Chapter 9
Mortuary Pathways and Ritual Meanings Related to Maya Human Bone Deposits in Subterranean Contexts

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Abstract The ancient Maya regarded dry caves, crevices, rockshelters, and cenotes as sacred spaces and accesses to the earthen womb of the cosmos, thresholds through which the living communicated with natural powers. To test different hypotheses for context-specific or diverse mortuary use of Maya caves, cenotes, crevices, and rockshelters, we describe sex and age profiles, note the presence and types of cranial modifications, compare patterns of posthumous body manipulation, and reconstruct mortuary pathways in 35 human bone assemblages from the Maya realm, spanning the Preclassic to Colonial/Modern times, the latter represented by the Lacandon Maya in the forest of Chiapas. Combining anthropological, taphonomic, and contextual data sets, we test the hypothesis that different ritual practices and associated mortuary behaviors may be recognized by profiling burial populations from caves, crevices, rockshelters, and cenotes, and both wet and dry cave deposits. The documented scope of mortuary practices involving "hidden places" indicates that every single context went through its own history of use and reuse, regardless of the specific type of context. These results suggest the need for a reevaluation of the generalized roles of such sites as human depositories and for the application of more precise techniques in the recovery and subsequent analyses of human deposits directly related to access to the underworld.

9.1 Introduction

Subterranean passages (deep caves, crevices, rockshelters, sinkholes, etc.) have always occupied a central role in Maya thought and cosmology as places to access the cosmic *mountain* (Bassie-Sweet 1996).[1] Therefore, the exploration and

[1] We employ the word "cave" in this study to designate subterranean passages in general.

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interpretation of human remains from these natural geological cavities provide a substantial contribution to the general understanding of Maya mythology and its manifestations in the ancient and modern mortuary ritual landscape (Bassie-Sweet 1996; Bonor 1989; Brady and Prufer 2005; Prufer and Brady 2005; Stone 1995). Given the unified role of these sacred spaces in Mesoamerican worldview, as represented by the Hero Twins defeating the Death Lords in the Xibalba of the Popol Vuh myth (Christensen 2007),[2] it is easy to understand how death, materialized in the form of lifeless bodies, decaying body parts, or skeletonized bones, figured prominently in ancient Maya rituals performed in such hidden geological contexts. These rituals might have been associated with private or public functions in the community and could have been motivated by ancestor veneration, sacrifice, or other behaviors involving human offerings. However, we cannot rule out that they also may have been misinterpreted as something more spiritually laden than they actually were, and in some cases may, instead, simply represent "normal" funerary contexts.

In this chapter, we seek to encompass the scope of mortuary behavior in Maya cave contexts with some of their behavioral underpinnings, calling particular attention to the different and often differentiated taphonomic and osteological patterns in human cave assemblages. As mentioned above, the term "cave" is defined here categorically as a natural underground space. We distinguish dry from submerged subterranean contexts. The latter identify mostly cenotes, i.e., karstic sinkholes that lace the peninsular plains of Yucatan. Distributed all over the Maya area, dry caves form naturally by the weathering of rock and often extend deep underground. These deep caves are distinguished from shallow cave-like openings at the base of a bluff or cliff, such as rockshelters and crevices (i.e., a fracture or fissure in the rock). In archaeology, caves and rockshelters (probably including crevices among the latter) tend to be crisply dichotomized as functionally different types of sites. Nonetheless, such categorical distinction must be used with caution since it "can obfuscate our understanding of the Maya appropriation of underground use" (Rissolo 2005, p. 354), given the fact that the Maya point of view might be different from the westernized one.

Our review of the literature and our own work on human cave assemblages is anchored in two conflicting ideas regarding the nature of "subterranean" human deposits. The first model argues for diverse uses of each type of geological context. It rests upon the observed variability in mortuary pathways encountered even in geologically analogous cavernous contexts (i.e., sites that are morphologically similar to one another). In contrast stands a second model that builds on Thompson's (1992) and Ruz's (1991) idea that the Maya considered caves and cenotes to have distinct ideological meanings and therefore expressed distinct ritual uses. This hypothesis proposes that different mortuary rituals are associated with each specific geological form (i.e., deep dry caves, cenotes, crevices, and rockshelters). Due to the lack of

[2] According to López Austin (1989, p. 23), we understand *worldview* as the articulated set of ideological systems and elements (preferences, concepts, attitudes and beliefs) that are interrelated in a relatively congruent manner, through which an individual or social group attempts to understand the world.

detailed taphonomic information from most of these sites, we will primarily focus our analysis on the sex and age profiles and cranial modifications from each site, as well as aspects of posthumous body treatments inferred from the distribution of anthropogenic marks on bone.

9.2 Potential and Limitations of the Study of Human Bone Deposits in Maya Caves

Despite the prominent role of human remains in Mesoamerican ideology and religious ceremonies, our knowledge of the specific forms of their ritual disposal and of postdepositional treatments remains fragmentary (Scott and Brady 2005). Similarly, as mentioned above, we still have a rather sketchy understanding of the exact functions or meanings of such deposits within various chronological and cultural contexts, a conclusion already drawn by Ricketson (1925), and voiced again and again by more recent scholarship (see Scott and Brady 2005, pp. 263–266; Tiesler 2005, pp. 342–344 for a brief review of the literature; Also, see Wrobel et al., Chap. 4, this volume).

There are several reasons for the shortcomings of this and other lines of research on ancient human cave assemblages, which we wish to address in the following paragraphs. In a nutshell, "background noise" is imposed by the mostly incomplete nature of the mortuary record (as standing for the ancient funerary rite) in caves and the notoriously bad preservation of organic remains (Tiesler 2005). This situation is often aggravated in cave contexts by scavenging and looting of accessible materials. Direct cultural associations are limited or impossible in most cave assemblages from remote areas, as they are devoid of any residential functions.

Other limitations in studying ancient Maya mortuary behavior in caves have to do with pre-Hispanic mortuary behavior in ancient Mesoamerica. Here, native cosmology and religious thought denote an intimate relationship between life and death. The continuity between the realm of death and that of the living is expressed in the common use of residential living spaces as depositional areas for the deceased (Fitzsimmons and Shimada 2011; López Austin 1989; Malvido et al. 1997; Manzanilla and Serrano 2003). Combined with the lack of any collectively regulated disposal areas exclusively destined for the burial of the dead (Goldstein 1981; Saxe 1970), this fluid notion of life and death presents Mesoamerican archaeology with an enormous range of disposal forms and spaces in both ancestrally and sacrificially motivated behavior involving human deposition.

It is often difficult to distinguish the mortuary behavior from other kinds of activity in Mesoamerican archaeology. The ancient Maya mortuary record denotes a fluid transition between life and death, which is most noticeable within the confines of its pre-Hispanic communities and urban centers (Fitzsimmons 2009; Welsh 1988). Noticeably, ancient Maya settlements did not hold separate cemeteries, conceived here as formal disposal areas exclusively used for burial of the dead (Goldstein 1981). Instead, human assemblages are found interspersed, at least spatially, with all sorts

of other activity areas inside and outside of settlements. This inclusive notion is also expressed in many human assemblages from Maya rockshelters, crevices, and surface and underwater caves, whose material record manifests an often large scope of rituals and quotidian uses apart from serving as natural "ready-made" depositories for the dead (see, e.g., Bonor 1989; Carot 1989; Wrobel 2008; Wrobel et al. 2009).

Posthumous body treatments in ancient Maya cave deposits and mortuary depositions in general were just as diverse as the locations where they were interred. Here, primary placements of individual corpses demonstrate an array of different body arrangements (supine, flexed, seated, etc.) oriented in all directions. Pigmentation or wrapping procedures were practiced in some areas (Fitzsimmons 2009; Pereira and Michelet 2004; Tiesler et al. 2012; also, see Duncan, Chap. 10, this volume). Other treatments, like cremation, postdepositional burning, extraction (reduction) or addition of corpses, and reuse and recycling (of the body, the skeleton, or its segments), have all been clearly identified as ancestral behaviors in the material record (Fitzsimmons 2009; Tiesler and Cucina 2007; Weiss-Krejci 2011). Single bones of ancestors as relicts were often destined to be venerated in temples and altars or to accompany later primary interments of family members (McAnany 1995; Weiss-Krejci 2011). Less reverentially motivated ancient disturbances could result from intentional desecration and looting, from disposal of the bodies during postsacrificial or termination rituals, or unintentionally from architectural rearrangements that disturbed long forgotten graves (Chase and Chase 1998, 2011; Fitzsimmons 2009; McAnany 1995; Sharer and Traxler 2003; Tiesler 2007; Tiesler et al. 2010; Weiss-Krejci 2011; Welsh 1988). In practice, the breadth of Maya mortuary conduct and the apparent lack of collectively followed norms have rendered patterning efforts more difficult here than in most other archaeologically studied cultural settings. This lack of predictability also holds true for human assemblages recovered from Maya cave contexts, which has rendered futile archaeological research suitably designed to untangle cave-related Maya mortuary behavior. The great majority of cave burials appear more as by-products of field endeavors directed to other research questions. This situation also implies that those research units that may be significant for reconstructing mortuary conduct (complete excavations) have been left largely unattended.

As in other archaeological contexts, academic traditions and disciplinary divisions also affect the approaches and interpretations of archaeological cave research (see, e.g., Bassie-Sweet 1996; Brady and Prufer 2005; Prufer and Brady 2005; Stone 1995). In Maya scholarship, the vast majority of research directed toward human cave deposits falls into the domain of archaeology, and specifically speleology, mortuary archaeology, zooarchaeology, and bioarchaeology, carried out independently from one another. It is unsurprising, therefore, that the vast corpus of available burial information, with an impressive number of recorded human cave vestiges, has not been able to identify regional mortuary practices for territories and sites that once shared a cultural landscape. The aggregate funerary taxonomies have at least worked (and surprisingly well) in inferring Maya political complexity, social hierarchy, and gender expressions (Krejci and Culbert 1995; Welsh 1988;

Wright 2006; see also Scott and Brady 2005 for burial taxonomies in cave contexts). But here we are interested in reconstructing and understanding mortuary behavior per se. The interdisciplinary divide between conventional archaeology and physical anthropology in part explains the scarcity of suitable research designs to untangle ancient mortuary behaviors related to caves.

It should be stressed at this point that there are also other problems of a more technical nature that hamper the study of skeletal assemblages from dry and waterlogged cavernous contexts (see Tiesler 2005). Preservation is one issue. Degradation by calcification, crystallization, or mechanical erosion alters those very vestiges sitting on the ground of dry humid caves. Exposure to the elements (like sun, wind, rain, and temperature change) is prone to accelerate the deterioration process of the surface remains of rockshelters and crevices. Severe commingling resulting from protracted, post-postdepositional histories and shifts in substrate will place human bone pieces indiscriminately together with faunal remains, obscuring the memory of place together with any ancient meanings originally ascribed to their deposit and disturbance. Also, more recent disturbances by looting have come to hamper scientific efforts to reconstruct the mortuary pathways of human cave assemblages. Frans Blom's (1954) travel report alerted us to the heavy looting by locals that, by the mid-twentieth century, had substantially diminished archaeological cave deposits in the Chiapanecan Highlands.

Conventional archaeological recording and recovery of human remains from dry and submerged cave contexts do not prove helpful either. Many of the early explorations still focused on extracting the "best" pieces (Blom 1954; Thompson 1992) and most reports lack even sketches of skeletal disposal and layering. We also recall that cenote research, all the way up to its heyday in the 1960s, was conducted using huge extraction pumps to lower the water level, an effort that was assisted by dumping barrels of chloride into the muddy water to increase ground visibility (Folan 1968; Piña Chan 1970). Because this approach was unsuccessful, the pump system was used subsequently for artifact extraction. Although the delicate archaeological material decidedly suffered from this radical excavation method, pumping up the artifacts in fact meant an improvement to the excavation implements that Thompson and his crew had employed 60 years earlier (Thompson 1992). Evidently, until recently, systematic underwater artifact recording was not an issue to be considered.

Only recently has the archaeological community shown interest in incorporating detailed protocols into cave excavations and in adopting new, more cautious skeletal recovery strategies. Hopefully, these will soon set new standards for more refined taphonomic and bioarchaeological reconstructions (González González et al. 2008; Rojas 2010; Rojas et al. 2008; Wrobel et al. 2012). Apart from conventional burial attributes (primary–secondary, disturbed–undisturbed, minimum and probable number of individuals, position and orientation of individual burials, presence and type of offerings), these criteria typically include data related to cave types (dry, humid, submerged), settlement proximity, specific location of deposits within the cave (light zone vs. dark zone; terminal chamber vs. passage area vs. ledge), and deposition (surface vs. interred; Owen 2005).

Regarding bioarchaeology, cave research increasingly benefits from detailed skeletal studies that have been able to grant new insights into the variability of mortuary populations, death circumstances, and sequenced posthumous body treatments (Beck and Sievert 2005; Duday 2009; Tiesler 2005; see also Wrobel et al. Chap. 4, this volume). Along with the above, human taphonomy is ideally suited to untangle the complex mortuary pathways that once produced the contexts under study. The main concern for the analysis of commingled remains in secondary burials generally rests on the need to estimate the minimum number of individuals (MNI) or the minimum number of elements (MNE), with all the intrinsic problems of over- and underestimation that the different approaches generate (Herrmann and Devlin 2008). In the field of zooarchaeology, taphonomic approaches have benefited from the fundamental contribution of works like Lyman's manual "Vertebrate Taphonomy" (Lyman 1994), which encompasses all the potential factors that affect animal skeletons, or parts of them, in the natural process of formation of the context. However, human taphonomy has to deal with both natural and cultural interventions and distinguishes a secondary burial from a mere secondary deposit (Duday 2009). Despite the literature of funerary archaeology, which very often refers in a general and unspecific manner to secondary burials, a thorough analysis is necessary to distinguish whether the human remains had been laid down to rest in the very same place and eventually moved and spread around by anthropogenic or natural causes (water flowing, animals), or if they were intentionally removed from their original place of interment to be redeposited in a different place (Duday 2009). Similarly, mortuary taphonomy aims to reconstruct deposition processes in primary contexts, allowing distinctions to be drawn between intentional vs. nonintentional deposition (accidental), and careful vs. careless depositions, all of which have tremendous potentials for the understanding of the way contexts formed (Duday 2009).

As we will see later in the chapter, the differential presence of some skeletal segments and the relative absence of others allowed us to infer that the bones from the sacred shrines of Mensabak had been moved from their primary location elsewhere and redeposited. Unfortunately, however, we feel that the systematic taphonomic investigation of the mummified or skeletonized remains in Maya subterranean contexts, both from primary and secondary deposits, by itself represents a line of study that still awaits formalization and full exploration.

9.3 Cave Categories and their Meanings

Some 40 years ago, Alberto Ruz's (1965, 1991) pioneering survey of ancient Maya burial traditions dedicated a section each to sinkhole cenotes and (dry) subterranean spaces, the latter including deep caves and rockshelters. Interestingly, Ruz (1965, p. 86, 157–158) still conceived of both spaces as natural mortuary architecture and classified them as types of graves, along with simple burials, funerary chambers and mounds, crypts, and cysts. Although his approach had its methodological limitations, it anticipated more recent conceptions of tombs as constructed cave

environments. Recent scholarship has argued, for example, that the carved subterranean mausoleums of Río Azul or Calakmul's lavish shaft tomb from Structure II recreate subterranean cavities (Adams 1999; Carrasco et al. 1998). Likewise, the frequent placement of broken speleothems together with the dead, like those documented for some of Copan's and Mayapan's central burials (Ruz 1991; Welsh 1988), establish potent cave associations. Particularly evocative is the cave symbolism in Pakal's multiple retainer burial recovered by Ruz's (1955) team during the 1950s. At least five individuals of different ages had been fitted tightly inside a stuccoed box that sealed the monolithic door of the mausoleum's inner chamber (Cucina and Tiesler 2006). Accompanied by broken speleothems, the victims' remains were encrusted with a thick layer of calcium carbonate, indicating they had been laid down—whether purposely or not, we do not know—in an area of active water filtration. Together with the speleothems, the location of this chamber at the extreme end of the long dark passage inside the Temple of the Inscriptions strongly calls to mind cave motifs.

Regarding the breadth of cultural uses of natural deposits, Ruz (1991) emphasized the diversity of funerary functions of deep caves and rockshelters, and linked human sinkhole deposits with sacrifices made to the Rain God. Frans Blom's (1954) travel report informs us about several cave deposits of cremation urns and ossuaries in the Chiapanecan Highlands. Other authors have made a case that the use of caves as burial receptacles was of an unusual and sporadic nature (Butler 1934; Ricketson 1925). And still others, like Welsh (1988, p. 3), or more recently Scott and Brady (2005), have argued that cave burials played a diverse and in some cases distinctive role from most burials placed within civic-ceremonial or residential architecture and therefore should be considered separately. In addition, either implicitly or explicitly, scholars have acknowledged several difficulties that are inherent in quantifying and interpreting mortuary cave use, which is mainly unrelated to settlements and mostly void of chronological and other contextual information. These problems have prompted many scholars to exclude cave burials from systematic mortuary investigations altogether (see, e.g., Welsh 1988; Wright 2006).

9.4 Our Review of Human Cave Assemblages

Our study is founded on our own skeletal research, conducted on a set of cave, cenote, crevice, and rockshelter collections from all over the Maya realm, to which we have added data from published research on other Maya "subterranean" assemblages (Fig. 9.1 and Table 9.1). Table 9.1 divides contexts by caves, cenotes, crevices, and rockshelters, as defined in the introduction of this chapter. In the case of Mensabak, Chiapas, we have combined rockshelters and crevices in a single category, because in both cases, these natural features denote not deep, dark subterranean passages but shallow overhangs on rock faces and presented the very same kind of organization of bones. On the contrary, the "grietas" of Aguateca have been designated as crevices, while Cave Branch, Actun Uayazba Kab, and Ek Xux are

Fig. 9.1 Map of the sites reported in this study

rockshelters. It is important to underline in this context that crisp, mutually excluding categorizations can be difficult to make, because these geological structures/formations can often be connected. In fact, cenotes, which are defined as submerged sinkholes that can be totally underground or be visible from the surface when the roof of the karstic formation collapsed, might have been dry caves in times when the water level was lower than at present. This does not seem to be the case, for

Table 9.1 List of the samples and context analyzed

Site name	Type	MNI (skull only)	Males	Females	Perinatal	Infants	Juveniles	Adults	Anthropogenic marks	Cranial modification	Type of cranial modification	Chronology	References	Analyzed by
Camino Infinito, Chiapas, Mexico	Cave	4			1	2	1						Domenici (n.d.)	Tiesler & Cucina
Cueva del Lazo, Chiapas, Mexico	Cave	9			1	8				4 (N=6)	4 oblique	CLA	Domenici (2006, 2009)	Tiesler & Cucina
Lago Lacandón, Chiapas, Mexico	Cave	6	3	3				6		6 (N=6)	6 erect	POST	Blom (1954)	Tiesler & Cucina
Cueva del Rayo, Chiapas, Mexico	Cave	4	4					4		4 (N=4)	3 oblique; 1 erect	CLA	Domenici (n.d.)	Tiesler & Cucina
Cueva Julian Grajales, Chiapas, Mexico	Cave	5	3	1		1		4		3 (N=4)	3 oblique	CLA?	Blom (1954)	Tiesler & Cucina
Cueva Moxviquil, Chiapas, Mexico	Cave	3	1	2				3		3 (N=3)	3 erect		Blom (1954)	Tiesler & Cucina
Aktún Cacao, Yucatan, Mexico	Cave	3			1	1		1	Fire exposure, slicing marks	1 (N=1)	1 oblique	CLA	Castillo Chávez (1996)	Tiesler

Table 9.1 (continued)

Site name	Type	MNI (skull only)	Males	Females	Perinatal	Infants	Juveniles	Adults	Anthropogenic marks	Cranial modification	Type of cranial modification	Chronology	References	Analyzed by
Xcan, Yucatan, Mexico	Cave	15	4	7		3		12		14 (N=14)	12 oblique; 2 erect	PRE/CLA	Márquez de González et al. (1982)	Tiesler
Ixkun, SE Peten, Guatemala	Cave	3		1		1		2		1 (N=1)	1 oblique	CLA	Reports Atlas (IDAEH)	Tiesler & Cucina
Ak' Ab, SE Peten, Guatemala	Cave	2	1	1			1	1		2 (N=2)	2 oblique	CLA	Reports Atlas (IDAEH)	Tiesler & Cucina
Na Balam, SE Peten, Guatemala	Cave	4						4	Fire exposure			PRE	Reports Atlas (IDAEH)	Tiesler & Cucina
Barton Creek, Belize	Cave	34	6	7		12	2	17				CLA	Owen (2005)	Owen
Tunich Muknal, Belize	Cave	15	2	1		7	2	5		4	4 oblique	CLA	Gibbs (2000)	Gibbs
Copan, Gordon Cave, Honduras	Cave	4	4					4	Fire exposure, slicing marks	2 (N=4)	2 erect	CLA?	Gordon (1898)	Tiesler
Cueva de El Duende, Dos Pilas, Guatemala	Cave	3?				1?		2	Slicing marks			CLA	Minjares (2003)	Minjares
Cueva Río el Duende, Guatemala	Cave	17?	1?	1		1		3	Slicing marks			CLA	Minjares (2003)	Minjares

Table 9.1 (continued)

Site name	Type	MNI (skull only)	Males	Females	Perinatal	Infants	Juveniles	Adults	Anthropogenic marks	Cranial modification	Type of cranial modification	Chronology	References	Analyzed by
Cueva Río Murcielagos, Guatemala	Cave	1							Slicing marks			CLA	Minjares (2003)	Minjares
Cueva de Sangre, Dos Pilas, Guatemala	Cave	5	1?									CLA	Minjares (2003)	Minjares
Cueva de Kaxon Pec, Dos Pilas, Guatemala	Cave	3	1	1				2				CLA	Minjares (2003)	Minjares
Cueva los Quetzales, Dos Pilas, Guatemala	Cave	1	1			1		4	Slicing marks			CLA	Minjares (2003)	Minjares
Dzibilchaltún, Yucatan, Mexico	Cenote	2		1				2		0 ($N=1$)			Andrews and Andrews (1980)	Tiesler
Cenote Sagrado Chichen, Yucatan, Mexico	Cenote	144	50	19		71	13	58	Fire exposure, slicing marks, sharp force trauma	129 ($N=144$)	7 oblique; 121 erect	POST?	Piña Chan (1970); Thompson (1992)	Tiesler & Cucina

Table 9.1 (continued)

Site name	Type	MNI (skull only)	Males	Females	Peri-natal	Infants	Juve-niles	Adults	Anthropo-genic marks	Cranial modification	Type of cranial modifica-tion	Chronol-ogy	References	Analyzed by
San José Mayapan, Yucatan, Mexico	Cenote	20	12	7				20		9 (N=20)	9 erect	POST/ COL	Serafin (2010); Tiesler (2005)	Tiesler
Cenote La Calavera, Quintana Roo, Mexico	Cenote	13	7	5		1		12		8	2 oblique; 6 erect sup		Rojas et al. (2008)	Ortega
San Gervasio, Cozumel, Quintana Roo, Mexico	Cenote	3		1		3				1 (N=1)	1 erect	POST	DAF(INAH)	Tiesler & Cucina
Aguateca, Grieta principal, Guatemala	Crevice	44	12	5		10		35	Slicing marks	5	2 oblique, 1 erect	CLA	Palomo (2007)	Palomo
Aguateca, Grieta Rincón, Guatemala	Crevice	17	12	2		3		14	Slicing marks	3		CLA	Palomo (2007)	Palomo
Caves Branch Rock Shel-ter, Belize	Rock-shelter	32	5	8		9		23				CLA	Glassman and Bonor (2005)	Bonor Vil-larejo
Actun Uay-azba Kab, Belize	Rock-shelter	13	1	3	2	2	1	9				CLA	Gibbs (2000)	Gibbs

Table 9.1 (continued)

Site name	Type	MNI (skull only)	Males	Females	Perinatal	Infants	Juveniles	Adults	Anthropogenic marks	Cranial modification	Type of cranial modification	Chronology	References	Analyzed by
Ek Xux Mayakak, Belize	Rockshelter	13	4	4		5		8			1 erect?	CLA	Saul et al. (2005)	Saul & Saul
Mensabak, Mensabak, Chiapas, Mexico	Rockshelter/crevice	8	7	1				8		8	8 erect	POST/COL/MOD	Tiesler et al. (2010)	Tiesler & Cucina
Zak Tat, Mensabak, Chiapas, Mexico	Rockshelter/crevice	10	5	5				10	Slicing marks, sharp force trauma	9	9 erect	POST/COL/MOD	Tiesler et al. (2010)	Tiesler & Cucina
Chakah Tun, Mensabak, Chiapas, Mexico	Rockshelter/crevice	2		1	1			1		2	2 erect	POST/COL/MOD	Tiesler et al. (2010)	Tiesler & Cucina
Cui Tschon, Mensabak, Chiapas, Mexico	Rockshelter/crevice	1	1					1		1	1 erect	POST/COL/MOD	Tiesler et al. (2010)	Tiesler & Cucina
Dzibana, Mensabak, Chiapas, Mexico	Rockshelter/crevice	1		1				1		1	1 erect	POST/COL/MOD	Tiesler et al. (2010)	Tiesler & Cucina

MNI minimum number of individuals, *CLA* Classic, *POST* Postclassic, *PRE* Preclassic, *COL* Colonial, *MOD* Modern

example, for the famous Sacred Cenote of Chichen Itza, which is apparently not part of a net of tunnels; however, many cenotes are connected to one another in a system that, when dry in past times, might have been analogous to a cave system. Rockshelters can be defined as shallow overhangs on rock faces, natural geological protections that do not tunnel into the rocks. Although sometimes they can be found in association with cave entrances, they can be considered as independent units of analysis (though see caution evoked by Rissolo 2005). Last, crevices can be defined as narrow fractures or fissures in the rock. They are variable in depth and height. Crevices and rockshelters are often associated with each other, as is the case of the geological system at Mensabak, Chiapas. Differently from caves, these small fissures in the rock are too narrow to create enclosed spaces and can be considered as an extension of the shelters.

For each site, we obtained information on the MNI (either calculated directly by the authors or according to the value reported in the specific references) and sex and age distribution. Presence of anthropogenic marks, of cranial modification, and whenever possible of cranial modification types are also reported together with the chronological period that encompasses the sample. The contexts reported come from the karstic peninsular crust (Xcan, Dzibilchaltun, Chichen Itza, Mayapan, Cenote de la Calaveras, Actun Cacao, San Gervasio; Andrews and Andrews 1980; Castillo Chávez 1996; Márquez de González et al. 1982; Piña Chan 1970; Rojas et al. 2008), the endorheic basin of the eastern Guatemalan Peten area (Ixkun, Ak' Ab, and Na Balam of the Atlas de Guatemala Archaeological Project (IDAEH); Laporte 1998, 2008), and the Chiapanec Usumacinta Basin with its adjacent highlands (Camino Infinito and Cueva del Lazo, of the Rio la Venta Project at the fringes of the Maya world; Domenici 2006, 2009). Last, we analyzed Blom's collection (Lago Lacandon, Cueva del Rayo, and Cueva Julian Grajales Cintalapa; Blom 1954), and Mensabak's Lacandon sacred shrines, the latter being our current project as part of the Mensabak Archaeological Project (Palka 2005; Tiesler et al. 2010). The published information included here also covers caves in the areas around Dos Pilas (Minjares 2003) and Aguateca (Palomo 2007) in the western Guatemalan Peten, and several caves and rockshelters in Belize (Gibbs 2000; Glassman and Bonor 2005; Owen 2005; Saul et al. 2005) and Honduras (Gordon 1898; Table 9.1).

With the exception of Mensabak, we were not involved in the field recovery of any of the collections for which we include primary data. All data were collected between 1993 and 2009 at the different governmental and private facilities in Mexico and Guatemala where they are currently curated. The analysis of the samples from Gordon cave site from Copan, Honduras, was conducted at the Peabody Museum of Harvard University. Analysis of the Mensabak collection began in 2010 as part of the Mensabak Archaeological Project directed by Joel Palka (University of Illinois, Chicago). The Mensabak skeletal material, which comes from a series of crevices and rockshelters, was analyzed in situ and has not been removed from its original context.

The analytical techniques employed to determine age and sex were based on standard practices for osteometry and macroscopic observation. Sex was determined based on the dimorphic features of skulls, pelvises, and long bones (Buikstra and Ubelaker 1994). Age at death in the subadult segment of the collections was estimated on the basis of the degree of dental formation and eruption, long bone

length, and ossification of epiphyseal unions (Buikstra and Ubelaker 1994); in the adult group, age was estimated using the degree of bone remodeling of the pubic symphysis and auricular surface of the ileum, dental attrition, and cranial suture closure (Brooks and Suchey 1990; Buikstra and Ubelaker 1994; Lovejoy et al. 1985; Meindl and Lovejoy 1985). The common taxonomy for classifying artificially produced skull shapes, which apparently was followed in all of the included studies, distinguishes tabular oblique shapes, produced by free head splints, from tabular erect forms, produced by cradleboarding. This classification originates in the work by José Imbelloni (Dembo and Imbelloni 1938) and has been adapted to native Mesoamerican forms by Arturo Romano (1965; see also Tiesler 2014).

Most collections were also scrutinized systematically for natural and anthropogenic surface marks. Contextual information for each series was considered by examining burial descriptions and graphic information recorded originally or communicated by the recovery teams. Much to our regret, contextual and, more importantly, taphonomic information was often missing in the majority of cases and the set of information included in the database for this study is rather heterogeneous. However, we believe that the cautiously transcribed data sets do reflect the assemblage characteristics present and recorded in each case.

9.5 Results

This section takes into consideration the distribution and variability of taphonomy, sex and age composition, cranial modification types, and anthropogenic marks among the different subterranean mortuary contexts from the Maya cultural landscape.

9.5.1 Taphonomy

Generally speaking, the variation in preservation of interred bone from cave contexts resembles that of other burials deposited in filled space (i.e., architecture). There is ample evidence of deterioration of skeletal segments due to faunal activity (such as rodents), while unsurprisingly almost no root etching occurs on the surfaces. At one extreme stands the excellent organic preservation found within the caves in the Chiapas Highlands (see Fig. 3.3, this volume), while at the other extreme are the severely damaged skeletal remains from the muddy substrates typical of the semitropical Peten, in which water activity often generated heavy calcite deposits on the bones, hampering their analysis (Fig. 9.2).

In aquatic environments, especially karstic sinkholes, water plays a protective role for bones, since it provides a stable, oxygen-free environment. Despite the good preservation of the material, the commingling of the bones hampered our studies of the samples from three cenotes. This is due to underwater decomposition, which usually results in complete disarticulation and disturbances of skeletons and, in the case of Chichen Itza's Sacred Cenote, by the dredging technique used during

Fig. 9.2 Skull from a humid cave environment completely covered by calcareous concretions. (Nabolom Museum, San Cristóbal de las Casas; photograph by V. Tiesler)

recovery. Naturally, this aspect rendered any attempt to reconstruct individual skeletons unfruitful, so these commingled bone assemblages could be scrutinized only as anatomical parts and not as individuals, for which we chose the skull as the primary source of basic biographic (sex/age) and cultural (cranial modification) information.

Interments in rockshelters vary depending upon the use given to these geological formations. Regular, primary interments' degree of preservation follows the rules dictated by soil acidity, looting, space reuse, and so on (Fig. 9.3). In turn, sacred shrines in rockshelters show the typical weathering defoliation and destruction commonly encountered in human segments exposed to tropical environments (Fig. 9.4), because in shrines bones are left on the surface and not interred. In terms of anthropogenic interference with the depositions, primary burial (i.e., underneath the surface), with what appears to be unintentional disturbance from later intrusive burials, are typical of Classic period rockshelter mortuary ritual from the Belizean sites (see, e.g., Wrobel et al. 2009); in contrast, the majority of the skeletal remains from the Colonial/Modern Mensabak sacred shrines in crevices and rockshelters are represented by secondary surface deposition. The majority of these bones were moved at some point from another area where the bodies were originally interred and left to decompose—likely from primary burial contexts within or near the rockshelters, from the dark zone areas of nearby caves, or from regular interments from somewhere around the lagoon. An exception was found in a test pit carried out in the center of the Sak Tat shrine in which a primary articulated interment of a seated individual had been disturbed, and the skull, femurs, tibias, and left humerus were intentionally removed.

9.5.2 Sex and Age Profiles

Caves, cenotes, and rockshelters display evidence for a puzzlingly wide array of mortuary behaviors. This also holds true when we examine the sex and age profiles of those interred at these sites. Even though the total number of sexed individuals

Fig. 9.3 Primary depositions from Caves Branch Rockshelter, Belize. (Photograph by A. Cucina)

is reduced (Table 9.1), we can recognize a predominance of males in cenotes (males = 67.6 %), the Aguateca crevices (males = 77.4 %), and rockshelters/crevices (males = 61.9 %); a more balanced proportion in caves (males = 54.5 %); and a predominance of females in rockshelters (males = 40 %). A Chi-square analysis highlights a significant difference in the distribution of males and females among the different contexts (Chi-square = 10.971, $p = 0.027$), which is mainly due to the difference between cenotes and rockshelters/crevices and rockshelters. Unfortunately, the human assemblage from sinkholes is mostly made up of the skeletal remains recovered from the Sacred Cenote of Chichen Itza, and thus the statistical dominance of this single site likely biases our cenote sample, making it less representative of cenotes in general. In addition, due to the commingled state of the bony segments, sex was determined on the basis of the morphology of the skull, which is not as accurate as the pelvis.

In terms of age, a prevalence of adult individuals is evident, although infants and juveniles do appear in the majority of the contexts. In the Sacred Cenote of Chichen Itza, adults and subadults are well balanced with a ratio of 51.1 and 48.9 %, respectively. Lower proportions between subadults and adults (with a consequent underrepresentation of subadults) are found in the samples from the caves from the Yucatan Peninsula, Belize, and the Guatemalan Peten (38.3 % of subadults) as

Fig. 9.4 Secondary deposits at the sacred shrine of Mensabak, Chiapas, Mexico. (Photograph by V. Tiesler)

well as in rockshelters (32.2%). Crevices fall shorter of subadults, which constitute 20.9% of the sample. Last, at Mensabak's sacred shrines only one individual is a subadult, representing 4.5% of the sample available. Obviously, these overall frequencies do not provide any detailed information on age ratios in individual assemblages. In fact, we found important differences between caves. Particularly noteworthy in this respect is San José Mayapan, a submerged skeletal sample that was completely made up of adults; also, the use of rockshelters and crevices as sacred shrines at Mensabak is characterized by a consistent lack of subadults, with only one juvenile in clearly disturbed conditions unearthed from a test pit from the shrine of Sak Tat, also suggesting a selective mortuary use of this group of sites. In contrast, the Río la Venta collection from Cueva del Lazo, Chiapas represents a highly selective mortuary deposit, because all individuals were under age 15 (see also Domenici, Chap. 2, this volume).

Although the generally poor state of preservation restricted the number of possibilities for aging adults, we could age subadults using long bone measurements and degree of dental maturation. Grouped by age cohorts, two different trends are apparent that may indicate distinctive cave, cenote, and rockshelter functions. First, perinatal individuals are relatively scarce regardless of the context. This seems to be

consistent with the generalized lack of perinatal remains in human archaeological assemblages in the Maya region, which may stem from poor preservation or from selective mortuary behavior. On the contrary, infants dying within the first 2 years of life (Infant 1 category) prevail in caves, followed by a lower representation of infants from 3 up to about 10 years of age. This profile is somehow mirroring a "normal" distribution of mortality in preantibiotic populations, in which individuals during the first 2 years of life experience the highest rate of mortality (Milner et al. 2000). Conversely, the infant remains recovered from Chichen Itza's Sacred Cenote denote a preferential disposal of young individuals in the 6–12 year range, with a frequency approximating 40 % of all the individuals, with few younger than age five (corresponding to less than 10 % of the whole sample). Such a distribution confirms a biased disposal choice or, much more likely, the selection of certain age groups for ritual discard in this sacred sinkhole.

Similarly, the subadult cohort of Río la Venta cave is evenly distributed across all age categories, and thus does not reflect a normal mortality curve. Instead, these individuals are representative of specific mortuary activities that are clearly culturally biased toward a set of selected age groups. Even though infant and subadult mortality was very high in prehistoric populations, we feel that in general the frequency of infants and juveniles found in caves, cenotes, and other natural underground places compared to adults is clearly distinct from the natural mortality profile, denoting in some cases a cultural pattern involved in the preferential deposition of individuals in this age range. On the contrary, we found no infants on the surface of the Lacandons' sacred shrines, denoting a completely different pattern of postmortem ritual behaviors.

9.5.3 Artificial Head Shapes

Among the ancient Maya, the artificial shaping of infants' heads was a readily visible and permanent body modification that expressed identity, ethnicity, and gender (Tiesler 2010, 2012). The permanent nature of this body practice, its transgenerational quality, and its manifold morphological manifestations on the skull reveal underlying *longue durée* cultural dynamics and broad shifts in techniques and artificial head shapes across the centuries.

The results of the analysis of the collection of dry and waterlogged cave series point to broad chronological shifts in the use of compression implements over time resulting in the preferential use of tabular erect forms and the loss of inclined, oblique head silhouettes between the Classic and the Postclassic/Colonial periods (Fig. 9.5). The combined cranial series from the Sacred Cenote of Chichen Itza, which we think was used principally (although not exclusively) during the site's heyday in the tenth and eleventh centuries, illustrates this shift. Only seven skulls still bear an oblique shape, while the overwhelming majority (94.53 %; $N = 128$) shows an erect form. Such evidence is expected because the cenote dates to the Terminal Classic and later. On the contrary, none of the Postclassic skull series documented here bore the tabular oblique that had been so popular during the first millennium AD (Tiesler 2012). This change is most noticeable in the Chiapanec

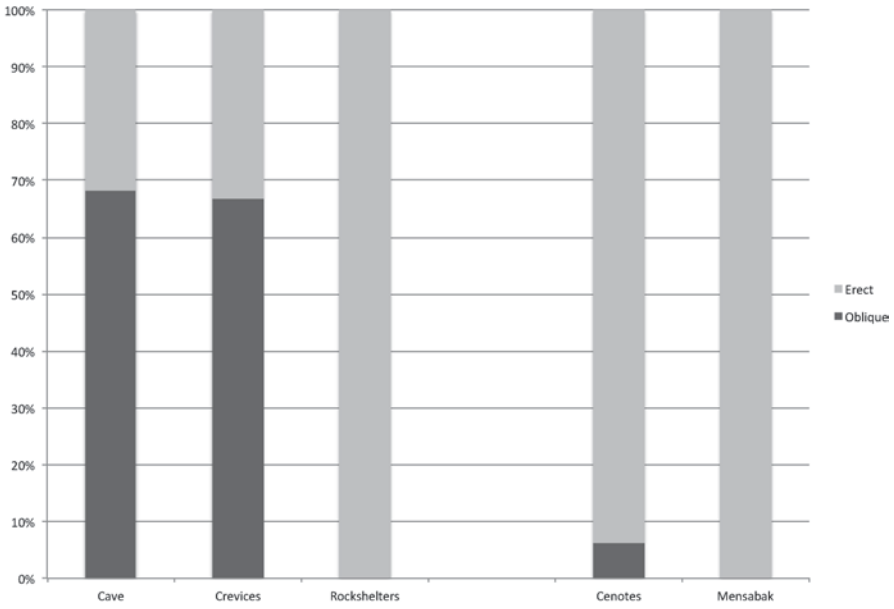

Fig. 9.5 Distribution of erect vs. oblique head shape in the different underground contexts

cave sites, specifically the Mensabak rockshelters and crevices, all of which have the erect form, while within the Classic period samples of the Usumacinta drainage area well over 70% of individuals with modifications display oblique shapes (Tiesler 2012). Given the more recent nature of the remains from the Lacandon cave sanctuaries, at least part of which is dated to after European contact (some C^{14} analyses date them to the seventeeth century), it is surprising that all skulls still appear artificially shaped. However, this distinction likely derives from isolation of Lacandon populations in the forest long after the Spanish occupation and abolition of this body practice in the less remote remainder of the Maya World (Palka 2005).

9.5.4 Anthropogenic Marks

Finally, anthropogenic alterations of a more posthumous nature identify body flaying, dismemberment, removal of soft tissue, or recycling of bones for crafting objects as common practices among Maya groups (Tiesler and Cucina 2007). Signs of perimortem violence in the form of unhealed trauma, traces left by the removal of soft tissue by slicing (Fig. 9.6), and fire exposure of different sorts (whether partial or complete, direct or indirect, incineration or cremation) probably stem mostly from postsacrificial practices, at least before the onset of the Postclassic period (Tiesler 2007). Although postmortem body manipulation is related only indirectly to the manner of death, it nevertheless provides an extraordinarily rich source of

Fig. 9.6 Slicing cut mark on the frontal bone of a damaged cranium from Mensabak's sacred shrine, Chiapas, Mexico. (Photograph by V. Tiesler)

information for the understanding of how both types of demise (i.e., sacrificial vs. natural death) influence corpse processing and deposition.

Regarding dry and submerged cave contexts, our own data and those of our colleagues point to the presence of all the above forms of posthumous body manipulation, even though slicing marks predominate. Furthermore, there seems to be a predominance of male individuals among those presenting bony marks of cultural processing. Inversely, assemblages without signs of processing show an equal representation of both sexes (see also Anda 2007). Looking at the age distribution, among individuals bearing signs of body processing in rockshelters, crevices, caves, and cenotes, adults tend to prevail over subadults, while individuals without those marks seem to be equally divided into adults and subadults.

9.6 Discussion

The data made available in the literature, together with the results obtained from our own investigations of different deposits, clearly indicate that a consistent behavioral model that distinguishes the use of caves from cenotes and from rockshelters is not supported. At least for the part of the Maya area considered by this study, there is a huge amount of variability in the way (and reasons why) these human deposits have formed through time, which is more consistent with a model that considers each context (be it cave, cenote, crevice, or rockshelter) as an independent unit, without evidence for defined cultural norms governing the purposes of use in each case. Contrary to Ruz's (1991) and Thompson's (1992) models, therefore, each context seems to reflect specific (and often, though not always, different) ritual, religious, or alternative cultural behaviors, which do not consistently conform to any standardized procedure and defined scope for the deposition of primary or secondary human remains within contexts that represent the entrance to Xibalba.

This unified semantic connotation is also conveyed by ancient Maya glyphic writings that refer to cave and mountain motifs (Vogt and Stuart 2005, pp. 156–163).

The animate mountain image is one of the most prominent elements of ancient Maya writing and is associated with water, springs, caves, and the sacred origin of things, encompassing both the morphological expressions of cavernous mountain entrances and its uses in the ancient world views, already expressed in the epigraphy of important Classic period centers like Palenque or Dos Pilas. Colonial Yucatecans used the term "*aktun*" both for caves and sinkholes (Barrera 1980). Still today, the northern Lacandon of Mensabak refer with this same word to rockshelters, deep caves, and crevices and adjoin a qualifying adjective to specify its geological morphology (Joel Palka, personal communication 2013).

Our results also show that the scope of observed mortuary patterns is not representative for general population units. There are important differences between the skeletal populations from caves and expected paleodemographic profiles in terms of sex ratio and, more so, in age groups with the noted misrepresentation of expected subadults' proportions in human cave assemblages. Naturally, analogous questions on population representation may be posed on the general underrepresentation of these age groups from settlement areas. In none of these contexts does age distribution reflect a "normal" mortality profile and therefore none are representative of the population's mortality pattern (Paine and Boldsen 2002; Tiesler et al. 2005). Similarly, it can be ruled out that the observed age profile stems from mortal epidemic cycles (Paine and Boldsen 2002), whose age distributions are supposed to be balanced between all the age classes. Usually, anthropological studies also consider a demographic curve heavily unbalanced toward young and mature adults (with a net underrepresentation of subadults and elderly individuals) as a by-product of either selective burial practices and/or bone deterioration that tends to destroy more fragile bones such as those of infants and of the elderly (Hoppa and Waupel 2002; Milner et al. 2000).

Regarding cave contexts, it appears more probable instead that these could serve multiple functions according to their intrinsic morphological characteristics, to regionally defined mortuary behavior, and to aspects of circumstantial nature. For instance, caves could have served both as temporary receptacles for human remains and as final depositional spaces after a sequence of prior mortuary treatments, during which bones may have been moved or removed. Therefore, we suggest considering a shift in the interpretational units from single interments toward mortuary programs and to substitute the conventional focus on separate single individuals/mortuary rituals, still used in burial classifications, for more sophisticated models of mortuary behavior expressed as pathways of sequenced acts (see, e.g., Wrobel et al., Chap. 4, this volume).

It becomes clear that to distinguish modal from nonmodal mortuary behavior and funerary from nonfunerary deposits is still problematical. To establish a pattern that governs the scope of ancient Maya mortuary practices involving caves, as well as to understand the scope of mortuary behavior in caves, needs further research. We have already identified archaeological research designs that generally lack consistent recording of taphonomic variables as a major limiting factor in reconstructing and patterning ancient Maya mortuary behavior in caves (Tiesler 2005). In our own approach or in collaboration with various research projects, we have advocated a multiscalar approach, which targets socially significant units (house platforms, patio

groups, etc.) that are excavated completely (not test pitted) using detailed archaeothanatology (Duday 2009) to reconstruct the *chaîne opératoire* (chain of operations) of each individual deposit and assemblage. Obviously, the formation processes and taphonomic variables are different between contexts. While all three types of subterranean contexts can receive primary as well as secondary funerary depositions, those found in some rockshelters or caves may be the result of very specific processes that imply intentional disturbance with the aim of removing skeletal segments or objects, looting, intentional desecration by rival parties (Brady and Colas 2005), or simple reorganization of the skeletal material to create room for further depositions. In such contexts, it is clear that every single deposit has its own history in which it has undergone a unique process that can encompass one single cause of disturbance or a combination of causes (i.e., removal, reorganization, and looting).

On the contrary, cenotes are less likely to yield articulated remains for analysis (Tiesler 2005); the majority of the skeletal remains originated from secondary disposal or from the gradual decomposition of body parts or of whole bodies, which were either intentionally discarded (therefore whose presence does not respond to ritual funerary purposes) or had accidentally fallen into the sinkhole. All of these situations tend to generate bone assemblages with little or no anatomical connection (Anda 2007) that often have been further disturbed, dispersed, or mixed by the uncontrolled presence of cenote diving, tourism or exploration, or in cases like the Sacred Cenote at Chichen Itza, by destructive archaeological recovery methods. In some rare cases, undisturbed contexts in cenotes may preserve articulated remains in relative anatomical position (Anda 2006). Though rare, such primary contexts may directly reflect actual ritual behaviors performed in cenotes or submerged caves during dry seasons, in which lower water levels allowed the transportation and placement of a dead body that would later be submerged as the water level rose. Unfortunately, in one way or another, in ancient or modern times, most of the assemblages seem to have suffered intentional (i.e., looting) or unintentional (i.e., taphonomic) disturbances that are unrelated to ancient ritual and which have altered their original assemblage resulting in the loss of sensitive data.

Before closing the discussion, we think it is important to highlight the recent case studies of Sak Tat, Mensabak, and other sacred shrines of the Lacandon Maya that we mapped during 2010 and 2011 (Palka 2005; Tiesler et al. 2010). They provided us with interesting pieces of information on the taphonomy, formation processes, and organization of human assemblages from the numerous ritual contexts of rockshelters and crevices. They were all sacred places, as the local Lacandons explained to us, and as the associated material evidence confirmed—the ceramic assemblage appeared to consist almost entirely of censers. The human remains comprised only adult individuals with not all the bony segments equally represented. Only a single test pit has been excavated in one of the rockshelters, which revealed a heavily disturbed primary seated burial, confirming that the surface deposits are ossuaries, of commingled, selected bony segments, rather than primary surface burials. As Duday (2009) explained, the selective presence of specific bony segments, notably skulls and long bones, with a marked underrepresentation of small segments like tarsals, metatarsals, and phalanges, is a clear indication of a secondary ossuary.

Fig. 9.7 Secondary bone assemblage in the sacred shrine of Sak Tat (Mensabak, Chiapas, Mexico). **a** Assemblage as was left by the Lacandons at the end of the 2010 field season. **b** Same assemblage as it was encountered at the beginning of 2011 field season. (Mensabak Archaeological Project; photographs by A. Cucina)

The presence of cranial deformation and the C^{14} analyses suggest that the skeletal remains date to Postclassic and Colonial times; however, it is likely that this redeposition process might have continued until more recent times, since Petryshyn (2005) reported unmodified skulls in his visit to the Holy Lake of Mensabak in 1968.

However, we were eventually overwhelmed by the taphonomic histories evident among the human remains, some of which had gone through different stages of redeposition from primary burial places around the lagoon. In some cases, bones had been moved as a result of vandalizing at the hands of rival Tzeltal communities, while in others they were arranged or stacked simply as a means of maintenance during or between ceremonies. The latter type of activity, in particular, generated interesting bundles with long bones surmounted by skulls that contrasted with other disorganized secondary bone assemblages located only a few meters away that, as we witnessed, resulted from no specific ritual activity. Instead, the arrangement of bones was performed randomly, based on the person's artistic ideas at the moment, and the organization of some of these arrangements had clearly changed when the same assemblage was encountered a year later (Fig. 9.7a, b).

9.7 Conclusions

In conclusion, we have learned through this study that every subterranean passage is a unit that is associated with unique combinations of ecological, settlement, and cultural influences. We cannot assume they have parallel meanings or significance to the groups that used them, simply because morphologically they can be classified as rockshelters, crevices, deep caves, or cenotes. Each is set apart by their particular history of specific uses that are likely to have changed over time. Hopefully, this systematic regional research, although admittedly sketchy, is beneficial in disentangling and clarifying different functions and roles of deep caves, cenotes, and rockshelters, both without and with human remains. As for the latter, we feel that

reconstruction of accumulated mortuary depositional processes must incorporate complete taphonomically informed intensive/extensive excavations and direct dating of relevant individual assemblages to improve the perspectives of reconstructing the *chaîne opératoire* of each depositional sequence. It is only this detailed level of reconstruction of mortuary pathways that sets the stage for a broader discussion of singular vs. unified behavioral components or for inferring long-standing, culturally embedded, conservative trends vs. social change and crises in cave uses. Specifically, social disruption is prone to be expressed in shifts or contingencies in burial practices as expressed in mortuary repertoires in caves.

We acknowledge that ritual is not only ideology or religion, it is also action, and despite the fact that it may not be always ritually driven, actions do leave telling evidence in the archaeological record. In order to avoid conceptual conflation of behavior with beliefs, in this chapter, we have refrained from ascribing ad hoc meanings and symbolic action to specific mortuary practices (see Walker 1995). We have prioritized instead the discussion of mortuary behavior as such as ritual action, which we believe is a convenient anchor for all subsequent endeavors. Whatever the theoretical framework of understanding Maya mortuary programs associated with caves, the data-rich research environment will facilitate and at the same time anchor a culturally sensitive (emic) interpretational frame, aligned with Mesoamerican thought—a situation that is much different from some other past societies, which are less refined (icono-) graphically, documented, or continuous than the Maya.

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