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 knifes, 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, vertebras, teeth, and pelvic segments are underrepresented, 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 ($N = 237$), vertebras ($N = 196$), 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 asigned 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)

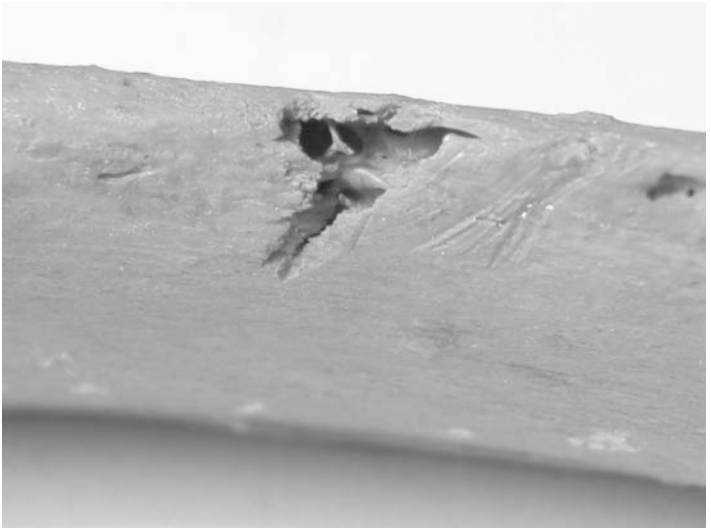

FIGURE 8.3. Subadult rib with cut and slicing marks (photo by Anda)

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 subdiaphragmatic 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)

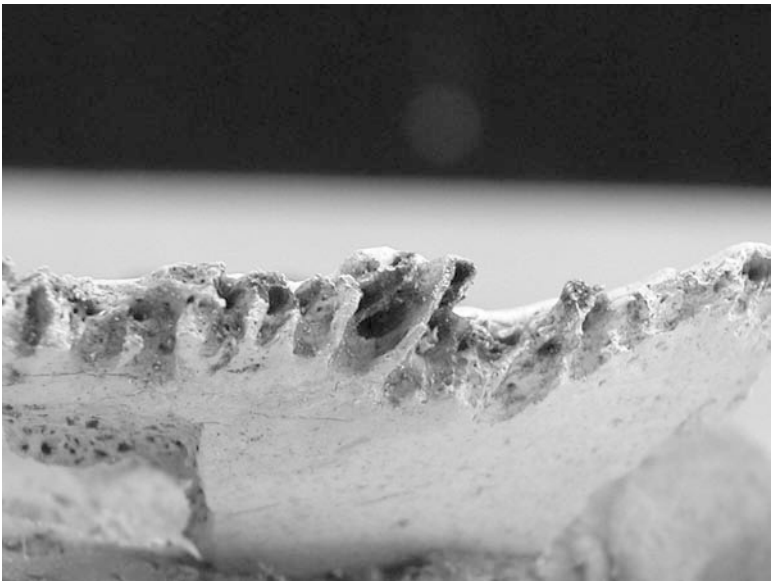

FIGURE 8.5. Charred fragment of subadult skull (photo by Anda)

There are also charred fragments of long bones, vertebras, 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)

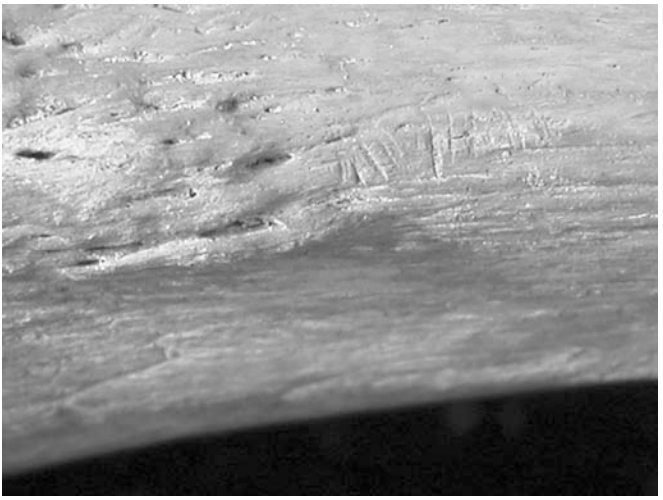

FIGURE 8.7. Cut marks close to the knee in a male adult tibia (photo by Anda)

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 trocanther 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, vertebras, 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 (nonfunerary 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.