and documented by various scenes from the codices (see previous discussion).

Another practice depicted in the codices involves vultures tearing the eyes from (presumably dead) victims. This may be seen on D. 3a, M. 86a, M. 87a, and possibly on M. 91c (see Figs. 6.2 and 6.11b,c).



FIGURE 6.20. Mummy bundles on M. 101a–102a, being attended by deities seated in thatched structures. After Anders, 1967. Reproduced courtesy of the Museo de América, Madrid

6.2.6. *Coloration*

Although Landa mentions the painting of sacrificial victims with a blue paint (Tozzer, 1941:117, 119), the data from the codices suggest that red was more commonly associated with captives and sacrificial victims (seen, for example, on M. 54b, 66a, 72b, 75–76). The same color is also used with the sun god, an opossum Mam, and God A' on several occasions, suggesting the possibility of underworld and/or yearbearer associations. The latter possibility is supported by Landa, who notes that, on New Year's day, the men congregated in the temple courtyard "clean and ornamented with their red ointment, after having cleaned themselves of the black soot with which they had covered themselves when they fasted" (Tozzer, 1941:152).

Among the contemporary Lacandón, ritual objects are painted with a red dye as a substitute for blood (McGee, 1990:85). Additionally, Eberl (2005) notes that skeletons may be covered with a red pigment, applied several years after death. Red paint in the codices, nevertheless, appears to have the strongest correlation with figures having yearbearer (New Year's) associations.

Black paint, according to ethnohistoric sources, was worn by warriors, young men before marriage, and also by those fasting (Tozzer, 1941:89, note 378; 122, note 560; 152). The fact that a number of victims and aggressors in the Late Postclassic sources wear black body paint makes sense given the association of this color with warfare. Blue was associated with various ritual occasions and seems to have been used to purify specific objects (Tozzer, 1941:153–159), including prisoners prior to sacrifice (Tozzer, 1941:117–119). Although a number of individuals are painted blue in the codices, it is rarely, if ever, used with a captive or sacrificial victim. Rather, it appears to signify rain, water, fertility, and abundance (Vail and Hernández, unpublished; see also Carlson, 1993:221–224).

6.3. Analysis of Late Postclassic Sources Relating to Sacrifice

Data from the Late Postclassic Maya codices and murals provide a context for interpreting some of the patterning seen in the skeletal remains from sites discussed by the authors of this volume. For example, two of the methods of sacrifice mentioned in other chapters include decapitation and heart extraction. Physical evidence of decapitation may be present in certain instances (see Cucina and Tiesler, Chap. 1 in this volume); additionally, archaeologists sometimes encounter burials that include skulls but lack postcranial remains, or burials with multiple skulls. Patterning such as this can be best explained in light of data from pictorial and mythic sources.

Our interpretation of the Late Postclassic data suggests that sacrificial acts can be linked very explicitly to calendrical cycles, including period endings based on either the Long Count or *haab'* calendars and specific stations of Venus. One of the purposes of recording almanacs and astronomical tables in the codices was to

provide a means of scheduling these rituals. Knowing when they would occur allowed the formation of raiding parties to capture prisoners for sacrifice. Several of the almanacs in the Madrid Codex may portray the results of such raids (e.g., M. 79a, 80a, 85a–86a, and 87a–88a).

If skeletal remains recovered in archaeological contexts were victims sacrificed in association with particular rituals, we would expect to find evidence suggestive of which rituals had been performed. The yearbearer rituals, for instance, were associated with particular deities – Kawak years with the death god Kimil, K'an years with Chaak and K'awil, Muluk years with the sun god K'inich Ahaw, and Ix years with Itzamna (see [Table 6.2](#)). Other deities associated with the yearbearer rituals include the Pawahtuns and their counterparts the Mams. Representations of any of these deities, in the context of a burial that appears to be a sacrificial victim, allow the possibility of determining a potential context for the sacrifice.

Other period-ending rituals, occurring at intervals of *tuns* and *k'atuns*, also appear to have featured sacrifice as a means of propitiating the gods and ensuring the cycle of rebirth and regeneration (see, e.g., the Santa Rita murals). These sacrifices have crucial links to the cosmology expressed in the Popol Vuh and related creation myths. Deities who may have been invoked include the Hero Twins (Hun Ahaw and Yax B'alam) and the maize god. The principal method of sacrifice associated with these rituals appears to be decapitation.

Venus warfare provides another possible context for sacrificial events. With this in mind, it might prove instructive to examine the archaeological literature for reports of sacrificial victims that are associated with structures or artifacts containing references to Venus or to Venus deities, as this might afford a possible motive for their sacrifice.

Landa's discussion suggests that sacrificial rituals took place in public places (such as the temple courtyard), and that victims of public sacrifice were often buried near the place where they were killed (Tozzer, 1941:118–120). Most of the pictorial representations of sacrifice or of captives that we examined lack information that would allow them to be placed in a specific location. However, several of the scenes stand out in portraying sacrifices associated with pyramidal structures (M. 35a, D. 30a, D. 34a; [Figs. 6.9 and 6.16](#)) or with altars (M. 42a, M. 75–76; [Fig. 6.10](#)). Others show sacrificial rituals in the context of ceiba trees (e.g., D. 3a, M. 91c; [Fig. 6.11b,c](#)). Only one sacrificial scene in the codices, that on M. 66a ([Fig. 6.3a](#)), is specifically linked to caves or cenotes. This seems surprising in light of the number of sacrificial victims recovered by divers in the Sacred Cenote at Chichén and analyzed in [Chap. 8](#). However, the ultimate disposition of most of the sacrificial victims in the codices and murals is not specified, making it difficult to provide any evidence about burial practices and deposition of human remains beyond that noted by Landa and other colonial sources.

Given the available data, it has not been possible to provide estimates of the age or social status of sacrificial victims depicted in the Maya codices and Late Postclassic murals. It is of interest that females play a very minor role in sacrificial scenes. Only one female represents a possible captive (on M. 89a), one is depicted as an aggressor/executioner (Chak Chel on M. 32b), and one occurs as

a possible victim of sacrifice (on D. 53b). In contrast to expectations based on Landa, females are portrayed on two separate occasions engaged in autosacrifice (on M. 40c and M. 95a). From the Late Postclassic data, it therefore appears that males represent the captors/aggressors and sacrificial victims almost exclusively. This is in contrast not only to statements made in colonial accounts, but also to the physical evidence, as discussed in this volume. The skeletal sample analyzed by Anda from the Sacred Cenote at Chichén Itzá, for example, included the remains of 43 children and subadults, 23 adult males, and 12 adult females (see Anda in this volume).¹⁹ It is also of interest that some deities appear only in the guise of captor/aggressor (e.g., Kimil, Kisin, God L/Z, Chak Chel), whereas others are depicted only as victims (including the maize god and the flower god). Certain deities, on the other hand, are sometimes pictured as the aggressor and at other times as the victims (e.g., God M and the sun god). The Popol Vuh provides a rationale for some of this patterning. The idea of death on an annual basis, as Taube (1992:44) notes, can be compared to the harvesting of the maize, or to the death of the Hero Twins in Xibalba. Only with the spring do we see new growth, signaling the continuation of the cycle of life.

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Endnotes

1. Boone and Smith (2003) draw upon Robertson's (1959, 1970) notion of an "International" art style and Nicholson's (1960, 1982) definition of the widespread "Mixteca-Puebla" style in their own conception of a "Postclassic International" art style that appears on objects from sites across the central and southern regions of Mexico as well as from areas of northern Yucatán and Guatemala. Boone and Smith (2003:188) conceive of the Mixteca-Puebla style of Postclassic period murals, extant manuscripts, and elite polychrome pottery as a subcategory of a broader pan-Mesoamerican "International" art style. By the Late Postclassic period (AD 1200–1520), the "International" style became an increasingly popular means of communicating among elites precisely because it transcended ethnic, linguistic, and political boundaries. Some of its defining elements include: space that is divided into registers, which is most often filled with anthropomorphic or zoomorphic figures without additional background, forms that are rendered as flat and with geometric precision, strong black outlines, vivid coloration, figure proportions that are squat with important parts enlarged, figures positioned with important parts exposed to their fullest, and figures that float in space or are tied to a line along the bottom of the register (Boone and Smith, 2003:187–188).
2. A *k'atun* consists of 20 *tuns*, or periods of 360 days. The Maya Long Count calendar was focused on the completion of five periods of time – the *k'in* or day, the *winal* (20 *k'ins*), the *tun* (18 *winals*), the *k'atun* (20 *tuns*), and the *b'ak'tun* (20 *k'atuns*).
3. The *haab'* was divided into 18 months of 20 days, followed by a 5-day period at the end of the year known as *Wayeb'*. Rituals to commemorate the end of 1 year and the start of the next were concentrated in *Wayeb'* and the first days of *Pop*.
4. The majority of the figures in the Maya codices represent deities, rather than human actors. (A list of the deities discussed in this chapter is found in [Table 6.2](#).) This, we

believe, is because the codical deities served as role models used by Maya daykeepers and priests in determining when specific ritual actions requiring human participants should be performed.

5. Note that the image is “read” from right to left, rather than from left to right as is more common with Maya art. The style of the painting and many of the conventions used reflect the Mixteca-Puebla style discussed above, although the dates and glyphs recorded are clearly Maya. Additionally, some of the figures portrayed represent Maya deities, whereas others are more similar to figures depicted in the Mixteca-Puebla codices.
6. Although the Popol Vuh was recorded in alphabetic form during the sixteenth century in the K’iche’ area of the Maya highlands, its mythology was much older and was not restricted to the highland region but rather has been documented across much of Mesoamerica (Coe, 1973, 1989a; Freidel et al., 1993; Schele, 1992; Taube, 1992). A recent discovery from the Late Preclassic site of San Bartolo in the Petén suggests that the stories recorded in the Popol Vuh were present in the Maya area by the first century BC, if not before (Saturno et al., 2005).
7. The following abbreviations are used in the text and tables: D. for the Dresden Codex, in reference to a particular page or almanac; G. for the Grolier Codex; M. for the Madrid Codex; and P. for the Paris Codex.
8. The reading of the axe glyph (T190) as *ch’ak* was first proposed by Orejel (1990).
9. What may appear to the untrained eye as other examples of decapitated heads are T1016c glyphs, or the head of God C (see, e.g., M. 60b–61b, M. 96c). However, as various scholars have shown (e.g., Ringle, 1988; Taube, 1992), they represent deity images or “idols,” rather than decapitated heads. This follows from the fact that T1016c is read as *k’uh*, meaning “god” or “sacred.” In two separate almanacs in the Madrid Codex, on M. 99b–100b and 109b–110b, these deity images are depicted as being buried beneath the earth. This appears to be cognate with the Lacandón practice of depositing god pots from the previous year beneath a cliff once replacements had been made (Tozzer, 1907:146–147).
10. We read the glyphic phrase as *ch’ak-b’a pa-tu-chi hun-ahaw ah-kimi-la*, or *ch’akab’ tu pach [kab’] hun ahaw ah kimil. pach [kab’]* refers to the nape of one’s neck (V. Bricker et al., 1998:204), and *ch’akab’* is the passive form of the verb “to chop” (Barrera et al., 1980:122).
11. The Grolier Codex also shows, as Carlson (1983:40) notes, “what few would dispute as characteristic Mesoamerican Venus iconography.” This includes depictions of deities armed with spears. What is interesting about the Grolier Venus almanac, in contrast to the Dresden Venus table, is that all of the deities depicted (associated with the four stations of the planet – first appearance as Morning Star, superior conjunction, first appearance as Evening Star, and inferior conjunction) are shown as warriors.
12. Each of the four named years was associated with particular deities, colors, and directions. Kawak years were linked to death (Kimil), black, and the west; K’an years to sustenance (K’awil), yellow, and the south; Muluk years to the sun (K’inich Ahaw), red, and the east; and Ix years to the creator (Itzamna), white, and the north.
13. The year patrons depicted relate quite closely to those discussed by Landa (Tozzer, 1941:139–149) – K’awil, an aspect of Landa’s B’olon Tz’akab’, associated with the south; the sun god (and his jaguar counterpart) with the east; Itzamna and the maize god with the north; and the death god Kimil and related deities with the west.
14. Mayanists refer to this 52-year-period as the Calendar Round.
15. The T503 glyph in other contexts substitutes for T506, which is used in the codices to signify maize tortillas (*wah*), as well as the maize seed. On M. 75–76, it may refer to

the maize out of which humans were formed in the story of creation related in the Popol Vuh (Christenson, 2003:194–195; Tedlock, 1996:145–146).

16. All other examples involving axes appear to be associated with decapitation, except for two on M. 54a and 55a that show dog-like anthropomorphs being gouged in their backs with axes (see [Table 6.4](#)).
17. Incense and blood are related semantically in Yucatec Maya; *k'ik'* means 'rubber incense', and it is also the root of the word for blood (McGee, 1990:91).
18. When the maize god is so depicted (see, e.g., M. 25c, 37b), the assumption is that this represents the death of the maize crop. This method is commonly used to graphically signify the prophecy (i.e., a poor maize crop) for the time period in question.
19. It is unclear, however, how many of the Chichén victims date to the prehispanic, as opposed to the historic, period, and of these, how many can be related to the Late Postclassic rather than earlier times.

7

Skeletons, Skulls, and Bones in the Art of Chichén Itzá

VIRGINIA E. MILLER

7.1. Introduction

It now seems nearly impossible to believe that for many years the prevailing view of the ancient Maya was that they were an essentially peaceful people lacking a propensity for warfare and human sacrifice. Over the last three decades a different picture of the Classic Maya in particular has emerged, one in which violent death was not uncommon and was often the result of sacrifice. This new image has been bolstered in part by the rapid decipherment of Maya hieroglyphic texts, archaeological discoveries including human remains, the re-examination of bones excavated years ago, and the reevaluation of Maya iconography. One of the reasons for downplaying human sacrifice among the Classic Maya is the relative dearth of death and sacrificial imagery in monumental art, particularly sculpture. Finally, it was not until the 1970s, when publications featuring large numbers of illustrations of looted Maya polychrome vessels began to appear, that it became apparent that skeletal figures, body parts, and blood were prominent motifs on pots, if not in monumental sculpture.

In the southern area, monumental art focuses less on the dead and the underworld than on the living (and occasionally ancestors portrayed as if still alive). At most, Maya stelae and lintels depict those who are about to die, particularly captives taken in battle, but do not display the victim's death or the *post-mortem* treatment of the remains.¹ Skulls and bones occasionally occur as headdress and costume elements, but are otherwise largely absent from Classic Maya monumental art. Even during the years of the Maya collapse, when warfare was endemic in parts of the southern lowlands, the stela does not abandon the ruler portrait as its main theme.

Northern Maya sculpture, however, was always distinctive and during the Terminal Classic and Early Postclassic in particular diverged considerably from the southern stela format. Stylistic and iconographic idiosyncrasies develop, such as the division of the stela surface into registers and a new emphasis on pairs or groups of figures of equal rank rather than a single leader. Indeed the stela format itself is nearly abandoned in many places, replaced by interior and exterior walls,

door jambs, and lintels as the primary surfaces for writing and imagery. It is at Chichén Itzá in particular that these changes are most evident, and where writing declines as the principal mode of communication, particularly at the core of the site where the greatest amount of representational art is concentrated.

A minor motif in Classic Maya monumental art, at this time skeletal imagery becomes common in the northern area. At Chichén Itzá, decapitated heads, skulls, skeletons, and partially skeletal or skull-masked figures are depicted in all media, from jade to wall painting. There are two main contexts in which skull and bone imagery occur: captive and sacrificial activities and portrayals of supernaturals or deity impersonators. Additionally, human bone itself was fashioned into ritual objects – a practice with a long history in Mesoamerica – and even incorporated into the site’s architecture. While some of the skull-and-bone imagery and curated bones may be related to funerary activities and ancestor veneration, much of it was symbolic of successful warfare and subsequent human sacrifice.

7.2. Osteological Material at Chichén Itzá

Although an impressive tomb on the scale of Pakal’s at Palenque is yet to be found at Chichén Itzá, and little data exist on burials in domestic contexts either, there is considerable osteological material at the site. In addition to the well-known remains from the Cenote of Sacrifice, whole skeletons, headless skeletons, skulls, and individual bones such as jaws and long bones have been found in a wide variety of contexts ranging from individual interments to group burials to caches (Bennett, 1994; Fernández, 2002). Many of these remains are probably sacrifices, but physical evidence, such as cut marks indicating decapitation, cannot be established with certainty for any of these examples. Nevertheless, the ages and gender of the dead and in some cases the contexts point to death by unnatural causes. Males and children were the principal victims (Beck and Sievert, 2005:291; Tiesler, 2005:356). The contexts include the Cenote of Sacrifice, the *tzompantli* and nearby *sacbe*, caches in the Nunnery, Caracol, Osario, and related structures including the Cenote of Xtoloc Temple, the Castillo, and a small cave in which the remains of nearly 100 small children were found (Fernández, 2002).

The depositions in the Cenote of Sacrifice are too well known to be discussed again here in detail, and in any case may not always have involved the sacrifice of living victims as has commonly been assumed (see Anda in this volume). What distinguishes the Cenote from burials and caches, of course, is the long period of time during which it served as a repository for sacrificial and other offerings, and the great variety of materials that were found co-mingled with human remains. These ranges from objects of valuable materials, exquisite workmanship, or ritual importance – jade, gold, obsidian, ceramics, carved wood and shell, cloth, copal, and rubber – to the mundane or merely puzzling: baskets, flaked chert implements, wooden tools, seafans and shark teeth, animal and bird bones (Coggins, 1992; Coggins and Shane, 1984). Knives, one with two intertwined

serpents carved in wood as a handle and others with gold-covered handles, may have been broken and tossed into the Cenote on completion of the sacrifice; one was found to have copal and red pigment along its edges (Coggins and Shane, 1984:51).

The fluid environment of the Cenote and the difficulties in dredging it without disturbing the original location of the contents have made it impossible to determine the relationship of human remains to other types of offerings. But the rich variety of materials preserved there hint at complex multisensory performances that must have occurred when living or dead victims were brought to its edge for their final disposition in its depths.

Secondary burials, probably sacrificial, are known from several complexes in the southern part of Chichén Itzá. At least three caches containing human remains, all quite different, were excavated at the Caracol. Bones of children and young adults were scattered throughout the fill behind the stairway of the lower platform, along with nearly 6,000 conch shell beads, a handful of greenstone beads, and a shattered sandstone disk (Ruppert, 1935:35–36, Fig. 37).² On the west side of the upper platform, however, a different pattern emerged. Two *ollas* containing cremated human remains were found a few centimeters below the floor, without offerings, while the bones of at least 24 men, women, and children were placed between the outer platform and the masonry block dividing the upper portion of the stairway (Ruppert, 1935:119, 124). Fourteen of the crania had been arranged in rows, with a scattering of other bones as well as a deer jaw and vertebrae and sherds of a single incense burner (Ruppert, 1935:120–123).

Finally, in the dirt fill of the niche dividing the upper platform stairway, where a broken panel with inscriptions and a carved circular stone were found, fragments of human bone were scattered (Ruppert, 1935:140). A few sherds, pieces of two obsidian blades, and more than 90 greenstone beads were associated with the bones. While these offerings were found in different building phases of the Caracol, the time period between each phase is unknown. Inscribed stones from the building, mostly fragmentary, bear dates ranging from AD 877 to 909 (the latter being the last date on the panel found in the niche) (Grube et al., 2003; Ringle et al., 1998: Table 2).

The Nunnery area was also the site of secondary burials. In late terrace fill north of the Northeast terrace, along the center line of the North Building, human bones and at least 40 skulls were deposited in a small vaulted room (Bolles, 1977:45, 187). Seven ceramic objects, including a plate with a child's skull, were included in the offering (Bolles, 1977:44–45). Another chamber cut into the east stairs of the Nunnery ballcourt contained a few sherds of a redware plate and some hand bones (Bolles, 1977:45). While the Nunnery's hieroglyphic lintels and a radiocarbon date place the construction of the complex within the last two decades of the ninth century (Ringle et al., 1998: Tables 1 and 2), the building sequence of the various structures and patios forming the Nunnery complex has not been established, nor has its function been determined, although it was probably not residential as some have suggested.

Excavations conducted by E. H. Thompson in the Osario and surrounding structures uncovered human remains, but his notoriously unscientific field methods left future archaeologists with an incomplete picture of the nature of the burials (Thompson, 1938). More recent work has led to the discovery of more remains. Seven individuals were found within the shaft leading down to and in the cave beneath the Osario as well as two children in the structure's eastern stairway (Thompson, 1938; Bennett, 1994). The shaft and cavern contained a wide variety of objects, including copper bells, crystal and turquoise beads, jade ornaments, ceramics, and a broken stone figure (Thompson, 1938).

Structure 3C4 (Platform of the Tombs) held two tombs containing 12 individuals, half of them children, which were probably secondary burials of elite persons (Fernández, 2002:1, 1999; Schmidt, 2000:41). Structure 3C3, the Venus Platform, contained a single skull and the bones of several children, while a child's long bone was the lone offering in Structure 3C3 (Round Platform) (Bennett, 1994; Fernández, 2001:182, 1). Excavations along sacbe 15 leading to Cenote Xtoloc uncovered a female and a male burial, the latter a body without a skull, while a cache in front of the Temple of the Cenote Xtoloc contained the remains of a child (Fernández, 2002:2, Morris, 1931:164). With the exception of the Osario, none of these are reported to contain offerings.

Fewer burials have been found on the Great Terrace. Below the north stair of the Castillo, archaeologists discovered a male skeleton accompanied by a cylindrical stone vessel containing wooden disks encrusted with turquoise, coral, and shell, two large flint blades, 2,000 turquoise beads, and a number of jade objects (Anonymous, 1937:113; Schmidt et al., 1998: Fig. 262). The quality of the offerings, and the fact that a single individual was placed as an offering to the structure, suggests that he was of particular importance and may not necessarily have been sacrificed, although his position beneath the stairs is not consistent with elite burials elsewhere in the Maya area. One of the few radiocarbon dates from Chichén comes from a Castillo lintel, and places the building at the very end of the ninth century, when the Great Terrace and its buildings became the site's center (Ringle et al., 1998: Table 1; Cobos, 2001:186).

With the exception of the Cenote, the cave, and the sacbe finds, the deposits discussed above, and those within the *tzompantli* (see below), seem to be dedicatory offerings associated with building or rebuilding campaigns. At this point it is impossible to determine how and where the bodies were obtained, or who the victims were, but in most cases it seems likely that their deaths were not through natural causes. Given the military iconography prevalent at Chichén, as well as colonial accounts of Itzá military prowess, many must have been obtained through warfare, either taken on the battlefield or enslaved afterward.

7.3. Images of Trophy Heads and Skulls

Monumental art in the southern lowlands depicting victors and vanquished focuses on the humiliation of the captive rather than his death, which may, however, be mentioned in the accompanying text. In the north, in contrast, it is the *act*

of sacrifice and the subsequent display of trophy heads that command attention. In the art of Chichén Itzá, both captors and captives are shown mostly in groups rather than pairs, and are depersonalized, neither one bearing personal or place names. Even scenes of heart excision, while graphic, are presented in a standardized, static way. Decapitation, on the other hand, is never shown, but only its aftermath: warriors and ballplayers carry heads by the hair, while skulls are frequently represented, particularly in conjunction with the ballgame (Figs. 7.1 and 7.2).³

The six Great Ballcourt reliefs depict a kneeling player whose severed arteries turn into serpents, while another player opposite carries the victim's head. Between them is a large ball containing a human skull, marked by a crest of hair running from back to front and alternating with death eyes (Fig. 7.2).⁴

The same theme is repeated on other ballcourt reliefs, such as the Nunnery's ballcourt (and possibly on the eroded Casa Colorado ballcourt reliefs), as well as on the so-called Great Ballcourt Stone, where the victim stands instead of kneeling (Fig. 7.3). The inscription on this stone makes reference to both a skull and a ballcourt, but the text cannot yet be read (Krochock, 1998:58, Grube et al., 2003:II-39). Even the date is not certain, but if it is 10.1.15.3.7 (AD 864) as suggested, it would definitively place the ballplaying/sacrificial theme within the last half of the ninth century. Other inscriptions may link ballplaying and ballcourts with decapitation and fire rituals, although the relationship between these activities remains obscure (Grube, 1994:333–334; Grube et al., 2003:II-48, II-66; Plank, 2004:166). A human skull was transformed into an incense burner before ending up in the Sacred Cenote, thereby also combining rituals of possible sacrifice, fire and water (Coggin and Shane, 1984: cat. no. 199).

The most striking example of skull imagery is, of course, the reliefs on the T-shaped *tzompantli*, conveniently located next to the Great Ballcourt. This pairing



FIGURE 7.1. Chichén Itzá, relief of figure carrying head, *tzompantli* (photo by author)



FIGURE 7.2. Chichén Itzá, Great Ballcourt reliefs, detail of skull from southwest panel. Rubbing courtesy of Merle Greene Robertson

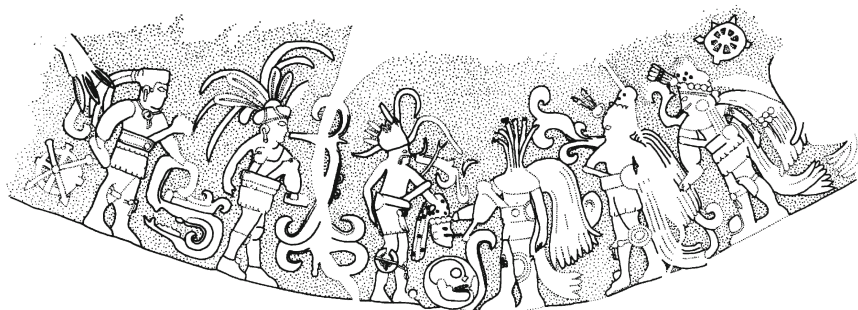


FIGURE 7.3. Chichén Itzá, detail of Great Ballcourt Stone, drawing by Peggy Diggs and Ruth Krochock (after Wren, 1991: Fig. 5)

of the two structures may represent the earliest example of this combination, which also occurs at Tula and Tenochtitlan.⁵ On the Chichén skull rack, approximately 2,400 skulls are displayed in profile and strung vertically on poles (in contrast to the Mexica custom of piercing them horizontally) (Fig. 7.4). Among the objects deposited within the *tzompantli* were two skulls accompanied by burned jade and a broken pyrite disk (Acosta, 1954:38; Salazar, 1952:39). Many jaws and skulls, some burned, as well as burned arrowheads and other materials were found



FIGURE 7.4. Chichén Itzá, *tzompantli*, detail showing skulls in relief (photo by author)

near *sacbe* 1 and may have originally been associated with the skull rack (Bennett, 1994; Pérez de Heredia, 1998:276). Although mandibles and ceramics were found on the *tzompantli* stairway, the relative dearth of crania within the platform itself suggests that if skulls were displayed there, they were subsequently removed, perhaps for ritual deposit elsewhere.⁶ Writing about highland Guatemala Maya, Las Casas (1967:221) noted that before being buried, the heads of sacrificial victims were displayed for a time on poles atop structures dedicated solely to this function. The number of mandibles found along the *sacbe* suggests that poles for skull display may also have been set up along it (Bennett, 1994).

Low platforms displaying skull and bone imagery are known from Uxmal, Nohpat, and Dzibilchaltún, although their function is not known. Four such structures at Uxmal are decorated with frontal skulls alternating with crossbones and the “death eye” motif (Fig. 7.5). The skulls still have their hair, a reminder of the Aztec practice of displaying the heads of sacrificial victims defleshed but retaining hair – represented as a crest, but when shown in frontal view, it runs from ear to ear rather than forehead to back. The cloth earpieces are a trait of captives and others who have let blood. Nikolai Grube (2003: Fig. 26) has recently read two of the glyphs here as a “star war” event at an unknown toponym, possibly a place in northern Campeche (Fig. 7.5a, panel E). It is unfortunate that no date can be recovered from these texts, some of which are very eroded, but they do make explicit the connection between warfare and beheading in a way that is *not* evident at Chichén Itzá. It should also be noted that three-dimensional stone skulls decorate numerous other types of structures in the northern Maya lowlands, including the Great Pyramid at Uxmal, Kabah’s Structure of the Red Hands (Schmidt et al., 1998:cat. no. 372), and a palace-type building at Nacuché (Hermann, 1993: Fig. 133). Whether these stone skulls replicate those of sacrificial victims or mark a burial place is unknown, however. Skulls adorn the façade

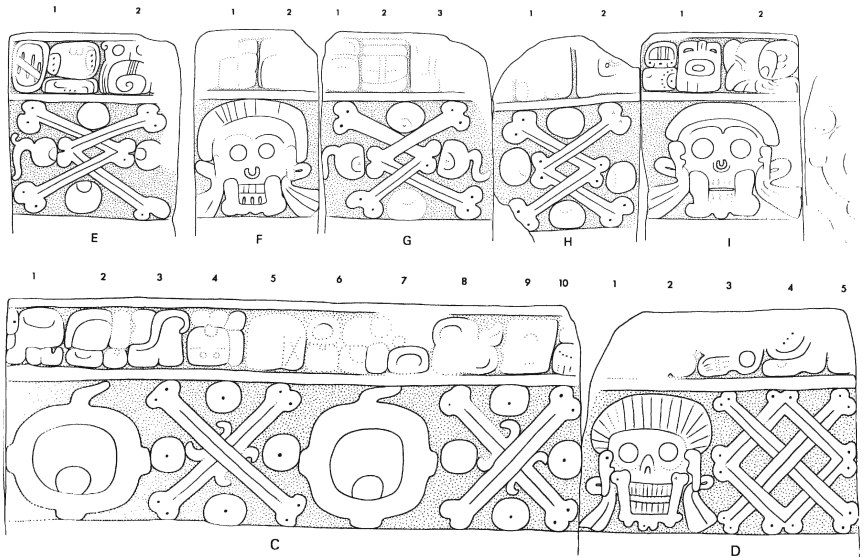


FIGURE 7.5. Uxmal, Cementerio Group, drawings of reliefs (after Graham, 1992:122, 127, reproduced courtesy of the President and Fellows of Harvard College.) (a) Monument 1 panels E to I (b) Monument 3, panels C and D

of Copán's Structure 10L-16, the final shrine dedicated to the site's founder buried deep beneath it, for example (Fash, 1991:170).⁷

A final example of Chichén skull imagery comes from a carved spherical jade bead found among the many deposited in the Cenote (Coggins and Shane, 1984:cat. no. 41) (Fig. 7.6). It depicts a reclining or flying human figure, knife in hand, behind whom is suspended a skull. The entwined elements around the skull, reminiscent of those encircling the stone rings of the Great Ballcourt (Coggins and Shane, 1984:60), represent either human viscera or a string of eyeballs.

Although organs and severed body parts apart from the head are rarely depicted in monumental Maya art, they occasionally appear in polychrome ceramics, often

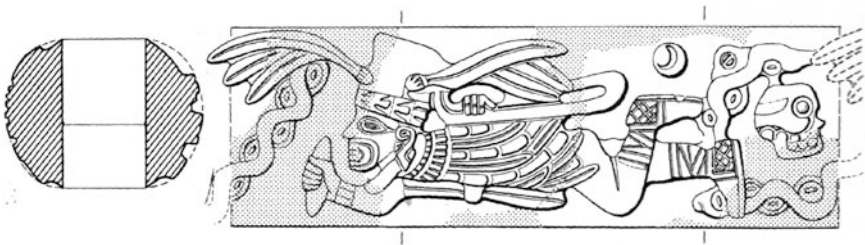


FIGURE 7.6. Chichén Itzá, rollout drawing of carved jade from Cenote of Sacrifice (after Proskouriakoff, 1974:pl. 43, 8, copyright by the President and Fellows of Harvard College)

as offerings in dishes (e.g. Reents-Budet, 1994: Fig. 3.18; Robicsek and Hales, 1981:vessels 29 and 46).⁸ They may have served as sacred commodities for display and exchange as they apparently did among the Moche of Peru who *do* illustrate such isolated body parts in scenes of warfare and sacrifice (cf. Hill, 2003).⁹

7.4. Bone Motifs, Skull Masks, and Skeletal Figures

The contexts in which skull-masked and skeletal figures appear at Chichén Itzá are more widely varied and ambiguous than those in which skulls occur. Crossed bone imagery is featured on female dress at Chichén Itzá, for example. Two of the caryatid figures from the Lower Temple of the Jaguars wear skirts with bone and death-eye motifs, and one has a skull face (Stone, 1999:307–309) (Fig. 7.7). In the Maya codices, bones are an identifying feature of the goddess Chak Chel (Fig. 7.8). In the Lower Temple of the Jaguars, she functions as a supporting figure like the Pawahtun figures on the pier opposite (Looper and Tolles, 2000:34; Schele and Mathews, 1998:215; Stone, 1999:310, 311). The combination of

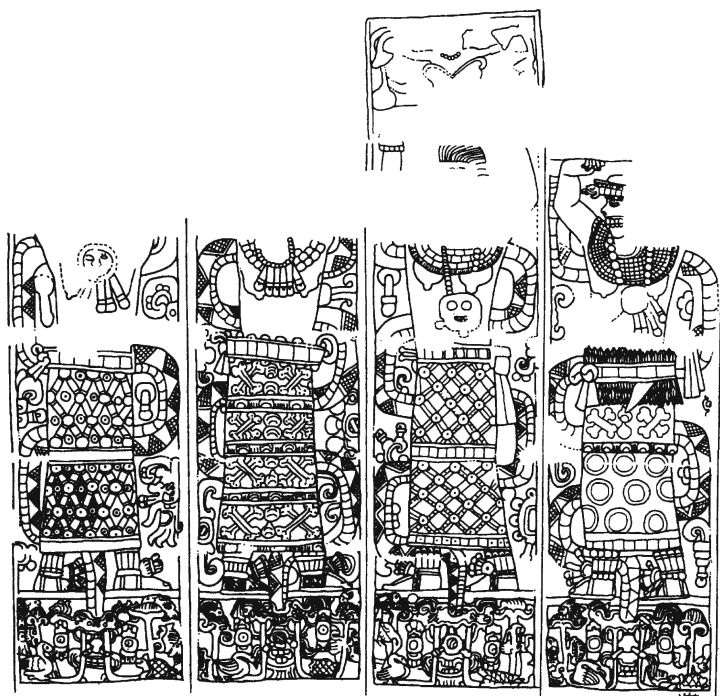


FIGURE 7.7. Chichén Itzá, Lower Temple of the Jaguars pier, rollout drawing showing figures with skull faces and skirts with cross bone patterns (after Schele and Mathews, 1998: Fig. 6.11, drawing by Linda Schele, © David Schele, courtesy Foundation for the Advancement of Mesoamerican Studies, Inc., www.famsi.org)



FIGURE 7.8. Chak Chel, Dresden Codex, 9c. (after Villacorta and Villacorta, 1976)

skeletal and serpent motifs (normally a snake headdresses) which identify Chak Chel marks her as a precursor of the Aztec goddess Cihuacoatl, a deity of both fertility and death (Klein, 2000:note 32; Vail and Stone, 2002:223–224). Aztec imagery features both human and supernatural women posed on or against skull-and-bone-decorated platforms, almost certainly skull racks.

Archaeological examples of these platforms display painted or carved borders consisting of twisted cords and fringed cloth, which frame the more prominent skull-and-bone motifs (Klein, 2000:6, Figs. 3, 5d, 6, 11, 14). These designs closely resemble those on skirts worn by Aztec death goddesses, signaling that female deities and ritual performers were directly connected to human sacrifice and subsequent trophy display. While women are rarely represented in northern Maya art, they are named prominently in Chichén's texts. The few represented in art tend to be aged or skeletal rather than youthful, suggesting that they are goddesses, priestesses, or ancestors rather than portraits of contemporary historical figures.

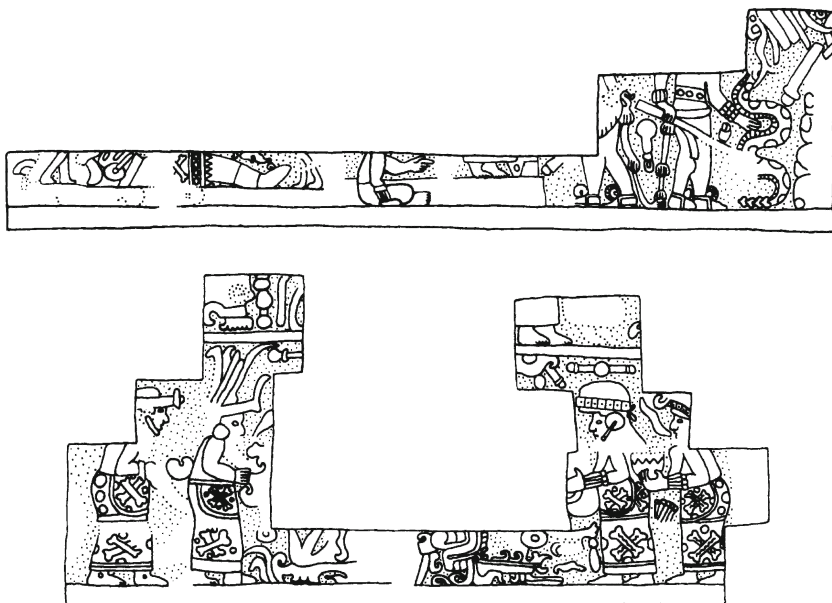


FIGURE 7.9. Chichén Itzá, Great Ballcourt, North Temple, south side of vault, figures in skirts with crossed bone motifs. Drawing by Linnea Wren after Peter Schmidt (after Wren, 1994: Fig. 7)

The distinctive skull-and-bone costume reappears in another context within the Great Ballcourt complex. A scene from the North Temple shows figures of uncertain gender in similar skirts converging on a now-missing element – an open-jawed serpent head is visible – on the lower register (Fig. 7.9). Other fragments showing skeletons (possibly ballplayers) suggest that this portion of the relief represents a funeral or takes place in the underworld. There is a reclining figure with crossed bones on his loincloth, presumably a corpse, at left in the register above (Ringle, 2004:173; Wren, 1989:293, 1994:30–31). Ringle (2004:173, 186 ff.) has argued that the reliefs in the North Temple illustrate the investiture of a new leader at Chichén, as well as the funerary rites of his predecessor.¹⁰

At least nine figures with skull faces or masks occur on piers in several buildings of the Temple of the Warriors' complex, and one at the nearby Temple of the Big Tables (Fig. 7.10).¹¹ The skull faces vary greatly, with some rendered quite naturalistically and others more abstractly. While some of the figures appear to have complete skull heads (Fig. 7.10a), others wear masks concealing either the whole face, the chin, or just the eyes (Morris et al., 1931:285) (Fig. 7.10b, c). There is sometimes a blade inserted in the nasal cavity, anticipating the Aztec custom of using flint blades as tongue and nose substitutes in cached skulls (Fig. 7.10c). There is no discernible pattern to the placement of the skull-faced figures, except that the figures never occur on the east side of any pier and several cluster around the Northwest Colonnade's carved dais. Given that this area may have been the locus for sacrificial and autosacrificial rites – there is a sacrificial

stone immediately in front of the dais – death figures are appropriate witnesses to the events.¹² Only one of the skull-faced characters has what might be a name or place glyph associated with him, a stepped structure depicted in profile (Morris et al., 1931:I, 312:II, pl. 77), but I suspect that all are masked human performers rather than supernaturals. Although costume and body paint varies, all of them bear arms, and two have traits associated with Quetzalcoatl: one wears a cut conch shell pendant (Northwest Colonnade column 39N), and another the scalloped “star skirt” common at the site (Miller, 1989).

Additionally, among the pier figures are five warriors, none with skeletal features but with one leg amputated at the knee, with the bone exposed (Morris et al., 1931: pls. 31, 41, 57, 98, 114). They have been variously interpreted as wounded veterans or Maya manifestations of the Aztec god Tezcatlipoca, but they have no parallel at any other Maya site and there is only one similar example at Tula so their identity remains a mystery (Robertson, 1994:198–199; Stocker, 1992–1993: Fig. 1; Thompson, 1942).



FIGURE 7.10. Chichén Itzá, skull-faced figures on piers (a) Temple of the Big Tables, northernmost pier, south side (photo by author)



FIGURE 7.10. *Cont'd.* (b) Temple of the Chacmool, column 6S (after Morris et al., 1931 II:pl. 37) (c) Temple of the Warriors, column 2N (after Morris et al., 1931 II:pl. 42)

Less common than skull-masked figures are those with skeletal limbs. On the sides of the eastern extension of the *tzompantli*, warriors wearing the padded arm coverings of ballplayers and carrying human heads converge on the platform's stairs (Fig. 7.1). Some of these have skeletal legs, as does the figure on the structure's balustrade (one of two), whose right arm appears to be partly defleshed as well, leaving a fleshed hand grasping a spear thrower (Fig. 7.11). His feet are oddly poised on pointed blades.¹³ Here, then, the executioners are themselves dead or supernaturals: Seler (1915:364) thought they were the souls of dead warriors, but this is unlikely given that the *tzompantli* almost certainly was meant to display the heads of dead enemies.

Fully skeletal figures occur on a now-vanished mural from the exterior of the Temple of the Warriors (Fig. 7.12).¹⁴ In a scene reminiscent of Classic Maya vase painting, they hold severed heads, an ax, and a brazier while interacting with large-scale animals including a bird of prey, furry creatures, and a scorpion. This unique image defies easy interpretation but is clearly not taking place in *this* world: the anthropomorphic figures are surely death gods and the large animals might be zodiacal signs (Freidel et al., 1993:323). The wall in question was repainted 131 times (unlike the interior murals of this structure, which appear to



FIGURE 7.11. Chichén Itzá, *tzompantli*, skeletal figure from balustrade (photo by author)



FIGURE 7.12. Chichén Itzá, Temple of the Warriors, exterior mural from north basal zone of temple (after Morris et al., 1931 II:pl. 164)

have been applied in one episode), the surviving mural layer being the 22nd out from the wall (Morris et al., 1931: I, 433). The constant repainting of this wall may not simply reflect the need to protect the surface against the elements, but also the ritual renewal of the temple on a regular basis.

Heart sacrifice is vividly depicted in murals at the Temple of the Warriors and the Upper Temple of the Jaguars and on a gold plaque from the Cenote (Coggins and Shane, 1984:50, 162; Morris et al., 1931:pl. 145; Schele and Mathews, 1998: Fig. 6.37). But the figures with skeletal attributes represented at Chichén do not occur in these scenes and are not victims but rather living impersonators or supernaturals. With the exception of the skeletal head-carrying figures on the *tzompantli*, their relationship to sacrifice, if any, is not obvious.

7.5. Human Bones

The Itzá did not limit themselves to merely *representing* bones and skulls in art. Human bones were reworked and manipulated in a great variety of ways, ranging from the incense burner created from a human skull to the femur, probably human, carved into the shape of a turkey or bird of prey, also from the Cenote

(Paz, 1990:cat. no. 93). Some of these bones, of course, could be the relics of revered ancestors rather than of unwilling victims: Landa, for example, reported that the heads of deceased Cocom lords were defleshed, cut in half, and the missing flesh replaced with modeled bitumen to reconstruct the original facial features (Tozzer, 1941:131). It could be argued, too, that the skull incense burner from the Cenote was fashioned from the head of an important ancestor rather than a sacrificial victim (Beck and Sievert, 2005:297–299). Crania and long bones were especially potent heirlooms for the ancient Maya, and are the bones most often missing from incomplete elite burials (McAnany, 1995:60–63). Even today, skulls are venerated by the Itzá of northern Guatemala (Tedlock, 2003:146).

Nevertheless, Landa also described how victorious warriors removed the jawbones from the defeated dead, cleaned the flesh off, and wore them on their arms (Tozzer, 1941:123). Incised bone bracelets, probably carved from a human cranium, were found on the upper arms of an important Cakchiquel individual buried at Iximché (Whittington, 2003:212–213). While no such ornament is known from Chichén Itzá, some of the skulls from the Cenote were missing their lower jaws, and human long bones deposited there had been shaped into tools (Beck and Sievert, 2005:296, 300). The Aztecs considered the bones of slain captives to be powerful, a belief probably shared by the Maya: in both the Bonampak and Cacaxtla murals, the victors carry human femurs, some with a hafted blade (Miller and Martin, 2004:172). The contemporary Quiché believe that an individual's patrilineage resides in the thigh, which may explain why in Classic Maya art captives' names are sometimes inscribed there (Tedlock, 2003:146–147). It is hardly surprising, then, that the hieroglyph for "captive" is a bone (*b'ak*), usually possessed by a named captor (Macri andLooper, 2003:108, 110).

Among the Aztecs, the victors in battle took the hair of their living captives, preserved the skin of flayed sacrificial victims for a time, danced carrying their heads, and turned the defleshed thigh into a masked deity (Sahagún, 1950–1982:3:46, 53, 57). Body parts were imbued with great potency: warriors and thieves alike sought hair, lower arms, and fingers of women who died giving birth in order to increase their bravery and paralyze the opposition (Sahagún, 1950–1982:6:161–162). Effigies of Aztec goddesses – who are often decapitated or have skull faces – were adorned with human hearts and hands, symbols of sacrifice. Coatlicue's serpent skirt may also symbolize entrails, *coatl* or serpent in Nahuatl being an alternate word for intestines (Klein, 2000:17). The association between female deities and body parts is an ancient one in central Mesoamerica: human hearts and bowels decorate the headdress and bodice of the Teotihuacan goddess depicted in the Tetitla murals (Taube, 1983:111, Fig. 3). At an Aztec harvest festival, women wore either tunics decorated with hearts and hands to ensure a good crop, or skirts painted with entrails representing future "famine or plenty" (Durán, 1971:454). We have already seen how clothing decorated with skulls and bones is characteristic of Maya death goddesses and their impersonators.

A dramatic example of the use of human bone occurs in the inner Castillo at Chichén, where two rows of human femurs were imbedded into the back wall of the inner chamber, their ends protruding slightly (Anonymous, 1937:116; Cirerol,

1940).¹⁵ The appearance of bones within an architectural context suggests that they were also stacked or arranged in patterns for display: the Maya may have constructed elaborate arrangements of bone, as apparently occurred at far-off Alta Vista, Casas Grandes, La Quemada, and Cerro del Huistle on Mesoamerica's northwestern frontier (Hers, 1989:89, 93; Nelson, 2001:532; Pickering, 1985:302–303). Alta Vista and La Quemada also have connections to Chichén Itzá, which are still not well understood, but which are demonstrated through similarities in architecture and the northern sites' role as intermediaries in the turquoise trade. In the northern Maya area, the circles that are sometimes placed between crossed bones may depict human femurs in cross section, bones that might once have been arranged on top of the platforms on which they are sometimes depicted (Fig. 7.5).¹⁶

7.6. Cenote Imagery

Oddly enough, despite colonial accounts of cenotes as loci of human sacrifice, as well as the presence of human remains and other offerings in cenotes throughout Yucatán, convincing representations of cenotes and associated ritual activity are quite rare in Maya art. A hieroglyph apparently read as “cenote” does occur in Maya texts and Terminal Classic and Postclassic imagery (Stone, 2005:140). This symbol appears on a capstone from Chichén Itzá featuring K'awiil and cacao emerging from a possible cenote (Miller and Martin, 2004: Fig. 27), as well as at the base of Uxmal Stela 14 where two naked and bound captives seem to be lying in a cenote, beneath the feet of the ruler Lord Chaak (Pugh, 2005:52) (Fig. 7.13).

While bodies of water are depicted in Chichén's murals and on one gold disk from the Cenote, they look more like the seacoast or sheltered harbors rather than cenotes: boats and sea creatures are often shown within them. Some of the water scenes also feature naked men, bound or floating helplessly (Lothrop, 1952: Fig. 35; Morris et al., 1931 II:pls. 146, 147, 162a). Conceivably, some of these images depict victims being thrown into cenotes, but the presence of boats and

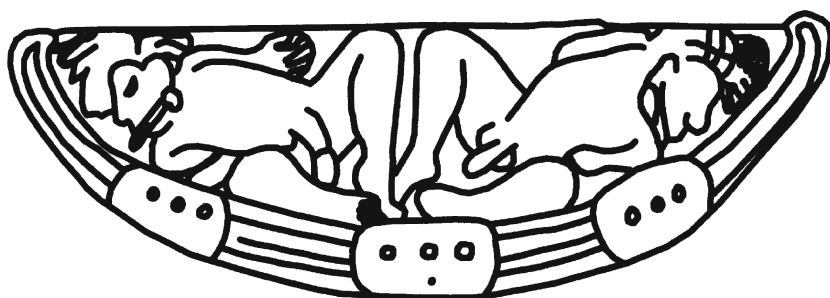


FIGURE 7.13. Uxmal, Stela 14, detail from base of stela showing captives in cave or cenote (Schele and Mathews, 1998: Fig. 1.19, drawing by Linda Schele, © David Schele, courtesy Foundation for the Advancement of Mesoamerican Studies, Inc., www.famsi.org)

armed warriors who struggle with the naked figures suggests that a marine battle and its aftermath are portrayed instead. What may be a cross-section of a cenote is depicted on the vault of the North Temple of the Great Ballcourt – a tree grows adjacent to it, birds hover above (possibly the swallows common to cenotes in Yucatán), while figures approach carrying possible offerings (Ringle, 2004:190; Wren, 1994:28, Fig. 4). The theme of the complex scene represented on the temple's vault and north wall seems to be investiture rather than warfare or sacrifice.

7.7. Conclusions

The impulse to exhibit human body parts and bones as war trophy seems to be nearly universal. Such displays serve to celebrate victories over enemies, as acts of vengeance, and as Las Casas (1967:221) noted in reference to the skull racks described to him in highland Guatemala, to strike fear in the enemy. Skulls and bones were probably exhibited on temporary structures from very early times throughout Mesoamerica, and death and skeletal motifs are widespread in Late Classic polychrome ceramics. Nevertheless, Chichén Itzá is unique in the sheer number of skulls and skeletal figures represented on a large scale and in public places, and is probably the first Mesoamerican city to create a permanent, decorated structure for the display of human bones (Miller, 1999).¹⁷ Why this upsurge in graphic sacrificial and death imagery?

William Ringle and his colleagues (1998) have argued that during the Terminal Classic, Mesoamerica was in the thrall of a new cult to a feathered serpent deity, with Chichén Itzá serving as its easternmost shrine center. Elaborating on this thesis, Ringle has more recently suggested that, one, the central areas of Chichén Itzá and other important cities served as loci for the investiture of leaders into this cult and two, that the iconography and practices associated with such investiture rituals are common to many Mesoamerican centers, beginning with Teotihuacan (Ringle, 2004:213, 167). The nature of Chichén's political organization and the extent of its territory and influence remain elusive, but there is no debating the similarities between its art and architecture and that of distant, non-Maya centers like El Tajín and Tula which to some extent must have shared its ideology. In addition to feathered serpent imagery, these sites all display sacrificial and death themes as well.

Parallels with the Aztecs, for whom we have detailed accounts of ceremonies, may be instructive. From Moctezuma the first's reign on, they celebrated both the inauguration of an incumbent ruler and the dedication of new sacrificial stones and new or remodeled buildings with massive killings of prisoners brought back from successful military campaigns. Guests came to witness these events not only from allied and conquered territories, but also from enemy states, presumably invited to discourage rebellion and attack (Broda, 1987:64, 65). As in a Northwest Coast potlatch, particularly generous gifts were offered to hostile lords (Broda, 1987:66). It is tempting to speculate if the Itzá also hosted such gatherings, albeit

on a smaller scale, as part of a strategy to impress and intimidate Maya and non-Maya visitors alike. The prominent position of the skullrack, with its sculpted impaled skulls and decapitating ballplayers, next to the massive ballcourt, may have served as a grim reminder of the potential power of the Itzá, even when no human heads were on display. Although a more selected group of visitors would have been allowed into the Temple of the Warriors precinct, they, too, would have seen the rows of marching warriors, some of them with frightening skull faces, on the piers within, as well as the vivid death-god mural on the Temple's exterior. Bloodletting – personal or sacrificial – may also have taken place in front of or on the carved benches within, with more public sacrifices occurring in and around the Great Ballcourt and elsewhere.

The new emphasis on vivid sacrificial and death imagery does not necessarily demonstrate an increase in *actual* human sacrifice, but may instead reflect ideological and political changes that called for highly visible representations of collective Itzá strength rather than the individual statements of personal victories over named enemies that characterize southern Maya art and writing. Just as Itzá warriors became nearly anonymous members of a large military elite, their victims, too, became mere symbols. It is their skulls and bones, real or sculpted, not their portraits and names that served as relics of successful battles. Uxmal's Cementerio Group reliefs represent an intermediate path between the highly personal depictions of captives among the southern Maya and the almost-invisible sacrificial victims of Chichén Itzá: places (and possibly persons) are named but the captive is represented only by skull and bones. Chichén, in turn, anticipates the mass, anonymous sacrifices of the Aztec state. On important occasions like the inauguration of a political leader or the dedication of a building, sacrifices were required, although not, apparently, on the same scale as the Aztecs. Like much of Aztec public art, Chichén's focuses on heart removal, severed heads, skulls, bones, and skeletal supernaturals, not on named places and persons or particular events. Even if not indicative of increased ritual slaughter, such imagery must reflect new attitudes toward warfare, capture, and sacrificial practices that developed in tandem with the Itzá state, probably in the latter part of the ninth century. Further study of Chichén's iconography, in tandem with osteological studies, should reveal more about both the site's social and political structure as well as its ritual practices.

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Endnotes

1. Notable exceptions include Tikal Altar 5, which most likely shows the bones of a noblewoman rather than of a sacrifice (Freidel et al., 1993: Fig. 6.7), Piedras Negras Stelae 11 and 14 which display miniature victims of heart sacrifice at the base of accession scenes (Robicsek and Hales, 1984: Fig. 5), and the extraordinary stucco frieze at Toniná featuring a skeletal figure carrying the head of a named captive (Freidel et al., 1993: Fig. 7:25). Despite their vivid depictions of battle and humiliated prisoners, the Bonampak murals did not essentially alter the scholarly and public view of the Maya as unaggressive for decades after their discovery.
2. Beads of various sorts as well as sandstone and wooden disks are featured in other deposits at Chichén Itzá, including caches in the Temple of the Chacmool and the inner Castillo and with the skeleton buried under the Castillo's north stairway (Morris et al., 1931 I: 186–188; Anonymous, 1937).
3. Other examples of figures carrying heads include the chacmool from the Temple of the Chacmool (Morris et al., 1931 II:pl. 15) as well as a warrior carved on a column from Structure 6E1, near the Temple of the Hieroglyphic Inscriptions (Schele and Freidel, 1990: Fig. 9:13). See Plank (2004:note 125) for a discussion of the hieroglyphic text.
4. Curiously, although disembodied eyes are often shown as head ornaments for the skeletal figures represented in Classic Maya pottery, the crested hairdo is more typical of dwarfs represented in the same medium as well of the jade dwarfs dropped into the Sacred Cenote (Proskouriakoff, 1974:pls. 57–58).

5. For the Mexica, building a ballcourt and *tzompantli* was the traditional act of founding a settlement (Tezozomoc, 1975:32).
6. At the Late Postclassic Cakchiquel capital Iximché, for example, 50 decapitated heads were found next to two low platforms – one decorated with skull and crossbone motifs – which may have functioned as skull racks. Deposited in pits cut into the plaza floor, and accompanied by obsidian blades, the skulls were in varying states of preservation, indicating that some of them were exposed to the elements before burial while others may have been interred immediately (Whittington, 2003:215–217, 227–230).
7. Copán archaeologist William Fash (1991:149), however, argues that another Copán building decorated in a similar fashion, Structure 10L-230, may have served as a place where sacrifice or the manipulation of human remains took place. Marked with the glyphic sign *na* (house), the façade was covered with sculptures of skulls and human long bones, while the interior held a censer and broken eccentric flint blade.
8. Disembowelment as either punishment or a method of sacrifice is documented for the Aztecs. Although there is less information regarding the practice among other Mesoamerican groups, the act and its aftermath are vividly illustrated by a few Maya examples, notably the battle scene in the Maya-style murals of Cacaxtla, on at least one polychrome vase, a disemboweled Jaina figurine, and in the Paris Codex (Klein, 1990/1991:87–88). The removal of the entrails through the navel was apparently a form of punishment for adulterers in Yucatán at some time before the founding of Mayapán (Tozzer, 1941:32).
9. The much-earlier site of Cerro Sechín is also known for its graphic reliefs of severed heads, limbs, and various organs (Hill, 2004).
10. A recumbent deity figure is represented in the basal registers of a number of compositions within the Great Ballcourt complex (Ringle, 2004: Fig. 11). He or she (the gender of the figure is in dispute) is often shown with one or two serpents emerging from the mid-section. Sharp blades protrude from the serpent's open jaws as if they had been used to open the abdomen (see Chaps. 8 and 10 in this volume). Ringle (2004:174) describes the figure as the deceased Quetzalcoatl reclining below the newly inaugurated king. However, he or she is often depicted as alive. Whatever the identity and function of this figure, it does seem to represent a supernatural figure, in contrast to the victims shown in scenes of heart sacrifice and decapitation at Chichén.
11. Temple of the Chacmool, cols. 3W, 6S, Temple of the Warriors, col. 2N, Northwest Colonnade cols. 9S, 20S, 39N, 40S, 44W, 45W (Morris et al., 1931 II:pl. 32, 37, 42, 77, 88, 105, 106, 110, 111). For a drawing of the figure from the Temple of the Big Tables pier see Castillo 1998: Fig. 20.
12. The cast of characters on this and the very similar North Colonnade bench includes one skull-faced figure each, although not in corresponding positions on the same sides (Morris et al., 1931 I: Fig. 257, II:pl. 127).
13. Drawings of some of these figures are in Seler (1915: Figs. 237–239).
14. A similar scene was probably present on the south side of the temple, but only a few pieces of the mural were found (Morris et al., 1931 I:437).
15. Again the Moche of Peru provides an interesting parallel. At Huaca Cao Viejo, imbedded within a seventh-century stucco frieze of elaborately attired human figures were mammal bones and the end of a human femur taken from a fleshed body (Gálvez and Briceño 2001:152). Perhaps further investigation of Mesoamerican murals or stucco reliefs might reveal similar deposits of human bones.
16. The Uxmal Cementerio reliefs display a variety of patterns involving crossed bones, some of which include the eyeball with its distinctive optic nerve, but the plain circles and those with a small dot in the center could well be bones.

17. Although stylistically very different, the Late Classic Cotzumalguapa art style of the Guatemala Highlands and Pacific slope area is the only one to rival that of Chichén Itzá in terms of graphic, violent imagery. Its monumental sculpture is characterized by dramatic scenes of dismemberment, decapitation, and heart sacrifice, as well as skull imagery, including the representation of both fleshed and skeletal heads suspended on poles as if on a wooden skull rack (Miller, 2003: Fig. 3). As at Chichén, ballgame and sacrificial themes are mixed.

8

Sacrifice and Ritual Body Mutilation in Postclassical Maya Society: Taphonomy of the Human Remains from Chichén Itzá's Cenote Sagrado

GUILLERMO DE ANDA ALANÍS

8.1. Introduction

The sacrifice of human life as a means to sustain the balance of the cosmos and to compensate the gods for favors both solicited and received, beyond doubt represented the most dramatic expression of Mayan religious tradition. Historical sources, iconography, and archeological evidence portray the practice of Maya human sacrifice as a shared cultural behavior with particular characteristics related to social context and timeframe.

Toward the Terminal Classic and Postclassic periods, representations of human sacrifice and *perimortem* violence increase in number in the northern lowlands and specifically at Chichén Itzá (Miller, 2003:387). Some of the city's monumental pictorial motifs, such as the dismemberment of the earth goddess by two serpent-shafted knives, depicted in the ball court's North Temple, dramatically reinforce the role of human sacrifice and postsacrificial treatment in the re-enactment of creation (Miller in this volume; Taube, 1999:216). Additional sacrificial depictions adorn the bench panels of the ball court, which show the decapitation of the defeated. Miller and Houston (1987, cited in Taube 1999) posit that the humiliation and sacrifice of captives was an important component of the ball game in Chichén Itzá, along with the nearby *tzompantli* that reinforced the idea of the ball game as the metaphor for life and death through the sacrifice of the beaten team and the perennial regeneration of the cosmos (Schele and Mathews, 1997:213). Apart from sacrificial scenes, the iconography of Chichén's epicenter is notoriously consistent in depictions of skulls on racks (Fig. 8.1) and severed hearts, such as those held by jaguars and eagles at one side of the ball court (Miller, 2003; Taube, 1999; see also Schele and Mathews, 1997; Vail and Hernández, and Miller in this volume).

The ethnohistorical chronicles provide additional data on sacrifice and the Cenote Sagrado's role in ritual behavior. The Spanish chroniclers from the Contact period are elaborate in their descriptions of human sacrifice related to Chichén Itzá. Fray Diego de Landa asserts (Tozzer, 1941) that one form of offering human life took place directly inside the Cenote Sagrado, into which the



FIGURE 8.1. The *tzompantli* at Chichén Itzá (photo by Anda)

victims were deposited while still alive, an idea that has dominated the literature on the Cenote's ritual uses for many years. More detailed information is conveyed in the documents that describe the processes against the idolatry instrumented by Fray Diego de Landa during the second part of the sixteenth century and which were collected by Scholes and Adams (1938). These testimonies describe different forms of ritual sacrifice in the northern Yucatán Peninsula during the sixteenth century, the majority of which ended with the victims being deposited in cenotes.

Clear differences in the use and function among cenotes are conveyed by the ethnohistorical sources. Some cenotes were used only for domestic purposes while others had an entirely ritual function, as has been documented by iconographic and archaeological investigations (Anda et al., 2004). Together with epigraphic evidence and historical accounts, these investigations establish that Chichén's Sacred Cenote served as a major pilgrimage center for the Maya Northern Lowlands already during the Classic Period and that it was the focus of sophisticated and diversified ritual activities, including those related to the sacrificing of human life.

An additional important source is information conveyed directly by the individuals recovered from Chichén's Sacred Cenote. These are contained in two skeletal collections. The first one was recovered at the onset of the twentieth century by Edward Thompson and is presently stored in the Peabody Museum of Archaeology and Ethnology at Harvard University. It was studied first by Hooton

(1940) and years later by Saul and Saul (1989), who also reviewed some of the material from the other, Mexican collection, currently in Mexico City, reporting that distribution of age, sex, and body parts were similar for both series with a high percentage of children and juveniles and predominance of males (Beck and Sievert, 2005). More recently, Tiesler conducted an analysis of the skulls in the Mexican collection, focusing on artificial head shaping, and found percentages of age groups and sexual distribution that are similar to those already reported (Tiesler, 1998, 2005). In addition, Beck and Sievert (2005) studied specifically the skeletal indications of *perimortem* violence and posthumous body manipulations in the cenote specimens from the Harvard collection. The two authors document different activities and anthropogenic marks that are likely to be related to human sacrifice, and provide new information on the possible pathways that might have led to the formation of the context.

8.2. The Current Study

In this section we wish to provide not only complementary information but also additional insights on the subject of human sacrifice and related body processing in Chichén based on a review of the skeletal collection housed in Mexico City. The taphonomy and the morphological results regarding biographical and cultural evidence are evaluated in terms of the ritual behaviors with which they may have been associated. The present evidence is compared to that reported by Beck and Sievert (2005), and discussed within the wider cultural frame of cenote ritual uses and human body-processing. The series under study was recovered during the last two excavation seasons in the Sacred Cenote, carried out during 1961 and 1967 by Dr. Roman Piña Chan and currently housed in the Physical Anthropology Section of the Museum of Anthropology in Mexico City.

The skeletal material was studied systematically during three research visits in 2003 and 2004. Following morphological and metrical sexing and aging methods as described by Bass (1987) and Buikstra and Ubelaker (1994), the material was evaluated in terms of its biovital features, minimum number of individuals, and body part representation. Bone surfaces were examined for natural and anthropogenic marks. The latter were recorded according to presence, location, and concentration, following the criteria described by Pijoan (1997), Turner and Turner (1999), and White (1992). Taphonomic patterning was employed to distinguish different forms of posthumous body treatment and *perimortem* acts of violence. This examination was hindered by the fact that part of the collection, and specifically the skulls, had been covered with a thick coat of varnish in an attempt to protect the material. This coating made the systematic recording of surface properties difficult. In addition, various segments that originally formed part of this collection and have been reported by Saul and Saul (1989) and Tiesler (1998) were unavailable for this evaluation.

8.2.1. *The Skeletal Population*

Due to the collection's commingled nature, the biographical profile rests mainly upon the attributes of 78 skulls. Of these, 65 are very well-preserved specimens. Forty-three skulls belonged to subadults, 23 are adult males or probable males, and 12 were determined to be adult females. Additionally, 49 isolated mandibles were counted. An attempt was made to match these mandibles with the skulls without success except in two cases. The age ranges and sexes assigned to the 47 unmatched mandibles are as follows: 37 belong to children between 4 and 12 years of age; 8 are young adult males; 2 are adult females or probable females; and there are 2 nonidentifiable adult mandibles. These findings are shown in [Table 8.1](#). Combining skulls and mandibles for the adult sex ratio, 68.8% were male and 31.1% were female. These make up 39.2% of the aged sample with infants and juveniles predominating (60.8%). The age and sex ratios are consistent with other skeletal studies and historical sources as documented elsewhere (Anda, 2004).

The minimum number of individuals (MNI) was determined from the left tibias, which numbers 127. Out of these tibias, 88 belonged to children or juveniles under the age of 18, and 39 to adults. The actual number of individuals deposited in the cenote is unclear but almost certainly much larger than the figure here established. In general, all of the body segments are fairly evenly represented in the sample, although sternums, vertebrae, teeth, and pelvic segments are under-represented, probably due to decomposition and postexcavation phenomena such as the damage caused by the airlift or carelessness once the bones arrived to the surface.

Subadults

The subadult sample consists of individuals between 4 and 12 years of age. One clavicle has been assigned to a 3-year-old individual and a skull fragment to a 2-year-old. Three are approximately 15 years of age and two others closer to 18. This age group is represented by almost all segments, including small bones. The postcranial body parts of subadults are represented as follows: the ribs are the most numerous segments with a total of $N = 372$, followed by femurs ($N = 237$), vertebrae ($N = 196$), tibias ($N = 177$), fibulas ($N = 158$), ulnas ($N = 121$), humeri ($N = 118$), bones of the hands and feet ($N = 110$), radii ($N = 78$), iliac bones ($N = 142$), clavicles ($N = 48$), and sternal bones ($N = 16$). Both sides are equally represented in the paired bones.

TABLE 8.1. Age ranges and sexes assigned through the crania

Segment	Adult males	Adult females	Sub-adults	Total
Skull	23	12	43	78
Mandible	8	2	37	47
Crania	31 (68.8%)	14 (31.1%)	76 (63%)	121

Several subadult skulls exhibit marks suggestive of cultural manipulation, especially in the frontals and parietals. Fine cut marks appear on some frontal bones and surround several mastoid processes. Small marks were also observed around the eye orbits and the external auditory meatuses of two skulls. Two additional cranial pieces exhibit extensive sharp-force damage in the occipital condyles suggestive of *perimortem* violence.

At least three mandibles, all of which belong to children in the older age groups (9–12 years), show cut and stab marks. The lesions concentrate in the inferior border of the ascending branches. The distribution of the marks strongly suggests that they were produced by defleshing, possibly accompanied by the mandible's separation from the skull. One individual aged around 10 years exhibits additional chop marks in the dorsal side of the chin and in the posterior area of the left ramus, probably produced by direct impact with an axe-like implement, reinforcing the idea of a combined defleshing and dismemberment process, the latter possibly produced during decapitation (Fig. 8.2).

Further down the body, three subadult clavicles (one left, two right) show signs of cultural modification. One of the youngest individuals in the sample (second infancy) exhibits the vestiges of a fine slicing action over both the anterior and posterior clavicle face (close to the medial end, the point of articulation, and close to the conoid tubercle, respectively). The cut marks are numerous and shallow and might have been produced during a defleshing or flaying action. Some of the child ribs also show allusive or clear signs of *perimortem* violence. One piece shows “V” shaped slicing marks surrounding a large impact cut mark, suggestive of a sharp instrument that forcefully penetrated the trunk below the rib (Fig. 8.3).



FIGURE 8.2. Subadult mandible showing chop and cut marks (photo by Anda)



FIGURE 8.3. Subadult rib with cut and slicing marks (photo by Anda)

A second rib (presumably of third infancy), equally exhibits sharp-force trauma in the form of a “V,” this time accompanied by crushing in fresh bone but no slicing.

The described lesions could relate to the procedures of human sacrifice by stabbing or heart extraction described by the codices and chronicles of the sixteenth century (see also Vail and Hernández in this volume). On the other hand, the isolated nature of the rib induces caution in drawing conclusions as what the form of ritual sacrifice that produced the marks might have been. This is especially true in the light of recent taphonomic analyses that point to sub-diaphragmatic heart extraction, which are unlikely to leave any marks on the ribs, as has been proposed by Tiesler and Cucina (2006).

Other kinds of subadult body treatments affect the extremities. While no signs of *postmortem* treatment were documented in upper limbs, several anthropogenic marks were observed in the lower legs of at least eight children. These marks include a homogeneous slicing pattern around the ligaments’ insertion areas of the knee capsule, and a pattern shared by seven out of 86 left tibias of children between 6 and 12 years of age at death.¹ These lesions, coupled with scraping marks, were probably produced by defleshing and/or dismembering (Fig. 8.4).

Additional fractures in fresh bone appear in one tibia. Signs of direct heat exposure were documented in part of the series, mainly notable in fragments of subadult skulls. Some show a whitish tone in the endo- and ectocranium, similar to that of limestone, and a blackish color in the corresponding spongy tissue area which appears charred (Fig. 8.5).



FIGURE 8.4. Subadult tibia with cut and scraping marks (photo by Anda)

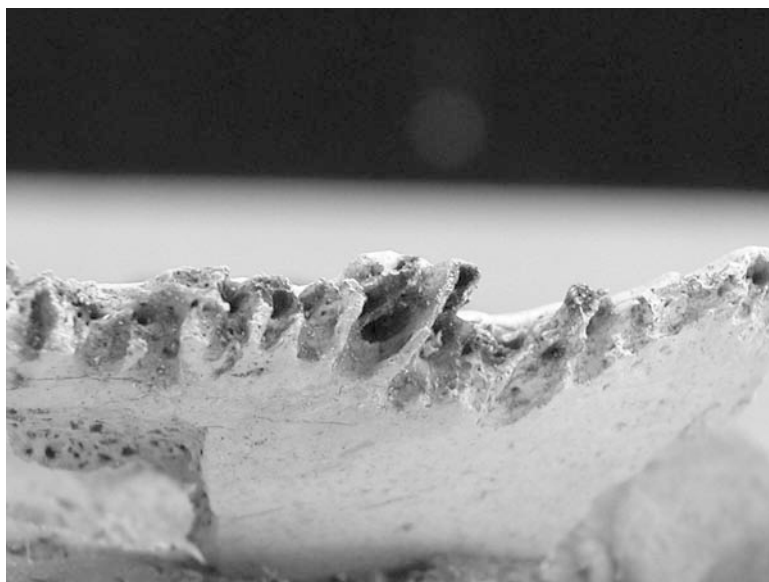


FIGURE 8.5. Charred fragment of subadult skull (photo by Anda)

There are also charred fragments of long bones, vertebrae, and ribs. These segments appear to have been exposed for short and long periods to heat between 300 and 600°C with peaks above this temperature, such as those obtained in an open fire (Botella et al., 2000; Medina, 2006; White, 1992). The fissures on the external surface of a number of the affected segments indicate exposure of fresh

bone while others seem to have been treated when the bone was already dry (Medina, 2006). It is remarkable that heat exposure is evident more in the subadults of the series than in the adults.

Adults

The postcranial body part representation and siding in adult males and females is similar to the one documented in subadults. Even though the particular conditions inside the cenote (i.e., depositional dynamics and underwater drifting) and the excavation methods represent obstacles to any firm assumptions, the side and size association of some bone segments suggest that most of the adult remains entered the cenote as complete bodies. The representation of adult males or probable adult males by segment is shown in [Table 8.2](#).

Like in the subadult sample, the coating on the adult skulls makes it difficult to observe any anthropogenic vestiges and to distinguish modern marks from those that could have been the product of ancient *peri-* or *postmortem* body treatments. Among the segments of the trunk, two presumably male clavicles exhibit a series of scratches in close proximity to the medial end as well as in the anterior face close to the conoid tubercle, which could stem from posthumous disarticulation or flaying. One right robust scapula shows long impact and slicing marks in the distal end of its axillary border, indicating that a sharp knife was used to separate the large insertions of the back muscle ([Fig. 8.6](#)).

Regarding the male and presumably male extremities, one right femur shows a series of scratches around the lesser trochanter and close to the medial epicondyle. There are numerous cut marks covering the anterior and posterior faces of the diaphysis. Three more femurs exhibit scratches that could have been left by dismemberment and disarticulation, especially as they are located adjacent to the articular areas; however, the poor preservation of these segments does not allow confirmation of their cultural origin. One robust left tibia shows a pattern of deep cut marks close to the knee, similar to that already documented in the left subadult tibias ([Fig. 8.7](#)).

The other set of marks surrounds, again, the tibial anterior crest and might be the product of an action intended to remove big portions of the leg ([Fig. 8.8](#)).

Regarding the adult females, their segment representation is shown in [Table 8.3](#).

TABLE 8.2. Representation of adult males by segment

Bone	Right	Left	Total
Clavicle	8	2	10
Scapula	6	9	15
Sacrum			9
Humerus	12	14	26
Radius	12	9	21
Ulna		10	10
Femur	23	16	39
Tibia	16	15	31
Fibula	12	13	25



FIGURE 8.6. Scapula with cut and slicing marks along the distal end of the axillary border (photo by Anda)

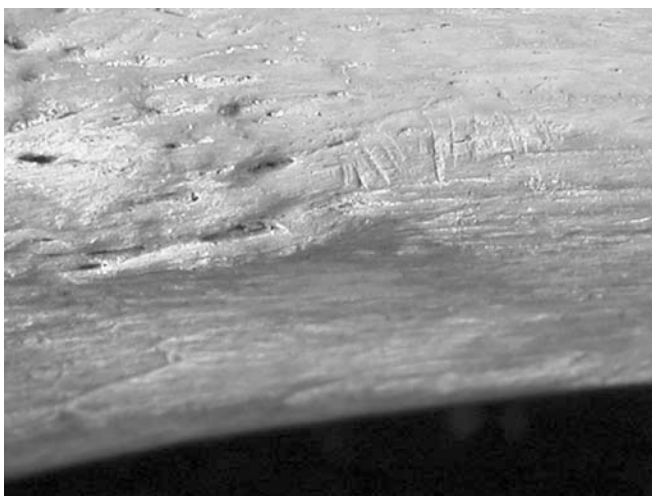


FIGURE 8.7. Cut marks close to the knee in a male adult tibia (photo by Anda)

In contrast to children and males, the female group seems to be the only one in our sample that exhibits marks in the upper limbs. Such is the case of three right humeri with scratches and cut marks along the shaft and adjacent to the lateral epicondyle. Cut marks were found also in two right radii, aligned along the shaft and close to the radial tuberosity. Additionally, one right femur shows deep cut marks in the areas surrounding the lesser trochanter and the *linea aspera*.



FIGURE 8.8. Cut marks along the anterior crest of a male adult tibia (photo by Anda)

TABLE 8.3. Representation of adult females by segment

Bone	Right	Left	Total
Clavicle	8	2	10
Scapula	6	9	15
Sacrum			9
Humerus	12	14	26
Radius	12	9	21
Ulna		10	10
Femur	23	16	39
Tibia	16	15	31
Fibula	12	13	25

8.3. Death and Posthumous Body Processing from the Sacred Cenote

At the outset of this study, we had expected to find a set of anthropogenic marks in the bones related to different forms of ritual death, especially after consulting the available ethnohistorical literature (Anda et al., 2004). As noted above, the documents of the area describe close to 200 cases of human sacrifice and in some cases include information on postsacrificial behavior and body deposition. Heart extraction appears to have been the predominant form of ritual death, according to these sources, at least for early colonial times, and, remarkably, in 79% of the cases mentioned, cenotes are indicated to have served as the final depository of the victims (Anda et al., 2004; Scholes and Adams, 1938). The accounts also reveal names of the victims, their ages and sex, and the place of

their ritual death, and some mention the cenotes where they were ultimately deposited. Among the identified sinkholes which served as ritual human depositories or places of sacrifice, it is precisely Chichén's Sacred Cenote that stands out as a major center of pilgrimage, a notion that is supported by the abundant archaeological findings and by the bulk of skeletal material itself. Concerning the biographic profile of the victims, the chronicles mention predominantly "toddlers," "boys," "girls," and male "youngsters." At least 69% of the recorded 196 human sacrificial events thus refer to infant or juvenile individuals, presumably between the ages of 4 and 15.

Our skeletal results appear to match these colonial descriptions in terms of age groups and sex distribution. Despite differences with the findings of Beck and Sievert (2005), to be specified later in the chapter, we believe that this is a consequence of the excavation techniques and the natural conditions of the cenote, such as instability of the bottom and lack of control on the recovery of the objects (Coggins and Shane, 1989; Folan, 1968; Piña, 1970) and especially due to the area of the cenote where this material was obtained. The later is based on the only written record that mentioned the specific site where the bones from the Harvard collection were obtained. According to Thompson, "skeletons" were found thickest near the middle of the cenote and 90% of the skulls were 18–27 m from the edge (Coggins and Shane, 1989:12).

On the other hand, it seems likely that most of the skulls and bones in the Mexican collection came from the area named by Piña Chan "quadrant number one," right beneath the temple on the southern edge of the cenote. Piña (1970) also states that most of the skeletal material was obtained after removing the stones from three different strata and that the CEDAM divers collected them by hand, while some smaller bone segments were obtained through the airlift used in the excavations.²

On the grounds of the ceramic typology and the dating of other artifacts extracted from different layers, Piña established the chronology as Late Classic for the second layer and Postclassic for the first one excavated. The latter is consistent with the types of intentional cranial deformation observed in the Mexican sample, the majority of which display a tabular erect type of artificial deformation (Tiesler, 2005). Therefore most of the discrepancies between the Harvard and the Piña collections may be explained by a shift in the chronology based not only on the methodology of extraction but more importantly on the different sectors of the cenote where the bones were discovered.

8.4. Cultural Implications

The predominance of subadult victims raises questions as to the specific motives of their ritual killing. It appears that all over Mesoamerica children were favored victims of sacrifice for the rain gods and the Maya area is no exception, especially in the case of cenote-related rituals. Chac, the rain god, was believed to live in the cenotes, along with the Bacab gods who controlled rain and wind. The bacabs

were Chac's helpers and the ones in charge of rising themselves to the sky and pouring the rain over the Earth. The longstanding traditional *Cha'a chac* ceremony dedicated to Chac and his Bacabs is still practiced by the modern Maya in petitions for rain. The Bacabs are represented by four children who are placed in the four corners of a square during the ceremony. In the colonial-era Sotuta and Homun documents the name *Cimchich* is mentioned with respect to similar occasions. *Chimchic* or *Cim ch' ich'* is translated as "kill the little ones," or "kill the birds" (Scholes and Adams, 1938:152; Tozzer, 1941:117).

Whereas the predominance of children and juveniles encountered in this study is consistent with the ethnohistoric sources, we did not expect such a variety of body treatments in the bones of these children, for they are not mentioned in the chronicles. It is significant that most of the observed marks in the sample have been detected in infants or juvenile individuals, although part of the vestiges of specific types of body manipulation were found in both subadults and adults. In particular, the marks consistent with dismemberment, defleshing, flaying, *perimortem* violence, and heat exposure revealed either a complex or varied array of body treatments for the infants and subadults found in the cenote. As noted above, and despite the evidence of an array of *postmortem* treatments in some of the bones, a large number of the sacrificial victims must have entered the water as complete bodies. We also do not discard the possibility of immersion of living individuals in the cenote, even though the skeletal material does not provide conclusive evidence of this.

Although references to postsacrificial behavior in the context of the cenote-related rituals are scarce, the chroniclers of the Contact period documented a variety of rituals that took place after the culmination of sacrificial activities, such as emaciation, ritual anthropophagy, and skinning of victims. The encountered patterns seem to be related to a variety of body treatments ranging from disarticulation to defleshing, skinning, and heat exposure (Botella et al, 2000; Pijoan and Pastrana, 1987; Turner and Turner, 1999; White, 1992). While we do not exclude alternatives, especially in the case of heat exposure, the patterns encountered here are at least strongly suggestive of ritual behaviors such as the burning of segments in incense vessels, as documented by many chronicles and by the pictorial record.

If we go by the relatively scarce number of pictorial depictions, then human flaying should have been a rare form of body manipulation in the Maya area. Nájera (1987) mentions that the dates of its appearance are unknown but, as Medina and Sánchez assert in this volume, it must have been known already during Classic times, to be practiced during the Postclassic period as part of *Xipe Totec* rituals (see Hurtado et al. in this volume), a cult to be maintained after contact and alluded to by several chroniclers like Landa:

Sometimes they made this sacrifice on the stone and high altar of the temple, and they threw the body, now dead, rolling down the steps. The officials below took it and flayed it whole, taking off all the skin with the exception of the feet and hands, and the priest, all bare, covered himself, stripped naked as he was, with that skin, and the others danced with him (Tozzer, 1941:121).

The presence of marks suggestive of flaying in infant clavicles drew our attention, since it would contradict the present notion of adult sacrifice to surround flaying. Although the sources that refer to the rite of Postclassic flaying or *Tlacaxipehuliztli* rites mention that the sacrificial victims were always adults, there is at least one case where a child seems to have been involved in this kind of rite. We refer here to a clay figurine in the Gulf coast's hall of Mexico City's Anthropology Museum that represents a character wearing the skin of a child (González, 1994:261). However, we cannot draw any conclusions that relate directly the procedure of flaying a victim with the *Tlacaxipehuliztli* cult as flaying is employed also in other postsacrificial treatments such as anthropophagy, or the exhibition of skeletal segments on *tzompantlis*.

During the Postclassic period, corpse cremation was an integral part of both funerary and nonancestral practices. The human deposits in the Sacred Cenote were probably not the exception, although we ignore the individual circumstances surrounding exposure. The presence of the two types of burned bones in this context reinforces the idea that the cenote could have served several ritual functions and that one of them could have been cremation.

The combination of burned bones and a watery environment (water and fire) manifested in the Popol Vuh is also relevant. A passage of this book describes the death of Hunahpu and Xbalanque as follows. The Hero Twins are led into a bonfire and die that way (Recinos, 1980). As the Xibalbans dance along screaming, "we have finally defeated them" they throw the burned bones into a river in *Xibalba*. On reaching the bottom the bones metamorphose into two beautiful boys: Hunahpu and Xbalanque (Recinos, 1980). It is relevant therefore that the combined presence of the two important elements of fire and water (as in this passage of the Popol Vuh) associated to rebirth, could have also motivated the presence of fire-exposed bones in a flooded cavern such as the Sacred Cenote (Fig. 8.9).

According to Landa (Tozzer, 1941), cremation was a practice reserved for the high classes who made wooden statues called *ku che* or "god's wood" to serve as burned bones containers. The bishop describes this as follows

The rest of the people of position made for their [deceased] fathers wooden statues of which the back of the head was left hollow, and they then burned a part of the body and placed its ashes there, and plugged it up; afterwards they stripped off the dead body the skin of the back of the head and stuck it over this place and they buried the rest as they were wont to do. They preserved this statue with a great deal of veneration among their idols. . . . They kept these statues together with the ashes, all for which they kept in the oratories of their houses with their idols, holding them in very great reverence and respect. And on all of the days of their festivals and rejoicings, they [women] made offerings of foods to them, so that food should not fail them in the other life, where they thought that their souls reposed, and where their gifts were of use to them (Tozzer, 1941:129–31).

Several wooden idols recovered from the Sacred Cenote should identify the containers or urns specifically made for cremated remains in which the smaller burned bones (fragments of long bones, vertebrae, etc.) could have been originally placed:



FIGURE 8.9. Chichén Itzá's Sacred Cenote (photo by Anda)

Small wooden statues have been recovered from the Cenote of Sacrifice at Chichén Itzá. On wooden armatures with sticks for arms, legs, and heads are molded copal and rubber bodies with arms, legs, and heads. In one of them there is a hole on the back of the wooden body in which ashes may have been placed as described by Landa (Tozzer, 1941:131).

Evidence of the latter was also found in the Postclassic site of Mayapán, where several vessels containing the remains of cremated bodies were found in its ceremonial center (see Serafin and Peraza in this volume).

Finally, the traces left by natural decomposition provide important indirect or direct information on previous cultural behavior and disposal. Most segments observed during this study are consistent with their underwater disposal. Only one humerus showed root marking. Even though this bone is not reliable for sex determination (Bass, 1987), its gracility, together with the state of the epiphyseal closure, leads us to believe that it belonged to a young woman. The root marks on this bone indicate that it was probably buried prior to its deposition in the cenote, thus suggesting the cenote's use not only as a primary but also as a secondary human container. This enriches the discussion about the multiple functions (non-funerary or ancestral) and mortuary pathways of the cenote. We ask ourselves to what degree the cenote was used as ancestral vs. sacrificial deposit, particularly since the exhumation of bones has been related in the literature with ancestor worship and the "reuse" and replacement of ancestral bones as a symbol of completion and rebirth from the ancestral bones more than death and decay (see for example McAnany, 1995:46). In particular, evidence of root marking or cremation might be an indication of secondary reverential deposits inside the

sinkhole. An alternative line of thought concerns the ritual implications of disposal itself, as the cenote might have been a place where the power of certain artifacts and objects used in rituals could be neutralized (Walker, 1995:76).

8.5. The Multiple Uses of the Cenote Sagrado

Like the 2005 study by Beck and Sievert in the Harvard collection from the Sacred Cenote, we have documented indications of different forms of *perimortem* violence and posthumous body manipulation in the Piña Chan sample. Not only are the present results consistent with what has been documented by the chroniclers and the site's iconography, but they also provide valuable additional information. The variety of documented skeletal patterns is testimony to the complexity or diversity of treatments during the *peri-* and *postmortem* stages, thus revealing that the rituals involving humans were actually much more sophisticated and diverse than suggested by the sources on Chichén Itzá and were not limited to the act of throwing in living or dead individuals.

As already noted, the sample is biased and limited in several ways, especially due to the unique characteristics of the cenote environment and the way the excavations were performed, lacking any stratigraphic control. The whole series is currently stored in two different places, which further complicates its systematic overall study. Our documentation of skeletal attributes complies with most results of Beck's and Sievert's study of the Thompson collection but also reveals important discrepancies, especially in the *postmortem* treatments involving subadults, which we have associated with dismemberment, flaying, and heat exposure. Beck and Sievert did not report any anthropogenic marks in the postcranial sections of the subadult skeletons while we find the most numerous marks in tibias. There are also slight differences in adult sex ratios. Apart from sample size and procedural differences, a possible explanation for this difference could be chronological. Thompson's excavation took place first, so at the outset of our research we speculated that he probably recovered the material laying in the top layers of sediment of the cenote, which stratigraphically represents the more recent material. However, everything seems to indicate that the collections were obtained from different areas of the cenote. While the Peabody materials appear to have been obtained, in Thompson's words, "near the middle of the cenote" (Coggins and Shane, 1989:12), the Mexican excavations should have produced most material from the south edge of the sinkhole. Therefore, the two samples might represent different epochs, which could explain the differences and witness at the same time an evolution of different cultural body treatments.

It is problematic at this stage to infer specific motivations or occasions for the behaviors documented in this study. We wonder if all the remains from the cenote are the product of primary disposal or if some are the product of secondary disposal as some segments seem to suggest. No direct information is granted on the place where the documented predepositional procedures took place, or from which ambits, social sectors, and areas the victims were recruited (see also Chap. 11). According to the written sources, most of the victims were marginalized, in

particular children. The Sotuta Homun documents repeatedly mention the kidnapping of youngsters and others who were sold by their own families to be sacrificed, a practice probably transmitted from earlier times (Anda et al., 2004). Other mortuary treatments, although their physical evidence is rare and only suggestive, seem to be ancestrally motivated.

As stated previously (Anda et al., 2004), we do not discard the possibility that some of the deposits could have been unrelated to any ritual practices, as in the case of accidental falls into the cenote. The cenote could have served as a depository of different kinds, related to suicide or clandestine behavior in more recent times, as it was common practice during the caste war to get rid of corpses by throwing them into sinkholes.

We therefore emphasize the need for taking into account the potential diversity of body treatments that both cenote collections might stand for and their ritual occasions, which remain to be explored by future studies along this line (see also Beck and Sievert, 2005; Tiesler, 2005). The number of individuals, body or bone segments deposited there will most probably remain unknown, especially since the bottom of the sinkhole still retains material, probably from still earlier times. As noted, a number of questions remain open and are awaiting additional research. It is to be hoped that both skeletal samples from the cenote at Chichén Itzá and those from other Yucatecan cenotes might be studied systematically as we have previously proposed (Anda, 2003).

8.6. Conclusions

Chichén Itzá's Sacred Cenote was not only a major pilgrimage destination but also the site for a wide array of ritual activities, including those relating to human sacrifice. The great diversity of marks on skeletal remains recovered from that cenote, ranging from defleshing to dismemberment to flensing to charring, suggests a very elaborate body of belief and ritual far beyond the previous assumption that victims were simply tossed into the water. Moreover, the physical characteristics of the skeletal remains strongly suggest that sacrificial victims were selected for their gender and age, these criteria being culturally significant, child victims, for example, impersonating mythical characters. Since the male gender is dominant in Maya mythology, it follows that most sacrificial victims would have been male, and the skeletal remains studied for this paper indeed reflect this emphasis (68.8% male). All such findings seem to demonstrate, if not strongly suggest, that more than a single annual event involving human sacrifice took place at the Sacred Cenote, the cenote was really an arena in which numerous separate and distinct rituals were enacted at various times of the year (see Vail and Hernández for an array of possible festive occasions). For example, heat exposure being more in evidence in subadult bones, and children and juveniles constituting the bulk of the sample studied (69%), suggests that the rituals requiring children took a different form from those requiring adults. Similarly, the presence of marks on only the upper limbs of females suggests unique rituals that specifically required female victims.

This conclusion – that Maya body processing was hardly a single event, much less a casual disposal of bodies, but instead was loaded with cultural significance – highlights the gaps in our knowledge of the symbolic, funerary and religious life of the Maya, since previous expeditions have in effect focused more on simply recovering human remains than on attempting to establish their in-situ significance. The mechanism by which the human remains were preserved down through the centuries and their disturbances due to water motion, erosion of strata, interference by roots, and bottom instability, all pose special challenges for cenote exploration (Tiesler, 2005).

All these findings and factors lead to the conclusion that future research should be governed by a new sensibility. Rather than seeking human skeletal remains in and of themselves, archaeologists should seek an ever-greater understanding of the living world of the Maya, for which any skeletal remains that happen to be found are loaded with clues. Such a new sensibility of remains as a means to an end rather than an end in themselves, would mandate a much more deliberate search for any and all cultural clues that may exist in the environs where remains are found, as well as a greater awareness of the critical need to exercise much greater control in the recovery of all remains and other objects. Such a new sensibility would assist future by state-of-the-art underwater explorations, as a necessary starting point to expand the understanding of the complex ritual activities that led to human disposals in flooded caverns, including their occasions, meanings, and changes through time.

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Endnotes

1. The age estimation is oriented in the state of fusion of the epiphysis (none of the tibias showing this mark preserved the epiphysis), as well as the diaphyseal length and diameter (Bass, 1987).
2. Unfortunately there is not an official report that indicates the specific layer the material came from; the only evidence regarding the provenance of the material appears on the surface labels of some of the analyzed segments, which read “CU 1,” abbreviated from “Cuadrante 1.” Some other segments show the term “Sección Templo” (Temple Sector) identifying the area right beneath the temple on the edge of the cenote.

9

Sacred Spaces and Human Funerary and Nonfunerary Placements in Champotón, Campeche, During the Postclassic Period

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9.1. Introduction

Up to now, the bright spot in regional mortuary investigation has been the Classic Maya Lowlands. A vast amount of literature exists on ancestral veneration during these times, including well-furnished dynastic burials, along with a long tradition of funerary customs and human sacrifices. Much less heeded by the academic community have been the mortuary manifestations of the Postclassic. Perhaps this situation is due to the increase of postdepositional practices and collective burials and the practice of cremation, all noted during the second millennium. These traditions have resulted in biases in the mortuary record in that privileged burials are almost missing and they have restricted the potential for reconstructing modalities of individual and collective funerary or sacrificial treatments (see for example Ruz, 1991).

The principal goal of the present work is to interpret different funerary and extrafunerary posthumous body treatments in the epicenter of the coastal center of Champotón, Campeche, during the Postclassic. For this purpose we will consider specifically osteotaphonomic factors and contextual evidence, designed to facilitate comprehension of the multiple pathways taken in the processing of the human body, along with parameters in the determination of their funerary or post-sacrificial connotations (see Tiesler in this volume). In doing so we intend to provide differential accounts of the motives and meanings implied in the different ritual treatments and discard processes observed.

9.2. Champotón

Today, the ruins of Champotón are buried beneath the modern day city with the same name. The foundations of the ancient center stretch to the north, south, and east of the port, which is situated on the western limits of the Peninsula of Yucatán where it extends along the Gulf of Mexico and the banks of the Champotón River (Folan et al., 2002a,b). The climate of Champotón is warm;

temperatures are stable throughout the year and the rainy season corresponds to summer and fall (Leon-Portilla, 1995). In ancient times, Champotón was known as *Chakan Putun* or *Hol Ha Chakan Putun*. The former name, as translated by David Bolles, means “potters’ savanna” and the latter “port of the potters’ savanna” (Folan et al., 2004), alluding to nearby clay or muddy deposits along the banks of the Champotón River. The Chronicle of López de Gómara (1943) *Historia de la Conquista* mentioned the site as “Potonchan” since its inhabitants were identified as Putun traders that experienced their major development during the second millennium AD and had fame as gallant warriors. Potonchan, however, is located in Tabasco and Kaplan (1997) has questioned the existence of any Putun trader group, as identified previously by Eric Thompson and others. As it may be, the position of Champotón in the prehispanic regional scheme reveals important aspects on its political integration and the ethnic identity of its inhabitants during the Classic and Postclassic periods. Champotón’s population has been identified alternatively as Chontal speakers and peninsular Yucatecan people. In particular, they have been associated with the Itzáes of Chichén Itzá and groups from Mayapán that, according to Vargas (2001) participated in the confederation of Acalan in Tabasco during the Postclassic.

The first investigators to carry out explorations in Champotón were Alberto Ruz (1969, 1991), and Jack Eaton and Joseph Ball (1978) who identified local ceramics dating from the end of the XII or the beginning of the XIII Century. Ruz also explored an esplanade situated between the Gulf and the modern market and described a burial with an offering (Ruz, 1969). More recently, Eaton and Ball (1978) reported a series of prehispanic structures buried under Champotón’s modern residential area.

It is noteworthy that neither Ruz nor Eaton located the remains of the monumental public buildings or remains datable to the Preclassic and Classic (Folan et al., 2002a). Recent interdisciplinary investigations, carried out by the Centro de Investigaciones Históricas y Sociales (Universidad Autónoma de Campeche), have established that Champotón was inhabited by 300 BC. During the Postclassic, the settlement of the city and port covered approximately 25 km² and integrated a population of as many as 20,000 inhabitants. According to the Books of *Chilam Balam* (Folan et al., 2004), the town was one of the three dominating regional capitals in the Peninsula of Yucatán, together with Chichén Itzá and Mayapán.

The results of our archaeological investigations confirm the existence of an apparently unique 50 × 50 m triadic, megalithic structure in Champotón with a major staircase toward the north and other megalithic staircases at each corner that date from before the time of Christ up to the conquest (Folan et al., 2002b). This chronology has been reaffirmed by Donald Forsyth (2004). Architectural and ceramic remains have confirmed influences from Northern Yucatán during the Terminal Classic (Folan et al., 2000a; Forsyth, 2004). Our investigations suggest that the settlement started to evolve inland during the Preclassic and expanded toward the coast during the latter part of the Classic. Eventually, Champotón’s urban expansion reached the coast during the Postclassic, a process

similar to that experienced by other coastal settlements during that time. Its growth toward the coast during the last period of prehispanic occupation may have been motivated by improving meteorological conditions and the utilization of regional resources (Folan et al., 2004).

9.3. This Study

Chakan Putun (Champotón) was one of the most important sites on the Peninsula of Yucatán. The burials under study were deposited near its epicenter during the Postclassic (Folan et al., 2004). The majority of these burials were recovered from walls and in association with the principle staircase of the ceremonial/administrative structure forming the partially abandoned Group I, as well as Groups V, VIII, and X, during the 2001 and 2004 field season. These burials total 90 individuals from primary and secondary contexts. They include isolated human fragments from modern buildings that had been donated by Champotón's modern population.

The characteristics of the recovered skeletal material made it necessary to divide the collection according to available contextual information. In those deposits that permitted evaluation, a series of parameters were applied to distinguish differentiated patterns of behavior before and after corpse deposition (Table 9.1). According to the classification, the funerary contexts express treatments directed toward the deceased in the form of a careful mortuary arrangement, positioning, functional spatial association (residential vs. administrative spaces), offerings, and negative evidence of *perimortem* violence. To the contrary, we expect nonfunerary sacrificial contexts to exhibit suggestive patterns in the form of simple, direct, and irregular placements, along with their location within the ritual or public spaces. Culturally inflicted marks due to *perimortem* violence or corpse processing were likewise treated indicating nonfunerary behavior.

The great majority of the burials were recovered from four units in the center of modern Champotón. They are represented on the map according to their assigned funerary or extrafunerary status (Figs. 9.1 and 9.2). The different forms

TABLE 9.1. Differential criteria for funerary and nonfunerary human deposits

Features	Funerary	Extrafunerary
Treatment	Referential mortuary treatment	Nonreferential processing; discard
Architectural function	Residential/administrative	Public/ceremonial
Body deposition	Direct/indirect individual, multiple successive	Direct, individual, partial, multiple simultaneous
Body arrangement	Regular	Irregular
Processing of the body	Lack of anthropogenic marks	Anthropogenic marks may be present
Offerings	With or without offerings	No offerings
Mortuary arrangements	Present	None

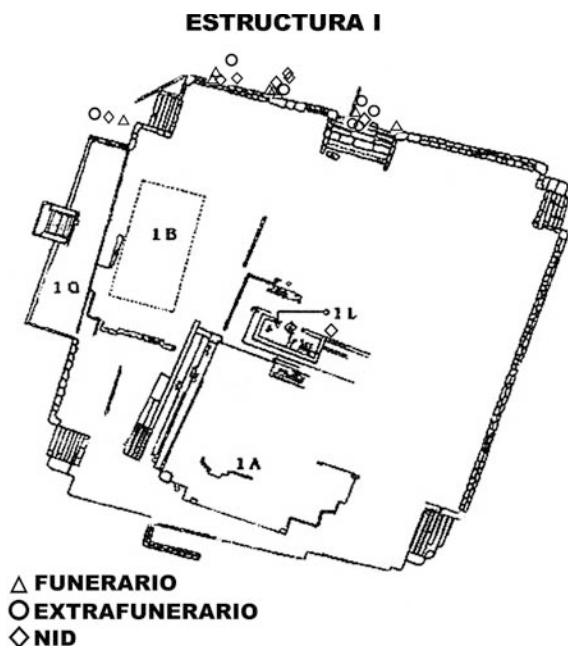


FIGURE 9.1. Drawing of Structure 1, Group 1, indicating the position of the funerary, extrafunerary, and not-identified burials (drawing by R. Gonzalez, in W. Folan et al., 2003; burials located by A. Cetina, M. J. Gómez and A. Hurtado)

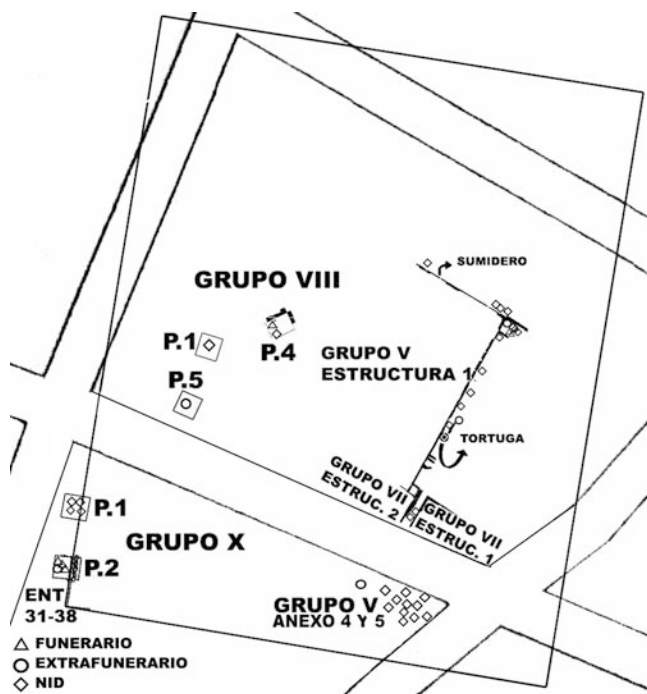


FIGURE 9.2. Map of the site of Champotón showing Groups V, VIII, and X (drawing by A. Morales, R. Gonzalez, W. Folan, A. Cetina, and A. Hurtado)

of body placement were reconstructed by studying their taphonomy, mainly following the principles put forth by the French *Anthropologie de terrain* (Duday, 1997; Hurtado, 2003). Macroscopic inspection was aided by histological sections. The evaluation of biographic data on sex and age at death, evidence for disease, and biocultural practices followed standard procedures (see Buikstra and Ubelaker, 1994). Specifically, paleopathological analysis relied on indicators of the chronic deprivation of specific anemic states (porotic hyperostosis/cribra orbitalia) as well as infectious and degenerative processes. Input on *peri-* and *postmortem* body processing is derived from the pattern of anthropogenic marks by Pijoan (1997), Turner and Turner (1999), and White (1992), as well as personal observations in the area (Cucina and Tiesler, 2006; Tiesler, 2002, 2004; Tiesler and Cucina, 2003).

9.3.1. *Champotón's Prehispanic Population*

The skeletal series from Champotón is made up of 90 human deposits that we classified in the following manner: 24 simple, individual placements (26.67%), 7 individuals within a multiple deposit (7.78%), and 59 unclassifiable contexts (65.56%). Of this total, 29 (32.22%) individuals were primary and direct, predominately deposited in earthen and *sascab* fill, piled up against platform walls or on and at the base of a megalithic staircase. Within the group of primary depositions, 15 (51.72%) were recovered in dorsal decubitus position without any preference in orientation and little or no offerings. Twelve additional human assemblages (41.38%) lacked any clear funerary connotation of having been deposited mainly in an irregular, ventral position with no mortuary arrangements, and no or few offerings. Two more primary deposits could not be assigned to any category for lack of available criteria. Similarly, of the 61 nonprimary burials (which make up 67.77% of the total sample), 2 were secondary, and 59 more unclassified.

The population profile of Champotón was not representative demographically, since the age classes are not proportionally represented. Of the 29 sexable burials, 20 were male individuals (69%) and only 9 were females (31%). Within the group of unsexable remains, we could identify 13 infants, making up 14.44% of the total sample. Regarding pathologies, their overall presence in the total population is not particularly high. Of the scored lesions (arthritis, porotic hyperostosis, cribra orbitalia, and periostitis), porotic hyperostosis was the one with the highest rate (48.28%).

9.3.2. *Funerary Contexts*

All 15 burials were classified as primary and direct. The dead were interred on their back ($N = 5$), side ($N = 5$), and in seated positions ($N = 3$). Two more individuals had probably been wrapped before being buried. Most of these contexts were recovered from along the walls and the main stairway of a residential group. No definite orientation preference was observed and the presence of an offering did not result in a shared characteristic. Only two burials contained offerings,

both belonging to young men. One of them (Burial 27) was accompanied by a tripod vase (Fig. 9.3) and the other (Burial 34) by 78 notched fishing stone weights, one columnela of a *Strombus gigas* used to make and repair nets, one *Oliva reticularis* shell, and 40 *Pronium apicinum* shells (Fig. 9.4).

The burials were occupied by six males between 15 and 60 years of age, two females between 12 and 25 years, six subadults between 1 and 11 years, and one



FIGURE 9.3. Offering from Burial 27 (photo by A. Hurtado)

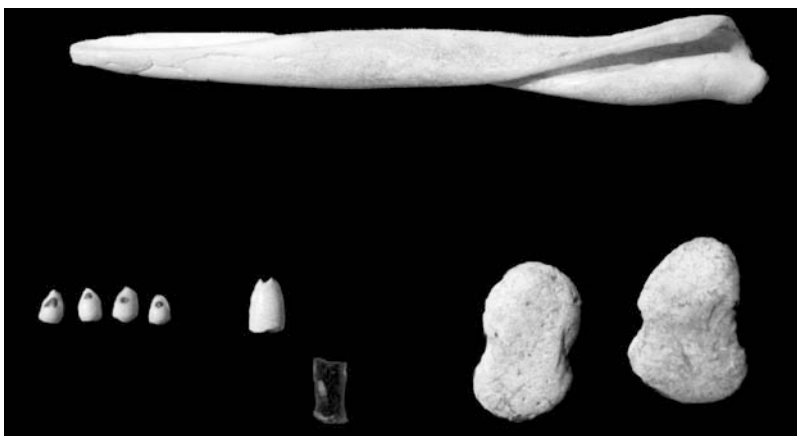


FIGURE 9.4. Miscellaneous offerings from Burial 34 (photo by A. Hurtado)

adult of undetermined sex. Two adult males displayed healed traumas in the form of circumscribed depressions that occurred in the left supraorbital portion of the skull. In the literature, this type of injury and its location on the skull is associated with right-handed blows to the head, carried out with a blunt instrument during personal confrontations (Ortner, 2003). This could indicate the participation of these individuals in such an activity. López de Gómara (1943) recalls, in reference to the battle in Potonchan, that “. . . the Spaniards began to attack the wall and the defenses and to fight with the enemies that had been throwing darts, spears, and stones with sling shots as well as engaging in hand to hand combat. . . .”

Regarding pathology, the individuals from the funerary contexts of Champotón revealed a high rate of arthritis (42.86%) and porotic hyperostosis (60%) with a lower rate of cribra orbitalia (22.22%) and periostitis (20%). Noteworthy is also an unusual set of lesions encountered in the young adult male recovered from Burial 27. This individual manifests multifocal lithic cavitations at the level of the second and third lumbar vertebra whose borders were sclerotized and therefore well delimited (Fig. 9.5). While not excluding other diseases, its morphological characteristics could stem from endemic infectious brucellosis provoked by a type of bacillus present in domestic animals as in the case of dogs or deer as well as others. This illness is transmitted to humans through the



FIGURE 9.5. Evidence of potential brucellosis in two adjacent lumbar vertebrae from Burial 27 (photo by A. Cucina)

consumption of milk (*Brucela melintesis*) or infected meat (*Brucela suis*). It manifests itself principally in males, in whom it affects mostly the vertebral column or the sacroiliac articulation (Ortner, 2003).

9.3.3. *Extrafunerary Contexts*

Twelve burials were counted within this category. They are characterized by direct, irregular positioning in filled-in spaces at the bases of the impressive platform walls of Groups I and V. They are mostly aligned along the length of a particular section of platform wall or associated with the stairway of a single building (Structure 1, Group I) with the exception of Burial 32, an 8-year-old infant located near the wall of the megalithic platforms associated with Groups V, VIII, and X. These burials had been placed predominantly either face down ($N = 6$) or on their back ($N = 6$). It is worth mentioning that the discriminating element for their tentative attribution to the original nonfunerary or offering contexts was that the extremities appear in irregular flexed positions (Fig. 9.6) and the absence of anatomic parts, along with evidence for offerings like those observed in Burial 13 (Group I, Structure 1) and 23 (Group V, Structure 1), associated with platform walls and a staircase (see Figs. 9.1 and 9.2).

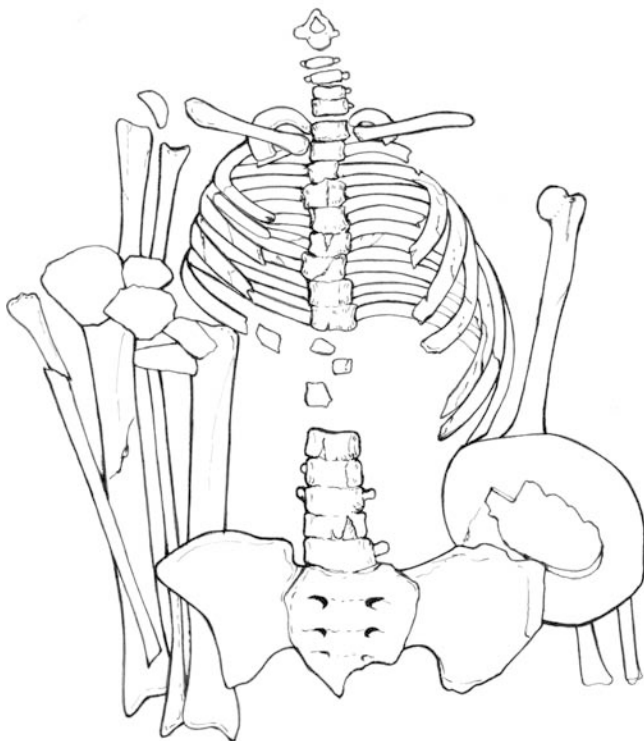


FIGURE 9.6. Drawing of the skeletal remains encountered in Burial 23 (by M. Sánchez)

This group consists of three female burials, two of which fall within the range of 17–35 years of age and one adult of undetermined age. Five male adults between 20 and 50 years of age and two of undeterminable age were also recovered along with a young adult of 30–35 years of age of undeterminable sex and three infants between 7 and 12 years of age. It is of interest that the individuals who did not receive a formal burial suffered from a series of health problems. *Cribra orbitalia*, related to anemic conditions caused by nutritional deficiencies or parasitosis (Ortner, 2003), stands out in 42.86% of the cases, followed by porotic hyperostosis (33.37%) and periostitis (22.22%). Nonetheless, they do not represent significant differences with the funerary context, an observation which may also be due to the reduced number of individuals evaluated.

In the following section we will make special reference to three contexts in this group, all dated to the Postclassic Period, where we detected anthropogenic marks on the skeletal material. They include two partially articulated skeletons and the remains from a successive deposition (see also Gómez et al., 2003; Hurtado, 2003).

Burial 23

This deposit identifies an incomplete primary interment in a dorsal decubitus position that had been placed on a north–south axis next to a platform wall (Fig. 9.6; Gómez, 2004). Two shell fragments appeared adjacent to the burial along with an obsidian blade and abundant faunal remains. The trunk segments were articulated as were those of the arms. Both tibias and fibulas were found in their expected anatomic position, while at the same time both femurs and the hand and foot bones are completely absent. The skull was not in its anatomic position but was at the level of the left arm.

The peculiar disposition of the segments that make up this apparently articulated individual, and the notable absence of femurs, hands, and feet could be explained after a revision of the bone surfaces. Slicing and scratching marks, carried out with a fine cutting instrument, such as an obsidian blade, cover the diaphyses of both tibias and fibulas indicating they were at least in part defleshed. A deep horizontal cut was detected in the front of the left malleolus close to the talus, possibly destined to cut the tendons that cross this part of the lower right leg and, along with them, separated it from the foot. The long bones of the upper extremities were complete, repeating the anthropogenic pattern over the diaphyses, although lacking any marks indicating the amputation of the hands.

Additional information clarifies the distribution of the marks on the axial skeleton. Fine cuts on the trunk cover the inside and outside of both pelvic wings, but do not affect the sacrum or any vertebra. The marks on the scapula and the clavicle are centered in the areas of muscular insertion and the external surfaces. The majority of the marks on the ribs also suggest defleshing of their external side, while some medial ribs appear also to have been cleaned of flesh on their internal face (Figs. 9.7 and 9.8).

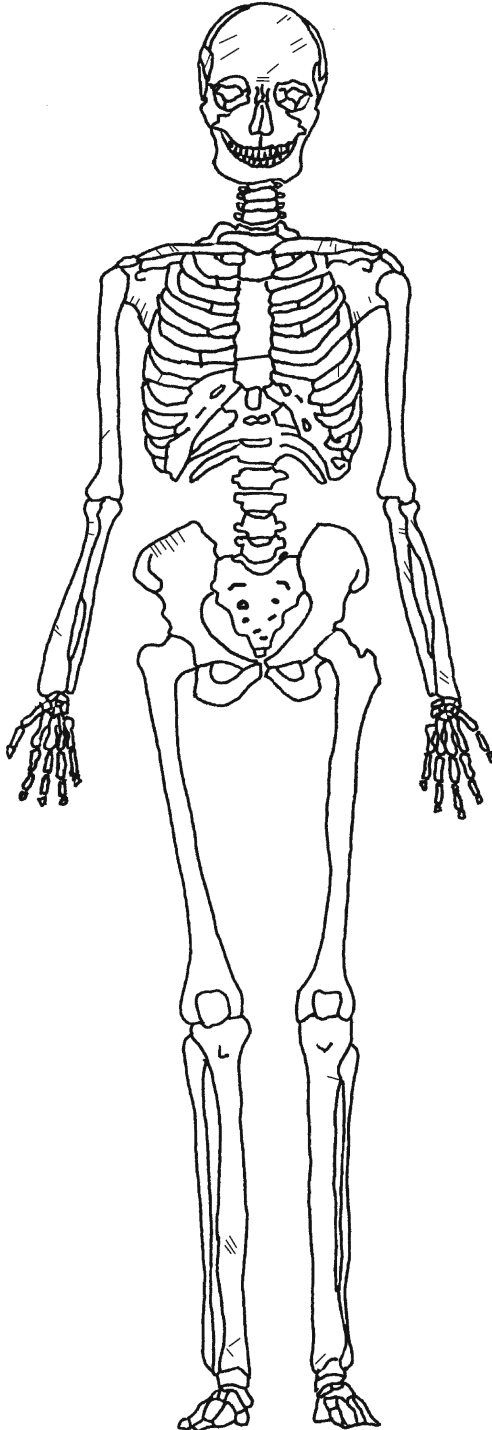


FIGURE 9.7. Anatomical distribution of the cut marks encountered in the ventral part of the skeletal remains from Burial 23 (drawing by A. Hurtado and A. Cetina)

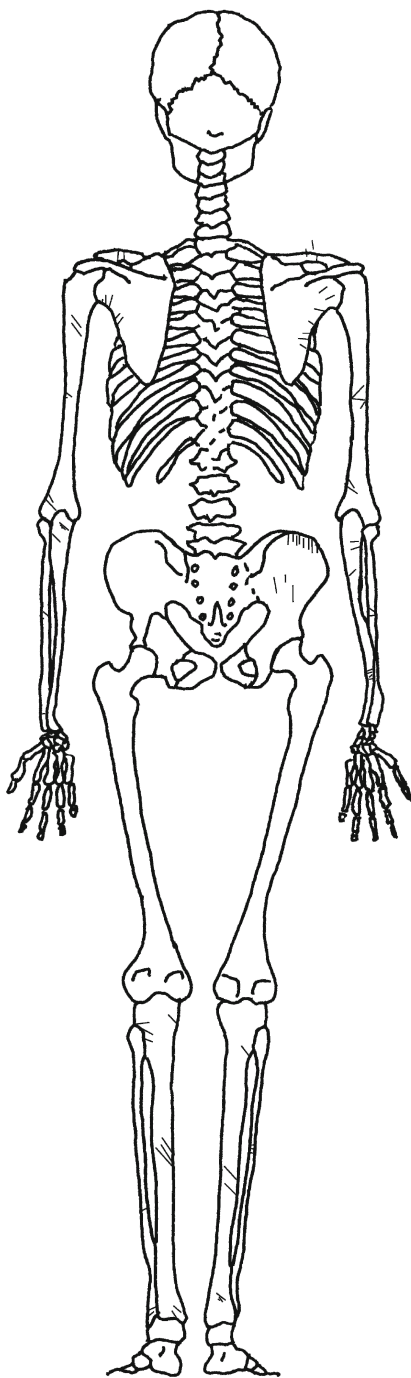


FIGURE 9.8. Anatomical distribution of the cut marks encountered in the dorsal part of the skeletal remains from Burial 23 (drawing by A. Hurtado and A. Cetina)



FIGURE 9.9. Cut mark that severed the body of the sternal bone from Burial 23 (photo by A. Cucina)

The sternum had been severed horizontally at the level of the fourth intercostal space (Fig. 9.9) (see also Gómez et al., 2003). The skull lacks both the lower jaw and the maxilla. What remains of the face reveals fine incisions covering the malars and the frontal bone. From the pattern, it seems that the head was flayed and that the lower part and the nasal area of the face was removed, perhaps in the process of a posthumous decapitation as also suggested by the location of the cranium, found at a notable distance from its anatomically expected location.

On the whole, the marks of posthumous manipulation and mutilation emphasize the process to which the body was subjected: flaying and defleshing, with feet and hands cut off. The thoracic cage had been opened and its contents removed as in the case of the areas including cuts on the surface of the inside of the pelvis and the left side of the ribs. Also noteworthy is the condition of the skull suggesting the mutilation of the face and the extraction of the lower jaw and maxilla. The complete absence of both femurs with the inferior parts of the legs is present and articulated.

Burial 28

It contained a young adult (20–25 years) probably of male sex that had undergone similar posthumous treatments as burial 23. Due to deterioration, however, it was impossible to comprehend the involved anthropogenic processes to the same degree

as in the case of the individual described above. The articulated skeleton was laid on its back on a north–south axis. It lacks completely the lower extremities as well as both hands and the left humerus. Cut marks cover the right humerus, the clavicles, and the external face of the left scapula. The skull, represented by fragments of the cranium and the mandible, displays horizontal cuts on the frontal bone in a manner similar to those observed on Burial 23. We think that the posthumous marks of manipulation and mutilation demonstrate the type of processing that took place on the body, which appear analogous to those reconstructed in Burial 23.

Additional information on related activities comes from the human remains encountered in association with the skeleton described above. Apart from faunal remains, the incomplete burial was accompanied by segments of other human bodies. They pertain to at least three left and four right feet, one left hand, and three right hands without being able to ascertain the ones that may have pertained to the main body. The semicomplete presence of each hand and foot still permits individual assignment. This aspect along with the homogeneous look of the bony surfaces and the homologous conditions of decomposition suggest that they belong to a single deposit of body parts and not a secondary cluster of isolated bones from different primary contexts. It should be added that the sides and dorsal surfaces of a left foot's proximal phalanx and another one of a hand show deep cut marks inflicted by a blade. Given its characteristics and taking into account the context under consideration, the marks seem to testify that the two fingers were cut off.

In addition to the already cited remains, the assemblage includes several adult teeth, fragments of a rotula, a tibia, pelvis, thoracic and cervical vertebrae, a clavicle, ribs, scapulas, and forearms that indicate defleshing marks on some surfaces. A left ulna seems to articulate with its ipsilateral radius. It shows cut marks on its proximal extremity while the radio exhibits a fresh bone fracture and marks of chewing on its distal end. All together, the associated fragments pertain to parts of at least one adolescent and four adult individuals of different physical constitution or three individuals if we consider that some associated segments pertain to the burial's principle individual. The taphonomic characteristics and the skeletal attributes seem to indicate that the assemblage once consisted of discarded body segments following posthumous body processing.

Successive Deposition Context: Group X

Different from the aforementioned deposits, the one recovered from Pit 2, Group X, appears to have been formed by a succession of both funerary and extrafunerary placings, which, with time, developed into a column of interments. The remains are associated with the megalithic southeast platform wall of a ceremonial/residential structure. The burial column reaches a depth of 2.2 m and is associated with Late Postclassic period ceramic sherds, including a red fine orange variety, Matias type and ceramics that appear related but not identical to those of Mayapán (Forsyth, 2004). Our osteological results emphasize the lack of female burials in this context, since the three sexable remains were all determined as adult

males. Two were in their fourth decade of life and the cranium identified as number 36 corresponds to a person of approximately 50 years of age-at-death. Four children died during their fifth, sixth, and eighth year of age, respectively.

All of the complete or semicomplete burials were in anatomic relationship indicating that the decomposition of the bodies occurred in situ (Fig. 9.10).

Two individuals were interred in a sitting position, one on its back and one on its side. We argue that Burial 37 was the first to be placed. The positioning of the remains and their subsequent collapse indicate that the original funerary space had not been filled with earth and may indicate that the body had been introduced as a bundle. Adjacent to this placing was the direct burial of a child in its second infancy (Individual 35). Afterward, this same space continued to be used to include the seated burial of Individual 34, located immediately above Burial 35. This was the only interment accompanied by a substantial offering. It was also accompanied by the skull of a mature male that included his mandible and the first cervical vertebra.

On a later occasion, three subadults were placed in a completely flexed position above the original compound to form a type of second mortuary column.

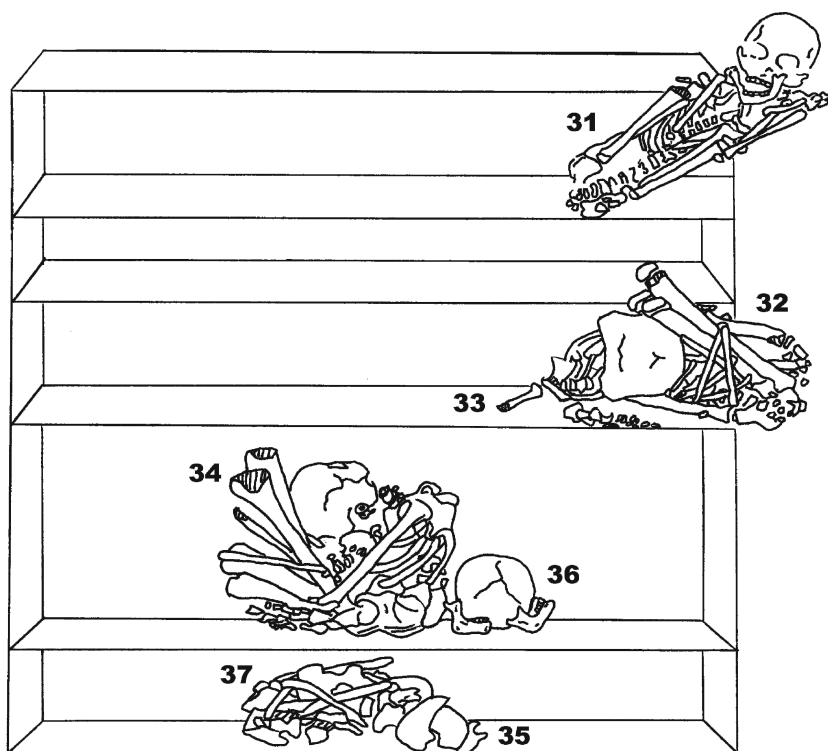


FIGURE 9.10. Drawing of the taphonomic and stratigraphic distribution of the multiple interment from Group X, vertical view (by V. Tiesler)

In this upper part, Burial 32 remained alongside Burial 33, followed by Burial 31. This was the last to be interred, closing the space and terminating its use as a human receptacle. During this episode, a worked stone (possibly from the building) was placed immediately above the burial. We propose that this part of the site was already being abandoned when the stone fell and was covered by the earthen fill.

It seems that the individuals from Group X were not free from health problems. The elevated prevalence of porotic hyperostosis and cribra orbitalia is noteworthy. This condition left its traces on five of the six crania we were able to evaluate. In a thin section, an enlargement of the diploe that opens toward the roof of the orbit was noted. The lack of appositions or zones of hypervascularization that could indicate an infectious or hemorrhagic process, confirms its metabolic etiology. In the literature, these types of lesions have been related to anemic states caused by nutritional deficiencies or parasitosis (Ortner, 2003) in a manner similar to the porotic hyperostosis of the vault of the cranium. It is of interest that this last ailment affected all the individuals observable in our series, thus reflecting the histological pattern already described for *cribra orbitalia* (the reduced external thin layer with increase in the marrow spaces without trabecular thickening or orientation, phase 1). It should be noted that in the youngest, 1-year-old child, these conditions were complicated by a systemic infectious process that could have caused the death of the individual. Arthritic vertebral changes add to the systemic health problems among the adult individuals, as is the case of Burial 34. In all the adults we also noted the occurrences of tartar, enamel hypoplasia, parodontosis (Burials 34, 35, and 37), and caries (in Burials 36 and 37) once again testifying that living conditions were not ideal.

The erect tabular type cephalic deformation in different grades of expression merits consideration as a biocultural practice. This was a tradition that consisted in the compression of the infant's head by means of a cradleboard, a generalized custom during the Postclassic and also present in the remaining part of the collection from Champotón (Tiesler 1998). Other marks of cultural origin identify two healed depression fractures that occurred, in both cases, on the left super orbital portion of Individuals 34 and 36. Another impact, but in the form of a cut, suggests a type of *perimortem* violence, for no bone regeneration was detected. It affected the last cervical and first thoracic vertebra of an 8-year-old child (Fig. 9.11) and could have been the cause of death due to cutting the throat.

Even with the present hypothetical reconstruction, it is not possible to fully understand the procedures involved in the simultaneous burials or to be able to even prove the particular reason for the ritual activities that accompanied them. For the moment, their location provides relevant information that reflects that of the majority of funerary and extrafunerary burials under study up to now. They present a pattern of deposition along the walls of different groups, somewhat similar to many other Postclassic sites associated with burial offerings (Duncan, 2003, 2005; Mock, 1994; Walker and Lucero, 2000).

In sum, we believe that the deposition occurred at short intervals during three time periods based on the social memory of the exact location of the previous



FIGURE 9.11. Mark of impact in fresh bone affecting the seventh cervical and first thoracic vertebrae from Burial 32 (photo by A. Hurtado)

mortuary placements. The first two events included the deposition of four individuals, all of whom were males. According to what was observed, two were complete, wrapped, and maintained in a sitting position, which constituted a dominant funerary practice of the time (Fuentes and Guzman, 1969; Ruz, 1991; but see also Vail and Hernández in this volume for possible sacrificial interpretations). One of them was associated with an important offering. It appears that this treatment was directed toward the two deceased males or, if we count the deposition of the cranium next to Individual 4, there may have been three. It is worth noting that the two adults buried in the upper part of this area showed remnants of healed cranial trauma, which may indicate their participation as warriors in the armed conflicts of the region. The colonial sources offer the notion that the preservation of a cranium was reserved for the privileged, a custom observed particularly during the Postclassic, perhaps influenced by the funerary practices of the Highlands (Robicsek, 1991; see also Vail and Hernández in this volume).

The situation appears different in the case of the second series of burials. Here we have at least one simultaneous burial of two individuals with evidence of *perimortem* violence in one. Both had been placed without offerings in an irregular manner directly into the fill around the outside of a platform. These patterns,

taken together, support our interpretation as being extrafunerary and associated with ritual death. Although we can only speculate on the circumstances and social contexts under which they were carried out, the repeated use of the same space suggests by itself that the depositions were effected periodically and could have been derived from similar successive sacrificial occasions, much like the *tun* closing ceremonies described by Vail and Hernández in this volume.

We can suppose that at the moment of death, at least the subadults were unhealthy. They suffered from malnutrition and/or parasitosis to an extent that considerably surpasses that expected in regional populations of that time. It should be asked whether or not the precarious health of these individuals was related to their position in society, or if it played a role in their selection as sacrificial victims (see Chap. 11). Alternatively, one has to consider whether or not these conditions were extendible to the entire population.

9.4. Posthumous Treatments and Ritual Discard in Champotón

It is impossible to explain the precise procedures involved in the contexts under study because of the above-mentioned limitations. For the moment, however, their location and spatial association provides relevant information for the mortuary practices observed in the seat of power in Champotón during the Postclassic. With the exception of only one individual, all bodies were deposited along the sides of platforms or in front of and on a staircase, within a platform added to Structure V and along the edges of the ceremonial/administrative structures under study. As we have emphasized in the reconstruction of the context of Group X, our results indicate that the areas were used both for burials in the usual sense of the term as well as for discarded ritual and domestic cultural materials, among the human assemblages without any discernable funerary connotation. Such notion is prone to change the currently held view of spatial separation between different deposits in Postclassic sites. Additionally, we note that different from other major Postclassic Maya sites such as Mayapán and Chichén Itzá (see the other contributions in this volume), Champotón's mortuary record, up to our present knowledge, does not include ossuary, cremated, or incinerated remains. Apparently, offerings were not frequently deposited together with the dead from Champotón's central area, as only five individuals were invested with offerings and only one individual presented abundant furnishings.

More specific ritual activities in Champotón are testified to by some of the above mortuary reconstructions. The subadult deposit with indications of throat slashing recalls descriptions like that of Fray Toribio Motolinia (1950) on Maya rituals dedicated to the God Tlaloc during the Contact period:

... once a year, when the corn was the size of a human hand, in the villages housing important individuals, those who called their homes "palaces," a female and male child three or four years old were sacrificed. These children were not slaves but the children of

principal members of the society. They made this sacrifice in the forest in reverence to an idol they say was the God of Water and the one that provided them with rain. When there was a lack of water, they asked this idol for it. They did not sacrifice these innocent children by removing their heart but by cutting their throats. They were then wrapped up in cloth and placed into a box. . .

Fray Diego de Landa (1982) refers to orphaned children, slaves, and captives taken in warfare as preferred sacrificial victims. He mentions a form of sacrifice wherein the performers, after extracting the victims' hearts, ". . . flayed the entire body except for the feet and the hands after which the priest, completely naked, put on the skin and danced with the rest of the attendants. They usually buried these victims in the patio of the temple or they were eaten by the principal people of the area as well as others; the hands, feet, and the head belonged to the priest and officials who considered those sacrificed in this manner as saints. If those sacrificed were slaves captured in war, their owners took their bones to dance using them like an emblem or symbol of victory. . ." (Landa, 1982:51).

It is of interest that the posthumous manipulations documented by Diego de Landa, such as the flaying and amputation of body parts including the head, hands, feet, and some long bones, mirror the reconstructed treatments that the remains from Deposits 23 and 28 of our series underwent. Most probably, both deposits functioned as postsacrificial containers used to discard the human body segments produced during one or mores such festivities. At the same time, the activities manifested here, appear widespread during the Postclassic period, as similar treatments have been described for Mayapán, Chichén Itzá, Colha, or Petexpatun (Adams, 1953; Duncan, 2003, 2005; Mock, 1994; Ruppert, 1935; Walker and Lucero, 2000; see also Anda, and Serafin and Peraza in this volume), although the information provided for those centers is less explicit than in our case.

On a broader regional scale, Pijoan (1997:154–160) and Pijoan and Mansilla (2004) report similar defleshed and dismembered human multiple assemblages from Aztec Tlatelolco, presenting sternal bones that have been sectioned similarly to the ones described here from the Champotón series. Following Pijoan's argument, the blows struck the sternum both from the front and the back, implying that at least part of the lesions should have originated once the body was dismembered. She concludes, therefore, that, rather than transverse bilateral thoracotomy, the lesions most likely stem from postsacrificial body manipulations (Pijoan, 1997:266), without excluding the possibility of a bilateral thoracotomy during sacrificial heart extraction (Pijoan and Mansilla, 2004). We think that in both sites, Tlatelolco and Champotón, the lesions likely stem from posthumous body manipulations, given the broad range of *postmortem* marks encountered in all specimens, although we do not exclude the possibility that the cuts were inflicted during sacrifice by heart extraction (Tiesler and Cucina, 2006).

This might resemble a case from the Classic period deposit at Loma Alta, Michoacan. Pereira (1999:192–194, 233–243) documents two parallel cut marks, on the outer surface of a distal sternal segment, running diagonally downward toward the left, leading the author to believe that the slicing could have constituted

one end of an incision below the rib cage during the opening of the thorax. Pereira describes an impact notch further up the sternum and identifies breakage and cutting in a number of left and right ribs. Finer cut marks cover some of the bone shafts and surround the joints of the arms and the shoulder girdle. The overall scenario is that of extensive posthumous body processing. As in the aforementioned cases, the evidence from Loma Alta is far from conclusive. The specimen also displays ample evidence of *postmortem* body mutilation, again rendering problematic its interpretation as sacrificial.

Considering the aforementioned cases from the Maya realm and other parts of Mesoamerica, we think that the sample from Champotón constitutes the first complete skeletal documentation that confirms that practices such as flaying and mutilation described historically and represented in the ancient iconography of the Classic and the Postclassic actually took place in Champotón. These rituals, flaying in particular, appear associated with sacrifices to and in representation of God A of the Schellhas pantheon, the god of death and sacrifice, execution and violence identified with the cardinal direction of the north. Associated with God A is God Q, who in the Codex Dresden is depicted with defleshed ribs, mandibles, and a characteristic black band crossing his profile, similar to the *Xipe Totec* figures depicted in Aztec iconography (Miller and Taube, 1993; Taube, 1992; see also Vail and Hernandez in this volume).

During the early Postclassic period, *Xipe Totec* (the “flayed one”) achieved popularity along the Gulf Coast and was incorporated into the sacred Maya pantheon. Representations of *Xipe Totec* appear in Chichén Itzá and in Mayapán, a manifestation of a pan-regionally shared myth transformed to integrate itself in the religious traditions of the Peninsula (Miller and Taube, 1993; Taube, 1992). The cult was also to gain a prominent place in the Aztec pantheon as a patron deity and spiritual power of agricultural renewal (Miller and Taube, 1993). According to detailed colonial descriptions, sacrificial victims, usually captives, were flayed during the celebration in honor of *Xipe Totec* (*Tlacaxipehualiztli*). The flayed skins, still carrying the incision from heart removal and falling loosely from the hands and feet of *Xipe* impersonators, were worn until the end of the 20-day period of festivities.

The colonial accounts on the Aztec *Xipe* cult mirror Landa’s description on flaying ceremonies. Also the mention of Landa and other chronicles (Ciudad Real, in Nájera, 1987; Villagutierre, 1933) regarding the ritual consumption of a victim’s body parts is relevant for this discussion to understand occasions and motivations for the treatments that followed the defleshing activities that left their traces in Burials 23 and 28 along with the separation of limb parts and the head. What was the activity that caused the green bone fractures in the left arm from Deposit 28? Even though we lack a set of convincing indicators to confirm ritual anthropophagy for either of the two human assemblages (see Hurlbut, 2000; Turner and Turner, 1999), both the cut marks and the contextual information are elusive to the possibility that it could have been practiced.

As we have demonstrated, everything indicates that the seats of power at Champotón were used not only as funerary spaces but also as nonreverential

ritual disposal areas of human remains. We consider that the conducts described in this chapter express local traditions; others respond to shared Maya and pan-Mesoamerican activities and belief codes, which lead us to believe that we should be able to find evidence of analogous practices in other regional centers of this era, perhaps not only in the frame of Maya culture but in a more extended, regional sense, like that of Veracruz and the Highlands of Mexico. This leads us also to ask ourselves if more of the ritual patterns so far defined are to be found in the central areas of the site of Champotón still to be excavated and, finally, if they are representative of the population who lived in the residences surrounding the city's public spaces.

9.5. Conclusion

This chapter has shed light on numerous forms of human body processing in Champotón during the Postclassic period by means of the detailed taphonomic recording and analysis of the components associated with the mortuary system and its biocultural interpretation. Our approach has granted a tentative interpretation of some of the expressions of ritual mortuary conduct observed in Champotón, some of which testify to the ritual conduct described by historical accounts of the region and other parts of Mesoamerica. Meanwhile, new questions have been raised, and directed toward the symbols and significance behind the behavioral patterns attested to their funerary or extrafunerary origins, their particular motivations, and their role in the context of the seats of power in Champotón on the eve of conquest. We hope that our investigations will inspire additional osteotaphonomic work along the same lines that are apt to amplify our vision of the framework of Maya ritual conduct that accompanied natural or culturally induced death during the Postclassic.

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10

Human Sacrificial Rites Among the Maya of Mayapán: A Bioarchaeological Perspective

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10.1. Introduction

Human sacrifice appears to have been common among the ancient Maya, for whom the practice paralleled mythic acts of creation (Taube, 1990). Scenes of sacrifice by heart excision and decapitation adorn polychrome vessels, mural paintings, and bas-relief sculptures dating to the Classic Period (ca. AD 300–900) from various parts of the Maya area, and into the earlier part of the Postclassic Period (ca. AD 900–1524) at Chichén Itzá (Taube, 1990). In addition, colonial accounts of human sacrifice suggest the survival of this practice well into postcontact times (Anda et al., 2004).

However, less is known of the nature of human sacrifice during the intervening period, spanning roughly from AD 1200–1524, which is relatively unknown archaeologically compared to the earlier Classic Period. In addition, deposits of human remains from throughout the Postclassic (ca. AD 900–1524), though full of potential, present unique challenges for the identification and interpretation of human sacrificial rites. During this time period, multiple interment, cremation, and *postmortem* manipulation of the human body in general increase, as has been previously documented (see for example, Chase, 1997; Ruz Lhuiller, 1991; Tiesler, 1998). Similar deposits from the Classic Period, though not as frequent, have been identified and interpreted in various, often contradictory, ways. Recently, Weiss-Krejci (2003) has offered the alternative explanation of simultaneous secondary burial of members of kinship-based corporate groups for multiple interments with no sign of reentry, previously interpreted as sacrificial victims by Welsh (1988). Even less is known of the postsacrificial fate of the bodies of sacrificial victims for all periods.

Osteotaphonomic analysis is ideally suited to unravel the tangled web of activities that produced these complex deposits (c.f. Tiesler and Cucina, 2003). By focusing on postdepositional processes, such analysis is able to provide information on the time elapsed between death and burial as well as the circumstances under which each occurred. Of particular importance are tool marks providing direct evidence of *perimortem* violence and *postmortem* manipulation of the

body, which, when considered with contextual and biographic data such as age, health, diet, and lifestyle, have important implications for the nature of the rituals involved and the cultural beliefs that spurred them.

This paper presents results from the first osteotaphonomic analysis conducted at the important Postclassic site of Mayapán, considered to have been the last Maya capital of the Yucatán Peninsula. We examine a series of recently excavated deposits, some of which present evidence of complex secondary treatments. We highlight some of the difficulties in interpreting the nature of these deposits, as well as the valuable insights afforded by the osteotaphonomic approach outlined here, which when compared with ethnohistoric and archaeological data, allow a much fuller reconstruction of human sacrifice as practiced by the Postclassic Maya in the centuries leading up to Spanish contact.

10.2. Iconographic and Colonial Accounts of Human Sacrifice Among the Maya

Ancient Maya iconography and early colonial accounts provide a convenient starting point for investigating human sacrificial rites, offering clues as to the evidence to expect in deposits of human remains at Mayapán (for taphonomic correlates see also Tiesler in this volume). Decapitation or throat slashing may have preceded the mounting of heads on *tzompantli*, or skull racks, although we cannot rule out other forms of induced death. *Hun-Hunahpu*, father of the hero twins in the *Quiché* Maya creation story the *Popol Vuh*, was decapitated after losing a ballgame to the lords of *Xibalba*, the Maya underworld (Tedlock, 1996). Following the defeat his severed head was mounted on a tree, likely a *tzompantli*, which was sometimes depicted in Postclassic codices as a fruit-bearing tree (Taube, 1990). Further, a *tzompantli* at Chichén Itzá covered with impaled skulls sculpted in bas-relief is found a short distance from the Great Ballcourt, which bears the now-famous bas-reliefs of a decapitated ballplayer with serpents emerging from his neck (see also Miller in this volume). With regards to the bones of the victims themselves, we would expect to find their skulls on *tzompantli* with at least the top one or two cervical vertebrae still articulated, the most inferior bearing chop mark(s). As for the rest of the body, iconography and ethnohistory provide few details.

Historical accounts also discuss the *postmortem* treatment and final resting place of victims. In the report of Don Diego Quijada, Mayor of Yucatán, to King Phillip II of Spain, for the years 1561–1565, the vast majority of victims (114/143) for whom place of deposition was reported were disposed of in cenotes (Anda et al., 2004; Scholes and Adams, 1938). The same report also mentions cases in which victims' remains were deposited in the countryside, wells, caves, and near churches. Sánchez de Aguilar, writing in 1639, mentions the same locations, though adds the inside of churches, whereas the Spanish friar Diego de Landa (Tozzer, 1941) relates that their bodies were buried in temple courtyards. Landa's account, written in 1566, also mentions that *postmortem* processing included

flaying, and, in place of burial in temple courtyards, distribution of the dismembered corpse among priests and lords who then consumed the flesh. We would expect the remains of these victims to cluster as isolated, scattered segments, cached or discarded, with some presenting a pattern of slicing and chop marks consistent with flaying, dismemberment, and defleshing. Patterns of anthropogenic marks alluding to ritual consumption may also be present, although potentially differ from those described for the American southwest (White, 1992; Turner and Turner, 1999; see Medina and Sánchez in this volume for an extensive discussion).

Ancient Maya iconography conveys additional information on the processing of victims of heart sacrifice (see also Vail and Hernández, and Miller in this volume). These individuals are depicted stretched out over round stones. One such scene is found directly associated with the Earth goddess who is lying flat on her back and has two serpents emerging from her abdomen (Taube, 1990). In this example from the Upper Temple of the Jaguars at Chichén Itzá, the emerging serpents are equipped with blades as if they had slashed their way through her abdomen. This calls to mind the tearing apart of the Earth monster, Tlaltecuhltli, by Quetzalcoatl and Tezcatlipoca after they had transformed themselves into serpents, as described in the Aztec *Histoyre du Mechique* (Garibay, 1973). Importantly, Taube identifies a probable later version of this episode in a sculpture of a splayed Tlaltecuhltli figure at Mayapán (Taube, 1990:216).

10.2.1. *Colonial Accounts of Maya Mortuary Practices*

To distinguish sacrifice from Postclassic period mortuary practices it is helpful to consult early colonial descriptions (see also Tiesler and Hurtado et al. in this volume). Landa reports the practice among commoners of burying the dead under and behind residences, after which the houses were sometimes abandoned (Tozzer, 1941). The deceased were accompanied by the tools of their trade which they had used in life. Individuals of higher status were cremated and their ashes placed in hollowed vessels. More complex still was the funerary treatment reserved for old Cocom lords. According to Landa, upon their passing they were decapitated, the backs of their heads were removed, and stucco was applied to the face to recreate a life-like appearance. These elaborately modified skulls were then placed on display where they could be revered and receive offerings (Tozzer, 1941). Importantly, in this latter mortuary practice we would expect to find tool marks on the skull.

10.3. Archaeological Context and Background

The ruins of Mayapán are located in the northwest corner of the Yucatán Peninsula, in the modern Mexican state of the same name (Fig. 10.1).

Numerous colonial accounts exist of Mayapán, in both Spanish and Yucatec using Latin script, the oldest of which dates to 1566 (Tozzer, 1941). These



FIGURE 10.1. Map of Mesoamerica indicating location of Mayapán (adapted from Avalon Basemap, copyright 2004)

sources mention the great importance of this city as the seat of government of much of the peninsula and the receiver of tribute from its 12 subordinate provinces. The leaders of these provinces may have resided at Mayapán to allow it to maintain tighter control over its widely dispersed territories (Roys, 1962), while descriptions of hired Mexican mercenaries (Roys, 1962) and an eclectic art style point to important contacts even further afield (Milbrath and Peraza, 2003). In addition, the violent collapse of the city is said to have taken place in the mid-fifteenth century (Roys, 1962), meaning survivors of that event may have lived to see the arrival of the Spaniards in Yucatán less than 80 years later. Thus, early colonial accounts are particularly applicable to this site, made all the more obvious by its frequent specific mention.

The Carnegie Institution of Washington conducted the first large-scale archaeological investigations at Mayapán in the 1940s and 1950s, largely to take advantage of this abundant ethnohistoric data (Pollock, 1951, in Brown, 1999). These explorations confirmed colonial accounts of its prime importance. Carnegie archaeologists identified a 9 km long wall within which they found at least 4,000 structures (Pollock, 1962). Further, the maximum population of the city was estimated at 12,000, making it larger than any other contemporaneous Maya city.

Unusual for its time, the Carnegie project also included a relatively large number of excavations in residential areas outside the site's civic-ceremonial center (Brown, 1999). Of the 86 deposits bearing human remains reported by the Carnegie,¹ 30% come from outside the main ceremonial center; 42% if one includes unused graves. These investigations confirmed Landa's description of

the common Maya practice of burying their dead under their houses. Surprisingly, they demonstrated that these human deposits are also associated with the most lavish grave goods, a pattern recently confirmed by archaeologists of the National Institute of Anthropology and History of Mexico (INAH) during explorations in the residential zone (Peraza et al., 1998). Regarding Landa's statement that they also placed the dead behind their houses, Carnegie archaeologists found no supporting evidence. They reasoned that since the posterior walls of dwellings are aligned with the edges of the platforms on which they sit, the deceased would have had to be buried directly in the ground, and there was "insufficient soil to cover a burial (Smith, 1962:251)." However, this has proven untrue, for both outlying and central residential areas, which clearly staged burials according to recent explorations (Brown, 1999; Peraza et al., 2003b). In sum, the funerary nature of deposits of human remains associated with house mounds at Mayapán is clear.

Apart from dwellings, the Carnegie explorations also located human remains in oratories, both within and outside Mayapán's center. These are mostly multiple assemblages that had been deposited in cysts associated with altars. A number of them appeared disturbed and showed clear evidence of reentry, leading Smith to conclude that earlier burials were disturbed when the cysts were reopened to put in additional bodies (Smith, 1962). According to Smith (1962), all of the human remains pertained to adults (33 individuals), some of whom died in old age, and represent both sexes. And although they did not have as elaborate grave architecture or goods as those associated with house mounds, Carnegie archaeologists interpreted them as funerary contexts. It is noteworthy that 2 of the 12 cysts found within oratories contained jars with cremated human remains, indicating they were used as mortuary containers for commemorating privileged individuals (Tozzer, 1941), leading Thompson and Thompson to conclude that the human remains interred in these structures were associated with private family worship and ancestor veneration (Thompson and Thompson, 1955).

Other human assemblages, recently recovered from the site center by INAH archaeologists, present a very different story. As mentioned earlier, these deposits present evidence of complex secondary treatments that can easily lend themselves to multiple, ambiguous interpretations. We propose that the osteotaphonomic approach described here, the first of its kind at Mayapán, is suited to identify and interpret the nature of these deposits, and sheds light on their potential link to human sacrificial rites of the Postclassic Maya.

10.4. Materials and Methods

The human remains included in this study come from 41 contexts representing at least 103 individuals. Thirty-three of these contexts were excavated over the last 9 years by INAH archaeologists (Peraza et al., 1997, 1999, 2002, 2003a,b, 2004), seven were excavated in 2003 by archaeologists from a joint INAH/State University of New York at Albany (SUNY Albany) project co-directed by

Marilyn Masson (Masson and Peraza, 2003), and one was excavated in 1991 by Clifford Brown as part of his dissertation research (Brown, 1999). Most of these contexts come from the site's civic and ceremonial center (33/41) (Fig. 10.2).

Thirteen of these are associated with residential structures, as are seven of the eight that were recovered in outlying areas. The residential deposits under study will be compared to the residential burials documented by the Carnegie wherever possible. These deposits have been dated to the Postclassic Period through the analysis of associated ceramics.

Information on the original disposition (i.e., primary or secondary, flexed or extended, seated, ventral or dorsal, head orientation) of each burial was assigned after careful examination of *in situ* photographs and drawings made by archaeologists at the time of excavation, as well as consideration of taphonomic processes, especially as delineated in *Antropología del Campo* (Duday, 1997).

In the laboratory, each skeletal element was inventoried. Sex and age were determined based on macroscopic morphology (Buikstra and Ubelaker, 1994), the minimum number of individuals (MNI) was calculated for each deposit, and all bone surfaces were inspected under harsh, tangential light and low magnification for taphonomic marks, both natural and cultural in origin (White, 1992). Among the former we recorded incidence of carnivore and rodent tooth marks, insect damage, root etching, and weathering. Regarding cultural modifications, the senior author scrutinized the remains systematically for slicing and chop marks, peeling, fractures, and burning. The percentage of each bone's surface that

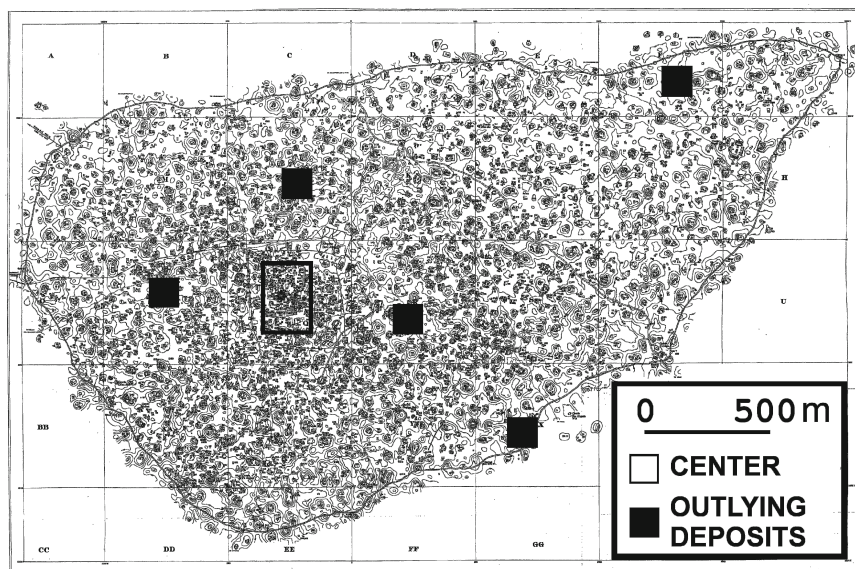


FIGURE 10.2. Carnegie map of the ruins of Mayapán (adapted from Jones, 1952)

was present and observable was recorded. Soil characteristics, such as pH and granule size, were recorded whenever soil samples were available. Contextual data such as type of associated structure, grave type, and associated grave goods were documented for each assemblage under study. In assigning funerary or nonfunerary status, we will follow broadly the scheme presented in Chap. 2, together with the above indications for ancestral vs. sacrificial processing.

10.4.1. *Funerary Contexts*

Twenty mortuary contexts associated with residential structures and representing the remains of 26 individuals were analyzed as part of this study. Most were single (18/20), primary (16/20), and exhibited a regular skeletal position. The majority of the deceased had been placed in a lateral flexed position (7/12), followed by a seated posture (3/12), whereas none were found facedown. One of the two multiple interments consisted of partly cremated remains. Also, as expected based on colonial documents, none presented tool marks of any kind. Thus, our data support the conclusion that mortuary contexts associated with residential structures were funerary in nature, echoing Carnegie archaeologists, who concluded that there was no case to be made for postsacrificial disposal in Mayapán's residential contexts (Smith, 1962).

Four additional mortuary contexts come from shrines, representing the remains of at least 18 individuals. All are secondary deposits, one of which consists partly of cremated remains, and three out of the four are multiple. Similarly, of the four mortuary contexts from shrines excavated by the Carnegie, three were multiple; the excavators report that the remains of at least 20 individuals are represented. In addition, shrines, together with dwellings and oratories, have on average more elaborate grave types than other structures at Mayapán. No cut marks were found in the four assemblages examined, with one exception discussed below.

Special note must be made of the human remains found beneath the floor of shrine Q.88c. Unlike the above-mentioned assemblages, this deposit consists almost solely of crania, with at least nine individuals represented (Serafin, 2005). No mandibles or cervical vertebrae were found, though the presence of four mandibular teeth and a fragment of a left humeral shaft and a right pelvis suggest that additional elements had been present originally only to be removed later. All age groups are present, and the adult and older adolescent in which sex could be determined are both males (sex was indeterminate in two adults). Of particular importance are tool marks found on the mastoid process of an isolated left temporal bone, which displays a series of parallel cut marks on its posterior aspect. Though the isolated nature of this temporal bone precludes determining the specific activity that originated them (i.e., decapitation, defleshing, or flaying), Landa's description of the *postmortem* treatment reserved for old Cocom lords indicates that this evidence is also compatible with reverential practices. The mandibles and postcrania of these individuals may have been removed and cremated, as alluded to by Landa (Tozzer, 1941:130,131), and in some cases this may have been done after the soft tissue had already decomposed, as suggested

by the presence of humeral and pelvic remains. It is noteworthy that this shrine is prominently located in Mayapán's main plaza, being the closest to the Castillo (structure Q.162), the city's most important temple, and has the most elaborate grave architecture, which suggests that Mayapán's ruling elite would have been directly responsible for the placement of this deposit. In addition, the shrine has a doorway facing west, the direction of the Castillo that would have allowed reentry, possibly for making offerings to the individuals interred within.

In sum, although Proskouriakoff (1962b) interprets deposits of human remains in shrines as sacrificial, we side with Smith (1962) and Thompson and Thompson (1955) in believing that the evidence more firmly suggests a funerary function, most likely part of an elaborate cult for the privileged. The following section will make the distinction between these and those that we assign sacrificial status even clearer.

10.4.2. *Extrafunerary Contexts*

Grave type distribution was examined for the entire site to identify the most likely locations for any postsacrificial disposals. A quick glance demonstrates the prevalence of simple mortuary contexts in the site center, that is, deposits of human remains in construction fill or directly in the soil, and more elaborate grave architecture in outlying areas.² Those buried directly in the soil are mainly associated with dwellings, while a number of deposits associated with temples were discovered by INAH archaeologists in fill, both in passageways and under and above plaza floors (Peraza et al., 1997, 1999, 2002, 2003a,b, 2004). Based on our above discussion of colonial accounts, it is in these latter deposits that we would expect human sacrificial victims to be found and it is these assemblages that display most of the anthropogenic marks at Mayapán, setting them apart from the great majority of funerary contexts previously discussed.

One of the most prominent of these deposits was discovered in a passageway just east of Mayapán's Round Temple (Structure Q.152), in construction fill above a plaster floor (Milbrath and Peraza, 2003; Peraza et al., 1999). Its placement was followed by the closure of the passageway, and a lack of evidence of scavenger activity in the human remains suggests it was sealed relatively quickly (Serafin, 2005). This deposit is clearly secondary, as indicated by the lack of preservation of anatomical relationship and skewed element representation.

As illustrated in [Fig. 10.3](#), cranial segments predominate (20 left temporals), followed by long bones (right femurs are the most common with eight). At the same time, there is a paucity or outright absence of bones of the trunk, such as vertebrae (two total), hand (none), and foot bones (four tarsals) (Serafin, 2005). Analysis has identified the presence of both males (five definite and one probable) and females (two definite and five probable), while ages pertain almost exclusively to older adolescents (16–20 years) and adults (only one individual is younger out of the 18 in which age at death could be determined). Thus, the Q.152 interment presents a restricted demographic profile distinct from that in shrine Q.88c.

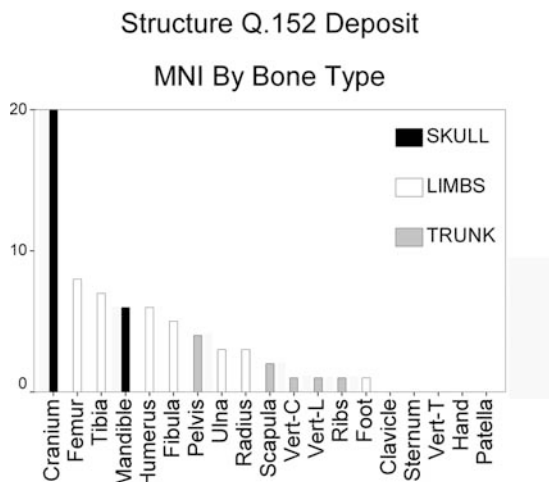


FIGURE 10.3. Minimum number of individuals (MNI) by bone type for the structure Q.152 deposit



FIGURE 10.4. Calvarium in anterior-lateral view exhibiting *perimortem* depressed cranial fracture above left orbit

Taphonomic analysis of these remains has identified lesions indicative of *ante-* and *perimortem* violence, as well as *postmortem* manipulation (Serafin, 2005). Two cases of depressed cranial fractures were identified in the supraorbital region of the left frontal bone. One lesion is healed while the other shows no signs of bony reaction (Fig. 10.4), testifying to the *perimortem* timing of the latter insult. Both lesions appear to have been inflicted with a blunt instrument, probably

wielded by a right-handed assailant. Such injuries have been ascribed in the literature to habitual participation in warfare and related activities (Smith, 1997). While the *perimortem* depressed cranial fracture described above may very well have been the cause of death of this individual, such a determination must remain tentative owing to the nature of the evidence and the lack of associated postcranial remains.

Postmortem manipulation of these individuals likely included dismemberment and defleshing, at least of some individuals. Cut marks are present and, as demonstrated in Fig. 10.5, occur on the cranial vault, mandibular ramus, and distal ends of long bones (Fig. 10.6), as well as ribs.

The activity that produced this tool mark would likely have severed a number of soft tissue structures that help to keep the elbow joint articulated, including the common extensor tendon and anconeus muscle origins, indicating dismemberment was likely the goal. Figure 10.7 illustrates cut marks on a mandible near the junction of the oblique line and the anterior border of the ascending ramus. These cut marks were probably produced during masseter muscle removal, in other words, defleshing.

Clear evidence of flaying and cannibalism is lacking, as is the case with heart extraction, though the elements in which evidence of the latter would be found, namely the ribs, vertebrae, and sternum, are almost entirely absent. In addition, sacrifice is the only ritual known from ancient Maya iconography and colonial accounts to include dismemberment and defleshing of the postcranial skeleton. This, combined with the restricted demographic profile and context, strongly suggests that this assemblage represents a final resting place for victims of human sacrifice in the Postclassic period.

Precisely we cannot know who these victims were in life. The patterns of trauma observed in the human remains from this interment hint at sacrifice of war captives, as does the dearth of mandibles relative to crania; according to colonial accounts, jaws were taken as war trophies (Tozzer, 1941). However, the presence of females suggests a more complex scenario. Further, various deities are represented in the sculpted and ceramic artifacts associated with this structure, suggesting it was host to a variety of rituals (Peraza and Masson, 2005).

10.4.3. *Caches and Problematic Deposits*

Caches and problematic deposits, so called because they lack sufficient skeletal material and/or contextual information to assign a specific function, are also present at Mayapán. One intriguing case pertains to the substructure of Q.162, or the Castillo. In the façade near its southeast corner were found stucco sculptures of scenes involving a central personage with a niche where the head should have been (Peraza, 1999). In one of these figures the niche was found to contain highly fragmentary cranial bones and a human mandible with numerous teeth lost *ante-mortem* and well-healed alveolar bone, thus suggesting an older individual. The depiction of the ribs of this individual appears to indicate they are exposed, as if partially defleshed. Was the individual represented by this skull a warrior or ruler

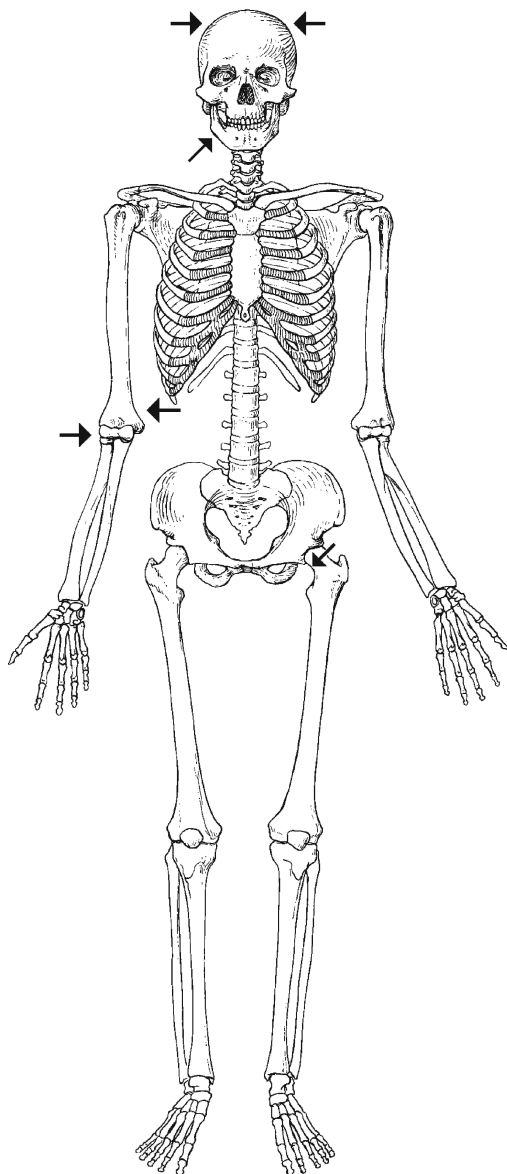


FIGURE 10.5. Locations of cut marks present in skeletal remains from the structure Q.152 deposit (adapted from LifeART image, copyright 2006 Lippincott Williams & Wilkins. All rights reserved.)

of a competing city who was decapitated and then defleshed in a sacrificial ritual? Was this individual an old Cocom lord who received the complex *postmortem* skull treatment reserved for the elite? The prominent placement of these remains attests to their importance, however, their poor preservation coupled with a lack of contextual information preclude us from answering this question.

Problematic deposits appear to be common in the main ceremonial center, in particular near the major temples, where large areas were found covered with



FIGURE 10.6. Right humerus in distal view exhibiting cut mark



FIGURE 10.7. Mandible in right lateral view exhibiting cut marks



FIGURE 10.8. Tibial midshaft exhibiting deliberate breakage

human remains consisting largely of fragmented long bones (Fig. 10.8). Preliminary analysis has demonstrated that deliberate breakage is present in these long bones.

The small sample thus far examined produced two adult tibiae bearing midshaft damage similar to that observed in US southwest long bones described by White (1992) and Turner (1999) as deriving from attempts to access the marrow within the medullary cavities. Alternatively, the observed damage may be the result of artifact production activities. Among the modified human bones recovered at Mayapán is a proximal femur with a jaguar's face sculpted in the proximal epiphysis (Proskouriakoff, 1962a). Thus, although these deposits would appear to be excellent candidates for comparing the complex, postsacrificial treatment ascribed to victims of sacrifice by Landa, owing to their very nature there are problems with assigning any function to such secondary and incomplete remains (see Tiesler in this volume).

10.5. Sacrificial Rites at Mayapán and Postclassic Maya Ideology

Regional and temporal comparison allows us to place the human sacrificial practices observed at Mayapán in their proper context, which is essential to appreciate the full implications of our findings. Recent studies of human remains from other Postclassic sites have also revealed evidence of ritual death and/or complex *postmortem* treatment. Evidence of decapitation has been found in

isolated, individual skulls at Topoxté (Wurster, 2000), while a *tzompantli* was unearthed at the Kaqchikel Maya capital of Iximché comprising the skulls of 48 decapitated individuals (Guillemin, 1969, 1977; Nance et al., 2003). Taphonomic analyses at the important port of Champotón have identified decapitation as well as flaying, defleshing, and dismemberment (Gómez et al., 2001, 2003; Hurtado et al., 2004, in this volume). At Zacpetén, where members of the Kowoh lineage may have fled after the fall of Mayapán in the fifteenth century (Jones, 1998), evidence of dismemberment and possibly defleshing have been identified in a mass grave consisting of the remains of 11 children and adults (Duncan, 2003). Looking much closer to Mayapán, the human assemblage from the Sacred Cenote of Chichén Itzá recovered by Piña Chan presents a complex array of lesions suggesting ritual death, possibly by heart excision, and a host of *postmortem* activities, one of which may have included flaying of the body (see Anda in this volume).

Of these Postclassic human deposits, the demographic profile of Mayapán structure Q.152's assemblage most closely resembles that of the *tzompantli* at Iximché, in that both males and females are present and almost solely adults. Thus, the process by which victims were selected in these two cases may have shared some similarities. Whittington (2003) discusses the taking of war captives as a possible factor, noting that women from Iximché did go into battle at least once according to the *Anales de los Kaqchikeles*. The demographic profile of the Sacred Cenote assemblage stands in stark contrast. Analysis has demonstrated a predominance of infant and subadult remains, which also exhibit the greatest concentrations of *peri-* and *postmortem* trauma (see Anda in this volume).

Considering the distribution of these deposits within their respective sites, evidence of human sacrifice and *postmortem* manipulation at Mayapán comes from contexts in the site center associated with civic/ceremonial structures, which suggests institutionalized practice linked to the ruling elite. This is true for several other Postclassic sites, as well as for Classic Period Calakmul and Becán (see Medina and Sánchez in this volume), suggesting continuity of state-sanctioned human sacrifice through time among the Maya, even if details of ritual varied.

What was the motivation behind the creation of the human deposit recovered in the passage beside structure Q.152 at Mayapán? A form of sacrifice described for the Aztec may provide clues. This particular ritual involved a gladiator-like confrontation in which captives were tied to large ring-shaped stones, though Milbrath and Peraza (2003) note that the small ring-shaped stone set relatively low on the façade of Huitzilopochtli's temple in the Templo Mayor pyramid (Phase II) may also have served this purpose. These authors also point out that in Mayapán's center the positioning of numerous ring-shaped stones similar in size to that in Huitzilopochtli's temple suggests they were used to tie prisoners before sacrifice. One such ring is located in colonnaded hall Q.87a, which lies near round temple Q.152. Further, this ritual could involve women (Graulich, 2000), possibly explaining the presence of the remains of females in the Q.152 deposit. When a female victim was sacrificed in honor of the earth deity in this manner, the latter's mythical dismemberment was represented (Graulich, 2000).

This account of the tearing apart of the Earth monster Tlaltecuhltli may also inform us with regards to the postsacrificial fate of the victims. In addition to the presence of a sculpture of a splayed Tlaltecuhltli figure at Mayapán (Taube, 1990), this being is sometimes depicted associated with skulls and long bones, reminiscent of the skeletal parts represented in the Q.152 assemblage. It may also be noteworthy that these remains were placed, probably in a single episode (Peraza et al., 1999), at the bottom of a passageway that was closed and filled with earth, and above which sits a round temple. As the story goes, Quetzalcoatl and Tezcatlipoca transformed themselves into great serpents and tore Tlaltecuhltli apart, one half of her becoming the earth and the other the sky (Graulich, 2000). In addition, all the fruit necessary for human life grew out of her body. Thus, this sacrificial ritual may have served to commemorate this cosmogonic act as well as to feed the Earth goddess's great hunger by "irrigating" (Carrasco, 1995:446) her with human blood, ensuring that the fruits of the Earth would grow and feed its people.³

Careful analysis of human skeletal remains from archaeological sites is capable of addressing many questions of interest to scholars of ancient cultures, particularly when considered together with contextual, ethnohistoric, and iconographic data. It was our goal to apply this approach to the issue of human sacrifice and the postsacrificial fate of victims' remains at the last prehispanic Maya capital of Mayapán, and thereby reconstruct heretofore intangible aspects of Postclassic Maya culture. We hope the present study will revitalize interest in the investigations of the Carnegie Institution of Washington at Mayapán conducted in the 1940s and 1950s, and motivate future studies of this neglected time period in Maya history.

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Endnotes

1. References made in this paper to human remains excavated by the Carnegie are based on the following publications: (Adams, 1953; Chowning, 1956a,b; Fry, 1956; Pollock, 1962, 1956; Proskouriakoff, 1955; Roys, 1962; Ruppert and Smith, 1954, 1952; Shook, 1954a,b,c, 1953; Shook and Irving, 1955; Smith, 1953, 1954a,b, 1962; Smith and Ruppert, 1956, 1953; Thompson, 1954; Thompson and Thompson, 1955).
2. Two notable exceptions are the bottle-shaped shafts discovered by the Carnegie in temples Q.58 and Q.95, which they interpreted as containing sacrificial victims. Masson and Peraza (in press) and Peraza et al. (in press) provide along their treatment. The former, in particular, present a detailed discussion of associations between burial shaft temples at Mayapán and human sacrifice.
3. Further evidence for parallels between human sacrifice and mythic acts of creation at Mayapán and Postclassiccentral Mexico is discussed in Masson and Peraza (in press).

11

Nutrition, Lifestyle, and Social Status of Skeletal Remains from Nonfunerary and “Problematical” Contexts

ANDREA CUCINA AND VERA TIESLER

11.1. Introduction

Prehispanic archaeological contexts in the Maya area are characterized by the presence of numerous human skeletal assemblages that are not defined as proper burials. Contextual and taphonomic evidence, such as irregular and simultaneous multiple interments in public or ceremonial domains, absence of associated funerary artifacts, “irregular” positioning and or simply lack of body arrangement, along with vestiges of *peri-* or *postmortem* ritual body manipulation, all testify that these individuals were not the object of the funerary treatment (Carrasco, 2000; Ruz, 1991; Schele, 1984; Tozzer, 1941; Welsh, 1988). The simultaneous placing of companions inside elite tombs likewise bears extrafunerary connotations, as demonstrated by the attendants sealing Janaab’ Pakal’s mausoleum (Ruz, 1973), or the two victims discarded on the sides of the sarcophagus harboring the mortal remains of the Red Queen inside Temple XIII, at Palenque, Chiapas (González, 1998; López, 2003; López and González, 1995; Tiesler et al., 2002, 2004).

Apart from the sacrificial companions of dignitaries, numerous other primary assemblages also lack proper funerary treatment, pointing instead to body discard, as witnessed by the series from Chichén’s Sacred Cenote (Anda in this volume), the corpses randomly placed next to staircases at Champotón (Hurtado et al. in this volume), or those left on the threshold of sealed chambers, like the adolescent E-1003 from Becán, Campeche (Tiesler and Campaña, 2006; Tiesler in this volume). The ritual connotations of these contexts have already been thoroughly discussed in various chapters in this book, along with their residential histories and potential foreigner status.

Colonial sources confer a fringe status to the children or adults to be ritually killed by describing them as either orphans or slaves, while others report children voluntarily donated by their own parents. These individuals may have been, for health reasons, less useful to the society. Alternatively they may have been captives imprisoned during warfare (Helfrich, 1973; Nájera, 1987; Schele, 1984; Scholes and Adams, 1938).

However, the sources diverge when describing the health profiles of those destined for sacrifice. Some chronicles identify them as ideally healthy individuals in good physical conditions and argue that society was to offer to the deities those who were most valuable (Nájera, 1987).

The starting hypothesis on which we structure our investigation is that human remains in *cache* or so-called “problematical” contexts tend to represent postsacrificial deposits. This study aims to infer levels of social status of these individuals through the analysis of their health profiles as well as levels of chronic and child stress episodes. We provide tentative trends and potential answers to the apparently contradicting references on health status. Specifically, our goal is to infer to which extent these remains mirror the remainder of the population in terms of nutrition and pathological conditions.

11.2. Materials and Methods

The human skeletal samples used in this analysis ($N = 161$) come from the Lowland Maya centers of Palenque, Calakmul, Becán, Dzibanché, and Kohunlich. These settlements are characterized by a common cultural background, similar ecological and geographical environments, subsistence patterns, and durations of occupation, assignable mainly to the Classic Period (Fig. 11.1). The diversified mortuary programs render sufficient indicators to distinguish between elite burial contexts and common graves.

All human remains analyzed for this study are from the Classic Period (AD 250–900). Contextual information was provided by the ongoing archaeological projects (see Campaña, 2001, 2002; Romano et al., 2002; Tiesler, 1999) or from previous ones (Acosta, 1973; Rands and Rands, 1961; Ruz, 1958a–d, 1961). Founded on wealth of associated objects and grave architecture our classification provides systematic elements to assign each individual to low (0,1: $N = 93$) or high (>1: $N = 27$) status (Weiss-Krejci and Culbert, 1994). Both these categories were clearly distinguished from that of nonfunerary remains ($N = 41$), which comprise offerings containing complete or incomplete human skeletons, companion contexts in elite burials, and several isolated bone assemblages from Calakmul and Becán.

Individuals were grouped according to mortuary category and sex. Sex was assigned for the adults only from all the possible macroscopic indicators in the pelvis and skull, according to the relative state of preservation, following Buikstra and Ubelaker (1994) and Ferembach et al. (1977–1979). Depending upon applicability, age at death was estimated from the degree of morphological changes in the pubic symphysis (Brooks and Suchey, 1990; Suchey and Katz, 1997), auricular surface (Lovejoy et al., 1985), as well as more general indicators of skeletal ageing like ectocranial suture closure (Meindl and Lovejoy, 1985) and trabecular reorganization at the epiphyses (Ferembach et al., 1977–1979). Age at death in the subadult sample was estimated from the degree of dental formation

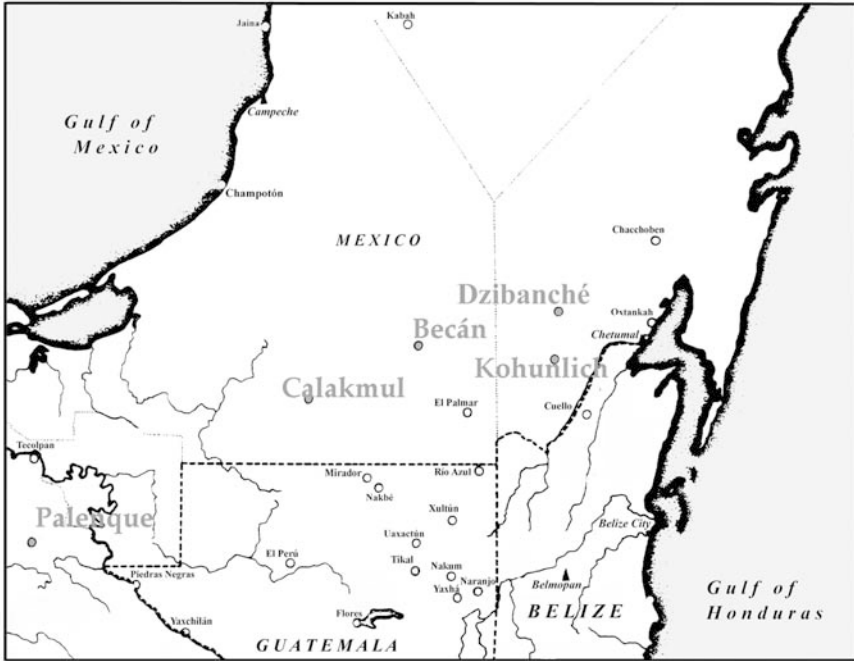


FIGURE 11.1. Geographical location of the sites analyzed (drawing by V. Tiesler)

and eruption (Ubelaker, 1989) and secondarily by fusion of epiphyses (Ferembach et al., 1977–1979).

Cranial cribra orbitalia and porotic hyperostosis, which are mostly related to the effects of anemia active during childhood were registered as “present” or “absent.” The number of hypoplastic defects, that are associated to stress during growth, was scored on the mandibular canine following Schultz’ description (1988). All permanent teeth of the adult individuals were also evaluated for caries disease (Hillson, 2000). In the postcranial skeleton, we scored systemic inflammatory disease (periostitis/osteomyelitis) in long bones (Ortner, 2003).

Analysis by sex could be carried out only for caries and mortality profile. Other variables could not be evaluated by sex because of the otherwise extremely reduced sample size.

11.3. Results

Results on mortality profiles are graphically represented in Fig. 11.2. It shows that nonfunerary individuals do exhibit a distribution by age that differs from the funerary ones, regardless of their social status. More than 55% of the nonfunerary individuals fall below age 25, while only 36% of the low status funerary ones

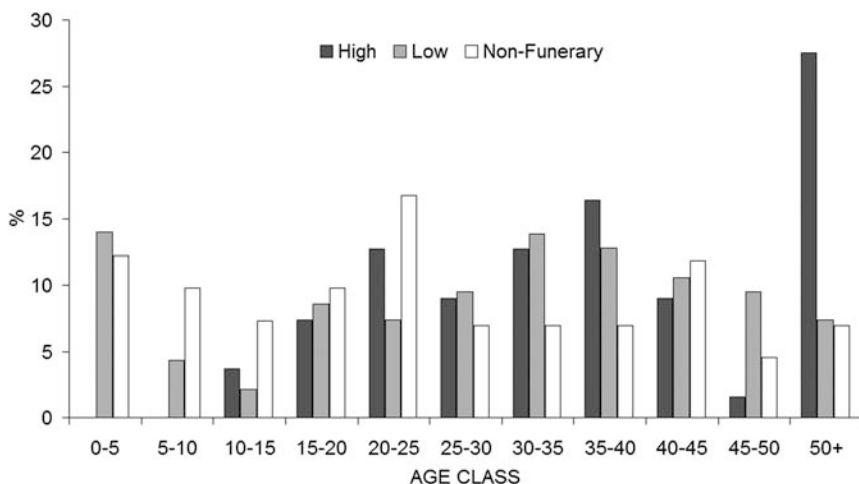


FIGURE 11.2. Mortality profile of the high-status, commoners, and nonfunerary context in five-year age intervals

and 24% of the elite are in this broad age category. Chi-square test for difference in the individual distribution below age 25 is significant ($X^2 = 7.69$, 2 d.f.; $p < 0.025$). Two-sample tests indicate that differences are significant only for the nonfunerary (NF) group (High vs. Low, $X^2 = 1.49$, $p > 0.05$; High vs. NF, $X^2 = 6.77$, $p < 0.01$; Low vs. NF, $X^2 = 4.35$, $p < 0.05$).

The occurrence of enamel hypoplastic defects on the lower canine, by grade of severity, does not reveal patterns that markedly differentiate the groups (Fig. 11.3). Low status individuals show more cases of repeated defects on the same tooth, while nonfunerary individuals present overall the higher number of affected cases, regardless of intensity.

Frequency of dental caries are listed in Table 11.1 and graphically represented in Fig. 11.4. Results indicate that high status sample pooled by sex (total) did suffer fewer caries when compared to the other series ($X^2 = 20.313$, 2 d.f., $p = 0.000$). When analyzed by sex, high status males present very low rates of caries, interestingly equaled by nonfunerary males (respectively, 3.72% and 3.70). Male commoners peak up to 15.12% with an overall statically significant difference ($X^2 = 29.30$, 2 d.f., $p = 0.000$). The three female samples, on the contrary, do not show significant differences among each other. High status females reach up to 10.91% rate, in comparison with 17.16% and 17.82%, respectively, for female commoners and nonfunerary ($X^2 = 3.59$, 2 d.f.; $p = 0.20$).

Cranial and skeletal rates of pathological conditions (i.e., periostitis/osteomyelitis, porotic hyperostosis, and cribra orbitalia) are listed in Table 11.2 regardless of sex. Periostitis/osteomyelitis only sets apart high status from the rest of the samples, but no significant differences arise from a chi-squared test ($X^2 = 3.841$, 2 d.f., $p = 0.147$). However, there may be disparity among series for

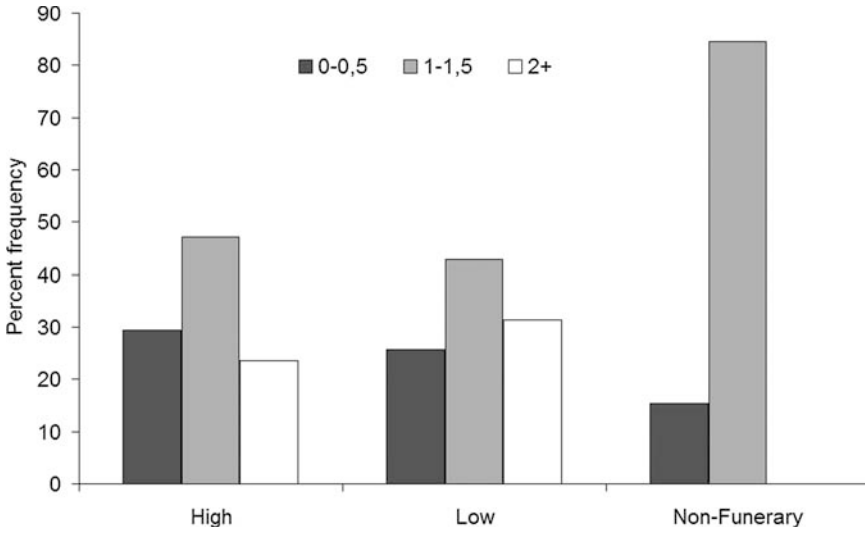


FIGURE 11.3. Presence of hypoplastic defects in the mandibular permanent canine by grade of severity according to Schultz’ scale (1988)

TABLE 11.1. Absolute and percent values of permanent teeth affected by caries in the three series, by sex

		High	Low	Nonfunerary
Males	Caries	9	62	5
	Caries-free	233	348	130
	Percent	3.72	15.12	3.70
Females	Caries	18	40	18
	Caries-free	147	193	83
	Percent	10.91	17.16	17.82
Total	Caries	27	107	23
	Caries-free	380	587	215
	Percent	6.63	15.42	9.66

porotic hyperostosis ($X^2 = 5.838$, 2 d.f., $p < 0.10$). Rates of cribra orbitalia discriminate nonfunerary individuals from the two other samples, but these differences are not significant ($X^2 = 3.041$, 2 d.f., $p > 0.20$).

11.4. Discussion

Osteological evidence at Lowland Maya centers indicates lifestyle, nutrition, and health differences between individuals from offertory contexts and isolated concentrations. However, there may be many variables which we cannot control.

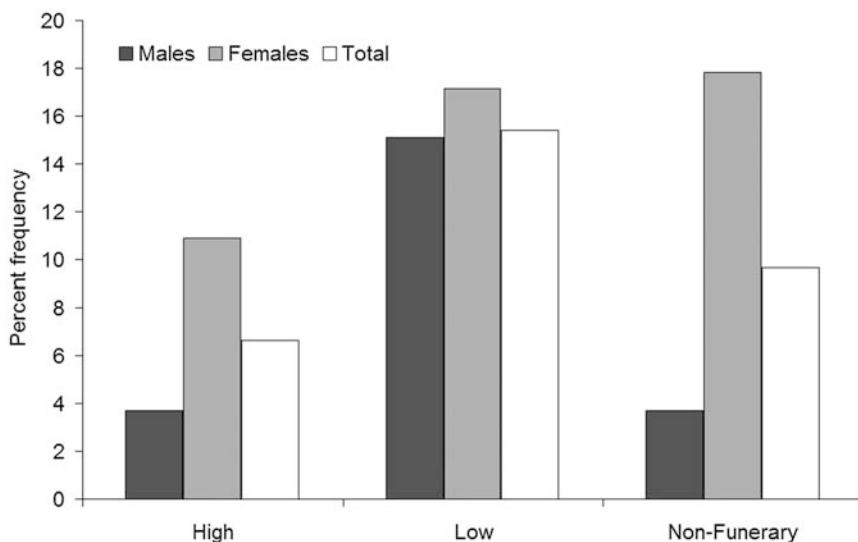


FIGURE 11.4. Percent frequency of permanent teeth affected by caries, by sex and status

TABLE 11.2. Absolute and percent values of individuals affected by periostitis/osteomyelitis, porotic hyperostosis, and cribra orbitalia regardless of sex

		High		Low		Nonfunerary	
		N	%	N	%	N	%
Periostitis/Osteomyelitis	Absent	18	85.7	35	62.5	12	66.7
	Present	3	14.3	21	37.5	6	33.3
Porotic hyperostosis	Absent	9	64.3	13	31.0	4	26.7
	Present	5	35.7	29	69.0	11	73.3
Cribra orbitalia	Absent	7	77.8	9	75.0	5	45.5
	Present	2	22.2	3	25.0	6	54.5

Helfrich (1973) and Nájera (1987) thoroughly describe the different ways individuals could be “obtained” for sacrifice, as well as their age and sexes. One category corresponds to prisoners who could be captured during actual warfare activities or as consequence of raids in more or less distant areas. Both may have been conducted in order to target and apprehend men destined for sacrifice. However, the authors do not specify the age, health, or social status of the captured. The “convicts” category encompasses those individuals who had been imprisoned for criminal activities – thieves, sexual molesters, and so on. Another category is slaves, for one of the punishments for unlawful activities was to be sold as *p’entak* (slave). This group is evidently not sex- or age-specific, though it mainly refers to adults. Voluntary self-donation is considered a very rare but

nonetheless category (Landa, 1966). The last group that Nájera (1987) describes is children. In Yucatán, infant sacrifice is known as *kimch'cich* which probably means "kill the small ones" (Scholes and Adams, 1938). Infants and children were often selected for sacrifice, and these depended on the gods, the rituals, and other reasons. Also in such cases, victims could be obtained in different ways. Children could have been imprisoned along with the adults during warfare, or kidnapped in nearby villages, with their names kept secret in order to prevent revenge (Scholes and Adams, 1938). Otherwise, it was relatively easy to buy the sons and daughters of local slaves or orphans under the custody of distant relatives. Landa (1966) mentioned that when these means of acquiring infants were not successful, the natives' deep faith induced them to offer their own sons or nephews.

Overall, victims appear to have been mostly captives, slaves, and children according to the historical sources, which composes a fairly heterogeneous cohort. What they had in common was that in most cases they did not belong to the community so that their sacrifice did not trigger any sentiment of revenge (Nájera, 1987).

The high and low status mortality profiles are informative of the effects of social class. While the latter displays a broad age distribution, the high-status profile is lacking in young subadults (<10 years). This, along with better living conditions and the funerary pattern itself, testifies to social position. Grube (2004) argues from the epigraphic record that the ruling aristocracy was culturally biased toward predominantly male older ages.

The nonfunerary group containing subadults aged 5–15 likely indicates a cultural behavior linked to sacrifice, although we cannot rule out other, nonsacrificial conducts. Taken as a whole, it appears to express a multitude of cultural patterns including at least a proportion of unnatural deaths.

According to the colonial record human sacrifice was not restricted by sex, which is consistent with the evidence reported by Anda (this volume). Despite the fact that war captives were usually males, it was not unusual that women and infants were imprisoned during raids with the specific goal of turning them to slaves and/or sacrificial victims. The fact that women were not widely cited in colonial records on the Maya area can be associated to the relatively little importance they had in active ritual life, at least during Postclassic and colonial times (Helfrich, 1973; Nájera, 1987). While the sacrifice of women, ritual sacrifice, social order, and gender relations are thoroughly described for the Aztec society (see for example Carrasco, 1999), there is no such counterpart for the ancient Maya, where female ritual killing should have played its own role, though perhaps not to the same extent and proportion as in other parts of Mesoamerica.

Colonial data indicate that the majority of the individuals chosen for sacrifice were subadults and young adults (Landa, 1966; Scholes and Adams, 1938; see Helfrich, 1973; Nájera, 1987). In fact, a large number of subadults has been recovered from the bottom of the Sacred Cenote at Chichén Itzá (Anda in this volume). Our study supports a preponderance of subadults, which indicates that

selection indeed took place. Nonetheless, the mortality profile based on the 41 nonfunerary individuals is indicative of a majority but not of exclusiveness of subadults and young adults. The quality and quantity of the present sample suggests caution in making definitive inferences.

Mortality profile aside, the osteological evidence differs somewhat from the notion of good health in the victims as described in some colonial sources (Najera, 1987). Our results indicate that the overall pattern of pathological conditions in the individuals from nonfunerary contexts shows higher rates in most indicators and point to them as possibly members of the fringe segments of society.

Perhaps some individuals had been chosen for ritual killings, precisely because they were less robust. If the chronicles are true, parents offering their own offspring for sacrifice chose the least healthy. For instance, the adolescent from structure E-1003 (see above) from Becán, Campeche, was suffering at time of death from active pleural inflammation, unhealed traumatic compression of a vertebral body, and inflammatory process at the lower mediastinum (Tiesler in this volume). Analysis of cribra orbitalia, porotic hyperostosis, and periostitis/osteomyelitis support this hypothesis. Porotic hyperostosis mainly discriminates nonfunerary individuals against the two other status groups, while periostitis/osteomyelitis and cranial porotic hyperostosis, the latter found together with endocranial meningeal reaction in a number of individuals, differentiate low status, and nonfunerary from the elite. Both pathologies might share similar stress factors, related, as we believe, to infectious disease (Larsen, 1997; Schultz, 2001) and to some extent nutrition. As in other ancient agricultural societies (see Cohen and Armelagos, 1984; Larsen, 1997; Ortner, 2003), the strong dependence on maize in the Maya commoners' diet may have engendered an increased risk of infection. Interestingly, the presences of cribra orbitalia and porotic hyperostosis are not correlated, suggesting different etiologies.

Enamel hypoplasias do not substantially discriminate any of the groups, nor do dental caries. As expected, higher status meant better health, lifestyle, and a more balanced diet (Cucina and Tiesler, 2003; White, 1999). The commoners' diet was more carbohydrate-dependent and less varied, as reflected by the higher rate of caries. Sex discrimination in animal protein consumption and possibly also differences in eating habits may explain the higher frequency of both affections in females in every class (Cucina and Tiesler, 2003; Larsen et al., 1991). Nonfunerary males show the lowest rate of dental caries, in contrast to commoners of both sexes, nonfunerary females, and also elite females. Their frequency is as low as elite males. Cucina and Tiesler (2003) found such sex-discrimination in the Maya elite, calling into question the idea that pertinence to the high status could not help but indicate privilege, at least for the males. Therefore, the evidence that nonfunerary males show low rates of caries that match the ones encountered in elite males triggers questions about the social status of nonfunerary males. One group of male sacrificial victims was represented by war captives who were supposedly not fringe members of their own society (Najera, 1987) and which might contribute to the difference between sexes at least as regards this specific indicator.

The skeletal and dental evidence produces results that clearly distinguish the elite from all the other segments. The variability expressed by the commoners and the nonfunerary group in terms of general health status does not differentiate one group from another. The picture that emerges specifically for the sample of individuals who did not receive burial treatment, does not seem to reflect a different epidemiological distribution. To a certain extent, it seems to mirror the commoners' population in terms of nutrition and pathological conditions. Maybe, pathological individuals were indeed chosen for sacrifice, however, these could represent single (though not isolated) cases that do not permit a generalization. In fact, relying on the ethnohistorical sources, it is undeniable that warfare prisoners of all ages and both sexes and those kidnapped from other villages were likely regular members of the commoners' segment of the society.

Obviously, the reduced number of cases and the partly insecure nature of ascription to nonfunerary contexts, prescribes caution in drawing conclusions. Also, comparing a funerary population with the conditions exhibited by a series of individuals who we suppose did not die a natural death, impose limitations on the generalization that might be drawn from the present information.

11.5. Conclusions

In conclusion, sex, age, health, and social status of the sacrificial victims was highly variable. However, the skeletal information provides elements that argue against selection of sacrificial victims on the basis of good health, regardless of sex or age. Our results point to a broad range of health profiles that appear to document the varied scope of circumstances of nonfunerary deposits, in principle consistent with those we would expect to find in a series including sacrificial victims. We hope to contribute additional samples from the region, new methodology, and new biocultural elements to the ongoing discussions about the mortuary practices in Classic Maya society, and to a much broader understanding of Maya ritual behavior involving human remains as well.

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12

Victims of Sacrifice: Isotopic Evidence for Place of Origin

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12.1. Introduction

Human sacrifice appears to have been a common practice throughout ancient Mesoamerica, as described in this volume. One question concerning victims of sacrifice involves the place of origin of these individuals. Were these indigenous members of local society whose lives were taken, or did foreign captives, slaves, or other persons fall victim to ceremonial execution? It is now possible to examine these questions using the chemistry of human bone to determine the place of origin of an individual.

In order to document the application of such methods, we offer several case studies of incidents of sacrifice at the Maya sites of Tikal, Kaminaljuyu, Copán, and Palenque, and at the Classic period city of Teotihuacan in the central highlands of Mexico. In the cases of the Maya sites, we examine the contents of tombs and the interred individuals. In several of these situations, a central figure is surrounded by other individuals, at least some of whom appear to have been victims of sacrifice intended to accompany the primary burial in death. Others accompanying individuals may have been relatives placed in the tomb at an earlier or later date. At Teotihuacan, we look at several groups of individuals who were sacrificed and interred as commemorative offerings during phases of construction at the Pyramid of the Moon.

These examples demonstrate the utility of bone chemistry for the identification of indigenous and foreign individuals at archaeological sites. The principle of this technique is based on the properties of tooth enamel. Enamel retains the chemistry of the place of birth. Enamel is also a very hard tissue, highly resistant to chemical alteration, and often survives in archaeological contexts. Comparison of the isotope chemistry of the enamel of an individual with that of the place of death can reveal local origin or foreign birth.

In the following pages we discuss human proveniencing in more specific terms focusing on the two isotopic methods used in our study, involving strontium and oxygen isotopes. This background is followed by a consideration of several archaeological contexts in Mesoamerica and discussion of the results of analysis.

12.2. Isotopic Methods

Archaeological approaches to questions regarding prehistoric conquest, colonization, diffusion, and the like have depended largely on materials such as distinctive stone tools, pottery, or other items as evidence that people moved. Artifact shapes, styles of decoration, or architecture have been employed indirectly as proxies for people. The problem, of course, is that artifacts and ideas can move independently of the people who created them, through borrowing, exchange, or theft.

Direct evidence of human mobility in the past has been a problem to obtain, but it is now possible to observe the movement of individuals in the chemistry of prehistoric human skeletons. Our investigations will utilize the isotopic ratios of strontium and oxygen, which are found in ancient human tooth enamel and are capable of distinguishing geographic provenience. As noted, the enamel in teeth forms during infancy and early childhood and undergoes relatively little subsequent change during life (Hillson, 2005). *Postmortem* changes in enamel are often minimal. Enamel has been shown to be generally resistant to contamination and a reliable container of biogenic levels of the isotopes (e.g., Åberg et al., 1998; Budd et al., 2000; Kohn et al., 1996, 1999; Schoeninger et al., 2003). Thus differences in isotopic ratios between tooth enamel (place of birth) and the local (place of burial) isotopic value document a change in residence during the life of the individual.

The analysis is destructive but only a very small amount of material is required (10 mg of enamel for strontium and 30–35 mg for oxygen). The permanent first molar is preferred both for consistency and the fact that the enamel of this tooth forms during gestation and the first few years of childhood. The local isotopic signal can be determined from human bone of the individuals whose teeth are analyzed. Local strontium isotope ratios can also be determined from other human bones or archaeological fauna at the site, or from modern fauna in the vicinity.

In the paragraphs below we briefly describe the principles and methods of strontium and oxygen isotope analysis. In a subsequent section, we discuss the geographic variation in strontium and oxygen isotopes in Mesoamerica as currently understood. Both methods have previously been applied with success to questions of human movement in ancient Mesoamerica and examples of these applications are noted. Following this introduction to isotopic methods, we examine case studies from Copán, Palenque, Tikal, Kaminaljuyu, and Teotihuacan where analysis of tooth enamel from human burials provides information on the place of origin of these individuals.

12.2.1. *Strontium Isotopes*

Strontium isotopes vary with geology and enter the skeleton through the food chain. Strontium elemental concentrations and isotopic compositions differ among types of bedrock. Strontium in bedrock moves into soil and ground water

and through the food chain (e.g., Comar et al., 1957; Elias et al., 1982). Strontium is incorporated into bone as a substitute for calcium in the mineral hydroxyapatite (e.g., Rosenthal, 1981; Schroeder et al., 1972). Although local levels of elemental strontium in plant and animal tissue vary due to many factors, the isotopic composition of strontium is not changed (or fractionated) by biological processes because of the very small relative mass differences among strontium isotopes. Virtually all strontium in vertebrate organisms is found in the skeleton. The strontium isotope composition of human bones and teeth, therefore, matches the diet of the individual, which in turn reflects the strontium isotope composition of the local geology.

The stable isotopes of strontium include ^{84}Sr (~0.56%), ^{86}Sr (~9.87%), and ^{88}Sr (~82.53%). ^{87}Sr is formed over time by the radioactive decay of rubidium (^{87}Rb) and comprises approximately 7.04% of total strontium (Faure and Powell, 1972). Variations in strontium isotope compositions in natural materials are conventionally expressed as $^{87}\text{Sr}/^{86}\text{Sr}$ ratios because the abundance of ^{86}Sr is similar to that of ^{87}Sr . Strontium isotope ratios vary with the age and type of rock as a function of the original $^{87}\text{Rb}/^{86}\text{Sr}$ ratio of a source and its age (Faure, 1986, Faure and Powell, 1972). Geologic units that are very old (>100 m.y.) and had very high original Rb/Sr ratios will have very high $^{87}\text{Sr}/^{86}\text{Sr}$ ratios today as well as in the recent past (<1 m.y.). In contrast, rocks that are geologically young (<1–10 m.y.) and that have low Rb/Sr ratios, such as late Cenozoic volcanic zones, generally have $^{87}\text{Sr}/^{86}\text{Sr}$ ratios less than 0.706 (e.g., Rogers and Hawkesworth, 1989). Differences in the third decimal place are usually significant in terms of human movement.

These variations may seem small, but they are exceptionally large from a geological standpoint and far in excess of analytical error using a Thermal Ionization Mass Spectrometer, or TIMS (± 0.00001 for $^{87}\text{Sr}/^{86}\text{Sr}$). Analytical procedures are described in detail in Ezzo et al. (1997).

12.2.2. *Oxygen Isotopes*

Oxygen isotope compositions of human tissues are derived primarily from drinking water (Longinelli, 1984; Luz et al., 1984, 1990; Luz and Kolodny, 1985). Rainfall is the major source of drinking water; water from food and atmospheric oxygen are minor, secondary sources (Schwarcz and Schoeninger, 1991). The oxygen isotope content of rainfall depends on climatic and environmental variables such as temperature, humidity, altitude, and distance from the sea where clouds form (Ayliffe and Chivas, 1990; Yurtsever and Gat, 1981). Polar and inland rain is isotopically lighter than tropical and coastal rain.

Oxygen isotope ratios in prehistoric human tissues provide information on mobility in much the same way as do strontium isotopes (Schwarcz et al., 1991). Oxygen isotopes are measured as a ratio between ^{18}O and ^{16}O compared with a standard, and the ratio ($\delta^{18}\text{O}$) is expressed in parts permil (‰). Clouds that form over tropical seas gradually lose heavier H_2^{18}O through rainfall as they move over land masses and toward higher latitudes, disproportionately retaining the lighter

H_2^{16}O to fall later in rain. Thus, the $\delta^{18}\text{O}$ of drinking water declines with increasing latitude, distance from the coast (or source of evaporated water), and elevation (Longinelli, 1984; Luz and Kolodny, 1989; Schwarcz et al., 1991). The hydroxyapatite in skeletal tissues contains oxygen, both in phosphate groups (PO_4) and in carbonates (CO_3). Both phosphate and carbonate oxygen have been used in studies of human provenience. Phosphate-oxygen ratios ($\delta^{18}\text{O}_p$) are reported relative to the VSMOW (Vienna Standard Mean Ocean Water) standard; carbonate oxygen ratios ($\delta^{18}\text{O}_c$) are reported relative to the PDB (Pee Dee Belemnite) standard. Values in carbonate are generally negative and range from 0 to $-10\%_{\text{PDB}}$ in humans in Mesoamerica; values in phosphate are generally positive and range between 10 and $30\%_{\text{VSMOW}}$. Phosphate and carbonate produce similar results. Analytical procedures for phosphate are described in detail in White et al. (1998); analysis of carbonate oxygen is outlined in Fricke and O'Neil (1996), Fricke et al. (1995), Kohn (1996), and Wright and Schwarcz (1998).

12.3. Variation in Strontium and Oxygen Isotopes in Mesoamerica

Geographic variation in isotopic ratios for strontium and oxygen across Mesoamerica is not well documented. These indices have not been recorded in many areas and baseline information is often not available. Strontium values are better known but geographic coverage is spotty. The discussion here begins with strontium isotopes across the region, followed by some comments on variation in oxygen isotopes.

12.3.1. *Strontium Isotopes*

The geology of western Mesoamerica is complex, a mixture of recent volcanic highlands and older marine sedimentary deposits, along with a variety of metamorphic rocks. Two major ranges, the Sierra Madre Occidental (SMO) and the Sierra Madre Oriental (SMOr), dominate the mountains of Central Mexico. The eastern ranges are predominantly carbonate sediments of marine origin and are likely to have $^{87}\text{Sr}/^{86}\text{Sr}$ close to those of ancient seawater (0.708). The western ranges are predominantly young volcanic rocks of rhyolitic and andesitic composition and, thus, will have somewhat lower $^{87}\text{Sr}/^{86}\text{Sr}$ ratios (avg. 0.7058, Torres et al., 2000).

Between the SMO and SMOr lies the Mexican Altiplano, which has sedimentary deposits derived from the surrounding Cordillera and thus should have intermediate $^{87}\text{Sr}/^{86}\text{Sr}$ (0.706–0.707). The Cordillera and the Altiplano are bounded on the south by the east–west trending Mexican Volcanic Belt (MVB), for which $^{87}\text{Sr}/^{86}\text{Sr}$ ratios have been compiled, with an average $^{87}\text{Sr}/^{86}\text{Sr}$ ratio of 0.7040 (Torres et al., 2000).

Farther south is a region of more complex geology, the Sierra Madre del Sur (SMS), with Cenozoic volcanics, Mesozoic sediments, and more ancient metamorphic rocks. A few measured $^{87}\text{Sr}/^{86}\text{Sr}$ values for the SMS volcanic rocks average 0.7041 (Torres et al., 2000), but we anticipate substantial local variability due to the heterogeneous geology of this region.

The Maya region is dominated geologically by the carbonate shelf of the Petén and the Yucatán Peninsula. The bedrock of the peninsula is fairly well known. The oldest carbonates of Cretaceous age are found in the southernmost part of the peninsula and trend in a gradual cline northwards to the youngest Quaternary carbonates on the northern periphery (Hess et al., 1986; Hodell et al., 2004). Because of this gradual, age-dependent trend in marine carbonates, the Sr isotopic characteristics of the region can also be inferred, tracking the well-established Tertiary/Quaternary seawater $^{87}\text{Sr}/^{86}\text{Sr}$ ratios, which should be approximately 0.7070 in the southern Cretaceous carbonates and increase gradually to 0.7092 in Quaternary deposits of the northern coasts. In an important study, Hodell et al. (2004) documented this variation across the Maya area using environmental samples of water, plants, soil, and rock.

Farther south, the carbonate-dominated lowlands are bounded to the south by the young volcanic rocks of the highlands. This region should have much lower $^{87}\text{Sr}/^{86}\text{Sr}$ ratios, approximating 0.705–0.706, which are characteristic of young Cordilleran volcanic rocks throughout Mesoamerica. In the southeastern part of the Maya region, in the Maya Mountains, and to the southeast of these mountains, are ancient metamorphic rocks, which should have $^{87}\text{Sr}/^{86}\text{Sr}$ ratios much higher (>0.710) than elsewhere in the Maya area.

Our initial $^{87}\text{Sr}/^{86}\text{Sr}$ pilot studies of fauna from the northern and southern lowlands and the southern highlands of the Maya region agree with these expected values. [Figure 12.1](#) provides a summary of baseline values for strontium isotope ratios across Mesoamerica using ancient human and both modern and ancient animal samples. As can be seen on the map, there is substantial variation across Mesoamerica as expected based on the geological differences in the region. Somewhat more detailed information on strontium isotope variation in Mesoamerica is reported in Price et al. (2006). This information will be used in discussions of the isotopic measurements at Copán, Palenque, Tikal, Kaminaljuyu, and Teotihuacan.

12.3.2. *Oxygen Isotopes*

As noted above, oxygen isotope ratios vary with source, elevation, temperature, and rainfall. Variation in rainfall across Mesoamerica is dramatic, ranging from less than 300 mm/year in parts of Central Mexico to more than 5,000 mm/year in the lowland tropics of the Gulf Coast and Guatemala. A clear decline in precipitation is evident from south to north across the Yucatán Peninsula. Not only do rainfall amounts vary considerably, the source of the rainwater and the elevation at which the rain falls are also important variables. Rainwater comes from the Gulf of Mexico, the Caribbean, and the Pacific, three distinct sources that will

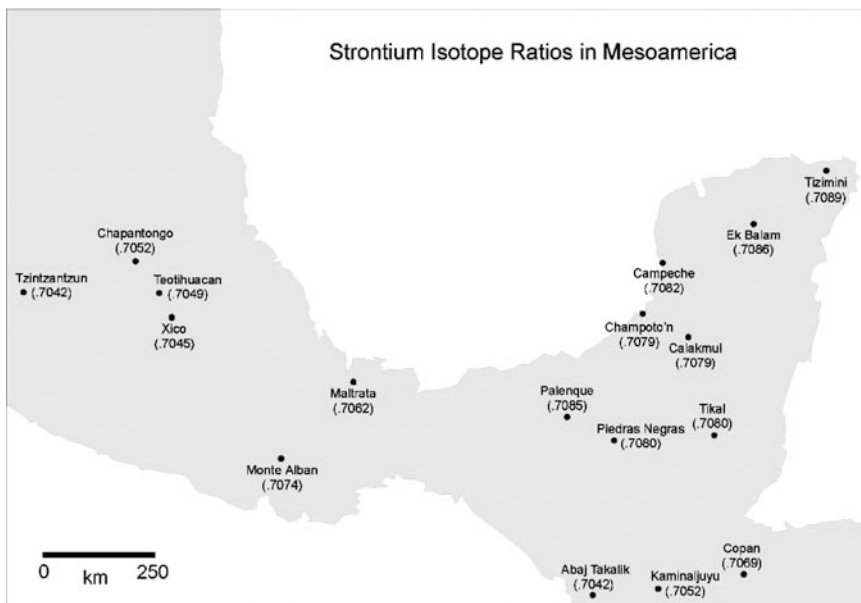


FIGURE 12.1. Strontium isotope values measured at archaeological sites across Mesoamerica

provide additional variation in oxygen isotope ratios. Elevational changes, both between the highlands and lowlands, and within the highlands, will also produce variation in oxygen isotope ratios useful in the analysis of human migration.

In effect, regions that are low-lying, hot, humid, and/or rainy have the highest values. Those areas at higher altitudes, or areas that are cooler and drier, have the lowest values. Measurement of $\delta^{18}\text{O}_p$ at a series of archaeological sites in Mesoamerica has documented this patterning (Fig. 12.2) and permits identification of skeleton remains of individuals who were born in a climatic regime that differs from where they ultimately died and were buried.

Given what is currently understood about natural variability of climate and geology, Teotihuacan appears to have a range of 14–16‰ for $\delta^{18}\text{O}_p$, which was established using control samples from modern teeth from the Basin of Mexico (mean $\delta^{18}\text{O}_p = 15.0\%$, Levinson et al., 1987), and archaeological samples from the local apartment compound of Tlajinga 33 (mean $\delta^{18}\text{O}_p = 15.0 + 0.5$, range 14.3–15.9%) (White et al., 1998, 2004a,b).

The $\delta^{18}\text{O}_p$ values for Teotihuacan are distinct from some areas and overlap with others in Mesoamerica (Fig. 12.2). Ranges of $\delta^{18}\text{O}_p$ values of control samples from the following areas indicate environments that are isotopically distinct from Teotihuacan: Monte Alban, Valley of Oaxaca (mean $\delta^{18}\text{O}_p = 13.0$, range = 12.1–13.9%); Lake Patzquaro sites, Michoacan (mean $\delta^{18}\text{O}_p = 12.8$, range = 12.1–13.7%); Rio Azul/Rio Bravo, Guatemalan Lowlands (mean $\delta^{18}\text{O}_p = 19.9$, range = 18.3–20.4%); Altun Ha, Belize Lowlands (mean $\delta^{18}\text{O}_p = 18.7$, range = 17.8–19.5%);

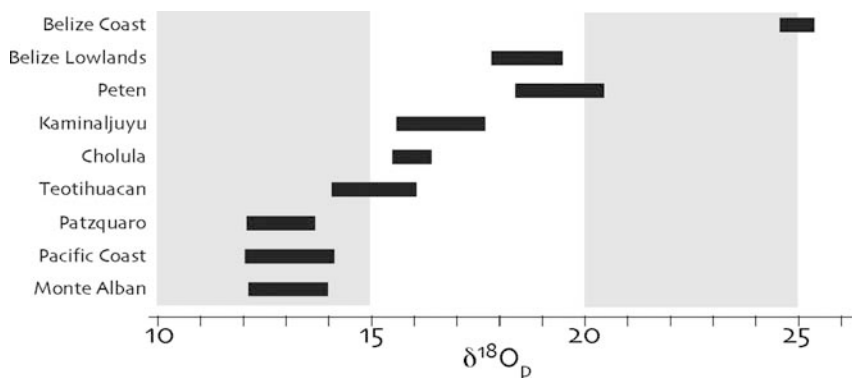


FIGURE 12.2. Variation in oxygen isotope ratios at archaeological sites across Mesoamerica. Data from White et al. (1998, 2000, 2001, 2002, 2004a)

Pacific Coast and Piedmont sites, Guatemala (mean $\delta^{18}\text{O}_p = 13.0$, range = 12.1–13.9%). The range of $\delta^{18}\text{O}_p$ values from Teotihuacan overlaps substantially with the range of another site in the Basin of Mexico, Cholula (mean $\delta^{18}\text{O}_p = 15.8$, range = 15.4–16.2%), and marginally at the lower end of the range for Kaminaljuyu in the Southern Highlands of Guatemala (mean $\delta^{18}\text{O}_p = 16.7$, range = 15.6–17.7%).

12.4. Previous Isotopic Studies in Mesoamerica

Isotopic studies of human movement and provenience in ancient Mesoamerica have been underway for almost 15 years. Strontium isotopes, for example, were used in the investigation of the place of origin of the people of Teotihuacan, including the well-known foreign barrios of Oaxaca and the Gulf Coast regions (Price et al., 2000). Strontium isotopes have also been used to examine the place of origin of the individuals buried in the acropolis at Copán, including the first ruler of the city, Yax Kuk' Mo (Buikstra et al., 2004). Wright (2005a,b) has examined strontium isotopes in tooth enamel at the Maya sites of Tikal, investigating the place of origin of the inhabitants of common graves, sacrificial victims, and royal personages.

There are a number of published reports on the application of oxygen isotopes from a number of sites in Mesoamerica including Teotihuacan, Monte Alban, Altun Ha, Rio Azul/Rio Bravo/La Milpa, and Kaminaljuyu (Spence et al., 2004; Stuart-Williams et al., 1996; Valdés and Wright, 2004; White et al., 1998, 2000, 2001, 2002, 2004a,b; Wright and Schwarcz, 1998, 1999). White and others have used oxygen isotopes to examine place of origin for individuals. Studies at Teotihuacan include investigation of the origin of victims of sacrifice (and their victims) in the Feathered Serpent Pyramid (Spence et al., 2004; White et al.,

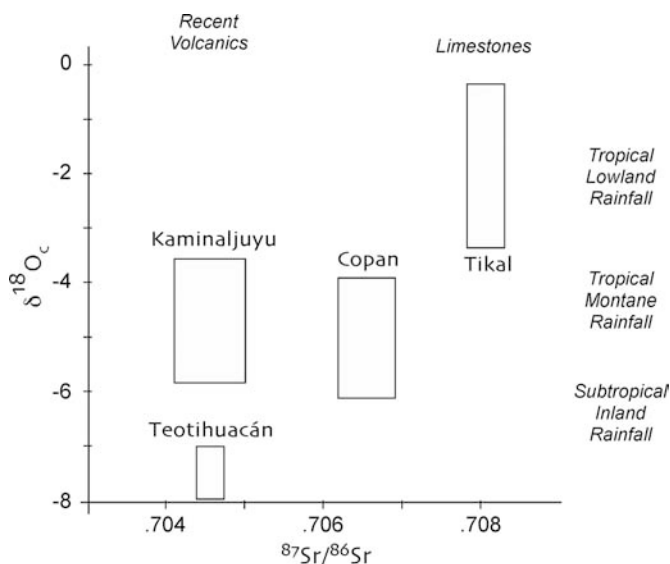


FIGURE 12.3. Strontium and carbonate oxygen isotopes at four major sites in ancient Mesoamerica (Wright 2004). Variation in geological formations is responsible for strontium isotope differences; variation in rainfall is responsible for carbonate oxygen isotope differences

2002) and the provenience of the inhabitants of the Oaxaca barrio, the Merchants' barrio, Tlajinga 33, and Structure 19 (Spence et al., 2005, 2006; White et al., 1998, 2002, 2004a,b).

The combined use of both strontium and oxygen isotope ratios can be a powerful tool in Mesoamerica for distinguishing place of origin. Wright (2004) has plotted strontium and carbonate oxygen isotope ratios from Teotihuacan, Kaminaljuyu, Copán, and Tikal (Fig. 12.3). Strontium isotopes have distinguished sites on recent volcanic sediments (Teotihuacan and Kaminaljuyu), older volcanic materials (Copán), and limestone (Tikal). The oxygen isotope ratios have distinguished localities with different climates. The combination of strontium and oxygen isotope ratios separates the four archaeological sites into distinct sets of values. In the coming years the application of multiple isotopic ratios for proveniencing will greatly enhance our understanding of patterns of migration in ancient Mesoamerica.

12.5. Case Studies

Evidence for human sacrifice has been found in many contexts in ancient Mesoamerica, both ethnohistorical and archaeological (Boone, 1984). For the present study we will examine several archaeological examples of human sacrifice.

Sacrifices accompanying primary burials in royal tombs from Copán, Palenque, Tikal, and Kaminaljuyu provide one of these contexts. Commemorative sacrifices interred during the construction of the Pyramid of the Moon at Teotihuacan provide the other context and example. Strontium isotopes are involved in all case studies; a combination of oxygen and strontium isotopes is used at Copán, Kaminaljuyu, and Teotihuacan.

12.5.1. *Copán*

The ancient Maya city of Copán is located in western Honduras, not far from the Guatemalan border. The ruins of the site cover approximately 15 hectares, centered on the great acropolis composed of five plazas, tall pyramids, temples, and other structures. The site was founded during the Preclassic, but the major focus of occupation was during the Classic period (AD 300–900).

Archaeological survey and excavation over the last two decades have revealed much of Copán's history. One of the most fascinating aspects of this recent work has been the discovery of a series of major tombs beneath the main acropolis that appear to represent the final resting place of Copán's earliest rulers (Bell et al., 2003; Sharer et al., 1999). Of particular interest, the so-called Hunal tomb contained the partially disarticulated remains of an adult male. The tomb's architectural and artifactual associations suggest that he was Yax K'uk Mo, who is believed to have arrived and consolidated political power in Copán in AD 426 (Buikstra et al., 2004; Martin and Grube, 2000; Sharer et al., 1999). Both architectural and artifactual associations suggest that he had ties to Teotihuacan in central Mexico. We measured strontium and oxygen isotopes in a number of samples from Copán (Table 12.1) to examine these questions, to try to identify the place of origin of the purported Yax K'uk Mo individual – whether he was indeed from central Mexico, a local resident of Copán, or from another part of the Maya region.

The local strontium isotope ratio was determined from analyses of modern fauna from the area and from bone samples of other individuals buried at Copán with the presumption that bones gradually remodel toward the local isotope ratio. The “local” strontium isotope ratios determined from the fauna and human bones are 0.7069 (± 0.0003) and 0.7064 (± 0.0002), respectively, in good agreement with the value of 0.70644, reported by Hodell et al. (2004). The range for local Teotihuacan fauna is 0.70487 ± 0.00005 . Enamel from the first molar of Yax K'uk Mo yielded an $^{87}\text{Sr}/^{86}\text{Sr}$ ratio of 0.708435, clearly higher than the range for either Copán or Teotihuacan (Fig. 12.4). This value is inconsistent with his origin at either site, but clearly points to his origin in the Maya region to the north of Copán, matching the approximate value for the Miocene limestone of the southern Yucatán (0.7085). Given the possibility that sea salt consumption has enriched $^{87}\text{Sr}/^{86}\text{Sr}$ ratios at Tikal (Wright, 2005a), Yax K'uk Mo might well be from the southern Yucatán or an area around Tikal. The Tlaloc warrior is also of interest with a very high value for the Maya lowlands, putting his place of birth in the northern part of the Yucatán.

TABLE 12.1. Isotopic composition of bone and enamel samples from Copán

Skeleton	Sample	$^{87}\text{Sr}/^{86}\text{Sr}$	$\delta^{18}\text{O}$
Hunal (95-2)	L fibula	0.70633	
Hunal (95-2)	L mandibular M1	0.70844	-3.4
Margarita (93-2)	L tibia	0.70634	
Margarita (93-2)	L mandibular P3	0.70717	-4.5
MotMot (37-8)	L maxillary M3	0.70763	-1.6
Tlaloc Warrior (95-1)	R ulna	0.70633	
Tlaloc Warrior (95-1)	L mandibular M1	0.70909	-2.2
N. Guardian (94-1)	Long bone	0.70630	
N. Guardian (94-1)	R mandibular M1	0.70686	-5.2
Bubba (92-1)	R radius	0.70640	
Bubba (92-1)	R mandibular M1	0.70688	-3.3
SubJaguar Tomb (92-2)	Rib	0.70683	
SubJaguar Tomb (92-2)	R maxillary M1	0.70688	-1.2

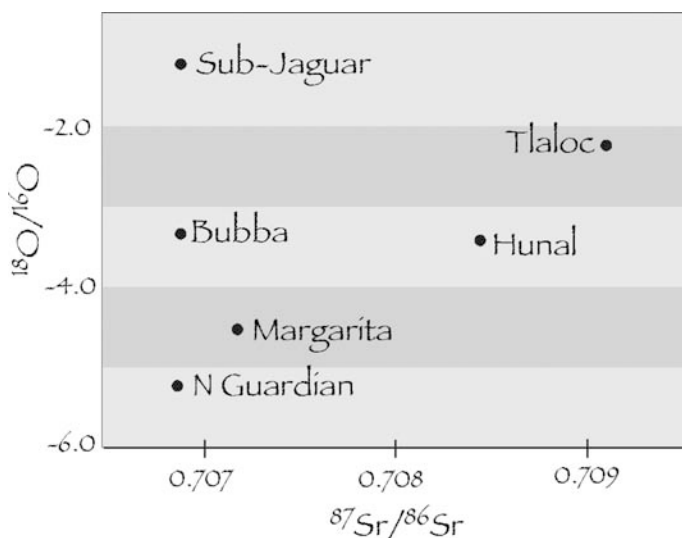


FIGURE 12.4. Strontium and oxygen isotope values in the burials from Copán

The oxygen isotope data is more difficult to interpret, given the myriad of factors that can influence oxygen isotope ratios in humans. Faunal data cannot be used to determine local values because of the differing body temperatures of each species, which affect the precipitated $\delta^{18}\text{O}$ of bone mineral. However, using skeletons with local $^{87}\text{Sr}/^{86}\text{Sr}$, we can estimate that tooth enamel should be in the range of -4.5 to $-6.5\%_{\text{PDB}}$ for Copán humans. Yax K'uk Mo and the Tlaloc Warrior skeleton both show higher $\delta^{18}\text{O}$ in their tooth enamel, consistent with a childhood spent in the central Maya Lowlands. The high $\delta^{18}\text{O}$ shown by the first molars of Teal burial and the Subjaguar skeleton may likewise suggest a foreign origin,

however, these teeth show local strontium values. A variety of factors may contribute to this apparent contradiction, including climatic variation in $\delta^{18}\text{O}$, enrichment in $\delta^{18}\text{O}$ due to culinary practices, and the use of a distinct source of water by these individuals.

12.5.2. *Palenque*

Palenque is a Classic Maya site (AD 400–900) located in northwestern Chiapas, Mexico, at the northern edge of the southern highlands. Pakal the Great, one of the best-known Maya lords, ruled at Palenque from AD 615 to AD 683. He is believed to have spent his childhood at Palenque and ascended the throne at age 12, ruling until his death at age 80. To test this information, we analyzed his lower right third molar, which, in contrast to the first molar, develops some years later during childhood (Hillson, 2005). We also examined teeth from the Red Queen, a female personage laid to rest in Temple XIII-sub, adjacent to Pakal's own burial place inside the Temple of the Inscriptions and enamel samples obtained from two sacrificial victims placed beside her tomb.

Strontium isotope ratios were measured in the six samples from Palenque and these values are presented in Table 12.2. Three samples from Pakal, one enamel from a third molar and two bone samples from a tibia and a rib, were analyzed along with first molar enamel from the three individuals buried in an adjacent tomb, including the so-called Red Queen and her two companions. The measured values range between 0.708081 and 0.708669. Interpretation of these values requires consideration of the local geology of the Palenque area.

The "local" Palenque ratio, determined from the analysis of snail shells collected in the vicinity of the site, is 0.70780, in close agreement with Hodell's measurement of the Palenque limestone (0.70784). The ratio obtained from the third molar of Pakal, 0.70861, differs substantially. Although this would seem to contradict the well-established local childhood residency of Pakal, the resolution of the issue lies in the fact that the site of Palenque is located on a limestone bluff, abruptly above an alluvial floodplain underlain by younger Miocene limestone. This alluvial floodplain was clearly utilized for food production. Our measurements of fauna from the modern village of Palenque, located on this floodplain, yielded a mean $^{87}\text{Sr}/^{86}\text{Sr}$ ratio of 0.70874, within the range for Miocene seawater

TABLE 12.2. Results of strontium isotope analysis of bone and enamel samples from Temple XIII-sub at Palenque

Individual	Material	$^{87}\text{Sr}/^{86}\text{Sr}$
Pakal	M3	0.708612
Pakal	Proximal left tibia	0.708620
Pakal	Rib	0.708184
Red Queen	M1	0.708081
Female companion of the Red Queen	M1	0.708669
Child companion of the Red Queen	M1	0.708286

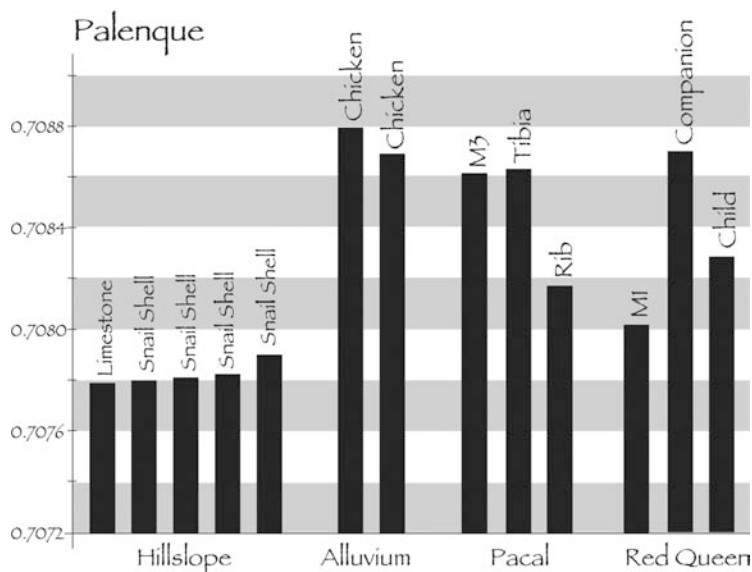


FIGURE 12.5. Strontium isotope values for fauna and human remains from Palenque

Sr (0.7085 ± 0.0005), closely comparable to the measurement for Pakal, and consistent with his local heritage.

The isotope ratios of the dental enamel, reflecting childhood residence, of Pakal and of the all three other individuals (the Red Queen and her two companions) are thus all within the local range (0.7078 – 0.7086) and are close to or within the range exhibited by the bones (Fig. 12.5). Thus we cannot conclude from this evidence that Pakal or the other three individuals were immigrants. While it appears improbable that the Red Queen originated in a place with a different isotopic profile, we cannot ascertain that she was born directly in or around Palenque, although we can unequivocally rule out distant locations with different $^{87}\text{Sr}/^{86}\text{Sr}$.

This study illustrates, with emphasis, that it is the dietary strontium that determines the biological ratio and that great care must be taken to assess how well this bioavailable value matches, or differs from, the $^{87}\text{Sr}/^{86}\text{Sr}$ ratio that would be anticipated upon a strictly geological basis upon a strictly geological basis.

Palenque is located at the contact between sedimentary rocks of Paleocene age (the hills upon which the site itself is built) and Miocene age (the broad plain immediately to the north) (Fig. 12.1). These are calcium-rich (and hence Sr-rich) sedimentary rocks of marine origin and have been shown to exhibit the $^{87}\text{Sr}/^{86}\text{Sr}$ ratio characteristic of the ocean at the time of their deposition (Hodell et al., 2004).

Because the seawater values are well known over time, we can use these data (Fig. 12.2) to infer the ratios for the rocks of each age: 0.7078 – 0.7080 for the

Paleocene sediments (Hodell et al., 2004, measured a Palenque limestone $^{87}\text{Sr}/^{86}\text{Sr}$ of 0.70783) and 0.7083–0.7090 for the younger Miocene sediments. Depending upon the relative contribution of food from each rock type to the total strontium of the diet, we can estimate a local value for the Palenque area of 0.7078–0.7090, with little likelihood of either extreme; we expect the local $^{87}\text{Sr}/^{86}\text{Sr}$ ratio to be biased toward the north (ca. 0.7085) where agricultural fields were likely placed.

The available sample data that represent the “local” Palenque signature are the two $^{87}\text{Sr}/^{86}\text{Sr}$ ratios from the bones of Pakal himself. As long as Pakal did not move into the area as an elderly adult (within the last few years of his life), his bone values should represent the local $^{87}\text{Sr}/^{86}\text{Sr}$ ratio regardless of his place of death. These two bone measurements range between 0.70818 and 0.70862. These are well within the estimates derived from the ancient seawater values and are close to our expectation of 0.7085. Although the actual range for Palenque $^{87}\text{Sr}/^{86}\text{Sr}$ is likely to be somewhat greater than the values obtained from only two samples, we accept the bone data from Pakal (0.7084) as a measure of the local $^{87}\text{Sr}/^{86}\text{Sr}$ signature for residence at Palenque.

The $^{87}\text{Sr}/^{86}\text{Sr}$ ratios of the Red Queen, the female burial associated with the Red Queen, and the child burial associated with the Red Queen are 0.7081, 0.7087, and 0.7083, respectively. These values slightly expand the range of ratios measured for Pakal but are still within the range of the Miocene and Paleocene carbonates described above.

The isotope ratios of the dental enamel, reflecting childhood residence, of Pakal, the Red Queen and her two companions are all within the local range estimated from the seawater curve for local rock types and are close to or within the range exhibited by the two bone measurements from Pakal. Thus we cannot conclude from this evidence that any of these individuals were immigrants. These results are expected for Pakal, but they seem surprising in the case of the Red Queen, more so if we consider her potential identification as Lady Ix Tz’akbu Ajaw, the wife of Pakal, who is epigraphically associated with another, unidentified site in the area. The local provenience of her sacrificial companions argues against their foreign recruitment, as documented in some colonial sources for the Yucatán peninsula or as suggested by the isotopic signatures seen in other sacrificial contexts in Mesoamerica (Buikstra et al., 2004; Spence et al., Valdés and Wright, 2004; White et al., 2002).

While origins in places that are isotopically similar cannot be ruled out, much of Mesoamerica is isotopically distinct and can be excluded from consideration (Fig. 12.3). For example the lowlands of the northern Yucatán are more recent marine sediments and are isotopically higher (>0.7090), older sediments to the south are isotopically lower (<0.7075) and the volcanic terrain farther south is lower still (<0.706). We parsimoniously accept the enamel isotope ratios as indicating a local origin, but we cannot eliminate the possibility of origin in a region of similar geology and isotope ratios. The only nearby region of similar geology is the western part of Veracruz which has the same Miocene sedimentary bedrock.

12.5.3. *Tikal*

The archaeological site of Tikal is located in the central lowlands of the Petén of Guatemala in a large region of Paleocene limestone. Tikal was one of the largest and most powerful centers during the Classic Maya period. Some form of interaction with Teotihuacan is found in architecture, inscriptions, and burial accoutrements from the North Acropolis at Tikal and the Mundo Perdido group, (e.g., Coe, 1992; Laporte, 1989; Reents-Budet and Culbert, 1999). Although early iconographic research hinted at a military connection between the two sites (Coggins, 1979), most scholars of the Maya see a less direct role for Teotihuacan in Tikal's history. Recently, however, Martin and Grube (2000) and Stuart (2000) on the basis of hieroglyphic inscriptions, have argued that Tikal's Early Classic ruler Yax Nuun Ayiin I ("First Crocodile, Curl Nose") came from Teotihuacán.

The likely tomb of Yax Nuun Ayiin I was excavated beneath Structure 5D-34 on the North Acropolis by a University of Pennsylvania expedition in the 1950s and designated as Burial 10 (Coe, 1990). The tomb was partially collapsed but the contents were recovered largely intact by the excavators. The contents included a central, primary burial together with the remains of nine skeletons, most of whom were children and presumably victims of sacrifice (Fig. 12.6). The tomb contained ceramics decorated with deities and motifs from Central Mexico. The inclusion of a crocodile in the tomb reinforces the interpretation that this is the grave of "First Crocodile," Yax Nuun Ayiin. The tomb probably dates to the first two decades of the fifth century AD (Coe, 1990).

Wright (2005b) has re-examined the human skeletal material from this tomb and made new age estimates of the interments. The individuals entombed with the central adult burial ranged from 6 years of age to adulthood (Table 12.3).

Strontium isotope ratios measured on several of these individuals are also reported in Table 12.3. The local strontium isotope values for individuals living at Tikal can be determined to be 0.7080 ± 0.0002 , based on measurement of 83 enamel samples from the site (Wright, 2005a). Thus the range for individuals born at or near Tikal should be between 0.7076 and 0.7085. All of individuals measured in this tomb, including Yax Nuun Ayiin, fall within the expected range for local inhabitants. Even if these individuals were not born at Tikal itself, they very likely come from the surrounding central lowlands of the Maya region. None of these individuals originated at Teotihuacan where the local $^{87}\text{Sr}/^{86}\text{Sr}$ value is 0.7049. Higher strontium isotope values to the north in the Yucatán and the distinctive values of the Guatemalan highlands also rule out these areas as homelands for the victims of sacrifice.

12.5.4. *Kaminaljuyu*

Kaminaljuyu is located in the largest basin in the Guatemalan highlands and is largely covered today by Guatemala City. This Maya settlement grew from a simple farming community around 2000 BC to a major ceremonial and political

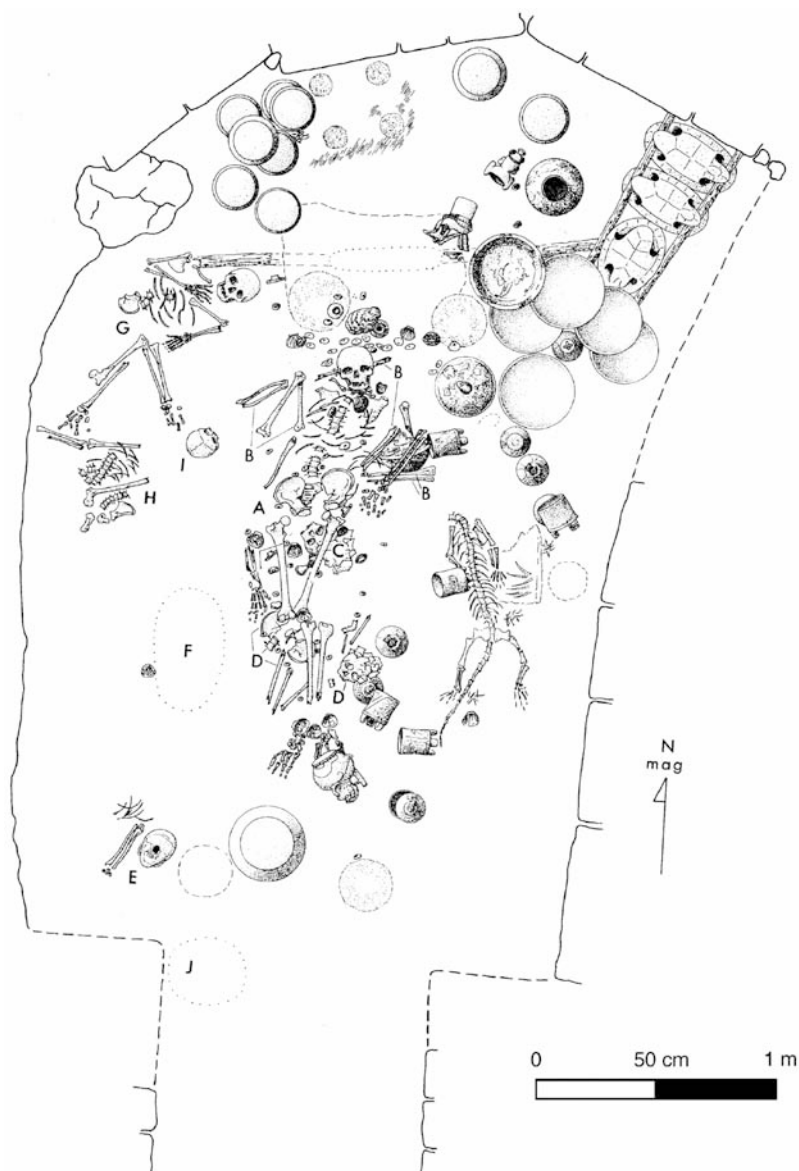


FIGURE 12.6. Located beneath Structure 5D-34 at Tikal, Burial PTP-010 is the grave of Yax Nuun Ayiin I

capital after 500 BC. The presence of Teotihuacan-style architecture, burials, pottery, and other artifacts at the site has raised questions about the nature and intensity of interaction between these two centers (Braswell, 2003; Sanders and Michels, 1977; Shook and Hatch, 1999; Valdés and Wright, 2004).

TABLE 12.3. Skeletal designations, age estimates, and strontium isotope ratios for skeletons from Burial PTP-010, the grave of Yax Nuun Ayiin I at Tikal, Guatemala (modified from Wright, 2005b)

Coe (1990) ID	Age at death	Wright ID	Tooth	$^{87}\text{Sr}/^{86}\text{Sr}$
Skeleton A	Adult	PTP-010X	L C1 enamel	0.70832
Skeleton J	6 years \pm 24 months	PTP-010J	L c1 dentine	0.70804
Skeleton E or F	6–12 years	PTP-010E or F	c1 dentine	0.70831
Skeleton G	>19 years	PTP-010A	L M1 enamel	0.70828
		PTP-010W7	R M1 enamel	0.70819

Capitalization distinguishes deciduous (small caps) from permanent (large caps) teeth

A series of major architectural features have been preserved at the site; excavations in these features over the years have uncovered numerous tombs and burials (Fig. 12.7). Tombs in Mounds A and B at the site contain seated primary burials, surrounded by semi-disarticulated skeletons or decapitated crania (Kidder et al., 1946). Other contents in the tombs include conch and tortoise shells, jade, obsidian, and ceramics. Some of the pottery in these graves resembles types known from Teotihuacan.

Oxygen isotope ratios of both enamel phosphate ($\delta^{18}\text{O}_p$) and enamel carbonate ($\delta^{18}\text{O}_c$) have been used to identify the central articulated adult skeletons as persons who were born at Kaminaljuyu; most of the decapitated individuals were born in foreign regions or relocated to Kaminaljuyu shortly before their deaths (White et al., 2000; Valdés and Wright, 2004). Like the decapitations, several of the surrounding articulated skeletons have much higher $\delta^{18}\text{O}$, indicating that they were born in a lowland region and thus were foreign.

Strontium isotope values provide a similar picture of the place of origin for these individuals. Kaminaljuyu sits in the middle of the Tertiary volcanic highlands of Guatemala where $^{87}\text{Sr}/^{86}\text{Sr}$ values of 0.703–0.705 can be expected. Measured values on tooth enamel from the site confirm this range and indicate the presence of migrants at the site (Fig. 12.8). Values below 0.7050 may well reflect local variation at the site of Kaminaljuyu, but values above that level almost certainly represent individuals of foreign birth. The central primary burials in the tombs consistently fall in the local Kaminaljuyu range for strontium isotopes. Ratios between 0.705 and 0.707 are consistent with the geology of the Guatemala highlands and areas of mixed geology such as the northern slopes of the highlands and regions such as Copán. One of the decapitations has a value of 0.7112 that is widely out of range and suggests a place of origin in older granitic or metamorphic rocks. This individual is clearly not from the Maya lowlands which average 0.708 in the marine limestones that make up this area. However, this skull may have come from a site in the metamorphic Maya Mountains where much higher ratios are found (Hodell et al., 2004). All four of the decapitated skulls from the Kaminaljuyu tombs exhibit values above 0.7050, reflecting foreign birth. By contrast, the articulated peripheral skeletons include both local and foreign individuals.

The combined use of strontium and oxygen isotopes at Kaminaljuyu provides another dimension of distinguishing the place of origins of these burials. Figure 12.9

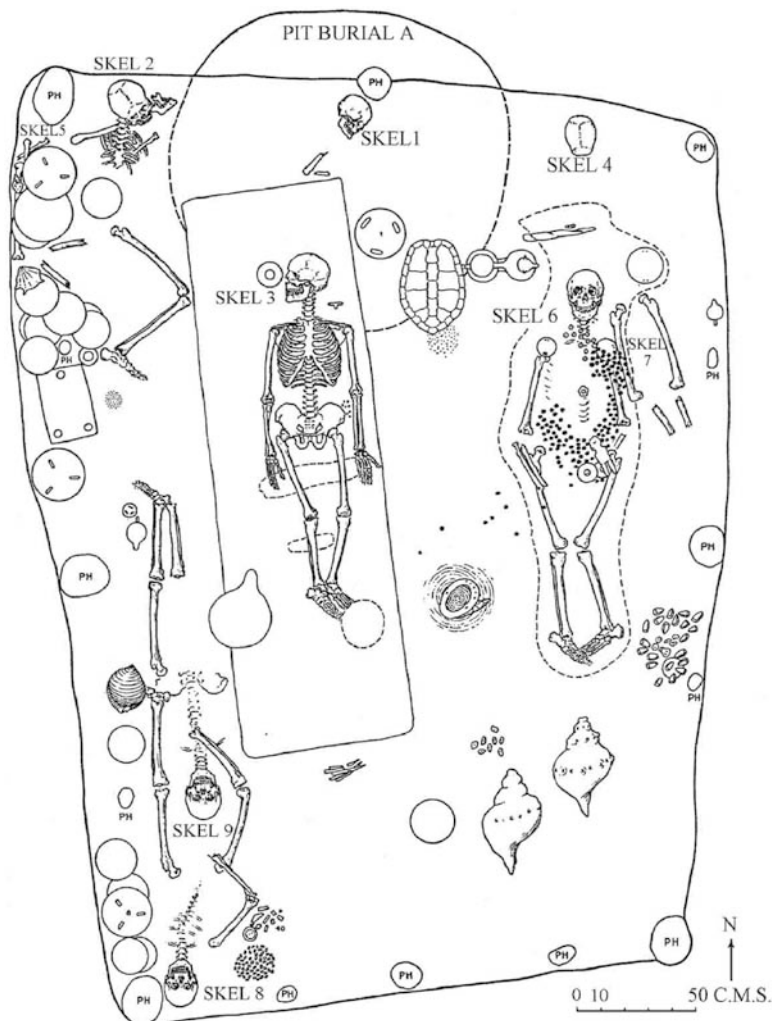


FIGURE 12.7. Tomb A-1 under Mound A at Kaminaljuyu, Guatemala

is a plot of 13 individuals where both strontium and carbonate oxygen isotopes have been measured. The strong correlation between these two ratios suggests a good correspondence in identifying individuals of foreign birth. Based on the isotopic data, victims of sacrifice in the tombs at Kaminaljuyu were of both local and foreign origin.

12.5.5. *Teotihuacan*

The ancient city of Teotihuacan is located in the Central Highlands of Mexico, approximately 50 km northeast of modern Mexico City. Teotihuacan was one of the most complex, urban developments in the prehispanic New World. During the

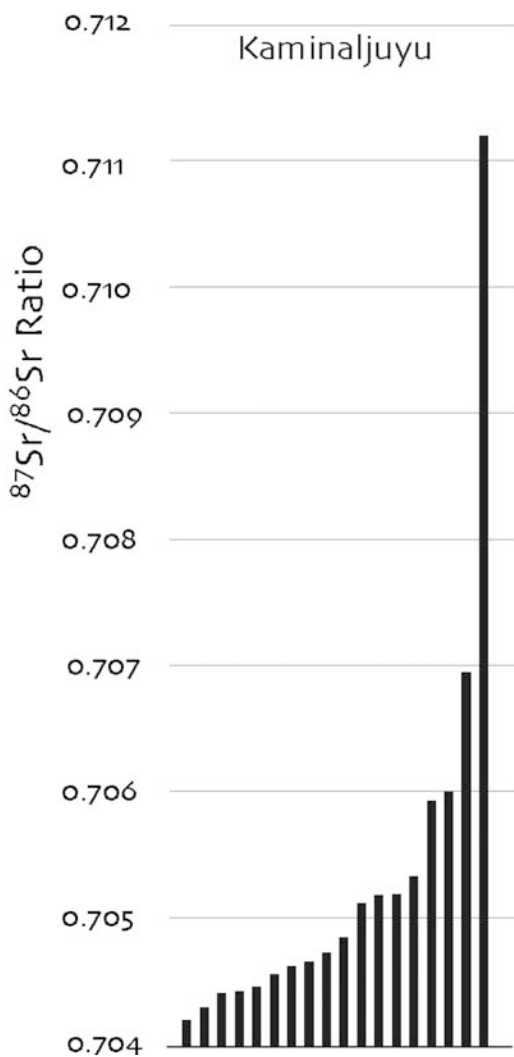


FIGURE 12.8. Strontium isotope ratios at Kaminaljuyu. Values range from 0.7042 to 0.7112

First Intermediate Period (Patlachique Phase) (150 BC–0 AD) a major population center began to develop here, with numbers estimated at more than 100,000 people (Cowgill, 1992; Storey, 1992). The city grew very quickly in the centuries after 0 BC and this rapid increase must have involved immigration into the city (Blanton et al., 1981; Millon, 1973, 1981; Sanders et al., 1979). There are a number of distinctive areas in the city, including ceremonial precincts, administrative areas, “palaces,” exchange areas, avenues, tunnels, and residential compounds.

Our previous studies of strontium isotopes at Teotihuacan in the Central Highlands of Mexico compared burials from several different areas in the ancient city (Fig. 12.10), including the Barrio de los Comerciantes, the Oaxaca Barrio, Oztoyahualco, and Cuevas de las Varillas and del Pirul (Manzanilla et al., 1996;

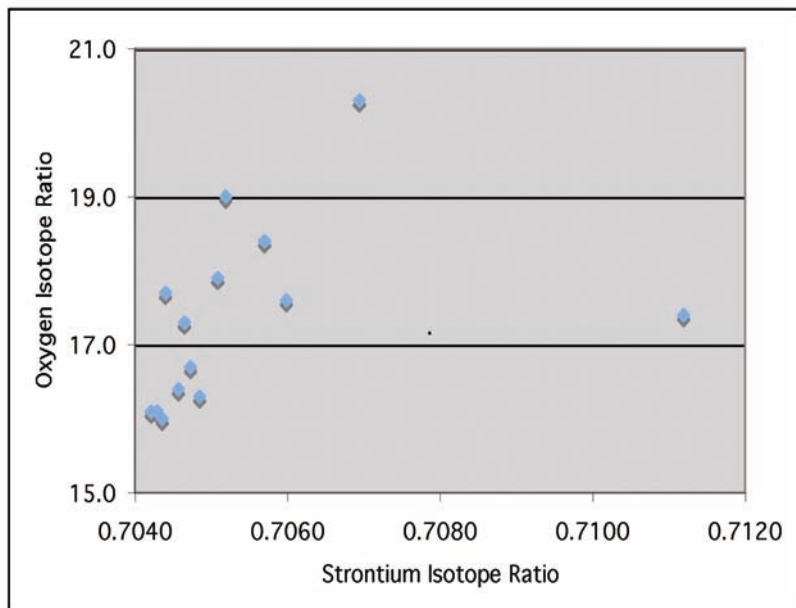


FIGURE 12.9. Plot of strontium and oxygen isotopes from tooth enamel of tomb inhabitants at Kaminaljuyu

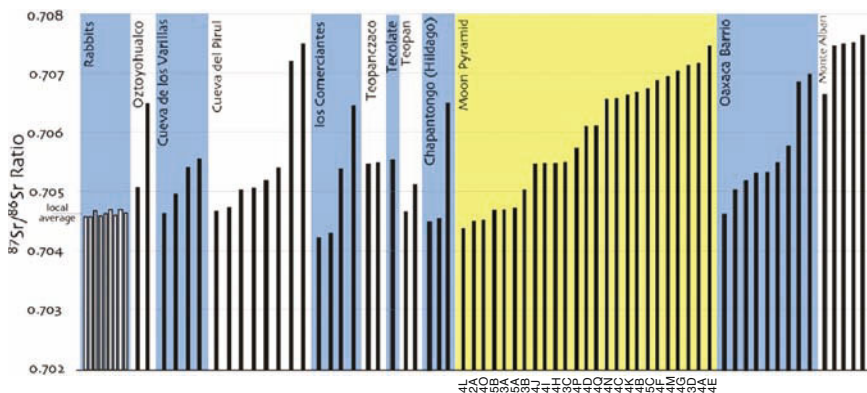


FIGURE 12.10. Bone vs. Tooth $^{87}\text{Sr}/^{86}\text{Sr}$ ratios in the individuals from Teotihuacan. Black bars are tooth enamel; open bars are bone. Paired bone and tooth bars are from the same individual. Values grouped by location of burials. Local average shows mean for nine rabbit bones from Teotihuacan

Price et al., 2000). The Barrio de los Comerciantes, or the Merchant's Compound, is an area of the city with architecture and artifacts characteristic of the Gulf Coast region. Individuals buried in the Oaxaca compound are thought to represent migrants from the Monte Albán area in Oaxaca (Millon, 1973; Rattray, 1993; Sempowski and Spence, 1994; Spence, 1992, 2002). Ozttoyahualco is an early residential compound in the city thought to contain local inhabitants. The Cuevas de las Varillas and del Pirul are located beneath the ceremonial center of the city. Individuals buried in these caves are later inhabitants of the city from the period after collapse. These individuals may have come to the city from outside areas such as Tula to the north or they may be local inhabitants who remained after the collapse of Teotihuacán.

Results of strontium isotope analyses at the site (Fig. 12.10) show substantial variation in enamel $^{87}\text{Sr}/^{86}\text{Sr}$ ratios. The local ratio at Teotihuacan is estimated from the nine rabbit bones shown at the left in the diagram. Interpretation of these values suggests that many of the individuals were migrants. Comparison of several individuals in the Oaxaca barrio at Teotihuacan shows a strong similarity of some individuals with samples from Monte Alban itself.

The Pyramid of the Moon was built in a series of stages, with each new building covering the previous. The tunnels, excavated by the Pyramid of the Moon project under the direction of Saburo Sugiyama and Ruben Cabrera, have exposed seven superimposed structures in the interior of the pyramid. The first structure was a square and gradually increased in size until the fourth stage, when it was enlarged considerably to the north, probably during a crucial time in the political organization of the city. The tunnel excavations exposed a series of distinctive sacrificial interments of almost 40 individuals marking various phases of construction dating between AD 200 and AD 400. There were six separate burial groups uncovered during the excavations (referred to here as Burials). Burials 2–5 were analyzed as part of this study (Table 12.4).

Burial 2 dates to AD 200–250 and contained a single high status male (2A), 40–50 years old, in a dedicatory tomb from Building 4. Burial 3 dates to ca. AD 200–250 and contained four individuals who may have been sacrificed as dedications during the construction of Building 5. Individual 3D was slightly separated from the group of individuals 3A, 3B, and 3C and had symbols of authority (disc, mat) placed, respectively, at his head and feet (Sugiyama et al., 2004).

Burial 4 contains 17 skulls and one atlas, which were deposited during the construction of Building 6 dating to approximately AD 300–400. These individuals were possibly low status as they have no associated offerings, but several geographic origins are suggested by the diversity of cranial and dental modification styles they exhibit (Pereira et al., 2004). All but two, whose sex was undeterminable, were male (Spence, personal communication).

Burial 5 probably dates to about AD 350 and contains three individuals who were placed on top of Building 5 during the construction of Building 6. Therefore, they may have represented either a dedication of Building 6 or a decommission of Building 5 (Sugiyama et al., 2004). The unusual placement of burial distinguishes it from the others, but its form and contents are also different

TABLE 12.4. Burial designation, material analyzed, phosphate oxygen and strontium isotope ratios for individuals from the Pyramid of the Moon, Teotihuacan

Burial	Bone or tooth	$\delta^{18}\text{O}_p$	$^{87}\text{Sr}/^{86}\text{Sr}$	Burial	Bone or tooth	$\delta^{18}\text{O}_p$	$^{87}\text{Sr}/^{86}\text{Sr}$
2A	URI2	16.7	0.704562	4I	URM2	16.1	0.705472
2A	URM2	17.1	0.704536	4I	Temporal	17.4	
2A	Parietal	16.3		4J	URM2	21	0.705445
2A	L fibula	15.7		4J	Temporal	18.9	
2A	L fibula exostosis	15.8		4K	ULM2	21.5	0.706682
3A	LLM2	16.1	0.704752	4K	Temporal	19.9	
3A	R femur	16.6		4L	ULM1	15.6	0.704344
3B	LRM2	16.8	0.705091	4L	Parietal	16.9	
3B	L rib	15.1		4M	ULM2	15.7	0.70693
3C	LRM2	16.2	0.705502	4M	Frontal	17	
3C	R rib	15.1		4N	ULM2	20.5	0.706536
3D	LRM2	15.7	0.707182	4N	Parietal	18.2	
3D	L femur	15.5		4O	URM2	17.5	0.704559
4A	LLM2	17.6	0.707215	4O	Parietal	17.9	
4A	L zygomatic arch	17.3		4P	ULM2	20.1	0.70578
4B	LRP2	14.8	0.706736	4P	Parietal	19	
4B	Parietal	17.1		4Q	LRM1	19.7	0.706129
4C	LLM2	16.3	0.706578	4Q	Parietal	18.8	
4C	Parietal	17.9		4 (R)	Extra C1 burial 4	15.7	
4D	LRM1	16.8	0.706114	G175	Occipital, fill	17.2	
4D	Parietal	18		F573	Parietal, fill	14.8	
4E	ULM1	17.6	0.707503	F590	Parietal, fill	13.8	
4E	Parietal	18.4		5A	R femur	15.3	
4F	URM1	17.4	0.706903	5A	ULP1	16.7	0.70479
4F	Temporal	18.4		5B	L femur	16.4	
4G	URM2	18.3	0.707098	5B	ULP1	16.8	0.704723
4G	Parietal	19		5C	R femur	16.5	
4H	URM2	16.1	0.705486	5C	ULP1	18.5	0.706782
4H	Parietal	16.4					

(Sugiyama et al., 2004). Burial position and adornments, including jade from the Motagua Valley, Guatemala, strongly suggest that these individuals were very high status Maya.

Essential information and isotopic measurements from the enamel of many of these individuals are listed in Table 12.4. The strontium isotope data for the Moon Pyramid sacrifices is graphed in Fig. 12.11 along with other enamel values from Teotihuacan. These values are arranged in rank order by location within the site and individual burial designations are indicated for the individuals from the Moon Pyramid. These data provide information on the place of origin of the sacrificial

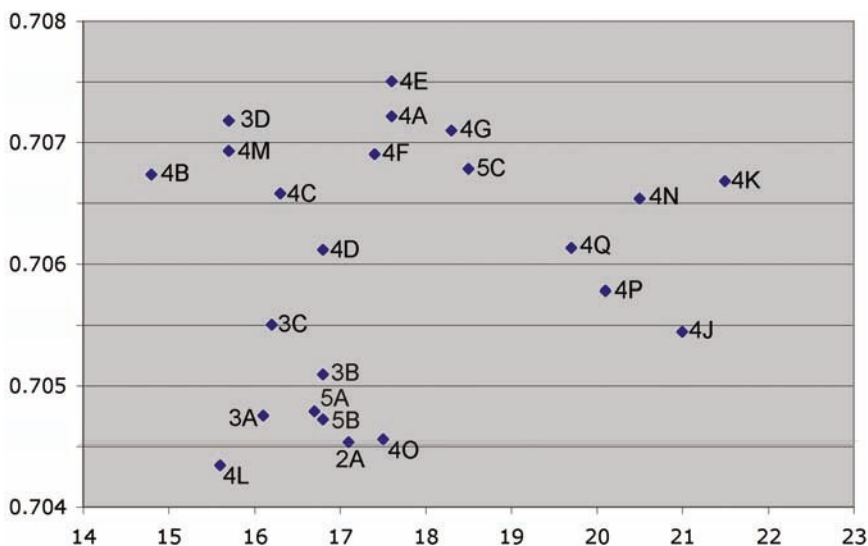


FIGURE 12.11. $^{87}\text{Sr}/^{86}\text{Sr}$ and $\delta^{18}\text{O}_p$ values in the individuals from the Moon pyramid at Teotihuacan. Three (or four) possible clusters (places or origin) can be seen in this plot. The labels indicate the designation of the individual sacrificial victims

victims in the Moon Pyramid. The expected local $^{87}\text{Sr}/^{86}\text{Sr}$ value is ca. 0.7045 (0.7046 in your 2000 paper and 0.7049 in Fig. 12.4 in this paper) based on the measured value in archaeological fauna (rabbits) from the site. It is clear that most of the individuals from the Moon Pyramid were not born at Teotihuacan.

Only three of the victims (5B, 3A, 5A) have strontium isotope ratios directly comparable to the local signature. There are three values lower than the local Teotihuacan signature (4L, 2A, and 4O). These values fall in the range of the Central Highlands and are comparable to values from the site of Chapantongo in Hidalgo. The remainders of the values are higher than the Teotihuacan signature. The distribution of the remaining values suggests that several different areas provided these sacrificial victims. 3B is around 0.7050 and still within the range reported for the Central Highlands. Four values around 0.7055 (4J, 4I, 4H, and 3C) suggest these four individuals came from the same location. This impression is strengthened by the fact that three of the burials were found directly adjacent to one another in Burial 4.

A scatterplot of the combined oxygen and strontium isotope values for these samples is shown in Fig. 12.11. These results give a slightly different perspective on place of origin. Given that the current range for Teotihuacan is 14–16‰, there are several individuals (3D, 4B, 4D, 4L) whose $\delta^{18}\text{O}_p$ values are consistent with Teotihuacan. Except for individual 3A, none of these have strontium isotope values that are consistent with Teotihuacan. The combination of isotopic measurements would therefore suggest that the Moon Pyramid sacrifices are dominated by people who were not from Teotihuacan.

Three major clusters of points (or perhaps four) are discernible in this plot. There is a cluster of eight points in the lower left of the graph including 2A, 3B, 3C, 4L, 4O, 5A, 5C, and 3A, which have strontium values consistent with those from Teotihuacan. The $\delta^{18}\text{O}_p$ values of 2A, 3B, 4O, 5A, and 5B are, however, outside the current baseline for Teotihuacan. It is possible that the individuals in this group are from either nearby areas of the Basin of Mexico or the Southern Highlands, but more sampling of these areas, particularly for oxygen isotope compositions will be needed to support this interpretation. This endeavour is currently underway.

A second group of ten individuals lies in the upper left of the graph with strontium ratios above 0.7060 and $\delta^{18}\text{O}_p$ values less than 19%. This group exhibits a range of oxygen isotope ratios that may reflect more than one general place of origin. If we ignore individual 4D in this group, it is possible that two distinct groups are represented here, one to the left and one to the right. The strontium isotope ratios in the larger, single group however fit within the range of the Central Highlands and probably reflect a place of origin from that region. More $\delta^{18}\text{O}_p$ values from this area are needed to test this hypothesis. However, the available data suggest that the group to the left (4B, 4C, 4M, 3D) could be from the Central Highlands, but the group to the right (4A, 4E, 4F, 4G, 5C) have $\delta^{18}\text{O}_p$ values consistent with the Southern Lowlands.

A third group of individuals with $\delta^{18}\text{O}_p$ values greater than 19% appears distinct. The combination of recent volcanic strontium isotope values and higher oxygen isotope ratios suggests an area of volcanic geology in more coastal lowland regions and/or greater heat, humidity, and rainfall. We suspect that the Gulf Coast of Mexico or perhaps the Motagua Valley in Guatemala is a likely homeland for these individuals.

12.6. Conclusions

An examination of sacrificial victims from several sites across ancient Mesoamerica reveals variety rather than pattern. Although the case studies discussed here are somewhat limited, it seems clear that the selection of sacrificial victims took several forms in the region. A range of practices have been identified in this volume, from commemorative construction sacrifices as seen at the Moon Pyramid at Teotihuacan, to the execution of adults and children to accompany deceased nobles in the several Maya sites. A summary of our results is provided here followed by some discussion of the larger meaning of our study.

A mix of primary elite burials and likely sacrificed individuals was found beneath the main acropolis at Copán. Yax K'uk Mo, SubJaguar, and Margarita appear to have been royal interments. The other three analyzed burials, Tlaloc, Bubba, and the Northern Guardian, are probable companion sacrifices. These are adult males, 18–40 years of age, apparently placed as guardians of the buried nobles. At Copán all of the individuals reported here are male, with the exception of the Margarita burial. Two of the burials from Copán – Yax K'uk Mo and Tlaloc – are

clearly nonlocal individuals. Margarita, SubJaguar, Bubba, and the Northern Guardian exhibit isotope values consistent with a place of origin at Copán. Place of origin is not clearly associated with noble or companion status in the graves.

At Palenque, only four individuals have been analyzed to date, including two royal graves (Pakal and the Red Queen) and the two female companion sacrifices with the Red Queen. Strontium isotope values for Pakal and the two female companions are consistent with a place of origin in or around Palenque. The isotopic signature for the Red Queen probably reflects either local origin or a place only slightly removed from Palenque.

In the case of the tomb of Yax Nuun Ayiin at Tikal, none of the individuals in the tomb can be shown to come from outside the Tikal region. Geologically this is a very homogenous area and, while these individuals may not have been born at the site of Tikal itself, they are clearly from the larger region. All of the individuals in this tomb, including Yax Nuun Ayiin himself and the accompanying skeletons, appear to represent the remains of locally born individuals. The sex of most of the sacrificial victims cannot be determined because of their young age.

At Kaminaljuyu, a somewhat different picture emerges. Examination of a number of different tombs and comparison of the central primary grave with the peripheral skeletons shows that all of the elite individuals are likely local while a number of the accompanying skeletons, and especially the decapitated skulls, came from foreign regions. The accompanying individuals include both adults and children. With one exception, all of the foreign skeletons are children.

At Teotihuacan, analysis of several sacrificial groups dedicated to various building stages at the Pyramid of the Moon revealed that many of these individuals, all of whom were male, were not originally from the site itself. The isotopic signatures indicate homelands in the highlands of Central Mexico, but several of these individuals may have been born in a more coastal location, while others may have originated in the Maya area.

In sum, there are few clear patterns in the isotopic studies of sacrifice to date. Variation is the norm. Males, females, and children were sacrificial victims. Males were more likely to be commemorative sacrifices and in the case of the Moon Pyramid, more often to be of nonlocal origin. Males, females, and children could be local or nonlocal among sacrifices in the royal tombs of the Maya region. Severed skulls accompanying royal graves often appear to be nonlocal in origin. Nonlocal individuals may well represent captives or prisoners from distant regions.

It is also important to note that the designation of individuals as victims of sacrifice in these contexts is not always certain. Gillespie (2001) reports incidents of removal and replacement of individuals in a variety of Maya tombs that may confound the context of sacrifice. Indeed, Kidder et al. (1946) originally interpreted the earliest tombs at Kaminaljuyu (A-I and A-II) as family tombs that were periodically opened to inter a new decedent. However, they interpreted the later tombs as containing sacrificial companions to accompany a primary interment. Skeletal biology and Ruz's original drawings support his interpretation that this was a simultaneous multiple deposit that most likely served a sacrificial purpose

(Cucina and Tiesler, 2006). Weiss-Krejci (2003, 2004), however, has called into question the sacrificial origin of many burials that had formerly been assigned sacrificial status. In the case of a stuccoed box containing the skeletal remains of five or six individuals sealing Pakal's funerary chamber, she proposed as an alternative that this was a place of burial for members of Pakal's house rather than sacrificial victims. Her interpretation stands in contrast to the recent re-evaluation of Ruz's original drawings and the direct examination of parts of the skeletal remains which appear in concordance with the original interpretation as a simultaneous multiple deposit that most likely served the sacrificial purpose originally ascribed by Ruz (Cucina and Tiesler, 2006).

Regardless of the specific status of burials in these tombs, whether primary or sacrificial, isotopic methods provide a means to examine the place of birth of these individuals. The study demonstrates that strontium and oxygen isotopes can provide an important and useful means for investigating the provenience of human skeletal remains. To date, these techniques have been especially good at identifying nonlocal individuals. As more information is gained regarding baseline local values for strontium and oxygen isotope ratios across Mesoamerica, it should be possible to discern place of origin as well. The future of such studies has great potential.

Acknowledgments. A number of individuals have contributed to this study in various ways. We would specifically like to thank Jane Buikstra, James Burton, Linda Manzanilla, Paul Fullager, Mike Spence, and Vera Tiesler. The National Science Foundation, Wenner Gren Foundation, Texas A&M University, the Social Sciences and Humanities Research Council of Canada, the Natural Sciences and Engineering Research Council, and the Canada Research Chairs Program have provided funding for the isotopic analyses.

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13

The Bioarchaeology of Maya Sacrifice

JANE E. BUIKSTRA

A phenomenon as complex and enigmatic as Precolumbian human sacrifice can only be explored through application of the full range of theories and methodologies available to contemporary anthropology.

Demarest, 1984: 227

Murder, whether ritual or not, has an intrinsic fascination.

Edmonson, 1984: 91

13.1. Introduction

One criterion for evaluating the success of any volume is whether it has achieved its stated goals. As emphasized by Cucina and Tiesler in their introduction (Chap. 1), their focus is explicitly *not* to attempt to develop a unified perspective upon Maya sacrifice. In fact, as illustrated by the papers in this volume, there is remarkable diversity in sacrificial treatments, across space and through time. This diversity must be appreciated and interpreted if we are to understand the manner in which acts of violence created and recreated Maya world(s).

The goals of the volume advance Maya mortuary archaeology in several distinctive ways. Firstly, Tiesler and Cucina wish to establish a rigorous methodology that can be applied systematically and scrupulously in order to distinguish funerary from alternative nonfunerary behaviors. As they emphasize, these methods begin with field observations and carry through to detailed and specialized studies of human remains. They are thus concerned with establishing a complete description of burial programs, pursuing what they term a taphonomic approach. For them, following the French *Anthropologie de terrain* (Duday, 1978, 1997; Duday and Masset, 1987; Duday and Sellier, 1990; Duday et al., 1990; Tiesler, 2004), taphonomy refers to both observations of all archaeological and osteological changes that affected the corpse from near the time of death (*perimortem*) to its ultimate disposal. It is from these details that alternative treatment tracks can be identified.

A second goal involves the integration of contemporary theoretical perspectives on sacrifice and ritual meaning into the study of Maya sacrifice. The careful reconstruction of ritual actions that anchor interpretations of “sacred choreographies” (Tiesler in this volume) are explicitly sought and interpreted within a theoretical framework informed by abundant examples drawn from ethnohistoric and ethnographic sources. Thus, these chapters emphasize forms, occasions, and meanings of sacrifice.

As a third goal, Cucina and Tiesler put emphasis on the multidisciplinary of their approach, collaborative efforts that are initiated upon discovery of remains and extends through analyses that includes specials from fields as remote as archaeological chemistry and epigraphy. They argue that such collaboration should achieve an organic whole that is much more than a simple exchange of data, but should extend through the interpretative phases of the project. Such multidisciplinary is crucial, as is their ongoing emphasis upon context – archaeological, ethnographic, and historical – illustrated by ensuing chapters.

Fourthly, the editors modestly advance the notion that they hope these case studies, drawn primarily from Late Classic and Postclassic contexts, will serve to anchor other rigorous attempts to interpret the anthropogenic clues left in ancient Maya disposal patterns. This objective has been achieved, as have the previous three, establishing a pattern of rigor, multidisciplinary, and contextual emphasis that should establish a model for further scholarship.

As appropriate for a closing chapter, most of the remaining comments will focus upon exploring the achievements of the volume, drawing together themes and offering constructive review. Prior to this task, however, I wish to focus upon Maya sacrifice within the larger framework of bioarchaeological studies of violence, with special emphasis upon the Americas.

13.2. Prior Studies of Maya Sacrifice

Before focusing upon the contents of this volume, I would like to briefly consider the history of contributions of osteologists and bioarchaeologists to the study of ritual violence and sacrifice among the Maya. This develops from my initial impression during informal survey of studies drawn from North and South America that so many papers addressing these subjects had been published recently. Certainly, there is a long history of important contributions by osteologists to the study of Maya sacrifice, including Hooton’s important test of the “virgin sacrifice” myth, using the collection from Chichén Itzá’s cenote (Hooton, 1940). The question I address in this section is whether there is heightened interest during recent years.

Data drawn from Marie Danforth’s annotated bibliography (Danforth, 1997) facilitates a more systematic assessment of the relative visibility of bioarchaeological contributions to the study of sacrifice and ritual violence among the ancient Maya. [Figure 13.1](#), a distribution of articles on “ritual violence” by decade, assumes that the same number of articles was published on this topic

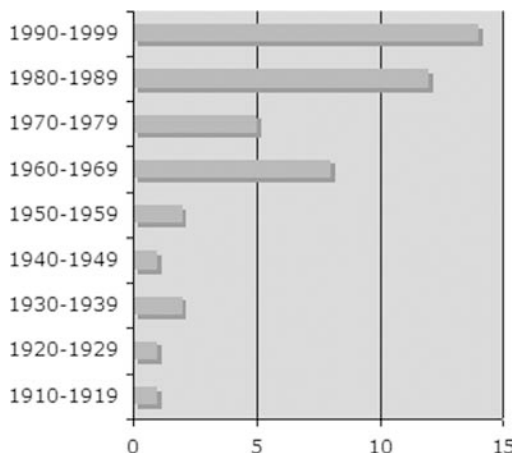


FIGURE 13.1. Number of articles on Maya ritual violence (after Danforth, 1997)

between 1995 and 1999 as in the preceding 5 years. While there appears to have been a low level of interest prior to the 1960s, a trend toward increasing absolute numbers since 1960 is apparent.

Even so, such interest, evident since the 1960s, does not necessarily mean that skeletal biologists were immediately brought to the table in general discussions of human sacrifice. For example, Michael Coe (1986:2) in his introduction to *Blood of Kings* (Schele and Miller, 1986) remarked that during the first Mesa Redonda de Palenque, “linguists, epigraphers, art historians, archaeologists, and ethnologists came together to break new ground for Maya studies. Where were the skeletal biologists? Similarly, physical anthropologists were conspicuously absent from another significant conference, held at Dumbarton Oaks in 1979, topically focused upon “Human Sacrifice in Mesoamerica” (Boone, 1984).

Times are obviously changing for the better, however. Explicitly multidisciplinary symposia such as this volume, initially delivered within an archaeological forum at the annual meeting of the Society for American Archaeology (2005), are a strong indication that the significance of bioarchaeological study in interpreting the ancient Maya is today assuming appropriate visibility.

13.2.1. *Bioarchaeological Studies of Violence Elsewhere in the Americas*

Studies from throughout the Americas conducted during the closing decades of the twentieth century clearly eradicated any residual Rousseauian notions of pristine, bucolic, and violence-free lifeways prior to European arrivals. Images inherited from an earlier, more romantic era gradually faded and then abruptly vanished in the face of overwhelming osteological, hieroglyphic, and iconographic evidence of ancient violence, including warfare, self-mutilation, trophy-taking, massacres, and even cannibalism.

In South America, for example, during the early 1990s, Alva, Donnan, and Castillo's excavations at Sipan and San Jose de Moro brought the supposedly supernatural images from murals and portable art down to earth – a place where ritual displays included sacrifices and consumption of human blood (Alva and Donnan, 1993; Donnan and Castillo, 1992, 1994; Verano, 2005). In 1995, the first osteological evidence of prisoner sacrifice was found at the Pyramid of the Moon in the Moche River valley by Canadian archaeologist Steve Bourget (Bourget, 1998), who discovered a sacrificial site that would eventually produce the skeletal remains of more than 70 victims. Meticulous and contextually nuanced osteological studies by John Verano characterize these remains as “consistent with the hypothesis that the capture, display, and sacrifice of captives served to reaffirm the power and status of their captors and of the ceremonial center where the sacrifices occurred. The subsequent modification of victims' remains, by defleshing, decapitation, and dismemberment constitute additional osteological evidence of activities that previously were known only from Moche iconography (Verano, 2005:277). Thus have bioarchaeological investigations been well integrated with those of iconography and archaeological contexts.

Other highly visible examples of protracted body treatments possibly reflecting violence and sacrifice are more ambiguous than the Moche example. Conspicuous among these are the Nazca “trophy” heads that have been argued to be associated with warfare (Forgey and Williams, 2005; Proulx, 1989, 2001) and/or ancestor worship (Carmichael, 1995). While bioarchaeological evidence has been marshaled to resolve this issue (Verano, 1995), the situation is complicated and unresolved, pending further bioarchaeological study (Forgey and Williams, 2005). A factor limiting interpretations of many museum collections is a lack of detailed contextual information of the type called for by Cucina and Tiesler in this volume.

In North America, as noted by Walker (2001) in his comprehensive bioarchaeological review of violence, aggressive behaviors are documented as early as in the 9,000-year-old Kennewick remains. Other examples abound, including evidence of stone projectiles in bones, massacres, scalping, and cannibalism that convincingly document the fact that violence in North America long preceded the arrival of Europeans.

Late Prehistoric sites, such as Norris Farms #36, located in central Illinois (Milner and Smith, 1990), show clear evidence of *perimortem* trauma and scalping. Taphonomic signatures suggest that those dying away from the community were exposed for some time before recovery and interment. Milner and Smith also report that disproportionate numbers of those in ill health were the victims of violence, presumably during raids, a model explicitly tested in this volume by Cucina and Tiesler (Chap. 11). Thus, chronic warfare apparently caused death of at least one-third of the adults interred at this AD 1300 cemetery. The roughly contemporaneous Crow Creek massacre site (South Dakota) provides additional ample evidence of traumatic death and violent *postmortem* treatment of nearly 500 individuals, including scalping and dismemberment (Willey and Emerson, 1993).

White's (1992) meticulous study of the Mancos skeletal series and the Turners' (Turner and Turner, 1999) regional study of Southwestern sites document *post-mortem* changes attributable to cannibalism. Prominent and very positive in these approaches is the systematic development of expectations for the recognition of anthropophagy, based upon skeletal observations. If such models are rigorously applied, they anchor convincing arguments, especially when linked to other lines of evidence. Some conclusions, however, are flawed by lack of attention to these other lines of evidence, such as archaeological contexts, oral traditions, and ethnohistories. The lack of consensus on the cannibalism issue in the Greater Southwest reflects both this lack of multidisciplinary attention and failure to appreciate the many pathways that may lead to redeposition and fragmentation. A unified interpretative model must be demonstrated, not assumed.

Two key strengths emerge from the late twentieth century studies cited above. One of these is integrating multiple lines of evidence, as in the South American Moche example where skeletal biology melded with iconographic and archaeological information. A second very significant methodological aspect is the development of carefully drawn expectations for specific alternative forms of behavior, for example, cannibalism vs. secondary interment – as in the North American Southwest. The present volume illustrates the strength of combining these two approaches and linking them to contemporary theoretical perspectives in the context of Maya sacrifice.

13.3. The Present Volume

What are the key strengths displayed in this volume? Importantly, an explicit focus upon rigorous methodology and uniting multiple lines of evidence take this bioarchaeological approach to a new level. In addition, the integration of theoretical perspectives in the context of this rigor and multidisciplinary facilitates nuanced and convincing interpretations. I was particularly pleased with Tiesler's (Chap. 2) ability to, first, isolate a significant issue – the distinction between funerary and nonfunerary practices – and her rigorous and systematic development of alternative sets of expected taphonomic signatures, based upon ethnohistorical and iconographic information. Emphasis was also placed upon distinguishing explicitly between *perimortem* trauma and evidence for posthumous body manipulation. Her examples are convincing, as they separate true secondary burials from the nonfunerary *peri-* and *postmortem* manipulations that abound in various contexts, including those termed here caches, isolated bone scatters, and primary disposals.

Even while using these analytical categories, however, Tiesler and colleagues are well aware of the ambiguities inherent in such assignments. Differences in location and composition are appreciated and serve to anchor further nuanced interpretations. These researchers take the perspective that until demonstrated to be funerary, that is strictly an interment of ancestors by descendants, nonfunerary behaviors must be considered. Regularities in these and their contextualization

anchor ensuing impressive case studies that explore issues of means inherent within sacrificial contexts (especially Chaps. 2–4, 8–11).

In Chap. 2, Tiesler proceeds to consider systematically various forms of nonfunerary behaviors expected to produce distinctive archaeological residues, including various forms of sacrifice, ranging from the common “communion” offerings to those rarer, such as sorceress killings and disjunction sacrifice. Informed by social theories about sacrifices, such as those by Huber and Mauss, Tiesler follows with contextual and taphonomic expectations for alternative *peri-* and *postmortem* body treatments. The utility of this approach is then illustrated through the analysis of Deposit 1003 from the site of Becán, a Late Classic complex from present-day Campeche. Her detailed study argues convincingly for nonfunerary treatment of this young man, whose history of chronic infectious disease is also of interest. This contribution is also sophisticated theoretically, paralleled by others, e.g., Duncan (2005) who seeks to bring theoretical perspectives developed by social theorists such as Bloch (1992) to the interpretation of Maya contexts.

By considering two contrastive Late Classic (AD 700–900) cave contexts (Actun Tunichil Muknal and Actun Uayazba Kab), Lucero and Gibbs argue for the presence of witch sacrifice among the ancient Maya. Beginning by emphasizing the generality of witchcraft and witch sacrifice, including ethnographic and ethnohistoric Maya examples, the authors emphasize the dangerous and liminal nature of Maya caves as portals to the underworld. Interments have been found in numerous such contexts, dating from late Preclassic through perhaps even the Contact period. As a basis for examining two contrastive cave contexts from central Belize, the authors dichotomize between remains recovered from surfaces and those interred. While skeletal analyses of surface remains are inherently limited by postdepositional events that frequently include body dispersal and encrustations of mineral deposits, available studies suggest that age and sex distribution across all superficial contexts includes equal numbers of males and females (12/12), with 39% of the total sample of 66 being juveniles. Interred remains include twice as many males as females (4/2), with 46% juveniles (18) overall.

Given hypothetical relationships of cenotes to the underworld, a comparison with cave contexts is apt. When compared to the Chichén Itzá Cenote Sagrado series reported by Beck and Sievert (2005) and Anda (this volume), the interred series appears to resemble the cenote series slightly more closely than those recovered from cave surfaces. The predominance of males in both series and equivalent numbers of adults and juveniles are reflected in both contexts.

Lucero and Gibbs pose the interpretative alternatives: ancestral remains, sacrifices, and witches. The interred skeletons from Actun Uayazba Kab, which included seven individuals primarily adults of both sexes (3/3), were buried with grave goods appropriate to funerary behavior directed toward ancestral remains. The authors further argue that the superficial remains, which include seven juveniles and seven adults (2 females; 3 males), from Actun Muknal Tunichil represent the residues of witches, sacrificed and disposed off casually within this

dangerous context. The authors are convincing in their emphasis upon the contrastive interment contexts, though their interpretation remains circumstantially based upon issues of demography, depositional context, and ethnographic analogy. As such it should be considered a provocative hypothesis, undoubtedly worthy of consideration and testing through further explorations of ancient Maya cave contexts.

In Chap. 4, Harrison-Buck, McAnany, and Storey also present two contrastive contexts, drawn from the Terminal Classic Sibun Valley in Belize. One includes desecrated remains (Hershey site), identified demographically as an extended family, and another (Pakal Na), an elaborate funerary context in which postdepositional treatment included removal, painting, and reassembling the body of an elite male in association with peripheral bone clusters.

The authors argue that the highly fragmented remains ($n = 6$) from the Hershey site represent individuals of elite status, at least one of whom had been flayed (young adult male). The bones present no evidence of exposure prior to building collapse and are generally interpreted as the residues of a Terminal Classic conquest-related event. After considering several more specific scenarios and their probable skeletal signatures, the authors suggest that fragmentation patterns developed through the disturbance of ancestral tombs in the course of site desecration. Importantly, the flaying marks from the young adult male are contraindicative, but perhaps reflect a more contemporary death or homicide at the time of attack. Importantly, the authors consider the possibility that the incomplete nature of the deposit may have resulted from trophy removal, reminding us to interpretatively consider that which is *not* present along with that which is. Other aspects of the disturbed Hershey context, along with other ancient Maya examples, are used to bolster this convincing interpretation of a termination event.

By contrast, at Pakal Na, an elaborate tomb containing the residues of four partial remains along with a primary ancestral interment is considered evidence of a Late Classic community persistence and success within the Sibun Valley. *Postmortem* manipulation is evident in the primary burial, which bore evidence of smoking, with the skull and portions of the arm having been removed and placed on a nearby ledge. The authors argue that paint occurring on relatively inaccessible body parts accrued through bone removal and painting, although water-mediated redistribution of pigments remains an alternative possibility. A skull mask carved from human bone occurred within one of the associated cluster of remains. The absence of cut marks upon all but the skull mask suggested *postmortem*, rather than *perimortem* body manipulation. Isotope studies, such as those of Price and colleagues (Chap. 12 in this volume), are in progress and will be useful to establish the degree to which the primary interment, the associated disarticulated remains, and the skull mask represent local or foreign lineages.

The authors close by placing these remains within the larger political and social realities of the Late Classic Lowlands. Careful taphonomic observations thus anchor a nuanced perspective upon termination and success during politically volatile Late Classic times.

In Chap. 5, Medina and Sánchez compare and contrast funerary and extrafunerary assemblages from the northern Petén sites of Becán (Late Classic) and Calakmul (Classic). Extrafunerary assemblages were further distinguished as cache and problematical contexts, with all forms of *postmortem* alteration considered, including heat exposure. In general, an absence of *postmortem* treatments characterized the funerary sample ($n = 28$, including 25 adults). Seventy-seven extrafunerary contexts yielded the remains of at least 110 individuals (83 adults; 7 juveniles; 20 infants). Equal numbers of males and females were identified, suggesting that access to such treatments, while possibly demographically structured across specific ritual events, were ultimately unrestricted by age and sex. Two sets of cut marks on 12th thoracic vertebrae may represent *perimortem*, violent heart extraction, as inferred for the youth reported by Tiesler in Chap. 2 (this volume, see also Tiesler and Cucina, 2003; Cucina and Tiesler, 2006). *Postmortem* treatments noted in a minority of the extrafunerary remains included signs of dismemberment and flaying, while defleshing marks were present at both sites.

Twenty contexts (3 caches; 17 problematical) presented evidence of fire exposure. Charring characterized cache remains, while both charring and exposure to higher temperatures were noted for the problematic deposits. Histological sections suggested that at least some charred remains had been first exposed and thus lost superficial organic content prior to the firing event (Buikstra and Swegle, 1989). Additional studies of the fired assemblage should concentrate on identifying whether the remains were fleshed and/or articulated when fired, which would be identifiable through the study of shadows inducted by soft tissue on articular surfaces. While evidence of boiling for a few fragments raises the possibility of cannibalism, additional research is required before reaching this conclusion. Elements had also been removed, used as artifacts, and then discarded at both sites. This variety of *postmortem* treatments suggests that the behavioral pathways leading to the so-called problematic deposits were varied indeed and that further research targeted at identifying procedural sequences is warranted.

Vail and Hernández's contribution (Chap. 6), focuses upon evidence for violence within Late Postclassic Maya codices and murals. Examples include decapitation, spearing, heart extraction, disemboweling, hanging, flaying, drowning, and mauling. A particularly intriguing section records the sacrificial equivalence of human and other animals, including dogs and turkeys, as part of year-bearer ceremonies. Perhaps such special fauna may either be disproportionately represented in fills from near public architecture or as carved bones? This useful chapter closes with suggestions for identifying specific forms of treatment with points within the Maya calendrical cycle. Intriguingly, the Late Postclassic sources considered here identify few women in recognizable roles, an observation the authors note as in conflict with both colonial accounts and archaeological evidence. Further multidisciplinary research will be required to resolve this apparent contradiction.

In Chap. 7, Miller makes several important points concerning temporal and spatial change in the role of human sacrifice as represented in northern Maya monumental art. During the Terminal Classic at Chichén Itzá, she argues, a new

emphasis upon graphic death imagery reflects ideological and political changes involving depersonalizing of both captors and captives. Vivid images of heart and head removal abound, but require spatial, temporal, and symbolical contextualization. She contends that Postclassic sacrificial patterns revert to earlier forms, involving supernatural rather than human actors. Thus, human sacrifice moved from the Terminal Classic political sphere to that of religion during the Postclassic. Miller's distinction between heart removal as a private and battlefield, again political act, during the Terminal Classic, when opposed to public decapitations associated with the ballgame, invites the exploration of archaeological correlates.

Anda's contribution (Chap. 8) attacks another myth concerning remains recovered from Chichén Itzá's Sacred Cenote. We must, alas, abandon visions of live victims drowning in agony, thus following by decades the demise of the colorful virgin sacrifice theories, promoted by Thompson and the popular writer Willard and later debunked by the physical anthropologists Hooton (1940) and Saul (1975). In his contribution, Anda argues for a variety of *peri-* and *postmortem* treatments, including stabbing, disarticulation, and defleshing. Anda's sample is that recovered during 1961 and 1968, currently curated in Mexico City. Wisely, Anda has chosen to structure his analysis to parallel that of a previously collected cenote sample, curated at Harvard (Beck and Sievert, 2005), thus facilitating comparisons.

In both studies, certain expectations from the chronicles are confirmed, specifically the predominance of male skulls (Anda, 69%; Beck and Sievert, 77%). The Harvard sample includes approximately equal numbers of juveniles and adults, while subadults dominate that currently housed in Mexico City (61%). Both studies report that males and females seem to have been treated distinctively, with disarticulation marks in Anda's study presenting differently: upper limb, females; lower limb, males. Beck and Sievert, by contrast, emphasize a virtual absence of cut marks on gracile postcranial remains, with few marks on female skulls, compared to the frequent cut marks, scratches, and chopping damage to males. In their sample, it appears that males were more likely to enter the cenote as body parts than women. Anda reports considerable *postmortem* treatment of juvenile remains, while the absence of cut marks and size-related body part representation led Beck and Sievert to conclude that most juveniles entered the cenote as complete bodies. While Anda concluded through body part representation study that most adults entered the cenote as complete bodies, this conclusion was contraindicated by evidence of dismemberment. Beck and Sievert suggest that adults entered the cenote through a variety of pathways: alive, as war trophies, and as decapitated skulls. In addition, at least one skull from the Harvard collection had been transformed into an *incensario*, perhaps creating an ancestral conduit that linked the living descendants to the gods.

While most of the differences between the two studies are minor and appropriately attributed by Anda to ancient and modern sampling biases, one significant difference involves treatment of juvenile remains. Very few from the Harvard series present evidence of *postmortem* treatment, while a variety of behaviors is

represented in Anda's sample, including dismemberment, flaying, and heat exposure. Perhaps temporal differences are represented, with the early Harvard collection representing temporally more recent children whose *postmortem* treatment was less elaborate than those of earlier times. More recent Chacs may thus have required simpler rituals for delivering the rains so vital to the Maya way of life.

Hurtado, Cetina, Tiesler, and Folan (Chap. 9) explicitly follow the strategy outlined by Tiesler in Chap. 2 to distinguish between funerary and extrafunerary contexts from Postclassic Champotón, a coastal regional center from the northern Maya Lowlands. Two extrafunerary remains present evidence of extensive *postmortem* modifications, including flaying, the removal of bones and body segments, and the addition of body parts such as hands and feet. A further extrafunerary complex represents sequential interments of male and juvenile corpses, perhaps grouped in three closely sequential depositional episodes.

Unusual at Champotón is the placement of both funerary burials and extrafunerary remains within the same public architecture, including liminal transition points such as staircases. Both funerary events and ritual discard occurred in association with platforms and staircases. Though a tenuous conclusion, given the small sample size, the authors note that some extrafunerary emplacements appear to show poorer health than the other remains. One of their nonfunerary juveniles, apparently interred articulated, presented evidence of a cut mark on (unspecified) cervical vertebrae. This cut (or chop) appears to have represented the impact of blood-letting rather than true decapitation, an important distinction that should be sought through careful study of other sacrificed remains, including those of children.

Chapter 10, by Serafin and Peraza, focuses upon another Late Postclassic regional center from the northern Lowlands, Mayapán. Twenty-one interment contexts containing 27 individuals were interpreted as funerary in nature, reinforcing earlier interpretations that associated ancestral burial with residential structures. Deposits from elaborate shrines include multiple individuals, normally without evidence of cut marks, but sometimes indicating exposure to fire. A single exceptional deposit, however, beneath Q.88c consisted of nine crania without mandibles or cervical vertebrae although four mandibular teeth and a few postcranial fragments attest to a larger prior inventory. Cut marks on an isolated temporal bone are compatible with various *postmortem* practices, which could either be reverential or sacrificial. Serafin and Peraza argue that such shrine interments should be considered funerary status – a cult of the privileged – rather than sacrifices.

Mayapán sacrificial burial contexts, identified as deposits associated with temple passageways and under plaza floors, display anthropogenic marks that establish their special status. Cranial portions, along with long bones of older adolescents and young adults of both sexes dominate the assemblage. The impact of *ante-* and *postmortem* violence, as well as corpse manipulation is also evident. Cut marks witness dismemberment and defleshing, though signatures of flaying and cannibalism are absent. Caches and problematic deposits also abound, the latter being common in the main ceremonial center. Arguments sustaining cannibalism

or artifact production could be supported; additional excavation and study are required to resolve this issue. This chapter is especially effective in its integration of evidence from regional excavations, from the chronicles, and from specific contexts as it explores the rich data sets from both recent and earlier excavations.

Health status and social standing of sacrificed and sacrificers are also the subject of Chap. 11. Influenced by colonial sources, the authors explicitly hypothesize that sacrifices were chosen from the lowest socioeconomic levels, from raids where presumably poor health would limit ability to escape, as in the North American Norris Farms example, or from those fragile, sick, and thus less socially valued. They therefore anticipate higher rates of pathological and developmental conditions among the extrafunerary remains, when compared with those of high and low social status, recovered from funerary contexts. One hundred and sixty-one remains from five Classic Period Lowland Maya centers serve as the study sample. Evidence of general health status was sought through the study of cribra orbitalia, porotic hyperostosis, dental hypoplasias, caries, and periostitis/osteomyelitis. Extrafunerary, low status funerary, and elite subsamples were compared.

Extrafunerary interments were on average younger than funerary interments, although statistical testing did not reach significance. Only caries rates vary significantly across the sample, with high status and extrafunerary males showing significantly low numbers. This suggests that those sacrificed may have been drawn from the elite rather than those of commoner status. Alternatively, the similarity between the extrafunerary sample and the elite may reflect the lower age-at-death of the former, when compared to the latter. Small sample sizes and incomplete preservation undoubtedly circumscribed the tests executed in this study. This germane hypothesis deserves further testing in larger series, where convincing results may be obtained.

The final paper, by Price and colleagues, explores persistent issues in studies of Maya sacrifices: Who were the victims? From whence did they come? As noted by many previous chapters, codices and pictorial images support a variety of options, depending upon the nature of the ritual. Local, regional, or foreigners are suggested – important distinctions to be made in understanding ancient deposits and arguing for their association with those reported during the colonial period. Foreign warriors are particularly prominent among expectations.

In this study, the researchers apply methods drawn from archaeological chemistry – specifically strontium and oxygen isotope analysis – to issues of sacrifice identity. Three sites, Teotihuacan, Kaminaljuyu, and Tikal anchor an analysis designed to distinguish between local and foreign victims of sacrifice. For the latter two sites, elaborate tombs where primary interments are surrounded by apparent sacrifices are considered, while the Teotihuacan analysis focuses upon those sacrificed and interred as the Pyramid of the Moon was constructed.

At Tikal, the study addresses Burial 10, identified as Yax Nuun Ayiin (First Crocodile or Curl Nose), whose tomb also includes eight subadults and one adult, presumably victims of sacrifice. Isotopic analysis identifies both the primary interment and associated remains as having lived their lives locally. By contrast,

in Kaminaljuyu, tombs from Mound A and B contained sacrifices whose foreign origin includes lowland areas. Central figures, however, were born locally. The set of dedicatory sacrifices recovered within Teotihuacan's Moon Pyramid included a few locals but most were foreigners from the highlands of Central Mexico and others from coastal locations. None are associated with lowland regions. The power of this method for exploring life histories and ritual events among the ancient Maya is thus illustrated, as is a bright future for the technique.

In closing, I would like to reinforce that this collection of papers represents a very important advance in Maya bioarchaeology. As these studies illustrate, while bone preservation can be marginal within Maya sites, there are considerable insights to be gained and the effort to engage taphonomic approaches, beginning in excavation stages well worth the effort. Also significant here is the emphasis upon multidisciplinary, combining sensitive models drawn from glyphs and colonial records with archaeological contexts and detailed skeletal analyses. This rigorous methodology, enriched by multidisciplinary approaches, and lodged within detailed regional knowledge thus anchors convincing interpretations of Maya sacrifice and related rituals.

Future studies should include even more explicit, detailed statements of expectations for sacrificial contexts drawn from written sources, preliminary examples developed here in the Chaps. 6 and 7, by Vail and Hernández and by Miller. Such expectations for funerary and extrafunerary contexts have been proposed by Tiesler (Chap. 2) and could be refined in the contexts of specific, alternative ritual behaviors.

A second potentially productive direction would apply detailed analysis to further distinguish extrafunerary from funerary remains. Methods such as a DNA analysis should facilitate testing, for example, the alternatives posed by Cucina and Tiesler (2006) and Weiss-Krejci (2003) for bone deposits associated with the tomb of Janaab Pakal. A focus upon artifacts crafted from human bone would also be of interest, defining their position as valued ancestors or foreign protagonists.

Thirdly, further discussion of funerary tombs and their contents would be desirable. The role of various mortuary treatments that do indeed reflect protracted burial rituals abound within the ancient Maya realm. Who were the valued ancestors in pilgrimage tombs? Additional considerations of living agents and audiences for burial rituals invite discussion. McAnany provides inspiration for such endeavors.

From an archaeological perspective, two basic principles of ancestor veneration are particularly compelling in that they directly affect the age and sex composition as well as the taphonomy of ancestral remains. The first is that an ancestor is a cultural construct and, therefore, the product of a selective process; the second is that the bones of revered dead are generally part of a protracted series of rituals that do not always terminate in the placement of a full skeleton at the final burial site.

McAnany 1995:60

An additional underexplored realm involves the issue of age-at-death. While destructive postdepositional changes limit precision in many ancient Maya

contexts, recent advances in aging methods – especially those applicable to older adults – could assist in establishing elite personage identities and exploring health and privilege among the ancient Maya (Buikstra et al., 2004; Hoppa and Vaupel, 2002; Stout and Streeter, 2004). In such studies, we also need to critically evaluate how age categories are defined. Are the chronicles really that precise concerning age attribution? Another side to this issue has to do with the glossing age categories of infant, child, adolescent, etc. Did the ancient Maya consider these their significant categories and place transitions where we osteologists do? Letting burial programs self-define in terms of treatments and then comparing with age-at-death could provide useful insights in relationship to this question.

In sum, the contributors to this volume have developed significant methodological advances and interpretative arguments. The stage is now set for further discussions of both funerary and extrafunerary behaviors, among the ancient Maya and elsewhere. My sincere thanks to Vera Tiesler and Andrea Cucina for their invitation to participate in this important endeavor and my congratulations to all contributors for the achievements illustrated here.

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