Chapter 5
Isotopic Insights into Mortuary Treatment and Origin at Xunantunich, Belize

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Abstract Burial practices can provide insight into the complex and multilayered identities of both individuals and communities. We explore one aspect of identity—an individual's origin—and the way that it was expressed in funerary treatment at Xunantunich in the Belize Valley. Strontium, carbon, and oxygen isotope values in the tooth enamel of 19 individuals show that some individuals with nonlocal origins were buried in the same households, or even the same graves, as locally born individuals. In contrast, most individuals with Central Peten-like isotope values were placed in atypical burial positions and graves, including termination ritual contexts. We discuss the relationship between their origins and burial treatment in relation to major political changes that were occurring during Late and Terminal Classic periods in the Maya lowlands, and show that origin also was important in burial treatment in contemporaneous cultures elsewhere in the Americas.

5.1 Introduction

An individual's identity is fluid and multilayered. Many of the myriad ways it can be expressed—from language and accent to mannerisms, coiffure, and fashion—are ephemeral, leaving few material traces. As a result, archaeologists have typically

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focused on burial treatment to understand identity. However, burials reflect more than an individual's persona during life (Parker Pearson 1999). The wishes, customs, and strategies of kin and community also affect how a person is buried, and the funerary treatment may occur in stages and continue for generations (Weiss-Krejci 2004; Novotny 2012). We combine an analysis of funerary treatment with osteological and biogeochemical data to explore one factor that often strongly shapes an individual's identity: geographic place of origin.

Seven individuals in four Late and Terminal Classic (AD 600–900) burials at Xunantunich, Belize, were interred with a body position and orientation that differed from standard burial treatment in the region. Strontium and oxygen isotope values link five of these individuals to origins in the Central Peten, a region to the west of Xunantunich. While not every migrant's identity was likely defined by his or her origin, we show that burial treatment transformed the living identities of these individuals after their deaths into powerful political statements and that origin was an important factor in burial treatment across the Americas.

5.2 Xunantunich and the Belize Valley

Xunantunich was a major political center located in the upper Belize River valley region of the central Maya lowlands (LeCount and Yaeger 2010a; Leventhal and Ashmore 2004). While even the largest sites within the region, such as Xunantunich, Buenavista del Cayo, Cahal Pech, and Baking Pot, did not approach the scale of supercenters like Tikal and Caracol, the region's major centers were spaced less than 10 km apart (Fig. 5.1). Minor centers and hinterland settlement interspersed between them resulted in a densely populated landscape during the Late Classic (AD 600–800) and Terminal Classic (AD 800–900) periods (Yaeger 2008, 2010a).

These major centers were the capitals of autonomous polities for most of their histories (e.g., Helmke and Awe 2012; Leventhal and Ashmore 2004; cf. Ball and Taschek 1991). However, epigraphic and archaeological evidence suggest that their political histories were shaped by interactions in the form of trade and political alliances with larger polities located to the south and west of the region, specifically Caracol and Naranjo (Helmke and Awe 2012; Leventhal and Ashmore 2004; Taschek and Ball 2004). For example, LeCount and Yaeger (2010a) have argued that although Xunantunich was an autonomous polity during the Samal phase (AD 600–670), the site's rapid growth during the early part of the Hats' Chaak phase (AD 670–780) was due in part to Xunantunich's incorporation as a province of the Naranjo state.

Figure 5.2 shows the compact but impressive monumental center of Xunantunich. The early phases of the acropolis on the southern end of the main plaza, El Castillo, likely served as the residential and administrative complex of the site's rulers during the early Late Classic Samal phase (Leventhal 2010). The western side of the plaza was demarcated by a ballcourt, and the eastern side was framed by a line

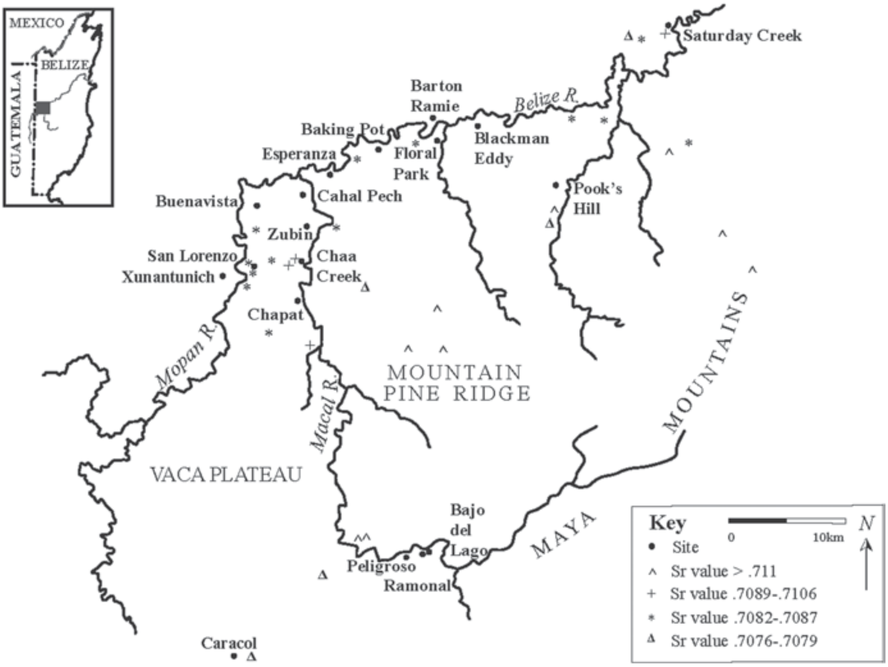

Fig. 5.1 Belize Valley sites and associated strontium isotope values

of three pyramids, one of which contained multiple burials. One of the pyramids, Structure A-4–2nd, held the Samal-phase burial of an individual who may have been one of the site's rulers (Audet 2006).

The site grew rapidly during the late seventh century, including El Castillo, which rose 43 m above the main plaza by the end of the eighth century (Awe 2008:166; Leventhal 2010). Access to its upper zones was controlled via Structure A-32, a long range structure with two galleries located on the medial terrace of the acropolis (Leventhal 2010). At the northern end of the main plaza, the site's architects built a quadrangular palace complex organized around Plaza A-III. Yaeger (2010b) has argued that this complex became the new residential and administrative center for the site's rulers when the site was incorporated into Naranjo's regional state. Construction continued on the funerary pyramids that lined the eastern and western sides of the main plaza, in peripheral residential zones at Groups B and D, and in the nonresidential Group C, located just south of El Castillo.

Later in the Hats' Chaak phase, Structure A-11 and other structures in the palace complex around Plaza A-III were sacked, sealed off, and then abandoned, an event that Yaeger (2010b) believes marked the end of Naranjo's rule over Xunantunich. However, construction continued on El Castillo, and Structure A-1 was built in the center of the plaza, effectively dividing it in half, with Plaza A-I to the south and Plaza A-II to the north. As the Late Classic transitioned into the Terminal Clas-

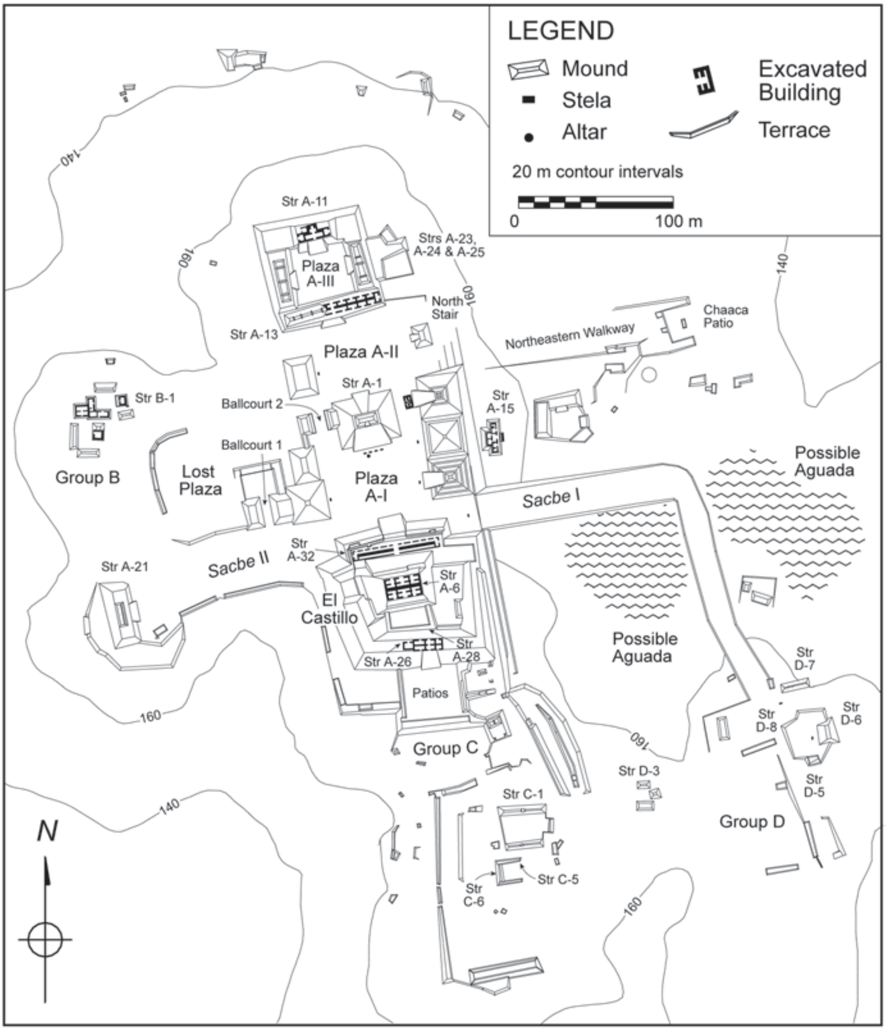

Fig. 5.2 Site map of Xunantunich showing the burial locations discussed in the text. (Map copyright by Angela Keller and Jason Yaeger)

sic, the broader political and social changes that comprised the Maya collapse also transformed the Belize Valley. Populations declined markedly (e.g., Yaeger 2008), and contacts with the northern Maya lowlands increased (Aimers 2004). Local rulers made bolder claims of authority (Helmke and Awe 2012) as the power of neighboring polities like Caracol and Naranjo declined (also see LeCount and Yaeger 2010b).

At Xunantunich, these processes began during the latter half of the eighth century, as settlement surveys document a population decline of more than 75 % from the

Late Classic Hats' Chaak phase to the Terminal Classic Tsak' phase (AD 780–890) (Yaeger 2010b). This demographic collapse is reflected in the contemporaneous abandonment of many sectors of the site, as the area of active use was reduced to Plaza A-I and the surrounding structures, including the El Castillo acropolis and residential structures in Group B (Leventhal 2010; Leventhal and Ashmore 2004; Yaeger and LeCount 2010a). At the same time, the rulers of Xunantunich commissioned carved stelae that proclaimed their military prowess and their peer relationship with their former overlords at Naranjo (Helmke et al. 2010). By the end of the tenth century, if not earlier, Xunantunich was abandoned, although people continued to inhabit the region during the Postclassic period (AD 900–1500) and even practiced rituals at some of the site's abandoned buildings (Brown 2011).

Excavations by the Belize Tourism Development Project (TDP), the Xunantunich Archaeological Project (XAP), the Xunantunich Palace Excavations (XPE), and other researchers (e.g., Pendergast and Graham 1981; MacKie 1985) resulted in the discovery of burials in most areas of Xunantunich, including residential zones Groups D and B, one of the ballcourts, Structure A-11 in the palace complex, Structure A-32 on the El Castillo acropolis, and in and around the funerary monument Structure A-4.

Many of the burials did not follow patterns typical elsewhere in the valley, which were highly standardized by the Late Classic period (Schwake 2008; Weiss-Krejci 2006; Welsh 1988; Willey et al. 1965; Yaeger 2003). A prone, extended body position was common (Welsh 1988; Willey et al. 1965, p. 533), and individuals were oriented with the head to the south in more than 75 % of the burials analyzed at seven sites (Schwake 2008). Strontium, carbon, and oxygen isotope analysis of 148 individuals buried at 15 Belize Valley sites demonstrates that origin and burial treatment were related: 89 % of those with strontium isotope values local to the region were buried with their heads oriented to the south, and mostly in a prone position (Freiwald 2011). This contrasts with the primarily northern or eastern orientation and supine or flexed body position described at sites elsewhere in the Maya lowlands (Schwake 2008; Welsh 1988).

An estimated 23 % of the individuals sampled had relocated at least once between birth and burial. However, nearly half of the isotope values of 19 individuals sampled from Xunantunich were not found near the site (Freiwald 2011). Burial position is known for 16 of these individuals: While three individuals have a southern orientation, only one is buried in a prone position with the head oriented to the south. Nearly all individuals with atypical body orientations and positions have isotope values that indicate a nonlocal origin.

Variability in body arrangement at Xunantunich might be explained in multiple ways. The burials of some individuals may have followed the norms of their homelands, even as their burials in the same residential locations—and even the same graves—as locally born individuals suggest that they were incorporated into Maya households and communities (Freiwald 2011). Atypical patterns in three deposits, however, suggest that some migrants were differentiated from others in the community and merited distinct burial treatment. One individual was placed in palace

Structure A-11 in what Yaeger (2010b) interprets as a desecratory termination event following the conquest of the site during the mid-eighth century. Five individuals were placed in a pit in the summit of the funerary monument Structure A-4 during one of the last activities identified in that building (Audet 2006). A third deposit consisted of a single individual placed in Structure A-32, on the El Castillo acropolis. Most of the individuals who received atypical burial treatment had strontium and oxygen isotope values consistent with those identified in the Central Peten, but two other values indicate that locations within the Belize Valley itself may have had associations that were considered "foreign."

5.3 The Method and Theory of Using Isotopes to Understand Population Movement

Strontium (Sr) and oxygen (O) isotope ratios in tooth enamel provide information about an individual's place of birth and early childhood residence. Each element has multiple variations (isotopes) in different proportions, and the isotope values found in major food and water sources become fixed in body tissues as they form (Bentley 2006). $^{87}Sr/^{86}Sr$ isotope ratios vary geographically, depending on the age and composition of geologic formations (Ericson 1985; Faure and Powell 1972; Palmer and Elderfield 1985). Most variation in $^{18}O/^{16}O$ ratios in Mesoamerica relates to elevation and distance from the coast (Lachniet and Patterson 2009; Marfia et al. 2004). Hundreds of rock, water, plant, and faunal samples collected across Mesoamerica show that variation in strontium isotope values corresponds to the broadly defined cultural areas shown in Fig. 5.3 (Hodell et al. 2004; Price et al. 2008, 2010). Differences in oxygen isotope ratios have been identified among several regions, allowing use of a combination of isotopic assays to identify population movement across the Maya region.

Geologic differences near the Belize Valley occur over much shorter distances (Cornec nd; Ower 1921; Wright et al. 1959). The rock formations of the Maya Mountains are significantly older and have higher strontium isotope values that range from $^{87}Sr/^{86}Sr$ 0.711 to greater than 0.725 (Freiwald 2011; Hodell et al. 2004). Freiwald (2011) and Thornton (2011) report intermediate values created by deposition from the streams and rivers flowing from the mountains in its foothills (0.709–0.713), which in turn are higher than the average value of 0.7086 found at sites located along the Belize River (Fig. 5.3).

Much of this variability is not visible on geologic maps. A detailed map of strontium isotope values was constructed using modern faunal samples collected in and around archaeological sites (Freiwald 2011). Animals represent the average biologically available strontium isotope values better than rocks, plants, water, or soils (Price et al. 2002), and use of archaeological fauna was avoided because nonlocal animals have been identified at multiple sites in the study (Yaeger and Freiwald 2009). Diagenesis and consumption of imported foods are potential con-

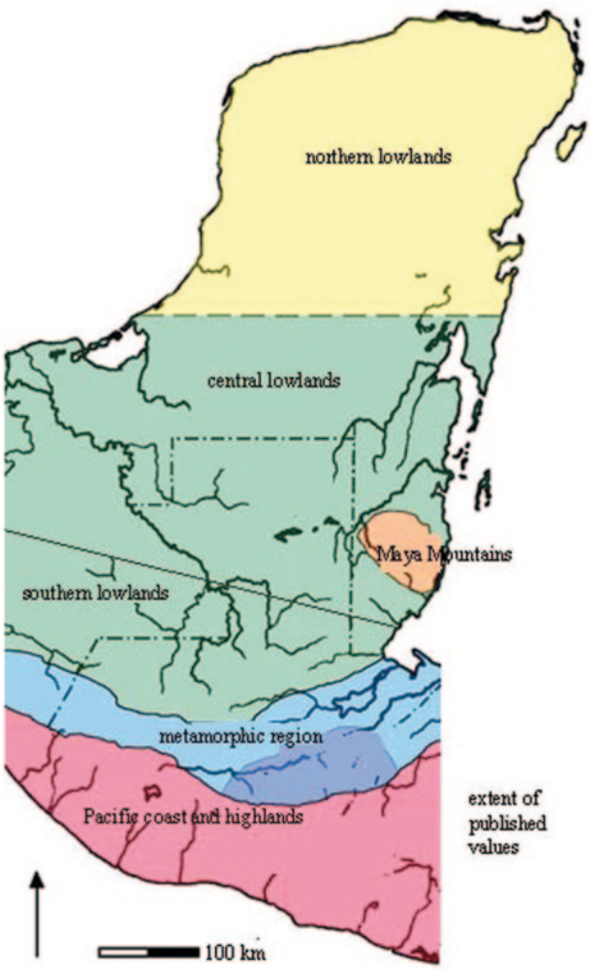

Fig. 5.3 Distinct strontium isotope values correspond to broadly defined cultural divisions. (Map modified from Wright (2005b: Fig. 1). Reprinted from *Journal of Archaeological Sciences*, 32(4), Lori E. Wright, Identifying immigrants to Tikal, Guatemala: Defining local variability in strontium isotope ratios of human tooth enamel, 555–566. Copyright (2005), with permission from Elsevier)

cerns (e.g., Wright 2005b, 2012); however, human populations living in each of the areas shown in Fig. 5.3 have $^{87}Sr/^{86}Sr$ values that reflect those found in the baseline samples (Table 5.1).

The geographic extent of each of these strontium zones is unknown. Hodell and colleagues (2004) report values of ~0.7079 $^{87}Sr/^{86}Sr$ along the Mopan River in the Belize Valley, but the plant, rock, and soil values are significantly lower than those found in modern fauna and the ancient human population. They identified similar rock, water, plant, and soil values (~0.7078 $^{87}Sr/^{86}Sr$) at the site of El Pilar 15 km to the north, suggesting that strontium isotope values may decrease with distance from the Belize Valley. However, we report a new value of 0.70836 $^{87}Sr/^{86}Sr$ from a modern land snail (*Neocyclotus* sp.) at Naranjo just 15 km west of the Belize River, and Davies (2012) has identified similar values from San Bartolo 60 km

Table 5.1 Strontium isotope values. (Sample preparation followed Price et al. 2002 and is described in detail for baseline and human samples in Freiwald 2011)

	Mean value of human tooth enamel (# samples)	Mean value of nonhuman faunal baseline (# samples)	Range of faunal baseline values
Belize River samples	0.7085 (n=136)	0.7086 (n=17)	0.7082–0.7091
Macal River samples	0.7095 (n=12)	0.710 (n=3)	0.7089–0.7107
Maya Mountain samples	0.7150 (n=11)	0.7179 (n=9)	0.7114–0.7255

to the northwest in human samples in her dissertation research. Either the water, rock, and plant samples do not reflect biologically available strontium isotope values, or localized isotopic heterogeneity is not unique to the Belize Valley and Maya Mountains and may be more widespread in the central lowlands. For example, baseline values identified near Palenque, Bonampak, and Yaxchilan show the 0.7077 $^{87}Sr/^{86}Sr$ average values of the central lowlands, but also show higher values between 0.7082 and 0.7087 due to the presence of exposed limestone formed at different times. At Palenque, values in both of these ranges are present in the skeletal sample (Price et al. 2008) because the immediate catchment area of the site was geologically diverse.

Interpreting oxygen isotope values is a more complex endeavor. Environmental variation in $^{18}O/^{16}O$ isotope values is caused by precipitation, elevation, temperature, and relative humidity, and is further complicated by fractionation between the water source and the species ingesting it (Luz and Kolodny 1985; Luz et al. 1984). Fractionation rates are species-specific due to differences in factors such as body temperature, drinking habits, and sweating. Variation within a species due to reproductive status, age, sex, and dietary preference also must be considered (Cormie et al. 1994; Bryant et al. 1996; Kohn 1996; Kohn et al. 1996; Longinelli et al. 2003). However, measurable differences have been identified in water samples in at least five parts of the Maya region, including the Caribbean and Pacific coasts, the Guatemalan highlands, part of the Central Peten, and elsewhere in the Maya lowlands (Lachniet and Patterson 2009; Marfia et al. 2004). These differences also are reflected in human populations (see Freiwald 2011; Price et al. 2010).

5.4 Identifying Migrants

Strontium isotope ratios form the basis for identifying migrants, with oxygen isotope values providing an additional line of evidence. An individual whose tooth enamel has a different value than his or her burial location relocated at least once between birth and burial. Most studies have considered values that fall within two standard deviations of the mean of the baseline fauna to be “local.” This statistic includes too many obviously nonlocal values in the Maya Mountains, where the mean and standard deviation of known, local values encompass nearly all known variability in strontium isotope ratios in Mesoamerica, even while excluding some modern values sampled from locations within the mountain range (Freiwald 2011). Therefore, the range of baseline values also is used to interpret local and nonlocal human values in this study.

A framework for interpreting isotopic values draws from modern and historic studies of migration (Anthony 1990, 1992; Cadwallader 1992; Cameron 1995; Coombs 1979; Finnegan 1976; Geisen 2004; Hoerder 2004). Some archaeological studies have implicitly referenced modern migration theory (Blitz 1999; Ezzo et al. 1997; Varien 1999), but the term residential mobility is used more commonly. However, in modern terms, residential mobility only describes movement within a political entity like a city or town, which might be visible isotopically only under rare circumstances. In contrast, migration is a flexible term that includes myriad types of population movement over both long and short distances, such as international and transoceanic movement (Geisen 2004, p. 54), circular movement (Kiyoshi 2000), or movement between rural communities, both voluntary and involuntary. Migration is a permanent or semipermanent movement across a boundary, which includes movement among Maya cities and communities.

While Classic and Colonial sources document instances of population movement in the Maya region, they provide little information on how it was structured (Martin and Grube 2000; Farriss 1984; Restall 1997; Rice 2009). Observations of modern population movement describe migration as a kin-based phenomenon that occurs primarily for social reasons (Arango 1985; Cadwallader 1992; Koji 2000; Ravenstein 1885, 1889). A number of other observations are useful for interpreting paleomigration. First, most migration occurs over short distances, so we interpret the closest location with a similar isotope value as the homeland for the individual. Second, the return of migrants to their places of origin creates a bidirectional stream of movement that eventually results in networks with great time depth. The concept of return migration allows broader patterns to be inferred from isotope values that only identify individuals moving into a community. Finally, the kin-based nature of modern migration allows us to draw broader conclusions about Maya social organization and the meaning of migration in an individual's and community's identity. The practice of disinterring and reburying bones adds a layer of complexity to interpreting migration in the Maya region (Weiss-Krecji 2004; Chase and Chase 1996), but isotopic assays also are useful in assessing the length of time an individual resided in a particular location.

In sum, we identify migration by comparing the isotope values of tooth enamel formed early in an individual's life to those identified near the burial location: A difference in values shows that an individual moved at least once between birth and burial. While migration occurred between places—cities, communities, and polities—this study identifies relocation between geologic regions with distinct strontium isotope values. It is not possible to associate a nonlocal individual with a specific city or kingdom using isotope values because similar combinations of isotope values occur at multiple locations.

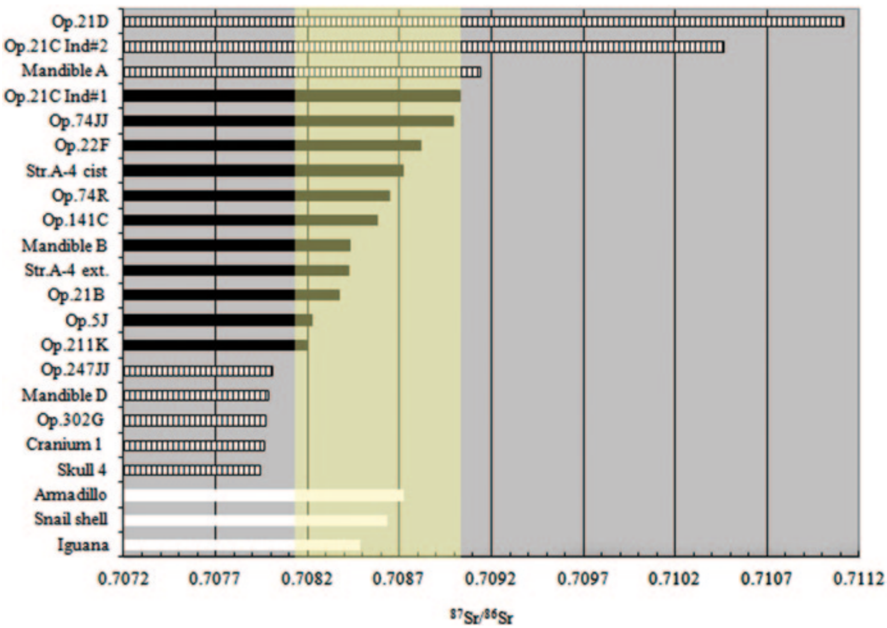

Fig. 5.4 Strontium isotope values in tooth enamel for each individual sampled at Xunantunich. *White bars* show values from baseline fauna collected near the site, and the *shaded area* shows the range of values found along the Belize River. *Black bars* show individuals with local values, and *striped bars* represent those with nonlocal values

5.5 Case Study

Our sample for this study consists of 19 individuals excavated at Xunantunich between 1992 and 2004 by XAP, TDP, and XPE researchers. Analysis of these burials forms part of a larger study of migration, including 148 individuals from 15 sites along the Belize River and its two main tributaries, the Macal and Mopan rivers (Freiwald 2011). Nine individuals in our sample were interred in elite residential groups located near the site core, and ten come from nonresidential structures situated around the plazas in Group A (Table 5.2). Most of the burials date to the Late Classic Hats' Chaak phase (AD 670–780), but the Burial 1 deposit from Structure A-4 and burials from Group D operations 21B, 21C, and 21D date to the Terminal Classic Tsak' phase (AD 780–890).

Three faunal samples collected within 2 km of Xunantunich show the average local isotope value ($^{87}Sr/^{86}Sr$ 0.70861), which is slightly higher than the Belize River average shown in Table 5.1 ($^{87}Sr/^{86}Sr$ 0.7085). Seven individuals in our sample have strontium isotope values that are statistical outliers. Two more individuals have values that are higher or lower than those found along the Belize River (Fig. 5.4, shaded area), and each of these also has an oxygen isotope value that is an outlier of the

Table 5.2 Xunantunich strontium isotope values (including modern baseline faunal samples) and burial information

Burial	$^{87}Sr/^{86}Sr$	$^{18}O/^{16}O_{PDB}$	Sex	Age in years	Sample	Burial information
Structure A-4 Burial 1 deposit Skull 4	*0.70794*	*−1.73*	*I*	*10–12*	upper first molar	Burial location: intrusive pit at summit of Structure A-4, eastern structure on central plaza. Body position disturbed by later interment, originally articulated and flexed?
Structure A-4 Burial 1 deposit Cranium 1	*0.70796*	*−2.36*	*I*	*Adult?*	upper left second incisor	Burial location: intrusive pit at summit of Structure A-4, eastern structure on central plaza. Skull only interment with cervical vertebra
Structure A-11 Operation 302G Burial 1	*0.70797*	*−0.32*	*M*	*20–23*	lower right first molar	Burial location: on floor of east-central room. Flexed body position, head to the north
Structure A-4 Burial 1 deposit Mandible D	*0.70798*	*−1.84*	*F*	*16–18*	lower left third premolar	Burial location: intrusive pit at summit of Structure A-4, eastern structure on central plaza. Articulated and flexed, on left side
Structure A-32 Operation 247JJ Burial 1	*0.70800*	*−0.60*	*M?*	*Adult*[a]	lower right first molar	Burial context: structure on the El Castillo acropolis on southern side of plaza. Semiflexed, on side, head to the west
Group B Operation 211K Burial 1	*0.70819*	*−0.91*	*F*	*Adult*[a]	lower left first molar	Burial location: residential group. Semiflexed, on side, head to the south
Group D Operation 5J Burial 1	0.70822	−2.78	I	7–8[a]	lower right first molar	Burial location: chultun in change group to Group D, elite residential group. Body position not known
Group D Operation 21B Burial 1	0.70837	−3.01	I	Adult[a]	premolar	Burial location: elite residential group. Body position not known
Structure A-4 Burial 1 extension	0.70842	−3.18	M?	Adult?	upper right first molar	Burial location: eastern structure on central plaza. Flexed, head oriented to the south
Structure A-4 Burial 1 deposit Mandible B	0.70843	−3.16	I	Adult	lower right molar (first or second)	Burial location: intrusive pit at summit of Structure A-4, eastern structure on central plaza. Skull only interment

Table 5.2 (continued)

Burial	$^{87}Sr/^{86}Sr$	$^{18}O/^{16}O_{PDB}$	Sex	Age in years	Sample	Burial information
Structure A-17 Operation 141C Burial 1	0.70858	−2.65	I	6–10[a]	upper first molar	Burial location: center of ballcourt. Body position not known
Structure D-6 Operation 74R Burial 1	0.70865	−2.76	I	Adult[a]	lower left first molar	Burial location: pyramid in residential platform complex. Extended, supine position, legs flexed (?), head to the south
Structure A-4 Burial 1 cist	0.70872	−2.89	I	35–50?	lower right premolar	Burial location: Cist in Structure A-4, eastern structure on central plaza. Extended, supine position, head to the south
Structure D-7 Operation 22F Burial 1	0.70882	−3.98	I	2–4[a]	lower second deciduous molar	Burial location: elite residential group. Flexed, on right side, head to the north
Group D Operation 21C Burial 1 Individual 1	0.70903	−1.41	M	25–29[a]	upper premolar	Burial location: chultun in Group D, elite residential group. Extended, prone position, head to the west
Structure D-6 Operation 74JJ Burial 1	0.70899	−3.41	M	30–40[a]	lower left first molar	Burial location: elite residential group. Extended, prone position, head to the south
Structure A-4 Burial 1 deposit Mandible A	*0.70914*	*−2.40*	*I*	*Adult*	lower left second molar	Burial location: intrusive pit at summit of Structure A-4, eastern structure on central plaza. Skull only interment
Group D Operation 21C Burial 1 Individual 2	*0.71046*	*−3.47*	*M*	*>50*[a]	lower right first molar	Burial location: chultun in Group D, elite residential group. Extended (?), supine position, head to the east
Group D Operation 21D Burial 1	*0.71111*	*−3.33*	*M?*	>35[a]	premolar	Burial location: chultun in Group D, elite residential group. Extended, supine position, head to the west
F1753 modern iguana	0.70848					Baseline sample: bone
F5275 modern snail	0.70863					Baseline sample: shell

Table 5.2 (continued)

Burial	$^{87}Sr/^{86}Sr$	$^{18}O/^{16}O_{PDB}$	Sex	Age in years	Sample	Burial information
F1752 modern armadillo	0.70872					Baseline sample: bone

Entries arranged from lowest to highest strontium isotope values with those in italics interpreted as nonlocal to Xunantunich. Question marks denote a probable age/sex estimate or burial interpretation. Oxygen isotope values expressed in per mil. Information on the tooth sampled and lab sample numbers in Freiwald (2011, pp. 426–428)
M male, *F* female, *I* not determined
[a] Information on sex and age from Adams (1998) and Boada in Braswell (1998)

Belize Valley mean ($^{18}O/^{16}O$ value = −2.9 ± 0.99‰ in Freiwald 2011). We interpret these individuals as migrants to the Belize Valley.

The isotope values demonstrate that nearly half of the individuals in the Xunantunich sample had a nonlocal origin. This is a conservative estimate of population movement as even the individuals with "local" values—those that fall within the statistical range of the baseline fauna in the region—may have relocated from another site along the Belize River or from another region with similar strontium and oxygen isotope values.

The three highest strontium isotope values in this sample fall within a range identified in only one region in the Maya lowlands, the foothills of the Maya Mountains. In contrast, low strontium isotope values are found across a very large expanse of the Maya lowlands that spans hundreds of kilometers. Enriched oxygen isotope values, however, have only been identified in the Central Peten in both modern precipitation samples (Lachniet and Patterson 2009) and in archaeological samples of human tooth enamel from Calakmul and San Bartolo (Davies 2012; Price et al. 2010). Thus, some individuals in this sample likely had origins in the Central Peten, and others spent their early years in the foothills of the Maya Mountains.

5.6 Burial Treatment and Origin at Xunantunich

The individuals with Central Peten-like isotope values were buried in three nonresidential structures in Group A and in one residential location in Group B (Fig. 5.2). This includes one individual placed in Structure A-11, the probable residence of Xunantunich's rulers during Hats' Chaak phase; three individuals placed in an intrusive burial pit in the summit of Structure A-4, an eastern pyramidal structure; and one individual interred in Structure A-32, a range structure located on El Castillo. One Maya Mountain area value also was identified in a Structure A-4 burial, but the other two high values were identified in two Group D residential zone burials. Individuals interred in residential zones were interred either according to Belize Valley norms or to practices that are common in other areas and thus likely reflect norms of their homelands. The residential burials serve as an interesting comparison with politically charged contexts in Group A.

Fig. 5.5 The royal residence Structure A-11 at Xunantunich, facing north. (Photo by Awe/TDP)

5.7 Group A Structure A-11

Structure A-11 is the northernmost structure of Xunantunich's monumental core, forming the northern edge of the Plaza A-III palace complex (Fig. 5.5). It was built during the Hats' Chaak phase (AD 670–780), possibly under the influence of Naranjo (Yaeger and LeCount 2010c). The two-story structure had a carved limestone frieze and a wall panel carved with a hieroglyphic text (Yaeger 2010b). Only modest modifications were made for decades after its construction. The upper story has been interpreted as the ruler's residence (Leventhal 2010; MacKie 1985; Yaeger 2010b) because of its layout, inaccessibility, and an onfloor assemblage consisting mainly of serving vessels. The lower building was likely used for administration and storage, as it had a much simpler layout, incised patolli boards and graffiti, and an onfloor assemblage consisting almost entirely of large storage vessels (Yaeger 2010b).

Sometime during the middle of the Hats' Chaak phase, Structure A-11 was systematically dismantled. The walls were torn down, in some cases block-by-block almost to floor level, leaving gashes in the plaster remnants that exposed joins in the masonry. The limestone frieze was dismantled, and the hieroglyphic panel was broken into small fragments. Only three fragments of the panel were recovered despite 100 % excavation of the area, leading Yaeger (2010b) to suggest that the other fragments were removed, perhaps as mementoes or trophies (e.g., Brittain and Harris 2010; Chapman 2000).

The rooms of the lower building were filled in with white marl to a height of approximately 1.5 m, and two of three doorways were sealed with limestone blocks. Structure A-11 was never rebuilt, and the administrative and residential activities of

Fig. 5.6 The Xunantunich Operation 302G Structure A-11 burial. (Photo copyright by Yaeger/XPE)

the ruling court subsequently shifted back to El Castillo (Leventhal 2010; Yaeger 2010b). Yaeger (2010b) argues that the destruction and associated deposits form part of a desecratory termination ritual (see also Brown and Garber 2003; Stanton and Brown 2003) that was associated with a dramatic political change, such as the end of Naranjo's rulership of the area and the replacement of the ruling family.

The destruction of Structure A-11 shares characteristics with termination events described elsewhere in the lowlands in which (1) structures were intentionally dismantled, (2) elite markers of power were destroyed, (3) some of the pottery was intentionally smashed, (4) preservation of materials indicates rapid deposition, (5) remains were entombed in a layer of white marl, and (6) the structure was abandoned or its function changed after the event (cf. Stanton et al. 2008).

Two deposits associated with the white marl layer shed more light on this event. The first deposit consists of a Garbutt Creek Red bowl and charcoal found near the top of the marl layer in the east-central room. Garbutt Creek Red vessels are very common in the eastern part of the Belize Valley at sites such as Cahal Pech and Baking Pot. However, they are exceedingly rare at Xunantunich, forming less than 1 % of the assemblage during the Hats' Chaak phase (LeCount 2010). At Xunantunich, Mount Maloney Black bowls occupy the same formal and functional niche. Yaeger has argued that this bowl is a "signature vessel" (*sensu* Suhler et al. 2004). If it was left by the individuals who destroyed and sealed the palace rooms, they may have come from a location downstream from Xunantunich.

The second deposit (Operation 302G, Burial 1) included the remains of a gracile, young adult male placed on the floor of the same room at the base of the white marl layer. He was not placed deliberately in a prepared grave and had no associated grave goods. Instead, his body lay sprawled parallel to the west wall, covered with the white marl that filled the room (Fig. 5.6). The individual's head was oriented to the north instead of the south, and the position of the lower body was rotated such that the pelvis was in a supine position, while the upper body lay on its left side.

The skeleton was almost completely articulated, but was not placed in a typical burial position. His arms and legs were flexed (Fig. 5.6). His right femur crossed over his body at a 45° angle, parallel to his lower right arm, while the right lower leg lay in parallel with the body. The legs remained in anatomical position: however, the femur had rotated during decomposition so that the posterior surface faced upward. The left femur was positioned at a 135° angle under the lower right leg. The left lower leg was flexed perpendicular to the body. It was higher than the right leg and pelvis due to an uneven floor surface that may have resulted from the dismantling of the room.

The position in which this body was encountered during excavation was not likely the result of postdepositional movement of the body, aside from the rotation of the right femur and movement of a small number of elements (e.g., small hand and foot bones). Excellent preservation of the bones and other contextual factors suggest that the room was filled in when the body was deposited. This activity may also explain the position of the right foot, which was reversed at the ankle, possibly as a result of the compression by the boulder shown in Fig. 5.6.

Strontium (0.70797) and oxygen (−0.32‰) isotope values obtained from this individual's tooth enamel are statistical outliers in the Belize Valley population, and instead match values identified in the Central Peten (Freiwald 2011; Hodell et al. 2004). While similar strontium isotope values are found across the central lowlands, enriched oxygen isotope values have only been identified in a limited area of the Central Peten (Lachniet and Patterson 2009; Price et al. 2010). Body modification also provides support for a nonlocal origin. The cranium exhibits tabular oblique modification, which is less common in the Belize Valley than elsewhere in the Maya lowlands. More than 80% of the burials studied in the Usumacinta Valley show oblique cranial modification, which also is common in the Central Peten and the eastern Chiapanec Highlands (Tiesler 2013).

A similar combination of strontium and oxygen isotope values is reported for individuals at Calakmul (Price et al. 2010); however, this individual may have spent his early years at any number of sites in the region. This likely did not include Naranjo because its strontium isotope baseline value is similar to those identified in the Belize Valley. However, we do not know if he resided at Naranjo later in his life or represented a different foreign presence at Xunantunich.

Termination events may include a combination of desecratory and reverential treatment of human remains (Navarro Farr et al. 2008). Duncan (Chap. 3, this volume) describes the use of white marl as a means of wrapping the deposits that is separate from the termination ritual. In some cases, it creates a sacred bundle, while in others it seals off the remains in order to isolate their power. Isolating bones in burials or caches was the appropriate treatment for the skeletal remains of some individuals, including some ancestors (Becker 1992; Duncan 2005, 2011).

However, the act of destruction represents a dramatic transformation of materials, including human remains (Medina Martin and Sánchez Vargas (2007, p. 102), and may serve to deactivate a group's ties to specific locations (Pagliaro et al. 2003). Such events seem to mark purposeful destruction of a building, its material culture, and the political institutions that they represented at Yaxuna, Hershey, and Tikal (Ambrosino et al. 2003; Freidel et al. 1998; Harrison-Buck 2007; McAnany et al. 2004; Suhler and Freidel 2003). The activities at Structure A-11 appear to have been the first in a series that culminated in abandonment of parts of the site.

Fig. 5.7 The main plaza at Xunantunich, with the El Castillo structure on the *right* and Structure A-4 on the *left*. (Photo by Awe/TDP)

5.8 Structure A-4: A Mortuary Pyramid

Located on the eastern side of Plaza A-1 (Fig. 5.7), Structure A-4 was an important ancestral mortuary shrine, as shown by the placement of one of the site's early Late Classic rulers in a cist in Structure A-4–2nd. The strontium isotope values of this individual (0.70872) suggest a Belize Valley origin, as do those of another individual (0.70842) buried at the base of the structure during the Late Classic. In contrast, four of five individuals buried during the Terminal Classic in an intrusive pit in the final version of the structure, Structure 4-A-1st, had nonlocal strontium isotope values. Three of these individuals likely had origins in the Central Peten.

Five intact small bowls and two ladle censers were placed on the final floor of the summit building of Structure A-4–1st (Audet 2006). Such censers became more common during the Terminal Classic, so this deposit may be tentatively assigned to the Tsak' phase (AD 780–890). The objects were well preserved, likely due to the deposition of architectural material directly on top of them. No evidence for intentional destruction or burning of the structure was found, and no clear markers of a termination event were observed.

A 60 × 70-cm pit was cut into the plaster floor. The pit was never resurfaced and contained the remains of five individuals buried in at least two separate events. The grave contained the complete remains of a child and an adolescent female, the skulls of two individuals, and the cranium of a fifth individual (Figs. 5.8 and 5.9).

Fig. 5.8 The lower level of the deposit with the articulated burial of the adolescent female and some of the displaced bones of the child, including the cranium

Fig. 5.9 The upper level of Structure A-4 Burial 1, showing the displaced bones of the child on the left and two skulls and cranium interred in a second burial event

Freiwald and Piehl's reanalysis of the materials is presented here and differs in some aspects from the initial analysis (Audet 2006, pp. 138–141).

The first interment included the complete remains of a 16–18-year-old adolescent female (Structure A-4 Burial 1 "mandible D/skull 2" and postcranial remains) and a 10–12-year-old child (Structure A-4 Burial 1 "skull 4" and postcranial remains). The adolescent was placed on her left side in a tightly flexed position. The child was probably buried in a flexed position immediately above the adolescent, but the skeleton was disturbed when the pit was reaccessed to deposit the skulls of two adults and the cranium of a third (Structure A-4 Burial 1 "mandible A," "mandible B," and cranial remains). Figure 5.8 shows the child's cranium on the right, and femora, tibiae, and fibulae that were disturbed, and possibly rearranged, on the left. Figure 5.9 shows the two skulls. A fifth individual (Structure A-4 Burial 1 "cranium 1") is represented by additional cranial elements, but their position in the burial is not clear.

Strontium isotope values for the adolescent (0.70798) and child (0.70794) fall within the range of values found in the central lowlands. Enriched oxygen isotope values in the adolescent (−1.73‰) and child (−1.84‰) suggest that their origins were in the Central Peten, where similar values have been identified in modern water sources (Lachniet and Patterson 2009) and in human tooth enamel (Davies 2012; Price et al. 2010). These values are similar to those identified in the young male placed in Structure A-11. However, oxygen isotopes in the adolescent's bone apatite show that she had resided at Xunantunich long enough to acquire an $\delta^{18}O$ value (27.68‰) that reflects the local average rather than that of her place of birth.

Isotope values from the skulls and cranium interred during the second burial event indicate different origins. The strontium (0.70843) and oxygen (−3.16‰) isotope values for "mandible B" match those found in the Belize Valley. These values may indicate a local origin near Xunantunich or another Belize Valley site. However, similar values have been identified near sites in the Yucatan Peninsula, and at Palenque, San Bartolo, Tikal, and Naranjo (Davies 2012; Price et al. 2008, 2010; Wright 2012). Freiwald wonders if inhabitants of Naranjo might have enriched oxygen isotope values similar to those identified in Lakes Yaxha and Sacnab (Lachniet and Patterson 2009), but negative values that are common across most of the lowlands—like those of "mandible B"—also are possible.

The strontium value for "mandible A" (0.70914) links this individual to an origin in or around the foothills of the Maya Mountains and Mountain Pine Ridge. A connection to this region also is supported by the individual's dental modification, which is significantly more common in individuals who relocated from the foothills of the Maya Mountains to sites along the Belize River (Freiwald 2011). The oxygen isotope value (−2.40‰) provides no additional information: similar values are found elsewhere in the Maya lowlands. The final individual ("cranium 1") yielded a strontium isotope value (0.70796) that indicates an origin in the central lowlands. However, the oxygen isotope value (−2.36‰) suggests that this individual had a different origin, or at least used a different water source, than the juveniles in the burial.

The skulls and cranium were placed in the deposit after the bodies of the two juveniles had decomposed. This is evidenced by the arrangement of the child's legs, which were displaced by the second burial event and then rearranged into a semi-stacked position approximating anatomical alignment, but with the distoproximal orientations of some bones reversed and anatomically impossible associations between the upper and lower leg bones (Fig. 5.8). By this time, the upper and lower leg bones were no longer attached and the ligaments connecting the clavicle, cranium, and portions of the spinal column were no longer present. The displacement of the child's arms also suggests full skeletonization by the time of the second burial (Fig. 5.9).

The interval between the death and burial of the two skulls and cranium is less clear, as these could represent primary or secondary burials. The cranium-only burial ("cranium 1") was likely associated with one cervical vertebra; however, the atlas and occipital articulation are persistent structures that are among the last skeletal elements to decompose (Duday and Guillon (2006). Perimortem damage or cut marks that might provide a better time frame for the separation of the crania from postcranial elements were not observed on the poorly preserved bone surfaces.

Mayanists often interpret the interment of isolated skeletal elements, especially skulls, as evidence for sacrifice. At Colha, a deposit of 30 skulls, some of which had articulated cervical vertebrae and evidence for flaying, were layered by age in a midden-like deposit with no apparent burial preparation (Mock 1998; Barrett and Scherer 2005). Even in the absence of direct osteological evidence, a specific age/sex category, lack of grave goods, atypical body position, and partial sets of human remains all may connect deposits of skeletal materials to sacrifice (Tiesler 2007). The Structure A-4 burial has some, but not all of these characteristics.

Nor does the burial clearly evidence ancestor veneration. Mayanists also interpret burials of isolated bones, or burials missing specific bone elements, as examples of veneration in which body parts of important ancestors were removed, curated and manipulated, and sometimes reburied (Fitzsimmons 2009; McAnany 1995, 1998). Such exhumations are cited in Classic texts and art (Fitzsimmons 2009). Tikal Altar 5 is the best-known example of the depiction of this practice (Harrison 1997), and Xunantunich Altar 1 also marks the exhumation of an individual, presumably an important ancestor (Helmke et al. 2010; also see Wrobel et al. Chap. 4, this volume). The Maya also maintained connections with ancestral places for generations, or even centuries, to sustain relationships between the living and the remotely deceased (Hansen et al. 2008).

While long bones were often chosen for inclusion in venerative deposits, the skull had special importance. An elite burial in Tikal's North Acropolis, Burial 85, is missing the individual's skull and is interpreted as the interment of Yax Ehb' Xook, the founder of the Tikal royal house. His skull was removed, presumably for veneration, and replaced with a jade mosaic mask. At Xunantunich, Mackie (1985, pp. 75–77) discovered the burials of an adult and a child with complete postcranial remains, but no skulls, in Structure A-15.

A more striking example is described by Garber and Awe (2008) at Cahal Pech, where a headless body and a skull, interpreted as the same individual, were interred in two separate crypts in Platform B. They relate the skull to the Maya creation story and the recurring theme of death and renewal, in which the Hero Twins retrieve the head of their deceased father, which is then resurrected as the maize god. While the strontium isotope values of the remains have local Belize Valley values (0.70862 and 0.70859 in Freiwald 2011, p. 422), nonlocal values do not preclude ancestor veneration (Hansen et al. 2008). Individuals with foreign origins also could be treated with reverence, as is the case with the noblewoman with a nonlocal place of birth at El Peru-Waka'. Piehl and colleagues (in press) describe her treatment as that of a revered ancestor whose skull was removed, leaving only postcranial remains in the burial.

In fact, nonlocal individuals are buried in eastern shrine structures elsewhere in the valley in proportions roughly equal to other burial contexts, suggesting that they were incorporated into local households and communities (Freiwald 2011). This deposit fails to fit neatly within descriptions of ancestor veneration or sacrificial deposits, a dichotomy that may be too simplistic to describe Classic Maya beliefs about the interaction between the living and the dead. Nevertheless, human remains with Central Peten origins appear to have been associated with a political or social power that needed to be isolated (Duncan 2011). A generation or more after the events at Xunantunich palace Structure A-11, individuals with Central Peten connections were again buried using a distinct set of norms that reflected neither those of the Belize Valley nor their presumed homelands.

5.9 Structure A-32: Range Structure on El Castillo

Another burial in Group A contained an individual with Central Peten-like strontium (0.70800) and oxygen (−0.60‰) isotope values. Burial 1 was located in change structure to Structure A-32, a range structure on the medial terrace of El Castillo that was modified several times during the Late and Terminal Classic periods (Leventhal 2010). The most significant modification entailed the dismantling of the vaulted roof and walls dividing the southern gallery and the reerection of the building's southern wall farther to the south. The result was a building with a wider rear gallery in the form of a long corridor that was covered by a perishable roof (Clancy 1998). The masonry style of the southern wall suggests that this remodeling occurred in the later part of eighth century, consistent with Hats' Chaak phase ceramics found in the fill (Clancy 1998).

Burial 1 was interred during this remodeling episode. A simple pit was cut into the floor of the earlier phase of Structure A-32, and an individual, likely a male, was placed in the pit. The pit was then filled in as part of the new floor surface of the rear gallery (Adams 1998; Clancy 1998). Like Burial 1 in Structure A-11, no grave goods were identified. However, this individual was oriented to the west and interred in a semiflexed position. Oxygen isotope values sampled from bone apatite (27.64‰) fall within the range of the local average, indicating that the individual had lived at Xunantunich a decade or more before his death (e.g., Hedges et al. 2007). Western orientations and flexed body positions have been reported at multiple sites in the central lowlands, so the burial of this individual may reflect nonlocal burial norms. More likely, the individual's Central Peten origin and burial treatment may signal the broader sociopolitical changes occurring at Xunantunich and relate to the activities identified at Structures A-11 and A-4.

5.10 Elite Residential Groups B and D

A number of burials in two elite residential groups also contained the remains of individuals with nonlocal origins that provide a useful comparison for interpreting how burial treatment reflects an individual's origin. Operation 211K Burial 1 in Group B contained the remains of a young adult female buried in a residential group only 150 m from the Structure A-11 palace (Adams 1998; Etheridge 1997). She was buried in a low platform that demarcated the edge of the residential group near at least two other individuals, one of whom was elderly (based on nearly complete alveolar resorption in the mandible).

The strontium isotope value (0.70819) obtained from this individual's remains is lower than most identified in the Belize Valley, but is not a statistical outlier. However, an enriched oxygen isotope value (−0.91‰) and the heavy C4 contribution to her diet—approximately 80% maize or foods with similar isotopic signatures—suggest strongly that she spent her infancy in the Central Peten (see detailed discussion in Freiwald 2011, pp. 298–299; e.g., Gerry and Krueger 1997). She lived in the Belize Valley region long enough for bone apatite oxygen isotope values (27.99‰) to adjust to the local average and was buried with a southern orientation, in the same manner as the locally born population.

Individuals with both local and nonlocal isotope values were found in Group D, a high-status residential center occupied during the Late and Terminal Classic periods (Braswell 1998). Strontium isotope values from two individuals interred in front of pyramidal Structure D-6 fall within the Belize Valley range. Operation 74JJ ($^{87}Sr/^{86}Sr = 0.70899$) and Operation 74R ($^{87}Sr/^{86}Sr = 0.70865$) were buried according to Belize Valley norms, with the head oriented to the south, an extended body position, and a small number of grave goods. Strontium isotope values from other Group D individuals in the sample, including an infant, a child, and an adult of indeterminate age and sex, also fall within the range of samples collected along the Belize River. Body position and orientation are not known for two of these burials, but the infant's body was oriented to the north. Observations of Belize Valley burial norms are based mainly on the adult burial population, so this unexplained variability will not be explored here.

Burial Operation 21D contained a male placed in an extended, supine position, oriented to the west (Adams 1998; Braswell 1998). The strontium isotope value obtained from this individual (0.71111) is similar to those found in the Maya Mountains and their foothills, where east–west orientations have been reported (Awe et al. 2005; Freiwald 2011). A chultun located west of Structure D-6 contained two adult males who were also oriented east–west instead of north–south. These individuals yielded high strontium isotope values, although the values do not necessarily suggest the same place of origin for each of these individuals.

The chultun contained multiple burials, each placed in niches carved into the soft limestone walls. Operation 21C Burial 1 included two adult males placed in a carefully deposited layer of specially prepared white limestone matrix within a group of stones that formed a cist. Each individual was interred with a turtle shell placed on or near his chest (Braswell 1998). Although both skeletons remained mostly in anatomical position, substantial postdepositional movement of bones occurred. The presence of rodent tunnels near the burial, and the complete skeleton of a *tusa*, or pocket gopher, might explain some displacement of bones. Individual 2 from this burial was a gracile young adult male buried in a supine, extended position with his head oriented to the east (Adams 1998; Braswell 1998). The layout of the niche, which is an east–west oblong space just over 2 m in length, may account for the orientation of the interments. The four other burials in the chultun were oriented north–south. However, the strontium isotope value (0.71046) obtained from this individual is similar to those identified in the foothills of the Maya Mountains.

Burial Operation 21C Individual 1 was a robust elderly adult male interred with his head to the west in a prone, extended position. He lay directly on top of

Individual 2, with his upper legs above the lower individual's cranium (Braswell 1998). The strontium isotope value (0.70903) obtained from Individual 1 is considered local to the Belize Valley, but as one of the highest values in the range, it may represent migration from another area. The enriched oxygen isotope value (−1.41‰) also suggests a nonlocal origin.

5.11 Discussion

The sample from Xunantunich demonstrates three types of postmortem treatment. The first is the southern orientation and prone, extended body position, which was most commonly used for individuals with Belize Valley origins. While individuals with nonlocal strontium and oxygen isotope values also were buried according to these norms, indicators of a nonlocal place of birth may have been ephemeral, such as perishable grave offerings or clothing. Subtle variation in body position also may have related to an individual's origin. For example, individuals interred in the patio adjacent to the eastern shrine in Group 1 at Actuncan were buried with the right arm behind the back and the left arm extended (Freiwald 2012). Careful attention to taphonomy in burial excavations might allow these patterns to be discerned.

Burials of individuals with an eastern, northern, or western orientation may have followed more obvious nonlocal norms. Group D residential burials oriented east–west may have been afforded treatment that was standard in another part of the Maya lowlands (e.g., Schwake 2008; White et al. 2004a, 2004b). The flexed body position of the young female in Group B (Operation 211K Burial 1), along with individuals buried in a supine position, may also reflect burial norms elsewhere in the central lowlands even though they are reported at sites in the Belize Valley (Willey et al. 1965). We recognize that differences in body position and orientation may also reflect many other individual and community considerations, including practical ones like available locations and spaces for graves, but the focus of this chapter remains on the potential for origin to be reflected in burial traditions.

We argue that a nonlocal origin was a key factor in the third type of postmortem treatment, in which the interments deviated from known local or foreign norms. The association of ancestor burials with particular locations (McAnany 1995, 1998) meant that human remains formed a critical part of activities meant to establish or isolate the power of a place (Davies 2012; Duncan 2005, 2011). The origin of individuals buried in dedication and termination deposits mattered, and may help us to interpret the meanings of the associated activities.

5.12 Origin and Burial Treatment in the Americas

The Maya were not unique among American cultures to use a nonlocal origin in the public and private statements made by burial practices. Use of bone chemistry to identify the origin of individuals buried at Teotihuacan in Central Mexico, in Wari and Nasca deposits in Peru, and in Mississippian and Hopewell burials in North America show that origin was an important factor across the Americas in determining how and where people were buried, and the role their burials continued to play long after their interments.

Origin was a critical factor in determining proper burial treatment for foreign-born soldiers and household residents in the city of Teotihuacan in the Valley of Mexico. More than 200 individuals interred in highly patterned graves in the Temple of the Feathered Serpent are interpreted as sacrificial offerings made during the building's construction during AD 150–250 (Sugiyama 2005). Oxygen isotope ratios of individuals, including men who appeared to be soldiers, span nearly the entire range of known Mesoamerican values. White and colleagues (2002) interpret this as an intentional policy of military recruitment of young men from other geographic regions. The layout and symmetrical order of the graves at the base of the monument, and the positions of the men's bodies—with hands crossed behind their backs—made a powerful political statement.

These individuals wore pendants of real or carved-shell representations of human teeth. Oxygen isotope values from these teeth also show diverse origins in the Valley of Mexico and more distant regions (Spence et al. 2004). While the locations of these regions are not known, the diversity of nonlocal origins may have been as important as the specific places in order to link the building's construction to Teotihuacan's relationships with foreign polities across Mesoamerica.

Origin and its relationship to individual and group identity were visible elsewhere at Teotihuacan. Unlike most Maya centers, Teotihuacan had foreign ethnic enclaves with distinct material culture. Burial practices in these residences followed norms known in Oaxaca and on the Gulf Coast rather than those practiced in most household compounds. Archaeological chemistry supports the identification of strong foreign ties in these households. Nearly 80% of the strontium and oxygen isotope values at the Oaxaca and Merchants' Barrio complexes are nonlocal ones (Price et al. 2000; White et al. 2004b).

Nonlocal origin is also linked to burial treatment, including body representation and burial location, in the roughly contemporaneous Wari (AD 600–1000) and Nasca (AD 1–750) cultures in Peru. While none of the six Wari burials in the sample from the burial site Conchopata has a nonlocal strontium isotope value, three of five skull-only interments had origins in a different geographic region. The skulls were interred in limited nonhousehold locations and prepared in a standardized manner, and most were identified as males. Skull-only burials also had more heterogeneous isotope values than complete burials, suggesting that they came from distinct populations (Tung and Knudson 2008).

In contrast, strontium, carbon, and oxygen isotope values indicate that the origins of Nasca trophy skulls were consistent with a local origin and were similar to those of typical burials at five sites in southern Peru (Knudson et al. 2009). There were two trophy skulls with nonlocal strontium isotope values; however, there was no statistically significant difference between the values of the trophy head samples and the burial samples. The skulls have a diverse age and sex distribution and were included in most types of burials (but not commonly in residences), and preparation of the skeletal material was not standardized. These factors do not preclude a close relationship between origin and burial treatment. Local identity might have been important as a deceased individual was transformed into a ritually prepared skull, and places considered distinct in the Nasca cultural landscape may be indistinguishable isotopically.

Skull-only burials are also more likely to have nonlocal origins in the Belize Valley. Four of six skull-only or cranium-only burials—including the individuals discussed in this study—were found in atypical burials in public locations at three sites in the valley (Freiwald 2011). One of the skulls with "local" strontium isotope values, which are not distinguishable among sites located along the 60-km length of the Belize River, had perimortem trauma suggestive of scalping (Piehl and Awe 2009). Although skull-only burials represent more than one type of mortuary treatment in the Maya region, origin may have been an important factor in the selection of individuals for this type of postmortem processing.

Exhumation, reburial, and intentional disturbance of Maya skeletal remains, both ancestors and enemies, demonstrate the importance of the burial location as well as the placement and displacement of the body. A disproportionate number of nonlocal individuals buried in the Hopewell Mound Group consisted only of secondary remains. Five of 38 individuals in the sample had nonlocal values, and two were represented only by elements of the skull (Beehr 2012; Hedman et al. 2009). Nonlocal individuals in secondary burials also have been identified at Aztalan, an upper Midwest site considered subordinate to the Mississippian center Cahokia 1,000 years ago. Aztalan burial practices resembled those of the Maya in that there were no formal cemeteries. Some individuals were buried in primary inhumations, interred as bundles, or cremated in charnel houses. Others were identified as scattered, disarticulated remains in features or middens with a higher incidence of violent trauma than other burial types (Rudolph 2009). Individuals with nonlocal values were identified in both types of burials (Price et al. 2007), which suggests that it was not a nonlocal origin, but how that origin was perceived that played a key role in burial treatment.

5.13 Conclusion

Archaeologists have long considered origin to be a factor affecting an individual's treatment after death. Material aspects of mortuary contexts, such as uncharacteristic grave construction or nonlocal grave goods, have suggested foreign origins at sites across the Maya lowlands. However, isotopic analyses at Punto de Chimino, Tikal, Copan, and at multiple sites in the Belize Valley show that the individuals in the graves were not always born in the places signaled by their grave goods (Buikstra et al. 2004; Freiwald 2011; Price et al. 2010; Wright et al. 2005a; Wright and Bachand 2009). Instead, body position and orientation appear to be better markers of a nonlocal place of birth and how that place and the individual's association with it were conceptualized.

It is important to note the methodological limits of isotopic analysis, as well as of the theoretical framework used to interpret the results in this study. Similar strontium isotope values often are found in multiple places, so movement between places that have the same range of values cannot be identified. Isotope values are not specific enough to track movement between particular cities, or within them. Nor can most studies, including this one, provide information about the multiple moves an individual might have made during his or her lifetime because we base interpretations about "origin" on a single sample from a tooth formed during childhood.

Identifying potential homelands also is complex from a theoretical point of view. Migration theory posits that most movement occurred between neighboring regions, so a conservative estimate of isotope values that assigns an individual's most likely homeland to the closest possible place of origin underidentifies long-distance movement, which is documented by Classic-era records. Movement from areas with limited isotope mapping, such as non-Maya areas of Honduras, also will be left out of consideration completely, an omission that could drastically alter identification of migrant homelands at sites like Copan (Miller and Freiwald 2013).

Burials at Xunantunich were events linked to larger sociopolitical dynamics in the Belize Valley and elsewhere in the Maya lowlands during the Late and Terminal Classic periods when political alliances shifted, larger polities increasingly fragmented, and smaller ones claimed their independence. The origin of individuals interred during ritual events was not arbitrary. Instead, it was an important aspect of the deceased's identity that shaped the message embodied in the deposit. Origin and identity are deeply intertwined, as seen in the burial of Teotihuacan soldiers from distant lands in civic architecture and deposits of Wari trophy heads. Even without detailed descriptions of Hopewell and Mississippian burial contexts, the movement of human remains to specific places in the landscape for burial demonstrates the importance of origin in treatment of the dead.

Not all migrants were treated differently when they died: A nonlocal origin was not always considered a foreign one. Nor should all skull-only burials or bodies in unusual positions be interpreted as foreigners. Biogeochemical methods only provide numbers, and we have yet to map in detailed baseline isotope values in much of Mesoamerica and adjacent regions. Nuanced interpretation of each deposit within its larger sociopolitical context (e.g., Navarro Farr et al. 2008) is necessary to give meaning to events that took place in the Maya lowlands during Late and Terminal Classic, and more broadly in American cultures.

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