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### Authors

Becker, Sara K  
Alconini, Sonia

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## HEAD EXTRACTION, INTERREGIONAL EXCHANGE, AND POLITICAL STRATEGIES OF CONTROL AT THE SITE OF WATA WATA, KALLAWAYA TERRITORY, BOLIVIA, DURING THE TRANSITION BETWEEN THE LATE FORMATIVE AND TIWANAKU PERIODS (A.D. 200–800)

Sara K. Becker and Sonia Alconini

*This study focuses on trophy head taking during the transition between the Late Formative period and Tiwanaku period (A.D. 200–800) based on evidence from a dedicatory offering found at the site of Wata Wata, east of the Titicaca Basin. Although trophy-head taking was common in other precontact Andean cultures, evidence of the practice among cultures from this region is usually present only in iconography and not in actual physical remains. We explore the nature of this find and its placement within the trade and ceremonial center of Wata Wata. The three individuals included in the offering underwent various levels of violence at or around the time of death, including beheading, cranial and facial fracturing, defleshing, jaw removal, and possible eye extraction. Such violence makes it unlikely that the heads were offered as part of a cult to revere ancestors. We argue that these heads, entombed in a ritual cache and sealed with a capstone, embody a strategic metaphor to remove authority and influence from the individuals, because skulls can be Andean symbols of power in life and the afterlife. The violent acts carried out on these crania may also have been a way to advertise broader changes during this transitional period in the Kallawayaya region, a strategic exchange corridor between ecological zones in the Central Andes.*

*Esta investigación se enfoca en entender las prácticas de decapitación durante la transición Formativo Tardío a Tiwanaku (200–800 d.C.), sobre la base del estudio de una ofrenda con tres cráneos humanos encontrados en el sitio de Wata Wata. El mismo se ubica en los valles del territorio Kallawayaya, al oriente de la cuenca del Titicaca. Aunque el uso de cabezas trofeo es común en las culturas Andinas durante el periodo pre-Colombino, en Tiwanaku dicho uso se restringe a su iconografía. La evidencia física sobre esta práctica es muy escasa. En este contexto, en este trabajo exploramos la naturaleza de esta ofrenda en el centro ceremonial y de intercambio de Wata Wata. Este estudio muestra los altos niveles de violencia a la que fueron sujetos los individuos alrededor o justo al momento de su muerte, incluyendo decapitación, fracturas craneales y faciales, descarnamiento, remoción de las mandíbulas y posiblemente extracción ocular. Por tanto, estos marcados niveles de violencia hacen inviable que esta práctica haya estado asociada a un culto de reverencia a los ancestros. Más bien, consideramos que estos cráneos enterrados en una ofrenda ritual que posteriormente fuera sellada, fueron parte de una metáfora ritual destinada a quitar autoridad e influencia política. Al respecto, en los Andes, los cráneos son considerados potentes símbolos de poder tanto en esta vida como en el más allá. Por tanto, los niveles de violencia infringidos a estos cráneos, pudieron haber servido de propaganda durante esta crítica transición Formativo Tardío-Tiwanaku en la región Kallawayaya, un estratégico corredor de intercambio inter-ecológico en los Andes Centrales.*

**D**uring the Formative period (1500 B.C.–A.D. 500), the Titicaca Basin witnessed the rise of multi-community ceremonial centers with terraced platforms, sunken courts, and religious paraphernalia in the Yayamama style. These were part of a pan-regional exchange

system facilitated by far-reaching llama trading caravans (Bandy 2004; Browman 1984; Chávez 1988; Chávez 1992; Hastorf et al. 2005). The temperate valleys and Yunga tropical regions to the east of the Titicaca Basin supplied the Central Andean area with valuable resources such as corn,

**Sara K. Becker** ■ Department of Behavioral Sciences, York College of Pennsylvania, 441 Country Club Road, York, PA 17403 (sbecke13@ycp.edu)

**Sonia Alconini** ■ Department of Anthropology, The University of Texas at San Antonio, San Antonio, TX 78249 (sonia.alconini@utsa.edu)

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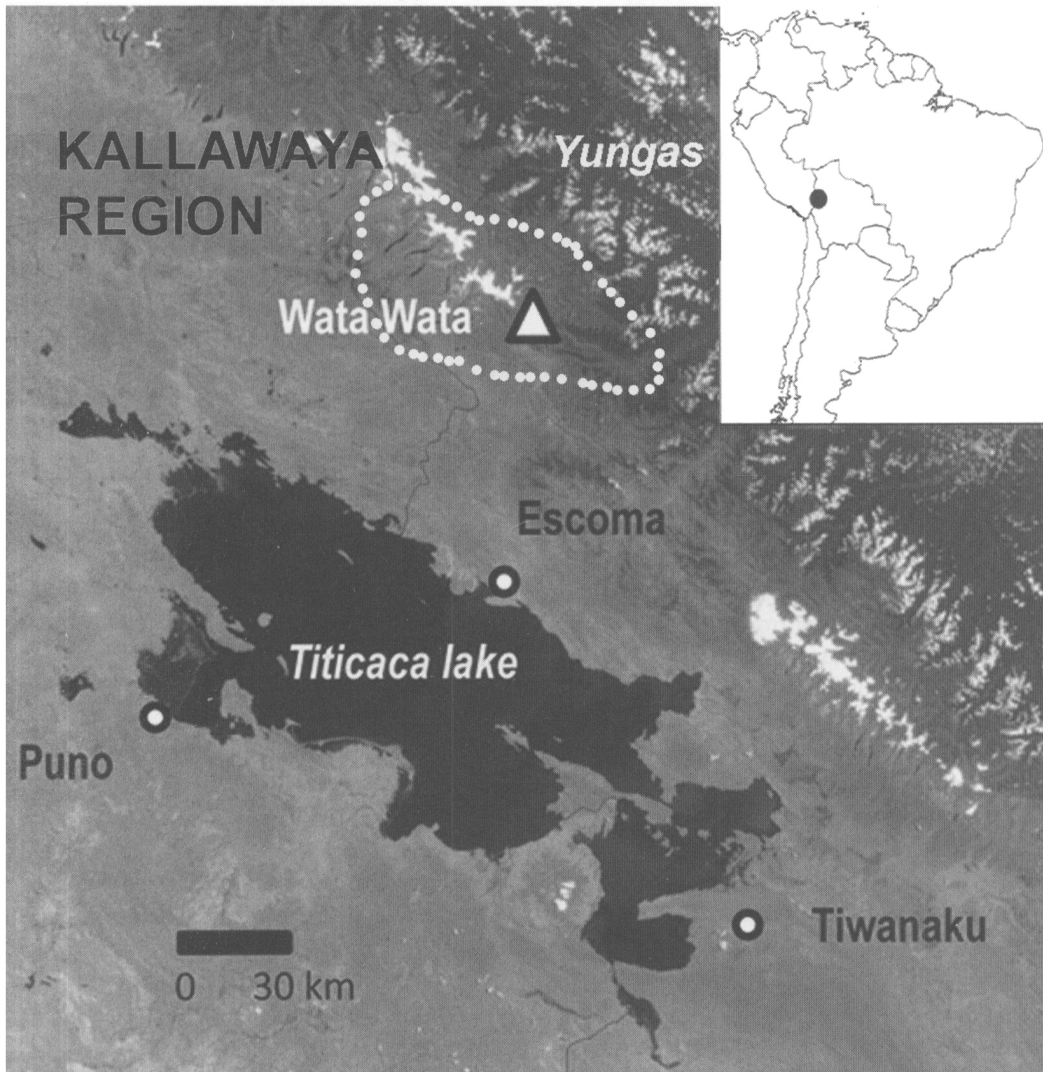


Figure 1. The Kallawayaya territory to the east of the Titicaca Basin. The study region is marked as a white dotted polygon.

coca leaves, chili peppers, colorful plumage from tropical birds, hallucinogens, and hardwoods for weapons, and were of critical importance to Highland peoples (Browman 1984; Saignes 1985). The Kallawayaya region, a set of interconnected valleys between Charazani and Camata, was one such area (Figure 1). Its inhabitants, renowned traveling shamans, herbal healers, and medicine men, held primary roles as traders, intermediaries, and cultural brokers to a myriad of polities dwelling in the tropics (Meyers 2002; Saignes 1984). The influx of Yayamama-related ritual paraphernalia also suggests complex forms of interaction between this region and the Highlands

during the Formative period. By the Tiwanaku period (A.D. 500–1100), the Kallawayaya region experienced significant shifts, including the selective flow of decorated pottery in the Tiwanaku style, the adoption of Tiwanaku ritual practices, and possibly even migration of Tiwanaku peoples into the area (Chávez 2009).

The site of Wata Wata, in the western Kallawayaya territory, was part of this complex web of exchange network between ecological zones linking the western Highlands with the eastern tropics. Of particular importance in this research is the transition from the end of the Formative period to the Tiwanaku period (A.D. 200–800). At

Wata Wata, excavations revealed evidence of intentional violence (i.e., beheading, blunt force trauma, and defleshing) on the skulls of three individuals during this critical time period. These crania were buried within a ceremonial setting and represent something of an anomaly in our present understanding of Central Andean cultures during this time. Detached heads are often represented in the Precolumbian corporate-style iconography of the Titicaca Basin. These motifs also appear on stone sculpture and serving vessel offerings deposited in ceremonial areas within the heartland of the Tiwanaku state (Alconini 1995; Blom and Janusek 2004; Chávez 1992; Kolata 1993; Oakland 1986; Young-Sánchez 2004, 2009). Examples include the Chacha-Puma basalt sculpture holding a decapitated head in its hands, recovered from the entrance of the Akapana pyramid (Manzanilla and Woodard 1990), and the objects dangling from the elbows of the Portal God on the Gate of the Sun in the Tiwanaku capital (e.g., Clados 2009; Hanula 2009; Janusek 2008). In addition, various Tiwanaku deities and their attendants are frequently portrayed with one hand holding a trophy head by the hair or a cord, and an axe in the other hand (Isbell and Knobloch 2008; Janusek 2008). In contexts outside of the Tiwanaku heartland, similar presentations of both supernatural decapitators and trophy heads are often present on elaborate ceramics, textiles, wooden spoons, and incense burners (Chávez 1992; Janusek 2004, 2008; Smith 2012; Torres 1987, 2001). Nonetheless, despite such conspicuous depictions of trophy head iconography in the material culture of the region, actual physical proof for trophy-head taking is nearly absent, suggesting that this practice was more figurative than real (Janusek 2008:265).

In this article, we aim to reveal the complex social and political dynamics that developed in the Kallawayá territory in the political transition from the Late Formative period to the Tiwanaku period, and the role that head removal may have played in such processes. Specifically, our goals are to: (1) examine the bioarchaeological markers of violence on the three crania found at Wata Wata; (2) assess the importance of head removal as a potential tool of political legitimization; and (3) explore the role of ritualized violence in the control of inter-regional exchange networks dur-

ing this transitional period. We do this by first summarizing relevant information on the settlement dynamics in the Kallawayá region during the transition between Formative and Tiwanaku. Second, we discuss the archaeological excavations at Wata Wata in order to contextualize the offering under discussion. Third, we present the results of the bioarchaeological analysis of each of the three crania along with the potential sequence of violence. Fourth, we discuss the nature of such practices in light of competing ideas on the nature and function of trophy-head taking. Finally, we summarize our findings vis-à-vis our research goals.

### The Kallawayá Region

Although there is abundant literature on the language (Aguilo 1991; Saignes 1984), medicinal practices (Oblitas Poblete 1978, 1992; Rösing 1996), and cultural traditions (Bastien 1978; Girault 1969; Meyers 2002; Rösing 1995; Saignes 1984) of the Kallawayá peoples, less is known about their origins or sociopolitical development from an archaeological perspective. To address this gap, from 2006 through 2010, Alconini and her team conducted a regional-scale pedestrian survey project in the Kallawayá territory, covering an expanse of 490 km<sup>2</sup> (Figure 1). The topography of this Puna region varies from high altitude mountains with natural water reservoirs (*qochas*) and large expanses of marshy land optimal for pastoralism (4000–5000 m asl) to mid-altitude Quechua slopes suitable for the production of corn (4000–2800 m asl). Narrow alluvial valley floors are at the lowest elevation, while the tropical piedmont extends to the east, optimal for growing coca and chili peppers (2800–1500 m asl). This study documented 1,812 sites, dating from before the Formative period to the more recent Inka era (Alconini 2011, 2015a). This temporal range of sites reveals the complex and dynamic nature of indigenous development within the temperate Kallawayá territory. The presence of non-local material and architecture along the cultural sequence revealed that peoples in this area maintained different forms of interaction with western Highland polities, ranging from selective migration to commercial exchange, and even acculturation (Alconini 2011).

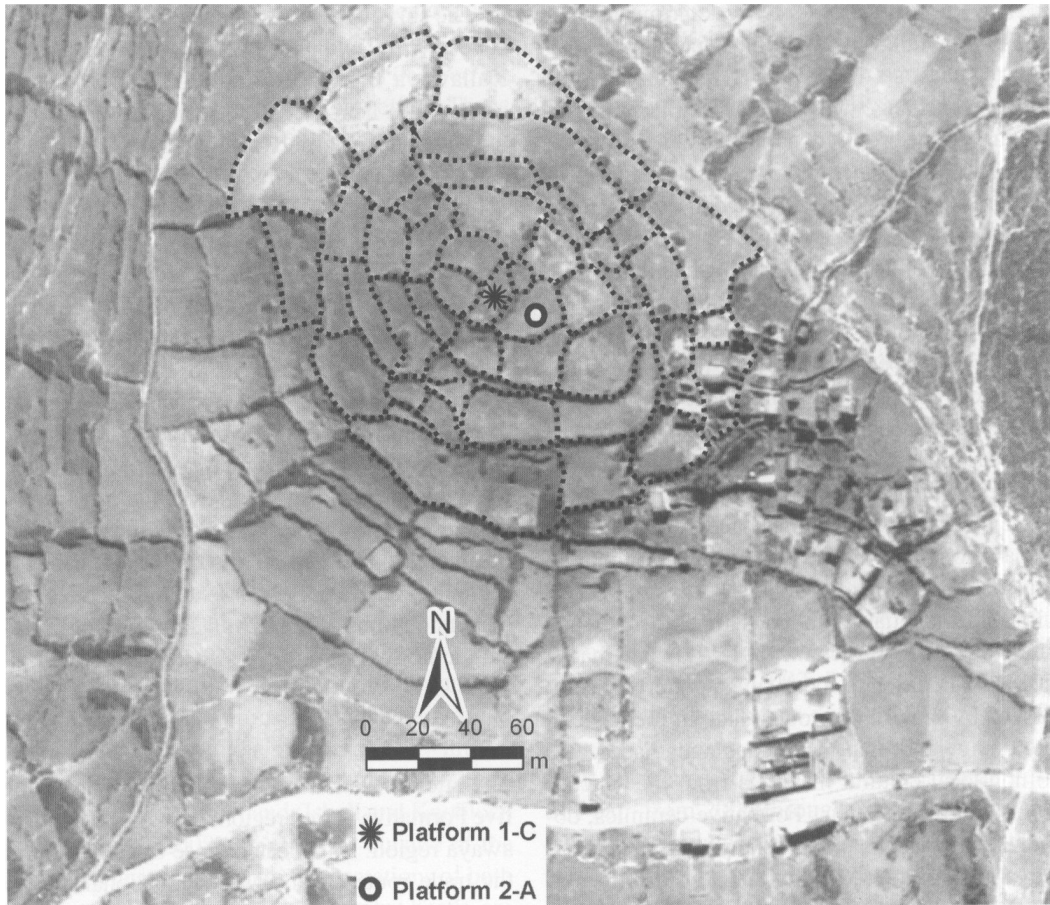
The Formative and Tiwanaku time periods within the Kallawayaya region are particularly important because these valleys maintained fluid forms of exchange with the Titicaca Basin. During the survey, the project documented at least 15 sites dating to the Formative period (1500 B.C.-A.D. 500), most of which were located in the Charazani Valley at the western entrance of the multi-valley corridor system. The sites, established in the mid-altitude Quechua flanks, varied in size and function. Five of the 15 settlements stand out as regional centers, because they were terraced mounds strategically located along an ancient transportation route with excellent visibility of the surrounding landscape. These Formative centers, which were adapted to the natural topography, had concentric stone platforms with public spaces at the summit. Excavations of some of these regional Formative-era centers (i.e., Kalla Kallan, Wata Wata) reveal circular residential compounds, funerary cists, and storage facilities (Alconini 2011, 2015a; Chávez 2009). In addition to local Yunga pottery, characterized by the use of ground slate in the paste, it became evident that their inhabitants had access to non-local cultural materials from the Titicaca basin and beyond (e.g., Formative ceramics, obsidian, lapis lazuli, and a broken stone stela in the Yayamama style) (Alconini 2011).

During the Tiwanaku period (A.D. 500–1100), the study region witnessed important changes, including an almost four-fold growth in the number of settlements in the Charazani Valley, population expansion into other nearby valleys (i.e., the Amarete, Kaata, and Curva valleys), and occupation of the upper Puna zone above 4,000 m asl. These sites varied in size, function, and settlement (i.e., hamlets, villages, and cemeteries). Considering that the sites were located in both the temperate Quechua slopes and upper Puna, it is likely this period witnessed a consolidation of an agro-pastoral economy. The main regional centers of this period continued along the main transportation route, showing the continued importance of trade. Such centers featured an expansion of public spaces on the summit, a change to rectangular-shaped residential architecture, and restricted distribution of agrarian terraces below the summit. Such changes were tied to the introduction of decorated and utilitarian Tiwanaku-style pottery (Alconini 2011; Chávez 2009).

The survey team also located a set of funerary caves with Tiwanaku cultural materials along Kallawayaya trade routes. Although most of the caves were heavily looted, some of the burials were walled in order to protect the remains of single and multiple individuals. One of the caves is the Callijicho funerary cave from Niño Korin, previously documented by other researchers (Rydén 1957; Wassén 1972), and located below the Tiwanaku center of Kalla Kallan. The Callijicho cave contained walled burials of individuals with evidence of trepanation and artificial cranial modification, as well as Tiwanaku ritual and medicinal grave goods consistent with modern Kallawayaya herbal healers of the region (Wassén 1972). Overall, the changes during the Tiwanaku time period in the Kallawayaya territory indicate the importance of this region, particularly considering that such regional centers served as exchange nodes and dispersion hubs of the Tiwanaku religious political ideology (Alconini 2011; Chávez 2009).

### The Site of Wata Wata

The site of Wata Wata (Figure 2) is one of the five Formative period regional centers in the Kallawayaya region. It is located close to a segment of the trade route and has an occupational history spanning the Formative through Tiwanaku periods. At the height of its occupation, Wata Wata comprised 6.5 ha with agrarian terraces and a flattened space to the south near the base. The mound was formed by at least five concentric platforms built in different styles, including unmodified fieldstones, slabs, and larger pilasters, suggesting different construction episodes. Three main occupational phases were documented. In the first phase during the Early Formative and first half of the Middle Formative periods (1500–500 B.C.), the site was a prominent regional center. Excavations on the upper platforms revealed public spaces, such as a large stratified midden indicating large-scale food consumption activities and the presence of small, semi-subterranean stone circular constructions used for storage or as funerary cists. In comparison, the lower platforms had circular residential constructions. Judging by the limited excavations on the summit of the mound, it is likely that a large sunken enclosure was present at the site (Alconini 2015b). Although the site ar-



**Figure 2.** Map showing the architectural configuration of the center of Wata Wata and the location of Platform 1-C at the summit.

chitecture has local origins, it does resemble other Early and Middle Formative centers of the western Titicaca Basin, such as Chiripa, Sonaji, and Kumi Kipa (Hastorf et al. 2005; Roddick 2009). Along with local Yunga-style pottery, we documented cultural materials from the western Highlands, including clay trumpets, ceramic burners, and burnished pottery with burnt grass, mica, and large quartz grains in the paste.

It is unclear if they were imported or local copies. Whatever the case, these cultural materials indicate that Wata Wata participated in the broader Yayamama religious sphere during this first phase (Alconini 2015b). The inhabitants of Wata Wata likely shared values, religious principles, and ritual practices crucial to facilitating exchange and different forms of social and po-

litical interaction between the western Highlands and eastern valleys.

In the second phase (500 B.C.–A.D. 200), roughly concurrent with the second half of the Middle Formative and Late Formative 1 periods, Wata Wata became an important ancestral shrine, as attested by the continued use of burial cists and public food consumption activities, although the scale of residential occupation was limited. By the third phase (A.D. 200–800), in the transition between the Late Formative 2 and Tiwanaku periods, the site witnessed important developments, possibly as part of broader sociopolitical changes operating in the central Andes. Although there was continuity in the use of local assemblages at Wata Wata during this third phase, selected areas of the center underwent architectural

renovations. Human remains, either buried in funerary cists with Tiwanaku paraphernalia or used as dedicatory sacrifices, also were recovered (Alconini 2015b). Of particular importance was Platform 1-C on the site summit, where we documented R-969, a cache with a concentration of human heads.

#### *Platform 1-C:*

##### *The Cache of Human Heads (R-969)*

Platform 1-C, located in the southern portion of the site apex (Figure 2), was a locus of public celebrations, rituals, and food consumption. At the onset of the third phase, Platform 1-C was renovated as part of broader shifts occurring at Wata Wata. First, the midden and nearby semi-subterranean stone constructions, which were once used for storage and burial, fell into disuse. A layer of gravel mixed with yellow clay 20 cm in thickness was deposited above these constructions as a new floor, covering not only earlier constructions but also previously unoccupied spaces. Associated with this floor was the construction of a set of straight stone walls, noted as destroyed or collapsed during excavation. These wall segments run in different directions and were likely part of larger rectangular structures. Their shape shows a departure from earlier circular constructions. The walls were two courses high and constructed with fieldstones, stone slabs, and partially worked stone blocks.

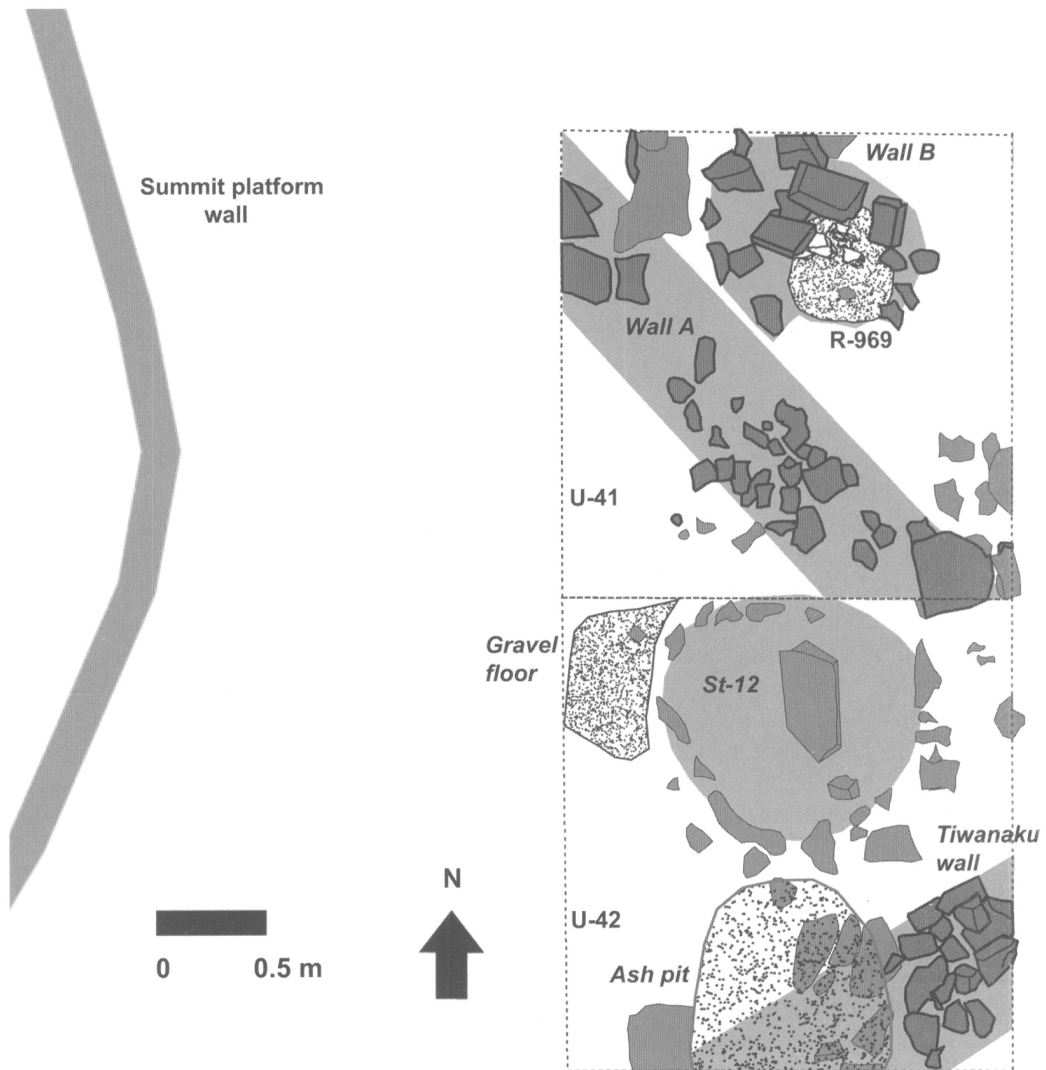
During this third phase of occupation, some of the earlier semi-subterranean constructions were reutilized as garbage pits or funerary cists. In stark contrast with earlier traditions, these new cists held the remains of single, primary inhumations buried with Tiwanaku paraphernalia. For example, one individual, R-913, was buried in flexed position with a Tiwanaku-style painted flaring open bowl, a carved bone spoon with avian motifs similar to those from the hallucinogenic complex, deer antlers, lapis lazuli beads, and metal scraps (Alconini 2015b). The remains of two wall segments, Walls A and B, in the eastern portion of Platform 1-C, Unit 41, are particularly important (Figure 3). It is possible that these two walls intersected, or were the corner of a larger structure. In either case, the collapsed Wall B was especially significant since it was associated with dedicatory offering R-969. Exca-

vations revealed remains of the yellow clay mixed with gravel floor, which also served as the foundation of Wall B. A small pit approximately 30 cm in diameter and 30 cm deep was cut through the floor and the foundation of the wall. Human skulls were placed within this pit, which was subsequently filled with darker soil and covered with a partially hand-cut stone block (Alconini 2015b). Upon excavation of this offering, the entire cache, including the surrounding soil, was removed and sent to the laboratory for further examination. Overall, our excavation found no evidence of previous habitation below the yellow clay and mixed gravel floor in Unit 41. It is thus unlikely that R-969 dates to one of the earlier phases at Wata Wata.

Although radiocarbon dates are still in process and no sherds were found in this cache of human skulls (R-969), we are confident that it relates to the latest occupation of the site for several reasons. First, this dedicatory offering was placed after the deposition of the Tiwanaku-related renovated yellow clay floor. Second, it was architecturally associated with Wall B, a lineal Tiwanaku construction built with partially cut stone blocks (different in style from earlier architecture). Third, the offering pit cut through the sterile soil, which shows the lack of cultural deposits from the Formative period. With these architectural changes and the presence of decorated Tiwanaku pottery mixed with Late Formative assemblages in the burials of this period, R-969 in Platform 1C dates to the third phase, the transition between the Late Formative and Tiwanaku periods at the Wata Wata site.

#### **Bioarchaeological Analysis**

The analysis of R-969 was conducted by the first author and revealed significant information regarding the nature of this human offering. As the initial matrix around the offering was removed, human vertebrae in close proximity to cranial bones became visible. After cleaning the rest of the soil from R-969, various additional fragments of cranial bones and cervical vertebrae became visible, indicating the presence of more than one person. While the bone itself was in good condition, the skeletal remains were fragmentary. In order to establish the minimum number of indi-



**Figure 3.** Plan showing the Tiwanaku-related architecture and associated features in Unit 40 and 41, including R-969 of Platform 1-C. R-969 shows the human crania in white located within the circle near the wall fall of Wall B (Unit 41). Adjacent to the crania is a rectangular stone block used at the capstone to the cache of crania.

viduals, a reconstruction of the skeletal elements present was undertaken.

In all, three crania were identified. The remains consisted of frontal, nasal, and zygomatic bones of the face, portions of the calvaria (skullcap), occipital, and temporal bones, as well as additional first and second cervical vertebrae. As the three individuals lacked all other postcranial bones and all dentition, estimation of age was difficult. Nonetheless, considering the size of cranial elements present and lack of endo- and ecto-

cranial suture line closure, all remains were likely from adults under 50 years old (Table 1). Using standard methods of sex estimation from crania (Bass 1981; Buikstra and Ubelaker 1994; Steele and Bramblett 1988; White et al. 2011), the individuals were determined to represent one male and two possible females, all with moderate artificial cranial modification.

Missing in all three individuals were the upper and lower jaw (maxillae and mandibles), in addition to some fragments of the posterior and inferior



Table 1. Summary of Information on Crania.

| IND# | Age   | Sex             | Cranial Modification | Retained Metopic Suture | Evidence of Defleshing | Cut Marks Adjacent to Eye Sockets | Evidence of Antemortem Trauma |
|------|-------|-----------------|----------------------|-------------------------|------------------------|-----------------------------------|-------------------------------|
| 1    | Adult | Possible Female | X                    | X                       | X                      | X                                 |                               |
| 2    | Adult | Male            | X                    | X                       | X                      | X                                 | X                             |
| 3    | Adult | Possible Female | X                    |                         | X                      | X                                 |                               |

portions of the cranium (i.e., occiput). All three have facial damage consistent with a Le Fort fracture that ranges in intensity from type I to type III (Figure 4; Christensen et al. 2014:352–353; Douglas and Kennett 2002:261–263). Le Fort I is a horizontal fracture where blunt force is applied to the lower face and results in breakage along the inferior nasal aperture and alveolar portion of the maxillae. In comparison, Le Fort II is a pyramidal breakage that involves blunt force applied to the mid-face. This results in a break along the nasal aperture, removing the bone in type I as well as the lower borders of the eye orbits and maxillae along the zygomatic border. Le Fort III is the result of force applied to the nose or lower maxilla, and involves the medial walls of the eye orbits and the zygomatic bones, along with the bone damaged in type I and II fractures. In addition to these facial fractures, each individual had evidence

of violent trauma in some combination of chop marks, cut marks, bone scrapes, and depressed skull fractures. One individual had evidence of antemortem trauma. None of the crania show evidence of trauma that took place post-decomposition, as might be the case with individuals who were buried, disinterred, and then defleshed, as has been associated with secondary ossuary burial (e.g., Curry 1999; Simon 2003; Ubelaker 1974), and ancestor veneration (e.g., Fenton 1991; Hastorf 2003; Rakita et al. 2005). Instead, all evidence of trauma suggests interpersonal perimortem violence, that is, the individuals were exposed to violent practices at or around the time of death. The specific details are described below by individual.

#### *Individual 1*

Individual 1 is a possible adult female with a retained metopic suture and a Le Fort II facial fracture. This individual has over 10 cut marks on the first and second cervical vertebrae, as well as deep cut marks to the occipital condyles on the crania, which suggest beheading (Figure 5). Individual 1 also has cut marks consistent with the process of defleshing the skull, possibly by scalping (Figure 6). Cut marks continue onto the face with horizontal lines above the eyes and scraping cut marks on the right zygomatic adjacent to the eye orbit (Figure 6a). Such evidence indicates that the flesh around the eye, or possibly the eye itself, was removed. There also are four cut marks on the nuchal crest portion of the occipital bone including one on the inner table indicating cranial trauma (i.e., the skull was broken open) before any defleshing took place (Figure 6b). In addition, there are at least two cut marks on the left temporal bone, six cut marks on the right temporal bone, and one on the right mastoid process, indicating that the flesh near the mandible and mandible musculature had been removed, possibly while removing the jaw bone.

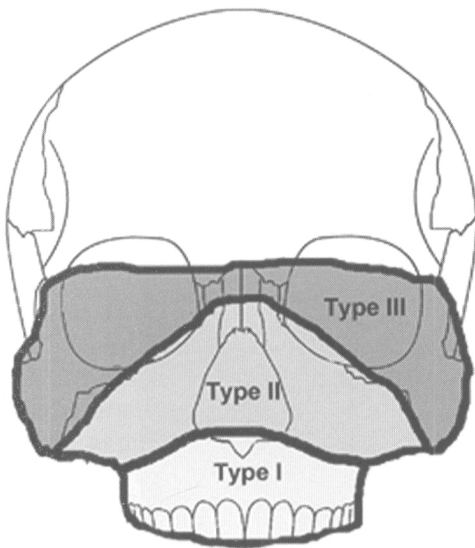
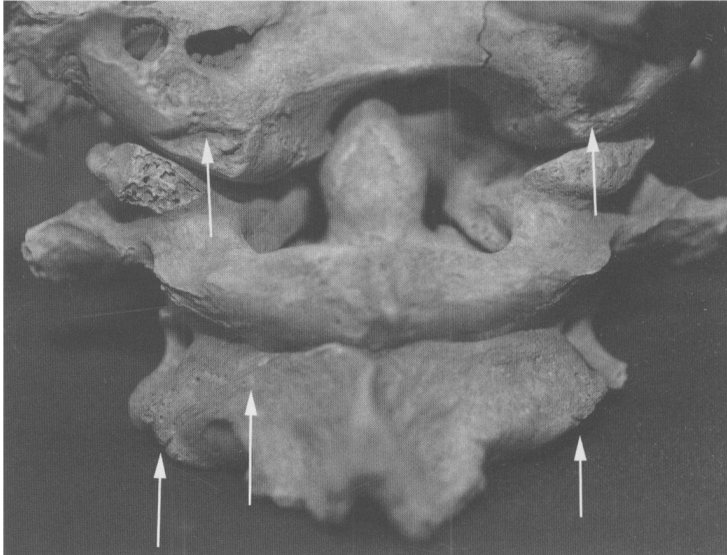
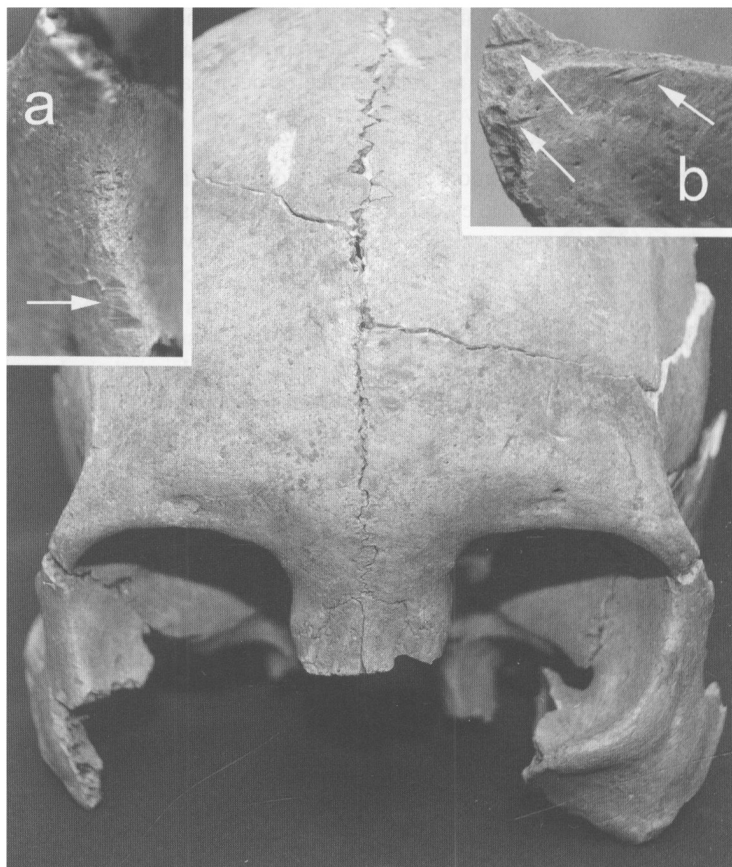


Figure 4. Example of Le Fort fractures, which increase in intensity from type I to type II to type III, and impact all of the prior bone in the inferior portion of the fracture.



**Figure 5.** Posterior view of Individual 1. Arrows located superiorly point to areas of trauma on the occipital portion of cranium that could indicate beheading. Arrows located inferiorly note multiple cut marks on the first two cervical vertebrae.



**Figure 6.** Anterior view of Individual 1: (a) close-up of the scrape marks on the right eye orbit; (b) close-up of the cut marks on both the inner and outer table of the bone indicating bone.

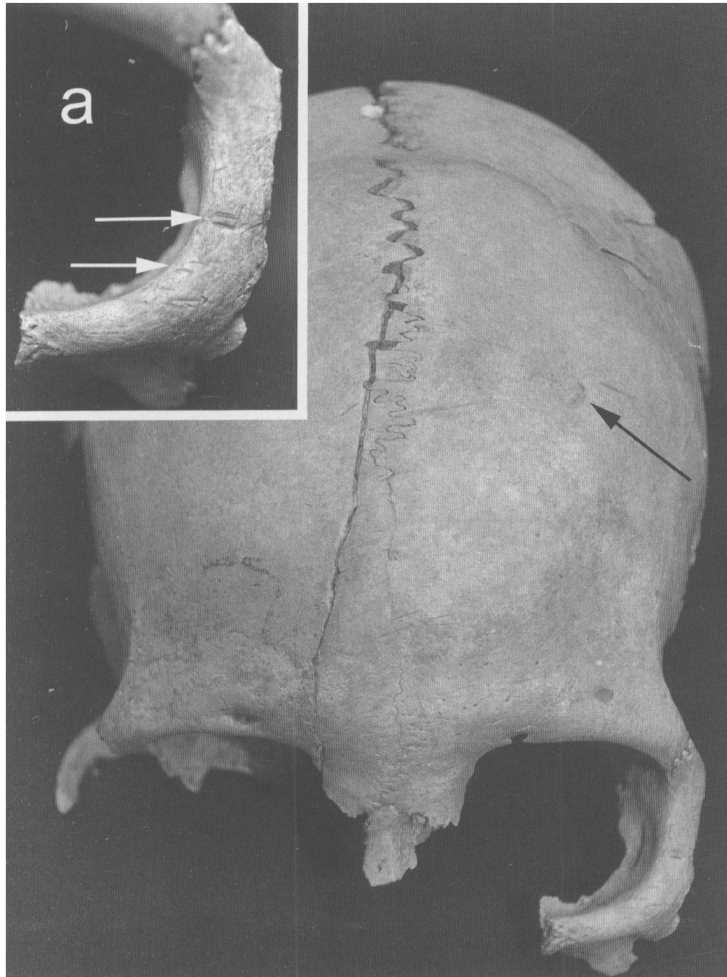


Figure 7. Anterior view of Individual 2 and black arrow indicates healed cranial trauma: (a) close-up of cut marks around the eye orbit.

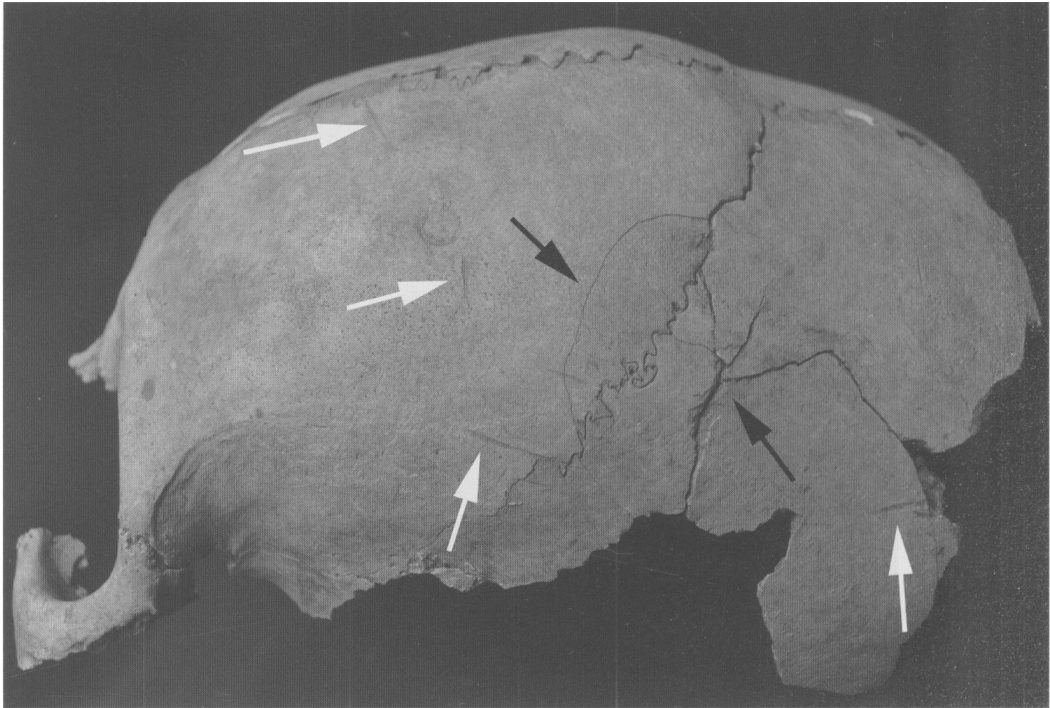
### *Individual 2*

The second individual is an adult male with a Le Fort II-III facial fracture, artificial cranial modification, and a retained metopic suture. Two areas of well-healed trauma suggest antemortem interpersonal violence that would have occurred well before his death. The first injury was likely a broken nose, as the nasal bones are misaligned. The second, on his left frontal bone, is a round circular depression with an adjacent area of thickened bone (Figure 7). Individual 2 also had moderate to deep cut marks around the left eye orbit, likely indicating defleshing around the eye (Figure 7a). Also noted are deep cut marks associated with defleshing, primarily on the left side of the skull.

Some of these cut marks can be seen in Figure 7, and additional ones adjacent to the circular depression are noted in Figure 8. This individual had a large *perimortem* depressed skull fracture with fracture lines, and is missing a “keyhole” of bone on the side of the head (i.e., left parietal and temporal region), also noted in Figure 8. These types of traumas suggest blunt force injury, possibly high velocity or angled blows, at or around the time of his death (Berryman and Gunther 2000; Berryman and Symes 1998; Christensen et al. 2014).

### *Individual 3*

Individual 3, a possible female, has a Le Fort II facial fracture along with *perimortem* injuries on



**Figure 8.** Left view of Individual 2. White arrows notate deep cut marks and the black arrows point to areas of peri-mortem fracture.

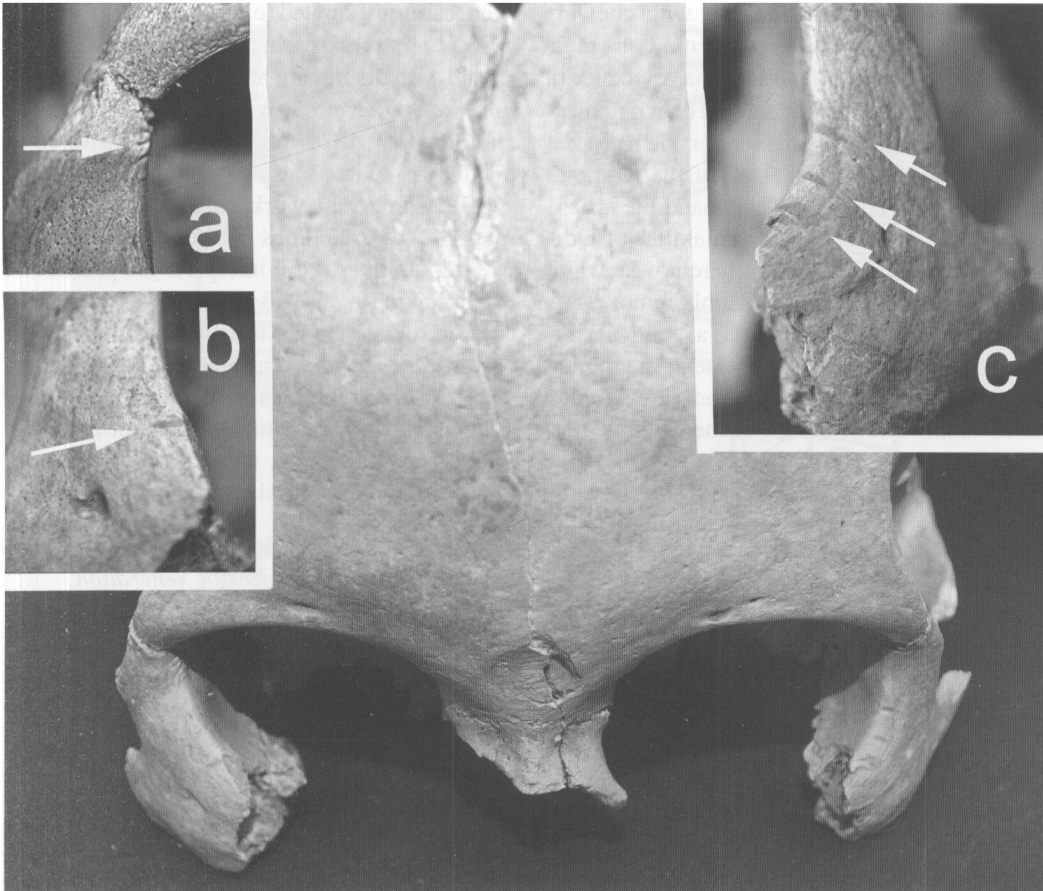
the temporal, frontal, nasal, and zygomatic bones (Figure 9). Individual 3 has a depressed fracture on the frontal bone superior to her misaligned nasal bones. Figure 9 also shows cut marks on the eye orbits with four small, deep cuts inferior to the right zygomatic-frontal bone suture line (Figure 9a), and a cut or scrape mark inferior to the four deep cuts on the right upper eye (Figure 9b). Figure 9c shows three distinct cut marks on the left eye orbit. In addition to these cut marks around the eyes of Individual 3, this person may have received an additional blow to the head on the right temporal at or around the time of death, as noted by the “keyhole” shaped fracture with a radiating fracture line, similar to the one noted on Individual 2.

Individual 3 also has multiple cut marks on both left and right sides of the skull in the articular areas of the mandible, zygomatic, and temporal bones. On the left side of the cranium, there are three (one deep and two moderately deep) cut marks running below the articulation of the zygomatic and mandible. On the left zygomatic, moderate to deep cut and scrape marks run infe-

rior toward the zygomatic process of the temporal. On the right side of the cranium of Individual 3, there are cut and scrape marks on the temporal bone, along with a moderate to deep cut mark where the mandible would articulate with the temporal bone (i.e., the glenoid fossa). This indicates defleshing and mandible removal at or around the time of death.

#### *Additional Skeletal Elements*

Not all skeletal fragments could be rearticulated with the three crania. Ten additional cranial fragments were noted. Of these skull pieces, two have moderate to deep cut marks. A third fragment has a rounded fracture line that may be part of peri-mortem breakage, possibly from Individual 3, but this fragment could not be directly associated with that individual. It may be that during the varying levels of violence (e.g., blunt force trauma or defleshing) smaller fragments, which would help complete the crania or help with the reconstruction effort, were lost. In addition, a complete first cervical vertebra and the dens portion of a second cervical vertebra, both with small cut



**Figure 9.** Anterior view of *Individual 3*: (a) close-up of cut marks on superior portion of right zygomatic bone, near the articulation with the frontal bone; (b) additional cut mark in the right eye orbit; (c) three cut marks on the left eye orbit.

marks, also were recovered from the R-969 context. Nonetheless, it could not be determined if these vertebrae were from *Individual 2* or *3*, as only *Individual 1* had an intact articular area for cervical vertebrae. Overall, these additional cranial elements, and their lack of placement on the reconstructed crania, do not indicate that there were more individuals present. Instead, as all three individuals lack some portions of parietal, temporal, and occipital bones, it is likely these represent additional cranial fragments from *Individuals 1, 2, or 3*, that could not be identified by individual in the cranial reconstruction effort.

#### *Sequence of Violence*

The injuries on these crania, with the exception of the antemortem and well-healed circular depression on *Individual 2*, are all perimortem and

the exact sequence of violence cannot be determined. Nonetheless, some portions of the sequence can be resolved. For instance, *Individual 1* has a cut mark on the internal table of the occipital bone (Figure 6b). This indicates that defleshing took place after portions of the cranium were broken, and that *Individual 1* was likely deceased or highly incapacitated as skin and tissue were removed. *Individuals 2 and 3* also were likely deceased or near death when their crania were defleshed, as cut marks appear over various fracture areas indicating that blows to the head were earlier in the sequence of violence (Figure 8).

In terms of the removal of the jaw bones, all three individuals have Le Fort facial fractures, which indicate a heavy blow to the face and potential removal of the upper, maxillary portion of the jaw. *Individuals 1 and 2* have cut marks

around various areas associated with chewing musculature (i.e., masseter and temporalis muscles). And yet, only Individual 3 has evidence of cut marks in areas associated with chewing musculature, adjacent to the maxilla on the temporal bone and on the glenoid fossa of the temporal bone where the condyle of the mandible articulates. Hence, the mandible and maxillae of Individual 3 were likely purposefully removed, while we can only speculate on mandible removal for Individuals 1 and 2. In addition, as no dentition or any other fragments of maxillae or mandibles were found, it is likely all three individuals were placed in the R-969 burial cache without jaw bones.

Finally, all three sets of remains suggest the possibility that the eyes, or at least the flesh around the eyes, were removed. It is even possible that these people were alive during this process, as Hamilton (2005) noted similar cut marks around the eyes among Moche captives in the North Coast of Peru. She interpreted them as potential evidence of torture. A similar situation occurred with the Inka when Captain Topa Amaro Ynga extracted the eyes of the principals in Collasuyu as part of his conquest efforts (Figure 10; Guaman Poma de Ayala 2006 [1613]). In addition, it is also possible that the multiple cut marks represent efforts to cut through the *Orbicularis oculi* muscle, which encircles the eye socket, in order to extract the eye. The variety, depth, and placement of these cut and scrape marks on the bones near the eyes of all three individuals may be a product of this process. It is not clear whether this is a form of pre-death torture, ritual eye removal, or solely a result of the defleshing process.

### **R-969: The Wata Wata Heads in a Comparative Context**

The taking of trophy heads has been documented among numerous Precolumbian groups in Andean South America, including the Nazca, Wari, and Moche (Browne et al. 1993; Sutter and Cortez 2005; Tung 2008; Tung and Knudson 2010; Verano 1986, 2001, 2008). Scholars debate the nature and function of this practice and note that one possible explanation is that trophy heads are associated with rituals of ancestor veneration, particularly considering that such portable heads

were carefully curated (e.g., Guillen 1992). Other researchers propose that decapitation was associated with displaying heads as war trophies in a context of inter-group violence and political instability (e.g., Browne et al. 1993; Silverman and Proulx 2002; Tung 2003, 2007, 2008; Verano 1995). More recent work, partially based around modern understandings of the symbolic power of skulls in the Andes, interprets the practice of trophy taking as one in which heads may have been associated with fertility, fecundity, and power (e.g., Arnold and Hastorf 2008; Proulx 2001, 2006). Based on such explanations and in light of existing literature on human head extraction in the Andes, we explore the nature, function, and potential symbolic meaning of these skulls.

### *Wata Wata Heads as Ancestor Veneration*

Ancestor worship of deceased relatives is common throughout the world, and human skeletal remains used in this practice generally lack evidence of violence (Rakita et al. 2005; Sofaer 2006). Instead, the handling of human remains conforms to a process of memorializing deceased relatives, and bodies are treated with care after the soft tissue had decayed. Demographically, ancestor worship generally includes many older relatives of both sexes (Finucane 2008; Seeman 2007; Sofaer 2006; Verano 1995, 2001, 2008). In the Andes, Hastorf (2003) noted the emphasis on multiple secondary burials during the Formative period may have been associated with ancestor veneration in sites with public architecture, as a way to enhance community cohesion and social memory in the *altiplano*. Cases of ancestor veneration and dedicatory burials from the Tiwanaku heartland were documented during the Tiwanaku time period. Within the Tiwanaku capital, Manzanilla and Woodard (1990) noted the presence of skulls separated postmortem and placed as an offering on the Akapana pyramid. Blom and Janusek (2004) describe these as burials arranged and interred in a private space with few postmortem cut marks, likely an example of ancestor veneration. The Wata Wata heads were subjected to extreme violence including defleshing, dismemberment, and blunt force trauma, and therefore do not fit this general model of care and memorializing of the dead.



**Figure 10.** Drawing of eye extraction by the Inka captain Topa Amaro Ynga. He is depicted extracting the eyes of the rebellious principals in Collasuyu. Note that the victim is still alive while the process takes place (Guaman Poma de Ayala [2006 [1613]).

### *Wata Wata Heads as War Trophies*

A dominant explanation of head removal in the Andes is related to their use as visual symbols of triumph. In general, trophy heads were intended for public display and were seen as effective representations of victory or mementos of a successful conquest. When found in archaeological contexts, the human remains often have high frequencies of antemortem and perimortem vio-

lence, dismemberment, and postmortem modification (Andrushko 2011; Hamilton 2005; Tung 2003, 2008; Tung and Knudson 2010). For example, Wari and Nazca trophy heads had an emphasis on public display with drill holes often found on the jaws or superior portions of the cranium (i.e., frontal or parietal bones) through which a cord was passed in order to hang or carry the heads (Tung 2008; Tung and Knudson 2010; Verano 2001, 2008). In addition, the crania and

mandibles were kept mostly intact, likely to keep the visual impact to viewers as an easily recognizable head of a deceased person. Within Tiwanaku, Blom and Janusek (2004) describe a potential example of war trophies on the Akapana pyramid where young men were intentionally dismembered and then left on the surface, exposed to the activity of carnivores.

The heads from Wata Wata do not exactly fit the pattern of war trophies. The three crania do not have associated mandibles or any cranial holes indicating that they were used to hang or carry around. If they were displayed in public, it was not in a similar fashion to those used in Wari or Nazca. It is possible that the superior portion of the cranium was originally intact for display, akin to the iconographic images of a head being held by the hair. However, such practice would have been difficult if scalping was in fact performed on Individual 1. While the crania from Wata Wata partially fit the profile of trophy heads, particularly if one considers only the presence of dismemberment and perimortem modification, they do not fit a pattern of prominent exhibition as noted among other precontact Andean cultures. There is no evidence of holes to suggest their use as portable objects, as these heads were not “defleshed, drilled, and dangled for display after a person’s decapitation” (Janusek 2008:265). The Wata Wata heads also share some similarities with the sacrifices performed in the Northern Coast of Peru among the Moche. Even so, such similarities are primarily related to the violent nature in which these people died and not to any particular style of handling of the cranium perior postmortem. In addition, these skulls do not fit the “war trophy” pattern on the Akapana pyramid in the Tiwanaku heartland, where bodies were left mostly intact with some evidence of dismemberment and carnivore activity.

#### *Wata Wata Heads as Symbols of Fertility, Fecundity, and Power*

The importance of heads and skulls as potent sources of power is widely documented in the Andes (Arnold and Hastorf 2008; Proulx 2001, 2006). Head removal may have been performed as an effort to control dangerous power in the context of conflict or competition, or to redirect such a vital power source for protection. This is

comparable to the modern use of *ñatitas* (i.e., little turned-up or “pug” noses) in Bolivia, which are human skulls of both known and unknown origin (Arnold and Hastorf 2008). These *ñatitas* often serve as protection (e.g., to scare away intruders or robbers), to promote economic successes (e.g., through money placed in their jaws), or to occasionally heal the sick (e.g., they are brought to the bedside of terminally ill patients who then make miraculous recoveries). In addition to the *ñatitas*, crania are used as part of hillside ritual offerings in the central Andes. In one example, skulls are buried in an earthen pit, covered with items such as coca leaves, and closed with a capstone in the hope that the emanations from them will help rainclouds form (Arnold 2005:119; Arnold and Hastorf 2008:73-77). These hillside skulls can also be part of land reclamation strategies associated with fertility (Arnold and Hastorf 2008). Modern Aymara groups often use chests, ceramic containers, and soil pits to restrain and control the power potentially emanating from crania (Arnold and Hastorf 2008). In fact, human heads, like sprouting plants, are considered as a kind of “seed.” These skulls can be interpreted as vital sources of life from which the rest of the human body could be restored or regenerated if not properly controlled. The mythical hero Inkari, whose various body parts had to be buried separately in order to limit his power, further illustrates this idea. This mythos includes the idea that the fertility of the soil will help to regenerate his body so that he will one day return and take revenge on the Spanish for their conquest. In addition, Inka elite often used the crania from vanquished enemies as ritual drinking vessels as statements of political domination (Guaman Poma de Ayala 2006 [1613]).

At Wata Wata, head removal and placement in a ritual cache may have symbolized the control of vital power sources at this important religious and political center. And yet, such a practice does not fully explain a focus on eye and jaw removal, as well as the pattern of violence prior to each individual’s death and defleshing. We argue that these three individuals were handled in such a way as to disempower them. The physical extraction of the eyes of the Wata Wata heads may be a symbol of blindness and blinding the power of these individuals (Alconini and Becker 2015).



Following the same reasoning, it is likely that the removal of the maxillae and mandibles would have symbolically severed their ability to communicate. Therefore, the decapitation, dismemberment, and subsequent entombment of these heads under a capstone at Wata Wata during this critical Formative and Tiwanaku interface could have been a powerful ideological strategy aimed to end these peoples' literal ability to see and communicate, while also controlling them as a vital power source in the afterlife.

### Conclusions

Wata Wata was an important religious and political center that developed in the eastern Kallaway valleys during the Formative and Tiwanaku periods. Our first goal was to understand the bioarchaeological markers of trophy head decapitation. In the case of the Wata Wata cache of severed heads, the bioarchaeological evidence is dissimilar to other known cases of trophy-head taking in the Andes. All three individuals lacked the inferior portion of the face (i.e., maxillae, mandibles, and all associated dentition). These individuals underwent various levels of violence at or around the time of death, including beheading, various cranial fracturing, jaw removal, defleshing, scalping, and possibly eye removal. In addition, while it is likely that these individuals were deceased or highly incapacitated while the skulls were defleshed, it is less clear if they were alive when cuts were made near the eyes and, possibly, the eyes were extracted. Although we do not know if such practices were associated with some form of pre-death torture, a ritual involving the removal of the eyes, or just part of defleshing the face, the level of violence imposed upon these individuals is evident.

A second goal was to assess the importance of sacrifice as a political strategy of legitimization. Prior to this finding, depictions of trophy heads in much of Formative and Tiwanaku-period iconography was thought of more as a representation of the ties of cosmology and cultural affiliations, and less about the actual threat of physical violence. The evidence found at Wata Wata suggests that the influence of Tiwanaku in the region may have exacerbated existing political tensions. Although the Tiwanaku presence was not evident

in open military conquest, the existence of human sacrifice and ritual beheading suggests controlled forms of violence targeted at specific individuals or groups. Although we do not know the origins or ethnic affiliation of the victims, the crania were brought to the regional center at Wata Wata to serve as a dedicatory offering associated with a broad episode of architectural renovation connected to Tiwanaku. In addition, these victims, an adult male and two possible females, were subjected to high levels of interpersonal trauma. Thus, it is unlikely that these people were part of a cult to revere ancestors or, analogous to other examples in the Tiwanaku heartland, of individuals used as war trophies. These skulls are not typical examples of Andean trophy taking, because they were not meant to be displayed as conquest symbols. Instead, we argue that these heads embodied a strategic ritual metaphor aimed at taking away the power vested in important individuals by removing the head as a source of power, as well as symbolically removing the ability to see and communicate in both life and the afterlife. These heads may have been the medium to channel, perhaps even advertise, broader shifting balances of power during the Late Formative and Tiwanaku transition.

A third goal was to illuminate the role that ritualized forms of violence had in the control of exchange networks between ecological zones that once thrived in the region. As discussed, the Kallaway territory constituted a strategic corridor that linked the western Highlands with the eastern tropics. In this context, Wata Wata was part of a broader network of ceremonial centers during the Formative period, linked by shared religious beliefs, cosmologies, and practices. Considering the presence of Formative pottery and Yayamama religious paraphernalia, it is likely that these temperate valleys were of primary economic importance for a range of *altiplano* polities. In this context, Wata Wata was an important Formative-era transit center in the complex web of trading networks that facilitated access to highly valued resources from the tropics to the Titicaca Basin and beyond.

During the Tiwanaku time period, the Kallaway region witnessed significant changes, perhaps echoing broader shifts in the Central Andes. These included the symbolic appropriation of ear-

lier ceremonial centers such as Wata Wata or Kalla Kallan, the selective influx of Tiwanaku ceramics and associated ritual paraphernalia, and the establishment of funerary caves along the trading route. Hence, it is likely that Tiwanaku sought to participate in and even monopolize such exchange routes. While we do not fully understand the complex forms of interaction established with the local Kallawayaya populations, the use of ritualized forms of violence (i.e., decapitation, defleshing, and eye and jaw removal) in the ceremonial center of Wata Wata may have been a strategy aimed to facilitate the absorption of new religious cosmologies and a new social order. Thus, the Tiwanaku politics of expansion into the Kallawayaya territory likely combined religion, exchange, and strategic forms of ritualized violence.

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