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The Blessing and the Curse of Taphonomic Processes: A Bioarchaeological Analysis of a Shaft Tomb from La Florida, Mexico

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The Blessing and the Curse of Taphonomic Processes: A Bioarchaeological Analysis of a Shaft Tomb from La Florida, Mexico

Abstract

The discovery of an unlooted shaft tomb in Southern Zacatecas, Mexico, offered an undisturbed example of this mortuary tradition common in West Mexico during the Formative and Early Classic eras (300 B.C. to A.D. 400). However, 2000 years of taphonomic processes took their toll on the tomb's contents. This paper reviews archaeological and ethnographic resources for understanding these taphonomic processes and the excavation techniques that preserved as much data as possible. We focus on four skeletons from the tomb: two individuals joined by a shell belt and the two adjacent individuals who held atlats in their hands.

Keywords

shaft tomb, Western Mexico, taphonomy

Author Biography

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THE BLESSING AND THE CURSE OF TAPHONOMIC PROCESSES

A Bioarchaeological Analysis of a Shaft Tomb from La Florida, Mexico

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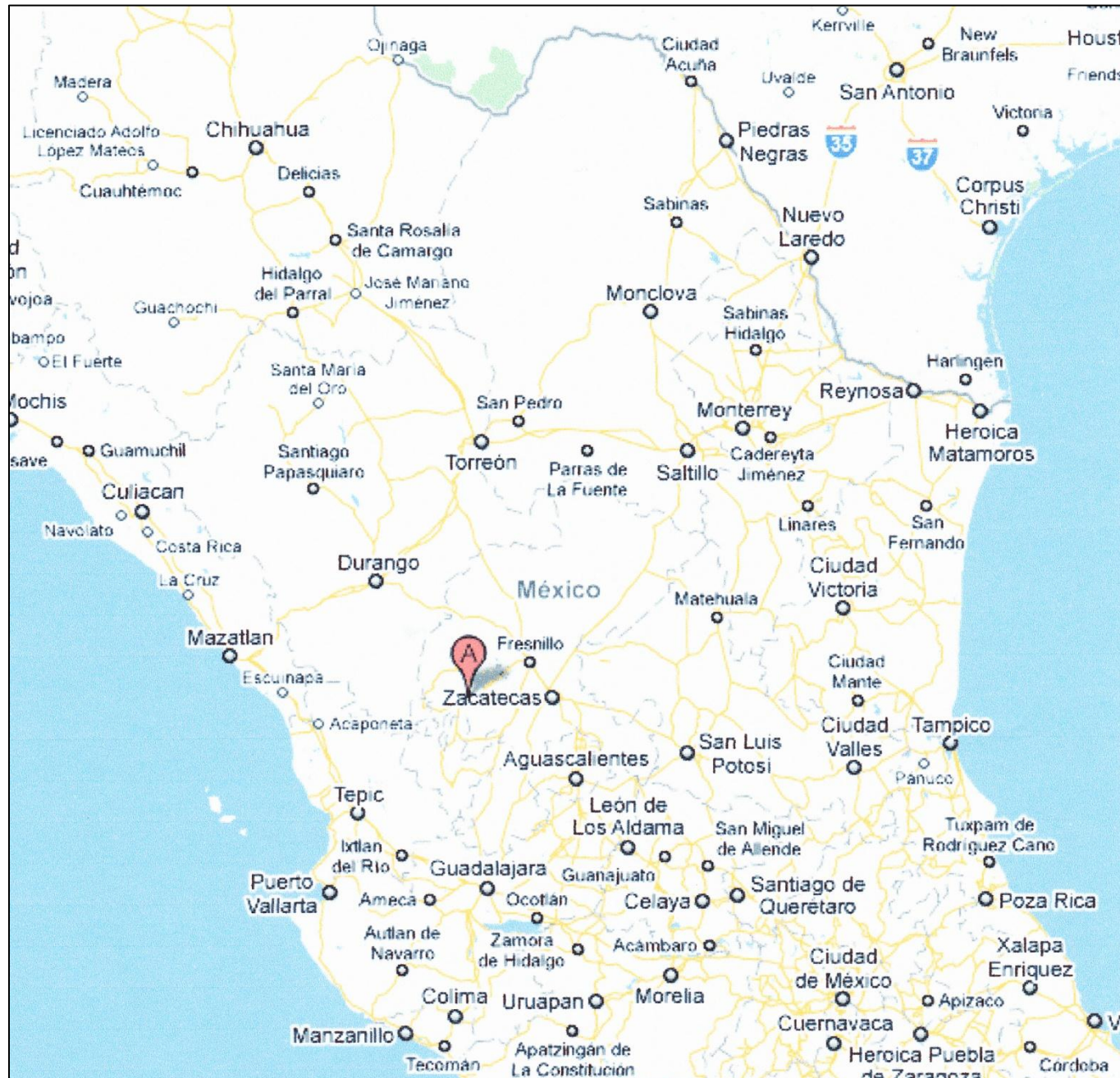
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INTRODUCTION

Two shaft tombs near Valparaíso, Zacatecas, Mexico (referred to as the “La Florida” tombs), were brought to the attention of Instituto Nacional de Antropología e Historia (INAH) officials in 2009 after local residents noticed that one of the tombs had been looted. When INAH representatives (including co-author Solar) examined the site they discovered human skeletal remains scattered on the ground near the entrance to the looted tomb. INAH archaeologists then contacted the regional INAH office in Zacatecas to secure permission to salvage the contents of the looted tomb and the unlooted second tomb.

The salvage excavation of the two tombs took place over a period of 21 days in May and June of 2009. The human skeletal remains of at least 28 individuals and objects of material culture were then transferred to the INAH laboratory in Téul, Zacatecas. Osteological analysis was conducted at this facility in August, 2010 by Bauer-Clapp and Rios.

The tombs date to the Formative and Early Classic eras (300 B.C. to A.D. 400) in West Mexico based on the objects of material culture found within the tombs. Objects include pottery vessels, spear points, a beaded belt, beaded necklaces and pendants, atlatls, and small shells. There were no figurines discovered in these tombs, which is unusual but not unique. The absence of figurines provided another point of reference for dating the tombs. These two tombs represent the northernmost known point of shaft tomb use in this region of Mexico.



Source: Google Maps

EXCAVATION

Both tombs were excavated by INAH archaeologists under the direction of Solar. The first tomb (TT1) was filled with fairly soft soil; it is likely the looters chose to open this tomb because the soft soil made it easier to dig. Excavation of this tomb took place over two days and revealed highly fragmented human skeletal remains (likely due to the use of heavy tools by the looters) and few objects of material culture.

The second tomb (TT2) was directly adjacent to the first with a shared wall between the two. This adjacent placement is unusual for shaft tombs in this region. According to local residents the area around TT2 had been used as an irrigation ditch for many years so the tomb would be filled with water for an extended period of time each year. While the water may have helped protect the skeletal remains and objects of material culture inside the tomb the cycles of rising and falling water over the years scattered many of the smaller bones and objects around the tomb, making identification of distinct individuals (and their associated burial items) difficult.



Detailed view of excavation context for TT2 (Courtesy of Solar).

The presence of the water also resulted in water-polished stones being deposited in a stratigraphic layer above the position of the burials within the tomb. Above this was a hard, compact layer of soil that appeared to have been wet, mucky soil when water was present in the tomb but solidified into a very hard layer when the water drained out each year.

Several sets of remains were comingled with roots of various sizes. In one case the midshaft of a long bone was completely filled with a large root. Another individual featured a beaded necklace in which a small root had grown through the center hole drilled in each bead. In some instances roots damaged skeletal remains;

in other instances roots had displaced skeletal elements or objects from their original position. Excavation in TT2 was very difficult due to the compact soil, high number of rocks, presence of numerous roots, and the scattered nature of remains and objects.

Excavations at TT1 and TT2 took place over 21 days. The fast pace of the excavation schedule was set by INAH based the amount of time the INAH excavators could be away from work on other sites in Zacatecas as well as the length of time local resources could be devoted to protecting the site.

As burials were found the individual skeletons were assigned numbers in sequential order. Generally individuals were identified by skulls—either cranial and post-cranial remains that appeared to be associated with each other or isolated skulls that did not appear to be associated with other bones in the vicinity.



Root growing through excavated beads (Courtesy of Solar)

The minimum number of individuals (MNI) was determined by the number of crania; there are also isolated post-cranial remains that were not assigned ID numbers in the field. Identification of distinct individuals was complicated by the intermingled position of many of the burials. Some individuals were buried in a supine position, some were flexed or in bundles. In some instances bundles of bones had been placed on top of or between the legs of separate individuals buried in a supine position.

In the first half of the excavation the crew was able to expose, clean, and record nearly complete skeletons in-situ. By the second half of the excavation they needed to work more quickly to meet their deadline. In addition, the crew discovered more individuals than in the first half of the excavation, so they were not able to work as meticulously or expose an entire skeleton before removing elements.

The salvage nature of the excavation forced the excavators to make choices about how to quickly and accurately record information. A decision was made to take as many photographs as possible and record measurements for the placement of remains and objects within the tomb. However, the excavators did not have time to create maps or make drawings while excavating, nor were they able to expose the full contents of the tomb prior to removing the skeletal remains and objects of material culture.

The dense, rocky nature of the soil made it difficult to remove skeletal remains and objects intact. The skeletal remains frequently crumbled with any attempt to remove them from the soil matrix. (In some instances excavators removed entire crania or other segments of bodies in the soil matrix in the hopes of keeping the remains and associated objects intact for analysis at the Téul field lab.) Several of the crania were fractured by a large rock sitting on top. It is suspected these rocks were deposited as a result of the roof of the shaft tomb collapsing some years ago.



TT2 partially excavated (Courtesy of Solar)

OSTEOLOGICAL ANALYSIS

I.12, I.14, I.16, and I.17 are described in more detail in the next section.

ID	Age	Sex	Trauma	Pathology	Associated Objects	Notes
1	Adult	?	None observed	None observed		Cranium still in matrix
2	Adult	?	None observed	None observed		
3	Adult	?	None observed	Pre-mortem tooth loss with resorption		
4/5	4 yrs (+/- 12 m)	?	None observed	None observed	White beads	I.4 and I.5 likely represent only one individual
6	Adult	?	None observed	None observed	White shells	
7	4 yrs. (+/- 12 m)	?	None observed	None observed		Cranium still in matrix, bundle burial on top of the legs of I.12
8	Adult?	Female?	None observed	None observed		
9	Adult	?	None observed	Dental caries on molar		
10	Adult	Male?	None observed	None observed		Cranium still in matrix, two mandibles present
11	Adult	?	None observed	None observed		
13	Adult	?	None observed	Abscess on maxillary molar; slight flipping of vertebrae	White shells (unmodified)	
15	two subadults, <1 yr. and 3 yrs (+/- 12 m)	?	None observed	None observed		Two individuals
18	Adult	?	None observed	Vertebral flipping, compaction, and osteophytes; slight periosteal reaction on clavicle	Four small shells with drilled holes	
19	Adult	?			Two white beads	
20	A: 18 m (+/- 6m) B: Adult	?	None observed	None observed		Two individuals, labeled 20-A and 20-B
21	15 years (+/- 30 m)	?	None observed	None observed		
22	Adult	?	None observed	None observed		
23	3 years (+/- 12 months)	?	None observed	None observed		
24	Adult	?	None observed	Abscess on maxillary premolar; pre-mortem tooth loss with partial resorption		
25	Adult	?	None observed	None observed		
26	Adult	?	None observed	None observed		
27	Subadult	?	None observed	None observed		
28	one adult; one subadult 3 yrs. (+/- 12 m)	?	None observed	None observed		Two individuals

I.12 AND I.14

I.12 and I.14 were buried in TT2 in a supine position side by side near the entrance of the tomb. These two individuals were placed adjacent to I.16 and I.17. I.12 and I.14 each appear to have been buried holding an atlatl. The stone holders for both atlatls were broken. The two pieces of the holder associated with I.12 were separated, with one portion close to the body and the second piece positioned some distance away, likely carried away by rising and falling water.



Excavation photograph of I.14 featuring phalanges still positioned around the atlatl holder; I.17 is placed on top of the distal tibiae of I.14. One half of the stone atlatl holder associated with I.12 can be seen in the top of the picture (Courtesy of Solar)



Removing skeletal remains from the dense soil generally left them highly fragmented. These fragments represent the left arm of I.12 after removal. (Photo by Bauer-Clapp)

The stone holder associated with I.14 was also in two pieces, but the phalanges of the left hand were still positioned around the two portions of the broken stone holder.

I.12 is an adult of indeterminate sex. Five mandibular teeth were lost pre-mortem with nearly complete resorption. One molar features a large dental caries. No other trauma or pathology was observed.

Excavation photographs for I.14 show a nearly complete skeleton but very few elements could be removed intact from the soil matrix. I.14 is an adult of indeterminate sex; no trauma or pathologies were observed on the fragments present. During excavation the bundle burial of I.7 was located on top of the distal tibiae of I.14.

I.16 AND I.17

I.16 and I.17 were both buried in a supine position near the entrance of TT2, with I.16 positioned slightly on top of I.17. A shell belt was wrapped around the waist of the two individuals, joining them together.

The cranium for I.16 was removed in the matrix, limiting osteological observations. At least three molars were lost pre-mortem, with complete resorption. This individual features a very prominent occipital protuberance but no other sexing characteristics were able to be observed. No trauma or pathologies were observed.

I.17 appears to be 15 (+/- 30 months) based on dentition and the state of epiphysal union of the iliac crest and ischial tuberosity. Features of the innominate suggest that this individual is female. During excavation it was suspected that the remains identified as I.17 included more than one individual, but the comingled nature of the remains made it difficult to make a distinct determination. An attempt was made to separate out some of the obviously different remains, which were labeled I.“17”.



I.16 and I.17 joined by the shell belt. I.16 is superior to I.17. (Courtesy of Solar)

CONCLUSION

The salvage excavation of TT2 demonstrates how taphonomic processes can render a site extremely challenging to excavate. Cycles of rising and receding water and the ceiling collapse scattered the contents of the tomb, deposited rocks, fractured remains and objects, and compacted the soil around the remains and objects. However, these difficult conditions likely prevented the tomb from being looted like TT1, leaving a rare example of an intact shaft tomb in this region of West Mexico.

Initial osteological analysis revealed few conclusions regarding the health, social status, or age and sex distributions for this population. The burial circumstances of I.12, I.14, I.16, and I.17 suggest that these four individuals were singled out for a distinct burial style. Further research could pursue questions of whether the individuals buried in this tomb were genetically related or if they originated from the same geographical location, among other questions.



I.16 (Courtesy of Solar)



I.17, with the continuation of the beaded belt visible underneath. (Courtesy of Solar)



Shell beads associated with I.16 and I.17 (Courtesy of Ventura Pérez)

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