

Burying the Dead at Ayawiri: Mortuary Diversity and Postmortem Manipulation at an Andean Hillfort (AD 1100–1450)

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This article presents results from the excavation and analysis of 11 slab-cist tombs associated with the site of Ayawiri, one of the largest hillforts in the western Lake Titicaca Basin during the Late Intermediate period (LIP; AD 1100–1450). These semi-subterranean tombs typically contain commingled human remains. Variation between and within tombs in the number of individuals, the body parts represented, and the degree of skeletal articulation points to a complex burial practice that likely involved tomb reopening, successive burial, and even the deposition of select body parts. Demographic and mortuary profiles suggest that burial practices were decentralized and flexible, structured by shared attitudes toward “the dead” and the dead body but also subject to the prerogatives and preferences of semi-autonomous corporate groups. This study advances our understanding of a lesser-known mortuary tradition in the Lake Titicaca Basin—one long overshadowed by more prominent burial towers (chullpas)—and sheds new light on the complex interactions that took place between the living and the dead during the LIP.

Keywords: bioarchaeology, funerary practices, social organization, Late Intermediate period, Andes

Este trabajo presenta nuevos datos sobre una compleja tradición funeraria que floreció en la cuenca oeste del Lago Titicaca durante el periodo Intermedio Tardío (1100–1450 dC), época de grandes cambios en la jerarquía política y en la intensificación de conflictos entre grupos locales. Discutimos nuestras excavaciones en 11 cistas semi-subterráneas de dos cementerios asociados al sitio de Ayawiri, uno de los cerros fortificados más grandes en la región. Nuestros resultados indican que estas estructuras funerarias contenían restos humanos, desarticulados o semi-articulados, frecuentemente asociados a vasijas cerámicas en miniatura, formas casi ausentes en otros contextos del sitio. La variación entre y dentro de las tumbas, en cuanto al número de individuos, las partes del esqueleto representadas y su grado de articulación, sugiere una práctica funeraria secundaria que involucró la reapertura de tumbas, el desplazamiento de entierros anteriores y, posiblemente, la deposición intencional de partes seleccionadas de cuerpos. Además, las diferencias en la arquitectura de las cistas y en las ofrendas asociadas indican variaciones sociales e individuales dentro de esta práctica funeraria. La composición demográfica de los individuos recuperados nos hace sugerir que los espacios mortuorios se organizaban familiarmente, dentro de una tradición funeraria descentralizada y flexible, estructurada por actitudes compartidas hacia “los muertos” y el cuerpo de los muertos, pero también sujeta a las prerrogativas y privilegios de grupos de parentesco semiautónomos. Este estudio mejora nuestro conocimiento sobre una tradición funeraria poco estudiada y hasta ahora ensombrecida por la mejor conocida tradición chullparia, y proporciona nuevas perspectivas sobre las complejas interacciones entre los vivos y los muertos durante el periodo Intermedio Tardío.

Palabras clave: bioarqueología, prácticas funerarias, organización social, periodo Intermedio Tardío, Andes

Dead Body Politics in the Late Intermediate Period

The fall of the Wari and Tiwanaku states at the beginning of the second millennium AD ushered in a period of profound

cultural change across the south-central Andes, as people dispersed from large urban centers, moved to defensible hilltop settlements, and developed local forms of authority based on lineage, community, and ethnicity (Covey 2008; Janusek 2005; Stanish 2003). One of the

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most visible archaeological correlates of the transition from centripetal to centrifugal forms of authority is the proliferation of aboveground tombs, commonly termed chullpas, which facilitated interaction between ancestors and their descendants and helped define social boundaries within and between communities (Isbell 1997). Despite their similar focus on ancestor veneration, chullpas were far from uniform in style or function. Their construction and use spanned centuries of sociopolitical transformation, and their remarkable architectural and spatial diversity—ranging from relatively rustic, singled-chambered burials to elaborate, multistoried tomb complexes—suggests that communities negotiated different obligations to the dead and conceptions of what constitutes their proper treatment, including which bodies/persons were appropriate for post-mortem transformation (Bongers 2019; Mantha 2009; Nielsen 2008; Stanish 2012; Velasco 2014).

Alongside and outside the chullpa tradition, societies of the Late Intermediate period (LIP; AD 1100–1450) forged other ways of creating community and social memory that are only now garnering greater scholarly attention. In the Sihuas Valley of southern Peru, Jennings and colleagues (2021) argue that the thousands of subterranean cist tombs clustered into family plots at the former Wari site of Quilcapampa represent a different kind of relationship between individuals, collectives, and the land. Whereas chullpas typically are thought to have differentiated the resource rights of competing landholding groups, the aggregation of tombs at Quilcapampa marked collective “claims to this powerful place and the arable land below it” (Jennings et al. 2021:14). Elsewhere, avoiding the dead of “others” may have been just as important to community formation as “engaging with one’s own ancestors” (Sharratt 2017:656). Sharratt shows how Estuquiña settlements in the Moquegua Valley were deliberately placed away from earlier Tumilaca burials, despite the frequent reuse and modification of Tumilaca architectural spaces. The inhabitants of Estuquiña, meanwhile, continued to bury their dead in subterranean cists that were sometimes marked on the surface by stone rings. More modest, belowground tombs from regions such as Sihuas and Moquegua, often found in tandem with

chullpas, did not necessarily preclude the kinds of intimate postmortem interactions associated with aboveground tombs. Although the tombs at Quilcapampa were not apparently reopened, at least one tomb excavated by Sharratt (2017:654) yielded human remains that had been handled after decomposition.

This study explores complex interactions with dead bodies in a prevalent but understudied LIP burial practice from the Lake Titicaca Basin of the Peruvian altiplano (high plateau). I present results and radiocarbon dates from the excavation of 11 slab-cist tombs in two cemeteries associated with Ayawiri, one of the largest and most densely occupied hillforts in the western Titicaca Basin (Arkush 2017, 2018). Detailed excavation and bioarchaeological data documenting the size and structure of the tombs, the demographic profile of the burial population, and the position and presence of different skeletal elements and grave inclusions are used to analyze variability in the treatment, deposition, and manipulation of dead bodies by the living. I contextualize these results within the long-term development of settlement at Ayawiri and the broader sociopolitical transformations of the LIP to examine the role that this poorly understood mortuary practice played in social and ritual life in a nucleated hillfort town.

Late Prehispanic Mortuary Practices in the Lake Titicaca Basin

For more than a half-century, the chullpa burial towers of the Titicaca altiplano have been the subject of sustained archaeological inquiry into late prehispanic mortuary practice and social organization. Architectural, spatial, and stylistic analyses of these buildings for the dead have enabled archaeologists to make inferences regarding their chronological development, socioeconomic correlates, symbolic functions, and even sensory experience (Ayca Gallegos 1995; Bongers et al. 2012; Hyslop 1977; Kesseli and Pärssinen 2005; Morales et al. 2013; Nielsen 2006; Stanish 2003, 2012; Tantaleán 2006). Although the monumental chullpas of sites such as Sillustani and Cutimbo incorporate Inka carved stone blocks, most are rustically built of uncut fieldstones. Regardless of their

construction quality, chullpas in the altiplano have been interpreted as the ritual domains of “emergent elite lineages” during the LIP (Stanish 2003, 2012:218; Tantaleán 2006).

In the literal and figurative shadows of chullpas lie the lesser-known and roughly contemporaneous slab-cist tombs, characterized by a ring of vertical stone slabs jutting from the surface. For societies of the Lake Titicaca Basin during the LIP, aboveground and belowground tomb types may have reflected status differences among the living and the dead (Ayca Gallegos 1995; Hyslop 1977), although the relationship between status and tomb construction in the region is poorly understood (Stanish 2003:233–234). At sites surveyed in the western Titicaca Basin where Ayawiri is located, slab-cist tombs are the most common tomb type (Tschoepik 1946; Velasco and Arkush 2011): they are often associated with chullpas and clustered in discrete cemeteries, perhaps representing the burial areas of kin-based groups within the community (Stanish 2003:230).

Although the proliferation of slab-cist tombs appears to be a post-Tiwanaku phenomenon (Stanish 2003), scholars have posited an evolutionary relationship between belowground and aboveground tomb types based on the architectural association of circular slab foundations and chullpa superstructures (Ayca Gallegos 1995: 74–76; Hyslop 1977:162).¹ Semi-subterranean tombs likely have antecedents in earlier cist burial traditions documented across the altiplano. In a comprehensive review of Tiwanaku period tombs, Korpisaari (2006) notes that large, upright slabs were used to form the walls of some stone-lined cists; in a few instances, these stone-lined cists may have originally been visible from the surface (Albarracín-Jordán 1996:378). Notably, most Tiwanaku tombs contain single burials with little evidence for tomb reopening and postmortem manipulation, whereas multiple burials appear to be the norm in the LIP.

To date, relatively few slab-cist tombs have been excavated, and the results are usually presented in summary form (Bermann 1990:348–353; Bustinza Menéndez 1960; Revilla Becerra and Uriarte Paniagua 1985; Rydén 1947; Tschoepik 1946). An early pioneer in Titicaca Basin archaeology, Marion Tschoepik (1946) cleaned

and excavated four large slab-cist graves in the department of Puno, where the study area is also located. These isolated mortuary contexts are remarkable for their size and the number of skeletal individuals they contained, ranging from 16 in a partially destroyed grave at Kacha Kacha, located in the southwestern basin, to 20 in a well-preserved slab cist at the Allita Amaya site in the hills south of Chicuito.² Based on the partial articulation of skeletal remains at Kacha Kacha, Tschoepik (1946:19) suggests that “the grave was opened several times for the addition of other bodies.” Recent excavations of 11 slab-cist tombs from the site of Ayawiri allow this hypothesis to be examined in greater detail.

The Site of Ayawiri and Its Tombs

The hillfort of Ayawiri is located on the southern end of a high flat mesa (4,100 m asl) approximately 25 km due west of Lake Titicaca (Figure 1). Although the site was occupied in the Formative period (ca. 200 BC–AD 200), its most spatially extensive and visible occupation dates to the second half of the Late Intermediate period (AD 1275–1450; Arkush 2017, 2018). The densely occupied residential area (6 ha) is set off by three defensive walls to the north and flanked elsewhere by steep and terraced hillsides. Arkush (2018) argues that the spatial logic of the site and the organic growth of its walled residential compounds balance concerns for maintaining both cohesion and separateness, consistent with principles of corporate group organization in the Andes. The spatial layout of terrace complexes, along with paleoethnobotanical remains from households, similarly suggests that farming and grazing activities were organized around extended families who were relatively self-sufficient (Langlie 2016, 2018, 2020). Although there is some evidence that the oldest and most protected residential compounds in the southern part of the site were occupied by higher-status families, the overall picture that emerges is one of a nonhierarchical community, where an ethos of group solidarity prevailed under the threat of external attack (Arkush 2018).

Residents of Ayawiri lived close not only to one another but also to their forebearers. An

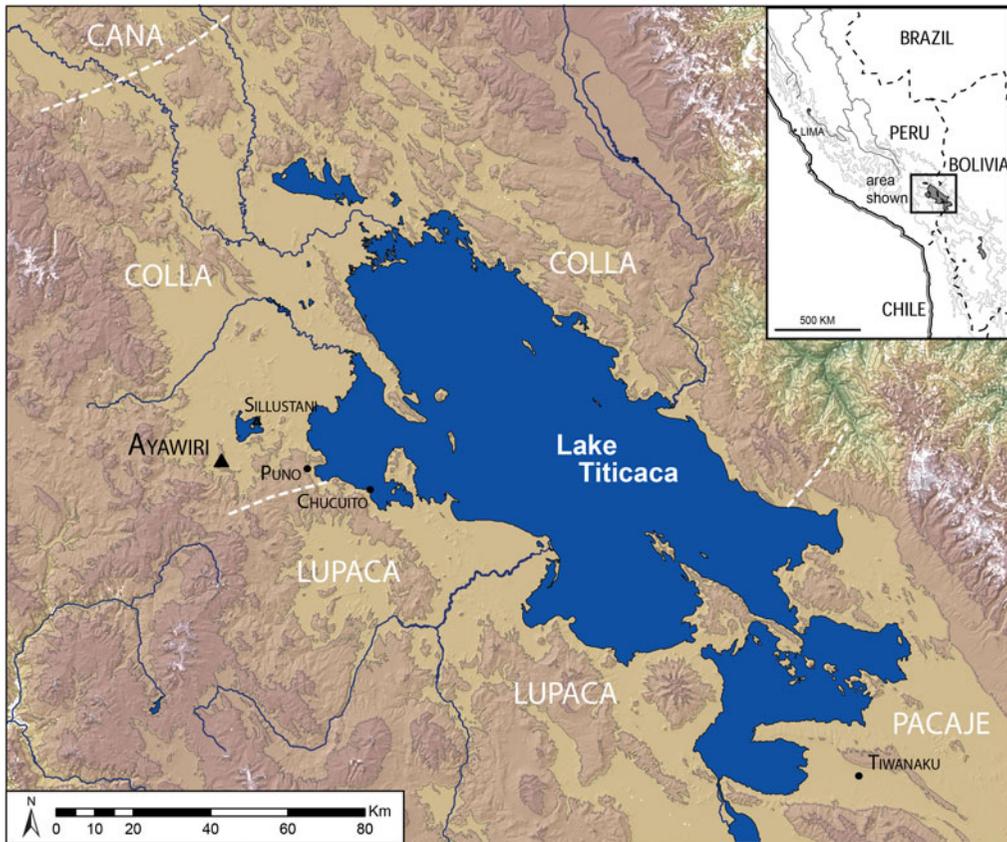


Figure 1. Circum-Titicaca region showing location of the study site and approximate boundaries between ethnic groups. Map courtesy of Elizabeth Arkush.

archaeological survey of intact and looted mortuary features visible on the surface identified 203 tombs, including 137 slab-cist tombs, along with a more limited number of freestanding chullpas, cist burials, and cave burials (Figure 2). The largest concentration of tombs is located between the southern and middle defensive walls: it consists of approximately 100 slab-cist tombs, 17 cists, and six chullpas roughly organized around three artificial earthen mounds. In addition, two clusters of about 15 tombs each are located at the northeast and southeast edges of the site, and another two dozen tombs are dispersed across residential compounds. There are also scattered tombs and cemeteries on the plains to the west, east, and south of the mesa where Ayawiri is located. Given the absence of other residential sites in the vicinity, it is likely that these small cemeteries pertained to the hilltop community (Arkush 2018). Overall, the mortuary

landscape is one where the dead, in a general sense, were a visible and present part of everyday life. What remains unclear is how the living directly engaged with the dead, specifically those interred out of view, and what such rituals of interaction or avoidance might suggest about social and ritual life during uncertain times.

Sample and Methods

Excavation of 11 slab-cist tombs from two cemeteries was carried out in 2011 as part of Proyecto Machu Llaqta (Arkush and Paredes 2012). In Ayawiri's largest cemetery, situated between two defensive walls (designated as "Cemetery 1A"), seven slab-cist tombs were excavated, representing a 6% sample ($n = 119$) of all cist or slab-cist tombs documented in the surface survey. An additional six tombs were excavated from a cemetery site located on the plains

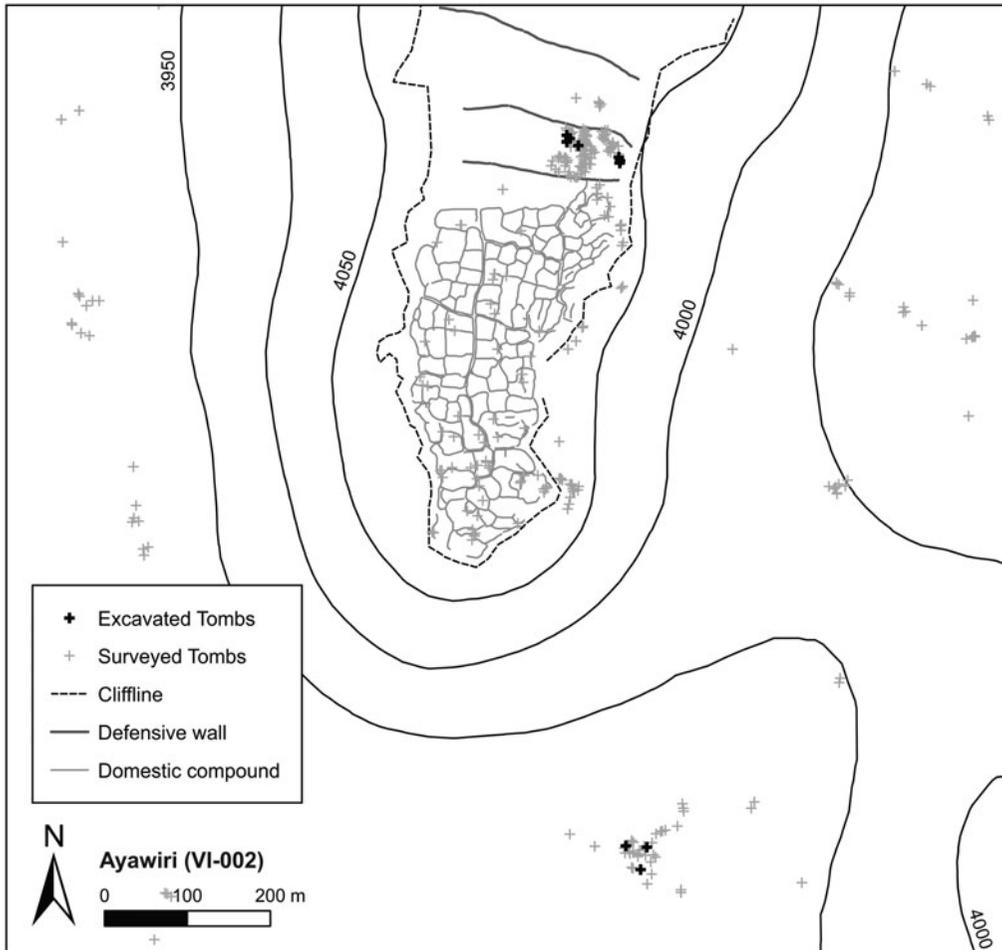


Figure 2. Plan view of Ayawiri indicating tomb clusters and the study sample.

immediately southeast of Ayawiri (designated as “VI-073”). Four of these tombs represent a 12% sample of all cist or slab-cist tombs documented in the surface survey ($n = 34$). Our excavations also extended to additional subterranean funerary structures that were uncovered below two slab-cist tombs in VI-073. These structures are described separately and not counted in the study sample of slab-cist tombs ($n = 11$) because they represent a different burial type.

Tombs were selected, to the greatest extent possible, to cover the spatial range of individual cemeteries and of the site in general. However, tombs in the southeastern portion of the site, located closer to higher-status residential compounds, showed extensive looting, as did standing chullpas and cave burials. Therefore, our sampling strategy was necessarily opportunistic.

We selected slab-cist tombs where markers of looting—pitting, inundation of surface soil, and scattered skeletal remains—were absent. Our excavations confirmed that the recent looting of tombs was highly unlikely (with one possible exception discussed later). Ten of 11 tombs contained intact ceramic vessels or stone “caps” overlaying burial deposits. For burials at greater depths, slight differences in coloration, compaction, or granularity between surface strata and burial strata further suggest these contexts were not recently disturbed.

Each slab-cist tomb was excavated as a single unit that minimally encompassed the internal circumference of its slab ring. The area exterior to the structure was only excavated where it was necessary to define the perimeter. For simplicity, we report results by unit of excavation, using unit

codes (UT) to refer synonymously to the excavation unit and the tomb selected for excavation. Because it was impossible to simultaneously expose the totality of each burial, which typically included densely packed skeletal and material culture remains, arbitrary levels were photomapped and digitized to visualize and explore artifact and anatomical associations post hoc in ArcGIS. Nonetheless, field observations of bone orientation and morphology were indispensable for describing and interpreting the burial contexts. Where preservation allowed, sex and age estimation of human skeletal remains were carried out using standard protocols (Buikstra and Ubelaker 1994).³ Sex was estimated primarily from the expression of sexually dimorphic features of the cranium and mandible, whereas age was estimated based on tooth development and eruption for subadults and on the relative degree of cranial suture closure and dental wear for adults.

To better understand the chronology of slab-cist tomb use at and around Ayawiri, six bone samples and one carbonized sample were submitted to Direct AMS and the University of Arizona, respectively, for processing and measurement. All radiocarbon dates have been corrected for isotopic fractionation and were calibrated using OxCal v4.4 and the ShCal20 calibration curve (Hogg et al. 2020).

Results

Tomb Construction and Chronology

The excavated tombs ranged from 0.4 m to 1.5 m in internal diameter (Table 1). The walls of most cists were formed by rings of 5–12 vertical slabs of varying thickness. There were two notable exceptions to the typical stone ring construction. The slabs that marked UT-73-28 on the surface were not deeply anchored in the ground; rather, firm, clayey, silty soil formed the floors and walls of the cist. The construction of UT-1A-124, located on the easternmost mound of Cemetery 1A, was also irregular because two rock outcrops were used to delimit its northern and western extent (Figure 3). In contrast to these more rustic constructions, UT-1A-134 was composed of a symmetrical ring of thin slabs that were sourced from four kinds of rock and included one horizontal slab oriented to the

east (Figure 3). Notably, UT-73-12 lacked a vertical slab at the same location (Figure 4). These parallel features possibly represent doors or access points in antiquity.

Other construction features that varied across the sample were the presence or absence of an exterior horizontal ring, stone cap, and inner chamber (Table 1). Six of 11 tombs, including the largest and smallest tombs in the sample, featured one or two additional rings of horizontal stones that surrounded the vertical slabs. Six tombs were “capped” in some manner, either by the placement of a large capstone (UT-1A-10, UT-1A-122), a series of slabs (UT-1A-134), or rubble (UT-1A-15, UT-73-28, UT-73-43) above the principal burial deposit. Finally, excavation in the southern cemetery revealed a unique mortuary feature hitherto undocumented: the presence of smaller, stone-capped, and architecturally distinct subterranean chambers underlying the slab-cist tombs in UT-73-07 and UT-73-12 (Figure 4). Overall, variability in structure size, in the presence or absence of an exterior ring, and in the size and quality of the slab stones used is consistent with variation seen in a larger survey sample of tombs in the western Lake Titicaca Basin (Velasco and Arkush 2011).

Seven radiocarbon dates suggest that the slab-cist tombs visible on the surface in both cemeteries represent a contemporaneous tradition (Table 2). The 2-sigma distributions of calibrated ages from UT-1A-10, UT-1A-134, UT-1A-23, and UT-1A-125 predominantly fall in the fourteenth century and suggest that the use of Cemetery 1A was contemporaneous across its east–west extent. The single date from UT-1A-15 falls in the thirteenth century (cal 2-sigma AD 1211–1280). The two dates from VI-073 represent “early” and “late” bookends for a series of three structures built sequentially. A radiocarbon date from bone in the subchamber below UT-73-07 yielded a calibrated 2-sigma range of AD 893–1016. The second date from carbon collected in UT-73-43, a cist tomb abutting UT-73-07, yielded a calibrated 2-sigma range of AD 1229–1392, which overlaps with the use period of Cemetery 1A. Together, these dates suggest two distinct periods of use in the south cemetery, although nearly all analyzable human remains are associated with the later LIP occupation.

Table 1. Summary of Demographic and Mortuary Data by Excavation Unit.

Excavation Unit	Internal Diameter (m)	Slab Shape ^a	Cap	Exterior Ring	Door	Inner Chamber	Adult (M, M?)	Adult (F, F?)	Adult (Sex = ?)	Subadult	Miniature Vessel	Bowl ^b	Broken Ceramic
UT-1A-10	0.5	Thin	+	–	–	–	–	+	++	+	–	+	+
UT-1A-15	0.4	Thin	+	+	–	–	–	–	+	–	–	–	–
UT-1A-23	0.4	Thin	–	+	–	–	–	–	+	–	–	–	–
UT-1A-122	0.7	Mixed	+	++	–	–	+	+	++	+	+	++	+
UT-1A-124	0.7	Irregular	–	–	–	–	–	–	+	–	+	+	+
UT-1A-125	0.6	Thick	–	+	–	–	++	–	–	–	+++	–	+
UT-1A-134	0.7	Thin	+	–	+	–	++	+	–	+	+++	–	–
UT-73-07	0.7	Thick	–	+	–	+	–	+	+	–	+	–	–
UT-73-12	1.5	Mixed	–	++	+	++	–	++	–	–	++++	+	–
UT-73-28	0.5	Irregular	+	–	–	+	–	–	++	+	–	–	–
UT-73-43	0.6	Thick	+	–	–	–	–	–	–	+	+	++	–

Note: Summary data for slab-cist tombs (excluding sub-chambers) are coded as absent (–) or present (+); if present, count is indicated (++, etc.).

^a Slab shape is a qualitative categorization based on the most representative slab preserved. Slab-cist tombs with a mix of thin and thick slabs were coded as “mixed.” Tombs of non-uniform or atypical construction were coded as “irregular.”

^b Count includes two large bowl fragments from UT-73-12 and UT-73-43.



Figure 3. Gross differences in the quality of slab-cist tomb construction. Rock outcrops in the upper-right quadrant of the photo define the perimeter of UT-1A-124 (left); thin slabs of distinct rock types form the perimeter of UT-1A-134 (right). Note the horizontal slab oriented to the east. Photographs by Matthew Velasco.

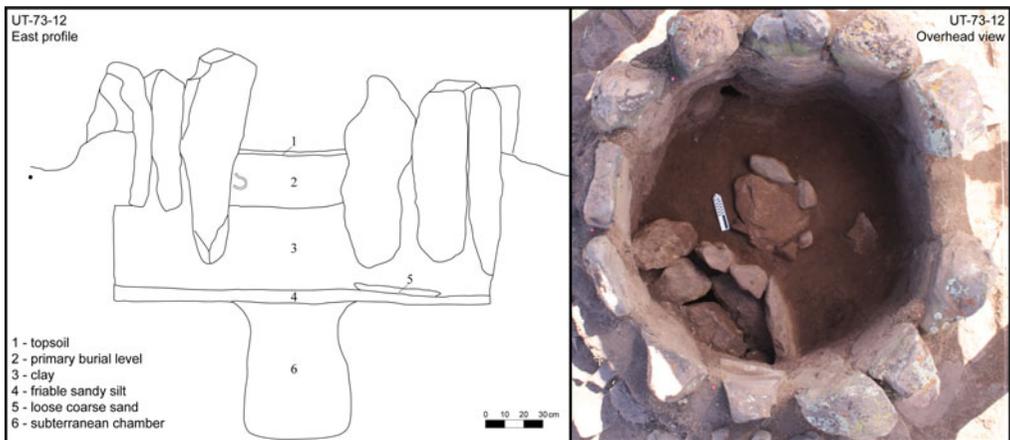


Figure 4. East profile and overhead view of base of UT-73-12. Drawing by Javier Chalcha Saraza; figure and photograph by Matthew Velasco.

Demography

The minimum number of individuals (MNI) excavated from 11 slab-cist tombs and two sub-chambers was 28. Twenty-two were adults (>20

years), and six were subadults (<20 years). The latter category includes four younger children (2–9 years) and two older children or adolescents (9–20 years). Although juveniles are

Table 2. Radiocarbon Dates from Selected Mortuary Contexts.

Excavation Unit	Lab ID	Sample ID	Material	$\delta^{13}C$	uncal BP	1 σ error	1 σ cal AD	2 σ cal AD
UT-1A-10	D-AMS-006870	V2.1085.030	Bone	-18.6	621	23	1324–1404	1318–1415
UT-1A-15	D-AMS-006869	V2.1083.006	Bone	-16.3	838	23	1223–1270	1211–1280
UT-1A-23	D-AMS-006872	V2.1090.020	Bone	-14.7	641	26	1321–1398	1303–1407
UT-1A-125	D-AMS-006873	V2.1092.014	Bone	-17.9	742	23	1280–1378	1275–1384
UT-1A-134	D-AMS-006871	V2.1088.014	Bone	-29.0	668	22	1309–1393	1297–1397
UT-73-07 ^a	D-AMS-006868	V73.1508.001	Bone	-16.5	1140	23	900–991	893–1016
UT-73-43 ^b	AA-102369	V73-1504/6	Carbon	-17.8	739	40	1279–1382	1229–1392

^a Radiocarbon date for human bone in subterranean chamber.

^b Radiocarbon date represents terminus ante quem for UT-73-07 slab-cist superstructure.

expected to comprise 50% of preindustrial burial populations owing to high infant mortality, the underrepresentation of infants and children in the burial sample is most likely due to the poor preservation of fragile juvenile bones. It is also possible that some infants and children were buried outside formal cemetery contexts; excavations reported elsewhere uncovered juvenile skeletal remains from a subterranean cist grave in compound 44B and from an agricultural terrace (Arkush and Paredes 2012; Langlie 2016).

The adults who could be sexed comprise roughly equal numbers of males / probable males ($n = 5$) and females / probable females ($n = 6$). Eleven adults could not be sexed either because sexually dimorphic indicators were lacking or abraded or because the individual was represented only by teeth or fragmentary postcranial remains. Although poor skeletal preservation limited age estimation via established methods, the representation of both younger and older adults is suggested by relative dental wear.

Bone Preservation and Body Deposition

The number of individuals and the skeletal elements represented varied across the mortuary sample. In general, fragile skeletal elements composed of spongy bone, such as long bone epiphyses and vertebral bodies, were either underrepresented or not preserved. Nonetheless, the presence and orientation of denser long bone shafts allowed for inferences to be made about articulation at the time of deposition.

In Cemetery 1A, UT-1A-10, UT-1A-122, UT-1A-124, and UT-1A-125 contained the commingled remains of one to five individuals interspersed with dense concentrations of broken ceramic (Table 1; Figures 5 and 6). The layering of the burial deposit from UT-1A-10 illustrates how the representation and articulation of skeletal elements varied within a tomb (Figure 5). The uppermost levels of the deposit, approximately 45–60 cm below the unit datum, included an isolated partial calvarium of a probable young adult and a juvenile femur. Further excavation

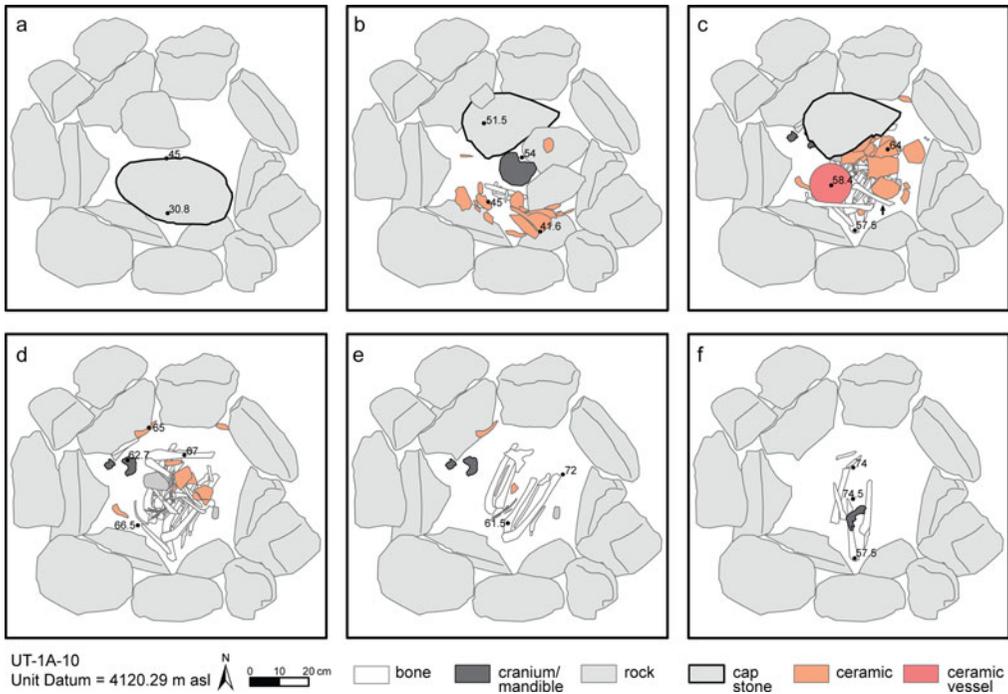


Figure 5. GIS shapefiles of UT-1A-10 presented as series of arbitrary excavation layers, with depths below unit datum indicated (in cm): (a) fragment of capstone; (b) initial burial deposit with cranium and other fragment of capstone exposed; (c) primary agglomeration of human remains, with ceramic bowl and juvenile femur (indicated by arrow); (d) primary agglomeration of human remains with topmost layer removed; (e) detail of articulated flexed legs; (f) fragmentary long bones near base of tomb. (Color online)

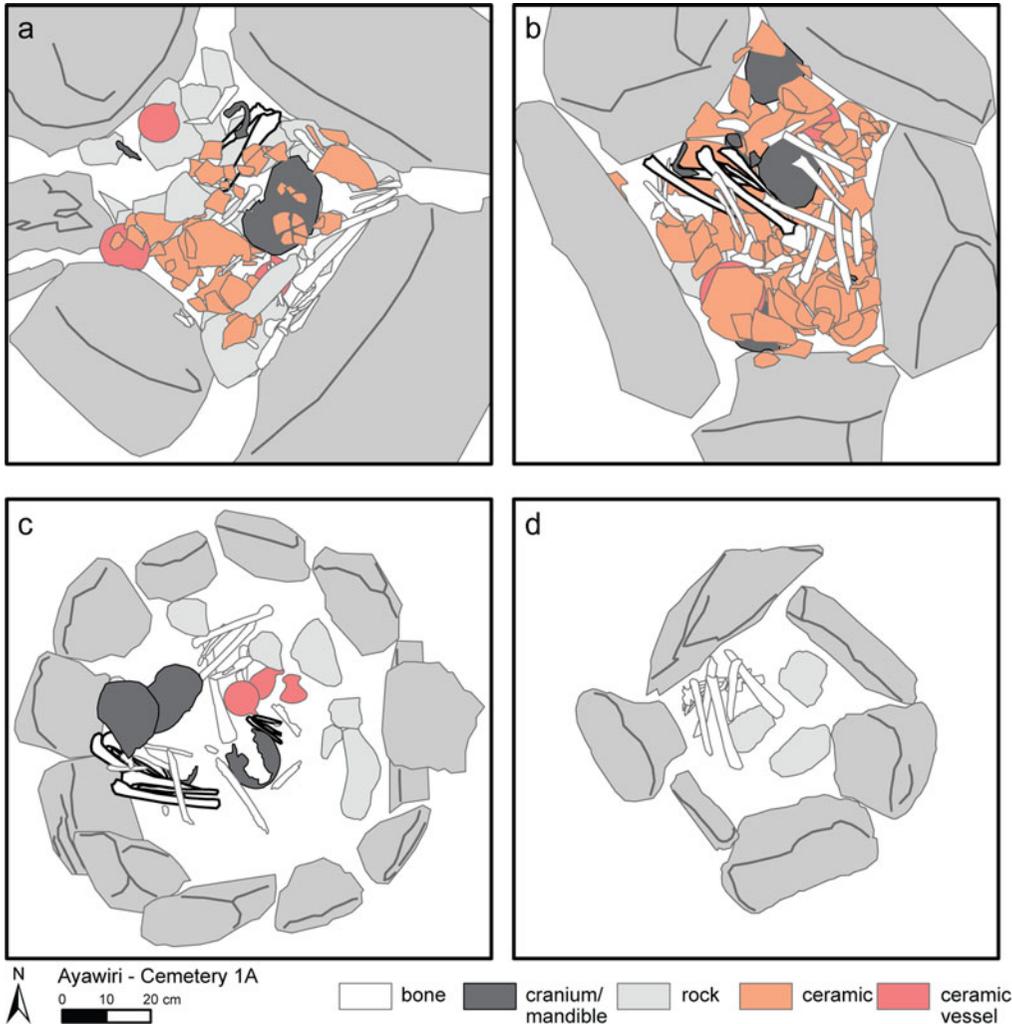


Figure 6. Variation in MNI, body deposition, and grave offerings in Cemetery 1A: (a) UT-1A-125; (b) UT-1A-122; (c) UT-1A-134; (d) UT-1A-15. Only layers with burial remains are displayed. Bold outline indicates the articulated long bones referred to in text. (Color online)

revealed the fully articulated and flexed left and right legs and ossa coxae of a probable female. Below this individual and near the base of the tomb were scattered long bones that were out of anatomical position. Notably, one of three adults in this tomb was represented only by postcranial elements.

Although the MNI of cranial and postcranial remains were equivalent for each of the other multiple burials, their deposits exhibited similar variation in bone preservation and degree of articulation. UT-1A-125 was a shallow deposit of ceramic and bone representing at least two

individuals (Figure 6a). The cranium of a male remained articulated to the mandible and first cervical vertebra, whereas fragmentary frontal and temporal bones and an isolated mandible represented the second individual. The leg bones of these two individuals were also variably articulated: at the north of the cist was a flexed and articulated right leg, to the east were remains of another right leg, yet the tibia and fibula lacked a corresponding femur. In UT-1A-122, preserved postcranial parts were thoroughly intermingled with four relatively complete crania, making it difficult to associate cranial and

postcranial remains (Figure 6b). Nevertheless, as in UT-1A-10, a pair of flexed right and left legs was discernible, whereas leg bone shaft fragments of a separate individual were found near the base of the tomb. Although those fragments were not directly associated with a fifth poorly preserved cranial individual, represented only by the dense petrous portion of the temporal bone, the overall discrepancies in preservation suggest distinct taphonomic histories.

UT-1A-134 differed from other burials in Cemetery 1A because it consisted of three relatively discrete loci of human remains, each of which seemingly corresponded to a cranium or skull (Figure 6c).⁴ The first cluster was the most complete and included two flexed legs that were leaning against the western wall of the tomb in the expected left–right orientation of a seated burial. Left and right arm bones atop and alongside the flexed legs were out of anatomical position, strictly speaking. However, the left and right humeri were located “correctly” to the left and right anatomical sides, and the proximal-distal orientations of the left humerus, radius, and ulna were consistent with a flexed arm. No other postcranial elements were directly associated with this individual, apart from a left rib and right calcaneus, the latter of which was clearly located “out of place” (superior and adjacent to the distal left humerus). The other two loci of bones were less well preserved and located approximately 15–20 cm deeper than the western deposit. At the center of the tomb, partially obscured by a long slab, was the cranium of an older adult female, bordered by fragmentary postcranial long bones, including a flexed, articulated left arm. The mandible associated with this cranium was located partially beneath the flexed right leg in the western deposit. The northern locus of postcranial bones, like the central locus, also featured a cranium and variably articulated long bones. However, the cranium remained in articulation with the atlas/axis vertebrae and the mandible.

UT-1A-15 and UT-1A-23 were both single burials lacking grave goods, but they were otherwise distinct in burial deposition and articulation, as well as body part representation. UT-1A-23 contained a partially articulated individual represented by a cranium and bones from

the vertebral column, thorax, pelvic girdle, and appendicular skeleton, thereby approximating the most discrete and complete individual skeleton in the sample. Based on the placement and orientation of some bones, the individual was likely originally placed in the tomb in a flexed, seated position. Skeletal articulations were more evident at greater depths, however, suggesting that elements nearer to the surface had been disturbed prior to excavation. In contrast to UT-1A-23, UT-1A-15 lacked cranial or dental remains, and fewer skeletal elements overall were represented (Figure 6d). The femora and tibiae were not in anatomical position relative to one another, whereas the left and right humeri and scapulae roughly were (i.e., the proximal end was near the glenoid fossa). Three preserved ribs also appeared to be oriented in an anatomical sequence, suggesting that at least some soft tissue remained at the time of deposition.

Human remains from VI-073 were too poorly preserved to precisely characterize and contrast the manner of body placement. However, scattered fragmentary remains of multiple individuals in UT-73-07, UT-73-12, and UT-73-28 were consistent with patterns of secondary multiple burials observed in Cemetery 1A. UT-73-43, built abutting UT-73-07, was unique in that it only contained fragmentary cranial and dental remains of a probable adolescent, with no other bones present. Finally, the subterranean chambers at the base of UT-73-07 and UT-73-12 were single partial interments, consisting of decomposed bone and worn mandibular molars (UT-73-07) and the fragmented unworn maxillary crowns of a child (UT-73-12), along with other decomposed unidentifiable organic material.

Grave Offerings

Most preserved grave offerings were ceramics. As discussed earlier, broken ceramic shards, likely from large ceramic jugs, were found in the mid- to upper levels of burial deposits in four of the seven excavated tombs in Cemetery 1A. Plain or red-slipped Pucarani bowls were also relatively common in graves, found in 5 of 11 excavated tombs. However, the most predominant and distinctive grave inclusions across both cemeteries were miniature ceramic vessels (Table 1). The tomb with the highest number of

miniature vessels ($n = 4$) was incidentally the largest excavated tomb with an internal diameter of 1.5 m, whereas average-size tombs (0.6–0.7 m) contained one to three miniature vessels each. However, there does not appear to be a regular correspondence between the number of individuals and the number of ceramic vessels in each tomb (miniature or otherwise).

Miniature vessels, which were largely absent from domestic contexts at Ayawiri, typically mimic the form of a jar or pot but are diverse in style. The miniature vessels from VI-073 were fashioned in the local Pucarani style; those from Cemetery 1A include probable Pucarani, probable Collao (UT-1A-125), and an uncategorized vessel from UT-1A-124 with morphological similarities to Allita Amaya Polychrome (Cecilia Chávez Justo, personal communication 2022; cf. Tschopik 1946:33–34). From UT-1A-122, a miniature open cup with an animal attachment is reminiscent of north basin forms or east basin Mullu vessels. UT-1A-134 featured three miniature vessels of distinct nonlocal forms (Figures 6c and 7). One of these, an

aryballos-like miniature in the Sillustani Brown-on-Cream style, is common in the northern basin near Huancané but is very atypical for the Ayawiri area (Elizabeth Arkush, personal communication 2021). The other two vessels were categorized as Churajón, a ceramic style associated with the Arequipa region. The black-on-red vessel with curvilinear designs bears resemblance to coastal styles in the Ilo-Moquegua region. It also has a triangular base not known for the Lake Titicaca region (Cecilia Chávez Justo, personal communication 2012).

In contrast to residential areas, there were almost no faunal remains in tombs, and botanical remains were only present in small amounts (Langlie 2016:Appendix C). Overall, tombs had lower lithic density than any other excavated context (cf. Arkush 2018:Table 1). The exceptions to this pattern were tombs in VI-073, particularly UT-73-12 and UT-73-28, that contained relatively high densities of obsidian, mainly debitage and small flakes. Other relatively rare grave inclusions identified in the sample include a ceramic spindle whorl (UT-73-12),



Figure 7. Miniature ceramic vessels from UT-1A-134. Photographs by Matthew Velasco. (Color online)

two slate pendants (UT-1A-124, UT-73-28), and one fossil, possibly of a trilobite, embedded in a geode-like nodule in UT-1A-124.

Discussion

Mortuary excavations at Ayawiri documented notable variation in slab-cist tomb architecture; the number of individuals per tomb; their age-at-death, sex, and manner of deposition; and the objects buried with them. Consistent with the decentralized organization of domestic life and agropastoral production at the site, slab-cist burial practices do not appear to have been rigidly prescriptive or to have reinforced social differentiation. They likely involved postmortem interactions with the dead but differed in important ways from ancestor veneration at chullpas, pointing toward the diverse pathways by which people forged community and kinship in the LIP.

Mortuary Variability and Social Differentiation

Based on architectural and spatial patterns of slab-cist tombs, previous research suggests that they were non-elite burials organized around families or extended kin groups (Stanish 2012). At the same time, considerable variation in slab-cist tomb size and style suggests they encompassed some degree of social differentiation (Velasco and Arkush 2011). From these perspectives, mortuary and bioarchaeological data can be brought to bear on two questions regarding the nature of social difference at Ayawiri.

First, was slab-cist burial restricted to particular demographic segments of the community? Although limited by poor preservation, the demographic profile of the burial population provides some clues. Both males and females were buried in slab-cist tombs, suggesting there was no gender bias in access to hillfort cemeteries. Similarly, there is no indication that burial was strongly restricted by age. For example, three of seven tombs in Cemetery 1A included the remains of adults and juveniles. Furthermore, variation in dental wear suggests that both younger and older adults would have been buried in the same structures. In sum, the demographic profile at Ayawiri is consistent with expectations for a kin-structured cemetery (Howell and King 1996:541).

Summarizing data on the organization of compound walls and house structures, Arkush (2018) argues that the community of Ayawiri was organized into corporate groups that each encompassed multiple families. At a broader scale, then, the clustering of tombs in different sectors of the site may reflect maintenance of separate burial areas by larger social groups. It is also possible that discrete cemetery areas, to a degree, reflected temporal differences—the need to appropriate new burial spaces as the site grew over successive generations. Nevertheless, the available radiometric data suggest that Cemetery 1A and VI-073 were occupied contemporaneously, supporting a corporate group model.

Even within this segmentary organization, were some individuals given preferential burial treatment based on social identity, rank, or privilege? As shown in Table 1, most mortuary variables do not divide into classes in any clear manner, as would be expected if burial treatment were tied to social status. In even this small sample, there exists considerable variation in slab-cist tomb characteristics, including slab thickness, the presence or absence of an external ring, and associated grave goods. Yet, no single feature stands out as suggestive of a qualitatively different identity or status. For example, miniature ceramic vessels were not a universal grave good, but they were found in both the northern and southern cemeteries, in tombs with and without exterior rings, and in association with broken ceramic or in isolation. The possible nonlocal vessels in UT-1A-134 possess distinct forms not observed elsewhere at Ayawiri and suggest that the individuals buried with them, or their close relatives, maintained access to decorative goods from other regions. Although this tomb's construction and grave goods are of a slightly higher quality, they hardly represent a departure from the local mortuary vernacular. Overall, the lack of a strict burial hierarchy suggests that social position at Ayawiri existed along a gradient during the LIP. However, because looted tombs near higher-status residential compounds could not be included in our study sample, it is possible that the grave good assemblage underestimates the degree of social differentiation at Ayawiri.

In fact, the excavated slab-cist tombs from Ayawiri appear to have been less lavishly furnished than tombs of the same type documented at other western Titicaca Basin sites. The grave good assemblage summarized by Bustinza Menéndez (1960) for sites in the districts of Umachiri and Ayaviri (northwestern basin) includes worked bone implements, polished projectile stones, and even textile remains, although his multisite sample likely covers a larger social and temporal catchment. Tschopik (1946) notes stone bowls and a metal pin in her excavations of four slab-cist tombs near Chicuito and Acora, items that are absent from our sample as well. However, pottery vessels predominate, and the proportion of whole or mostly complete ceramic vessels to skeletal individuals in her sample (0.8:1.0) and the Ayawiri sample (0.8:1.0) is roughly equivalent. Given the patchiness of comparative data, not to mention potential taphonomic biases, it is difficult to draw firm conclusions that place mortuary practices at Ayawiri in a regional perspective. Nonetheless, it is notable that metal objects, otherwise present in domestic contexts at Ayawiri, were not found in tombs at the site (Arkush 2017:Table 2).

Secondary Burial and Possible Body Part Curation

Previous research by Tschopik (1946) describes slab-cist tombs with multiple interments ranging from 16 to 20 individuals. She also observes varying degrees of skeletal articulation suggestive of grave reentry. Excavations at Ayawiri confirm that slab-cist tombs contained collective and commingled burials but also show that the number of individuals in each tomb varied. The largest MNI identified in a single tomb at Ayawiri is five, and four of 11 tombs appear to be single interments (Table 1). This differs markedly from the number of individuals per tomb reported by Tschopik, although her sample includes particularly large slab-cists measuring approximately 2 m in diameter, whereas most of the tombs excavated in the present study are less than 1 m in diameter.

However, both Tschopik (1946) and the present study document human bones in varying degrees of articulation, suggestive of a complex process of primary and secondary burial. At

Ayawiri, tombs such as UT-1A-10 and UT-1A-125 show dense commingling of multiple bones from multiple individuals, with some bones still in the position of articulation. In UT-1A-10, the in situ articulation of the left and right legs and ossa coxae of one individual suggests that fleshed corpses were buried at certain points in the use history of the tomb (Figure 5). This “primary” individual was possibly buried in a crouched position, based on the tight flexure of the knee joint. Isolated skeletal elements may represent secondary reburial or primary burials disturbed in situ. In UT-1A-125, one skull was still articulated with the first cervical vertebra, indicating that the head and neck had not completely decomposed at the time of burial, and fragments of another cranium were scattered about the tomb (Figure 6a). It is possible that variable articulation patterns reflect a practice whereby site inhabitants reopened tombs to deposit new bodies, thereby displacing or selectively removing bones from earlier burials. If selective removal occurred, it apparently was not targeted at specific body parts, as documented elsewhere in the Americas (Andrushko et al. 2010; Duncan and Schwarz 2015); however, incomplete preservation at Ayawiri makes it difficult to test this hypothesis. Given that cranial and postcranial MNI are equal in 9 of 11 tombs, the most parsimonious explanation for commingling is grave reopening and disturbance in antiquity.

It is also possible that recent looting activities could have produced a similar pattern of disturbance and commingling, but this alternative explanation is unlikely for several reasons. First, it would be hard to square looting with the presence of stone “caps” and the relative abundance of intact ceramic vessels in these tombs. Second, looters rarely backfill. Most looted tombs in Cemetery 1A are either empty of their contents or show a depressed or pitted surface. In contrast, we primarily selected tombs where the topsoil was level, once cleared of shrubs and loose rocks. The possible exception is UT-1A-23, where soil exterior to the cist was mounded and interior soil showed a slight depression. It is possible that looting could account for the absence of funerary objects in this context and the greater disturbance of

skeletal elements at shallower depths, including a displaced left femur about 20 cm below the surface. However, neither UT-1A-10 nor UT-1A-125, the clearest examples in support of the “reopening” hypothesis, show signs of recent looting.

The strongest evidence for selective body part deposition comes from UT-1A-15, which contained commingled bones of a single individual that appear to have been curated and then deposited in the tomb. This inference is based on the skeletal elements represented, which show a degree of symmetry, consisting of bones from both sides of the upper arm and shoulder, upper thorax, and leg, but conspicuously lacking the bones of the forearm, cranium, and teeth (despite the preservation of more fragile elements such as ribs). The association of proximal humeri with their respective scapulae, as well as the deposition of three ribs in anatomical sequence, suggests that some bones were articulated and fleshed at the time of burial. However, the femora and tibiae are out of anatomical alignment. Overall, the distribution of skeletal remains is not consistent with a flexed burial that had simply degraded in situ.

What mortuary behaviors could account for this anomalous burial? It is *possible* that this skeletal assemblage was produced by selectively removing specific body parts from a once complete burial. If so, however, such removal was efficient and likely performed when the body had not completely skeletonized, because no stray elements of the head, hands, or feet were left behind. A more parsimonious scenario involves the deliberate burial of body parts curated from a partially skeletonized corpse, based on the degree of articulation present. Hypothetically, the other “missing” body parts, most conspicuously the head, may have been retained at a primary burial location or distributed to other secondary contexts. Elsewhere in the Andes, researchers have interpreted “headless” burials as indirect evidence of the curation or retention of ancestral heads (e.g., Verano 1995:201–203); however, such practices at Ayawiri remain speculative, absent more systematic patterns of skeletal part removal or the discovery of skull caches.

Temporal variation may also partly account for the seemingly idiosyncratic assemblage of

select body parts and few grave offerings in UT-1A-15. Radiocarbon-dated bone from this context yields the earliest date in Cemetery 1A, falling squarely in the thirteenth century (cal 2-sigma AD 1211–1277). Of course, this date reflects when the individual buried in the tomb died, not when the tomb was constructed or the remains deposited. At present, we cannot determine whether this unique burial represents a chronologically earlier burial practice or the relocation and deposition of an earlier burial (from above or below ground) during the primary period of cemetery use in the fourteenth century.

Boundaries between the Living and Dead

Both the anomalous burial in UT-1A-15 and the more predominant pattern of multiple commingled burials underscore how interactions between the living and dead at Ayawiri took place beyond the moment of death. Secondary burial practices involving the mingling of bones and possible manipulation of fleshed body parts belie simple dichotomies between subterranean and aboveground tombs, the latter typically distinguished by their potential for postmortem interaction with the dead. Further suggesting that cists were meant to be accessed during particular periods of their use history is the finding of access points built in the slab ring of two tombs. Both are oriented to the east, reproducing (if not anticipating) the doorways of altiplano chullpas, which typically face east (Hyslop 1977:163; Stanish 2003:231). It is possible that slab-cist tombs were left accessible for an extended period before they were filled and earthen mounds were raised to enclose the structures. Alternatively, old burials may have been dug up and displaced and new burials deposited across a tomb's use history. In any case, the secondary burial practices reported here emphasize what has long been recognized for coastal burials in the Andes: underground burial does not preclude complex rituals of corpse interaction and manipulation (Shimada and Fitzsimmons 2015:17).

Although both above- and belowground burial involved close interaction with the dead body, the duration and purpose of these interactions likely differed. Aboveground funerary practices preserved ancestral corpses as the living

embodiments of social collectives. In contrast, secondary burial practices involving commingling quite literally disembodied and anonymized the dead. Whereas mortuary activities at slab-cist tombs possibly abated when tombs were capped and mounded, continued access to the bodies entombed in chullpas was central to that funerary practice. Based on ample ethnohistoric evidence, the occupants of chullpas were ancestors par excellence; they demanded food and feasting on the part of their descendants, and in return, they guaranteed agricultural and social regeneration (Isbell 1997). In contrast, there is little evidence that the dead buried in slab-cist tombs were regularly propitiated. Although our excavations were not designed to identify activity areas outside of tombs, few plant or animal remains were recovered from within them. Therefore, it is reasonable to posit that chullpas and slab-cist tombs, although perhaps existing along an architectural and ontological continuum, nonetheless contained different kinds of dead persons.

In the absence of evidence for mortuary commensality, it is worth further delineating how the roles and spaces of the dead and the living were differentiated at Ayawiri. The largest clusters of slab-cist tombs are located outside domestic compounds: on the perimeter of the settlement, between defensive walls, and on the plains below. The material culture of houses and slab-cist tombs is also markedly differentiated. Miniature ceramic vessels are much more common in burials, whereas metal objects—what Arkush (2017) interprets as “valuable possessions” of the site’s residents based on their deposition and distribution across households—were entirely absent from mortuary contexts. Lithics from tombs, which were relatively rare compared to residential compounds, also differed in type. Tombs have debitage, flakes, and a few points but almost no ground stone or lithic tools, which dominate the lithic assemblages from households (Arkush 2018). Finally, there were almost no Sillustani black-on-red bowls or bowl fragments in tombs, despite the fact they comprise about 40% of the bowl assemblage in Ayawiri’s residential sector (Arkush 2018).

What norms or beliefs dictated which objects were suitable or appropriate as grave inclusions?

Were metal objects, for example, deemed too valuable to be placed in burials and to be removed from utilitarian use? Did our limited excavation sample, which could not include more elaborate (but looted) tombs from the southeastern portion of the site, simply miss what may have been a rare and exceptional grave offering? Although these questions are difficult to address from the available evidence, we can compare Ayawiri to contemporaneous burial practices at late LIP settlements in the Calchaquí region of Argentina, where the lines between domestic and mortuary realms were thoroughly blurred (Acuto et al. 2014). Circular cist tombs were mostly placed near or within residential compounds, and household items are regularly found in graves. The homogeneity in grave architecture and the lack of aboveground structures further leveled social differences among the region’s inhabitants, in contrast to Ayawiri, where heterogeneity in tomb type and grave preparation prevails.

Even if the dead were not a regular part of daily life at Ayawiri, they were nonetheless a powerful and orienting presence during a time of intense warfare. This study underscores how cemetery growth and mortuary elaboration were concomitant with processes of defensive aggregation and community formation in the latter half of the LIP, discussed elsewhere by Arkush (2018). Arkush (2018) argues that rapid settlement aggregation and defensive concerns favored the formation of corporate groups that maintained separate residential compounds and burial grounds but nonetheless conformed to community norms. At a site that altogether lacks public architecture or a central plaza, the northern cemetery—located between two defensive walls—was the largest, and arguably the most integrative, ceremonial space. Burial heterogeneity suggests that mortuary activities there were decentralized, and they may have involved few direct participants; yet, taking place in full view, they “would immediately have been public knowledge” (Arkush 2018:15). The dead were not only visible to living descendants but also vigilant over them, watching and guarding the perimeters of settlements (Arkush 2013). The large numbers of tombs and bodies clustered between defensive

walls suggest that burial practices not only structured intra-community divisions but also reinforced in-group and out-group boundaries based on collective defense and descent.

If the dead, in a collective sense, were protectors of Ayawiri, they may have also been some of its pioneers. Our excavations of slab-cist tombs immediately to the southeast of the mesa revealed an earlier period of cemetery use that predates the LIP occupation of the hilltop. Later inhabitants were clearly compelled to construct slab-cist tombs sometimes directly atop these earlier chamber tombs, regardless of whether they traced descent from the people who built them. It is likely that Ayawiri and its surroundings were recognized as powerful places long before they were incorporated into a defensive landscape.

Conclusion

Excavation and analysis of slab-cist burials at Ayawiri revealed considerable variation in the construction of slab-cist tombs and the number of individuals per tomb, their degree of articulation, and the objects buried with them. This variation was not patterned on rank or status in any obvious way. Although no two tombs were the same, they collectively point to an overarching pattern of secondary burial in which tombs were reopened or left accessible to enable the deposit of additional bodies, displacing and disturbing earlier burials in the process. Previous body parts may have degraded or been removed, and in at least one case, curated body parts were intentionally deposited. Along with a demographic and spatial distribution suggestive of kin-structured burial, inter-tomb variation may best be explained as the outcome of a flexible and decentralized mortuary program structured not only by shared attitudes toward “the dead” and the dead body but also by the prerogatives and preferences of semi-autonomous corporate groups (Arkush 2018).

In this way, mortuary practices at Ayawiri played an important role in community coalescence and population aggregation during the LIP. Burying hundreds of dead bodies between defensive walls staked a powerful claim to place within a rapidly transforming political landscape. The diversity of slab-cist tomb burials and their presence alongside aboveground tombs

suggest an improvisational order, comprised not just of “ancestors” and “descendants” but also of different kinds of dead persons who demanded (and enabled) different kinds of postmortem engagement, obligation, and manipulation on the part of the living. At the same time, LIP mortuary practices in the Lake Titicaca Basin clearly built on long-term antecedents of subterranean burial. In the southern cemetery specifically, slab-cist tombs were apparently grafted on an earlier mortuary occupation. This mix of innovation and tradition adds nuance to narratives of mortuary transformation in the LIP focused on the proliferation of chullpas at the expense of less conspicuous (but arguably more prevalent) subterranean mortuary practices. Even so, we are only beginning to bring to light the intricate concepts of time, place, and the body that animated living–dead interactions during this dynamic period in Andean history.

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Data Availability Statement. Raw data files and complete skeletal inventories related to mortuary excavations are in possession of the author (Velasco) and principal investigator (Arkush). They are available on request and will be published in full and online in a forthcoming monograph on Ayawiri. The summary results of these data are presented in Table 1. Bone samples used for radiocarbon dating are currently housed in the Human and Animal Bone Laboratory at Cornell University, where stable isotopic analyses are ongoing.

Competing Interests. The author declares none.

Notes

1. Tschopik (1946:6) notes the presence of slab-cist tombs “incorporated into the sides of chullpa walls” at Quenellata, a site located at the northern end of the Titicaca Basin. A similar architectural relationship was informally registered by the Proyecto Machu Llaqta survey at sites in the western basin (Velasco and Arkush 2011).

2. Two of the slab-cist tombs excavated by Tschopik (1946) measured 2 m in diameter. These measurements are at or near the upper limit of slab-cist tomb diameter reported by Arkush (2005; 0.7–2.0 m), Stanish (2003; 0.5–2.0 m), and Velasco and Arkush (2011; 0.3–3.0 m).

3. Complete crania and ossa coxae (>75% preservation) were less commonly preserved than were fragmentary specimens, undermining the systematic observation of sexually dimorphic features and age-related changes across the entire sample. Preservation biases also limited the analysis of cranial modification, trauma, and bone-related pathologies, which will be reported elsewhere.

4. A fourth (juvenile) individual in this context was represented only by unworn permanent teeth.

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