

CHILDHOOD LOST: ABDUCTIONS, SACRIFICE, AND TROPHY HEADS OF CHILDREN IN THE WARI EMPIRE OF THE ANCIENT ANDES

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This study examines isolated child skeletal remains from ritual structures at the Wari site of Conchopata (A.D. 600–1000) to evaluate how they were modified into trophy heads and whether the children were sacrificed. The skeletal remains represent at least seven children. Strontium isotope ratios are examined to determine whether children were taken from foreign locales. Results show that the children's skulls exhibit a hole on the apex of the cranium and on the ascending ramus of the mandible, identical to the adult Wari trophy heads. At least one child may have been sacrificed. ⁸⁷Sr/⁸⁶Sr demonstrate that two of the four sampled child trophy heads were nonlocal, suggesting that children were occasionally abducted from distant communities, perhaps for sacrifice and certainly to transform some into trophy heads. The similar child and adult trophy heads suggest that the ritual treatment of children was not uniquely designed, at least as it related to their processing, display, and destruction. Furthermore, it is suggested that the child trophy heads were not simply passive symbols of pre-existing authority by the head-takers and trophy head-makers. The trophy heads simultaneously imbued those agents with authority—they did not merely reflect it—demonstrating the “effective agency” of the trophy head objects themselves. Finally, we suggest that prisoner-taking and trophy head-making by military and ritual elites served to legitimate the authority of those individuals while simultaneously serving larger state goals that enhanced Wari state authority and legitimated its policies and practices.

Este estudio examina óseos humanos incorporados de varios niños provenientes de estructuras rituales en un sitio de afiliación Wari (d.C. 600–1000)—Conchopata—para evaluar si fueron modificados como cabezas trofeos y si fueron sacrificados. Los restos óseos representan por lo menos siete niños. Además, se analizan las proporciones de isótopos de estroncio para aclarar si estuvieron raptados desde regiones afuera del centro del imperio Wari. Observaciones de perforaciones en los ápices de los cráneos de los niños indican que fueron cabezas trofeos. ⁸⁷Sr/⁸⁶Sr demuestra que dos cabezas trofeos de niños eran extranjeros. Esto sugiere que los guerreros de Wari capturaron niños, como hicieron a los adultos prisioneros. Las similitudes entre las cabezas trofeos de niños y adultos, indican que el tratamiento ritual de los niños no fue único o especial en su diseño, a menos que se relaciona su procesamiento, exposición, y destrucción dentro de las estructuras rituales. Además, se sugiere que las cabezas trofeos de los niños no fueron símbolos pasivos de una autoridad pre-existente de sus captores y fabricantes. Las cabezas trofeos simultáneamente imbuyeron esos agentes con autoridad—no la reflejaron simplemente. En este sentido, las cabezas trofeos tuvieron una “agencia efectiva” dentro de sus contextos de obtención, fabricación, y utilización. Finalmente, sugerimos que la captura y fabricación de cabezas trofeos por la elite militar y ritual legitimizaron su autoridad, a la vez sirviendo metas más amplias del estado que aumentaron su autoridad y legitimizaron sus principios y prácticas.

Child sacrifice has been documented in the ancient Andes of Peru and is most clearly associated with the Inka Empire (A.D. 1450–1532). Both ethnohistorical and bioarchaeological studies that have documented this practice, known as *capacocha*, note that beautiful, unblemished children were sacrificed and buried in high Andean mountaintops as offerings to mountain deities (*apus*) (Ceruti 2004; Gentile L 1996; Gua-

man Poma de Ayala et al. 1987 [1615]; Reinhard 2005). Children (and adults) could also be sacrificed to mark significant imperial events, such as the death of a royal Inka, a new Inka ruler's reign, or a successful military campaign (Betanzos 1551; Sarmiento de Gamboa 1999 [1572]). Recently, a probable *capacocha* has been documented at the site of Choquepuquio in the Department of Cusco, where seven similarly aged children were interred

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together with grave goods highly reminiscent of a *capacocha* offering (Andrushko et al. 2008; Gibaja et al. 2005); this demonstrates that these Inka child sacrifices were not limited to mountaintops.

Other Andean groups have been suspected of practicing child sacrifice, such as the Moche (A.D. 100–700) on the north coast of Peru where skeletons from three children, two of which were headless, were recovered from a ritual plaza at Huaca de la Luna (Bourget 2001). These child skeletons were recovered from the same plaza as numerous sacrificed adult males (Verano 2001a). However, because there was no osteological evidence among the child burials for the mechanism of death (e.g., perimortem fractures, cutmarks, or chopmarks), it is unclear if they were sacrificed or died natural deaths (Bourget 2001).

Recent research at the late Middle Horizon/early Late Intermediate Period site of Santa Rita B in the Chao Valley has uncovered additional examples of possible child sacrifice; three subadults (two 10–12-year olds and a 13–15 year-old girl) were apparently sacrificed and interred with two principal burials (a 7-year-old child and an adult male) (Gaither et al. 2008). Although the subadult sacrifices exhibit no perimortem trauma, the context and burial orientation led the authors to suggest they are retainer sacrifices (Gaither et al. 2008), not dissimilar to the child retainer sacrifices documented at the Middle Sicán site of Huaca Loro (Shimada et al. 2004). In short, while there is clear evidence of child sacrifice among the Inka and compelling evidence for it among pre-Inka cultural groups in the northern Peruvian Andes and coast, it remains unclear if other pre-Inka groups practiced child sacrifice.

The dearth of data on child sacrifice among pre-Inka groups is paralleled by limited information on child trophy heads. This lack of information has made inquiries into the practice of child head-taking and its possible relationship to child sacrifice difficult to address. In turn, scholarly inquiries regarding the role that children played in prehispanic rituals have been limited, a void that inhibits our ability to characterize how ritual activities affected the lives of individuals of all ages. A focused study of children's bones from ritual structures provides a direct means to evaluate if children were sacrificed, how their remains were made into trophies, and from where they were obtained. These data also

afford insights into how children were integrated into ritual life and how they may have been perceived in prehispanic Andean society.

In this study, we evaluate whether the Wari empire (A.D. 600–1000) in particular engaged in any of these practices. The notion that the Wari may have done so stems from new trophy head finds at the Wari site of Conchopata (Tung 2008), and from what is known of other prehispanic Andean societies. For example, the Inka practiced child sacrifice, and it has been proposed that some of their cultural practices and aspects of statecraft derived from the Wari (Earle 1997; Schreiber 1992). Also, because studies of Nasca trophy heads (A.D. 1–600) and associated iconography provide compelling evidence that adults and an occasional child were likely captured for the purpose of ritual sacrifice and transformation into trophy heads (Proulx 2001), it is possible that a subsequent polity in a neighboring region (i.e., the Wari in the Ayacucho Basin) conducted similar activities (Figure 1). Moreover, Nasca-derived iconography in much of Wari art indicates that the Nasca polity strongly influenced Wari material culture (Cook 1994; Menzel 1964). Therefore, it would not be surprising if Nasca ritual practices also permeated Wari society. Finally, the possibility that children were sacrificed and transformed into trophy heads in Wari society finds precedent in the apparent evidence that the Wari Empire sacrificed adults and transformed them into trophy heads (Tung 2007a).

Much of what is known about Andean trophy heads derives from iconographic and osteological studies of the Nasca (Browne et al. 1993; Proulx 2001; Silverman 1993; Silverman and Proulx 2002; Verano 1995). Detailed osteological study of Nasca trophy heads has identified their defining characteristics, such as an intentionally enlarged foramen magnum to extract the brain and an intentionally drilled hole on the anterior of the frontal bone (Verano 1995). Carrying cords are often still in place in many of the Nasca trophy heads, demonstrating that they were carried and displayed.

To evaluate whether Wari did indeed make trophies out of children's heads and practice child sacrifice, seven isolated children's skulls from two ritual spaces at the Wari site of Conchopata were reconstructed and analyzed. (They are clearly identified as the remains of children, not dwarf individuals, as has been previously suggested

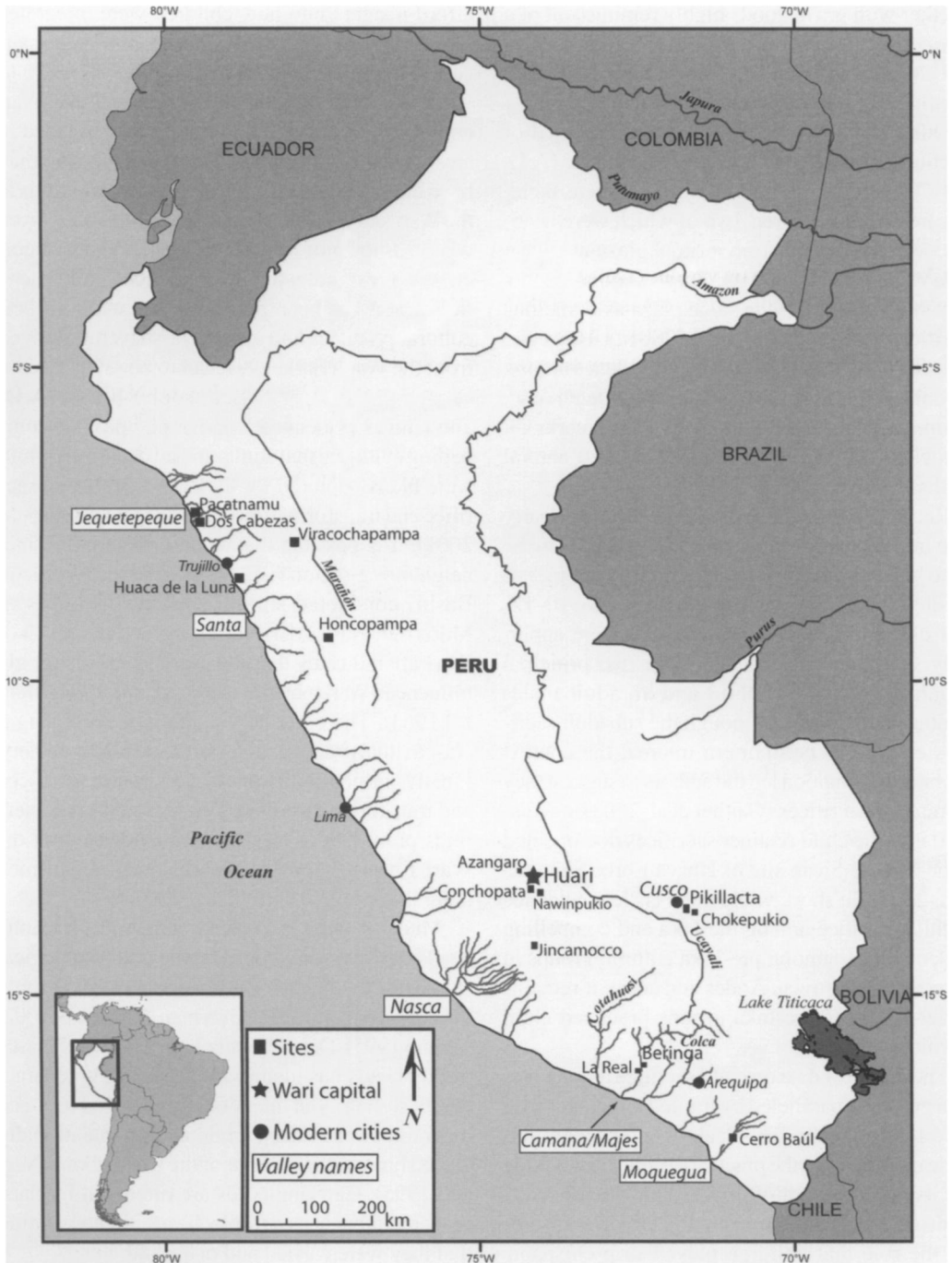


Figure 1. Map of Peru showing sites discussed in the text.

[Ochatoma and Cabrera 2002]). These children's skeletal remains are ideal to address these issues because they were excavated from the same ritual spaces—circular and D-shaped rooms—as the

adult trophy heads, who may have been sacrifice victims (Cook 2001; Tung 2007a). That these uniquely shaped buildings are ritual in nature is indicated not only by their architectural design, but

also by the presence of sacrificed camelids and intentionally smashed ceramic urns that had been beautifully decorated with images of Wari deities and elaborately dressed warriors (Ochatoma 2007; Ochatoma and Cabrera 2002).

The Wari Empire

The Middle Horizon (A.D. 600–1000) in the Peruvian Andes was initiated by various changes in art, architecture, and sociopolitical organization that reached nearly all parts of the Andes. These pan-Andean changes stemmed from two major cultural centers: Tiwanaku in the southern Andes of modern-day Bolivia, and the capital site of Huari in central highland Peru (Isbell 1987) (Figure 1). Wari influence was more geographically widespread than that of Tiwanaku, as evident in the wider distribution of Wari architecture that mimics forms from the capital site of Huari (Isbell 1984, 1991; Isbell et al. 1991). This style, known as the “orthogonal cellular architecture horizon,” in addition to the D-shaped ritual buildings (Isbell 1991), appear at numerous sites in the Peruvian Andes (Anders 1991; Feldman 1989; Isbell 1989, 1991; McEwan 1991; Moseley et al. 1991; Schreiber 1992; Williams 2001) (Figure 1). In particular, Azangaro (Anders 1991) and Jincamocco (Schreiber 1992), located on the fringes of the Wari heartland, display Wari architecture, as do more distant sites such as Viracochapampa and Honcopampa in northern Peru (Isbell 1989; Topic 1991), Pikillacta near Cuzco (McEwan 1991), and Cerro Baúl in southern Peru (Feldman 1989; Moseley et al. 1991; Williams 2001). There are also numerous Middle Horizon sites that have Wari ceramics and textiles intrusive to the local style, illustrating the extent of Wari influence (Cardona Rosas 2002; Cook 1994; Cook and Glowacki 2003; Menzel 1964, 1968; Nash and Barrionuevo 2009; Owen 2007; Schreiber 1992; Stone-Miller and McEwan 1990; Tung 2007c).

This widespread influence and control in particular parts of the Andes may have succeeded through religious indoctrination (Cook 1994, 2001; Menzel 1964), commensal feasting and drinking (Cook and Glowacki 2003; Isbell 1984, 1987, 2007; Williams and Nash 2005), and/or military campaigns (Feldman 1989; Lumbreras 1974). But rather than viewing these as mutually exclusive means to

rule, we see the various evidence as an indication that Wari political leaders were savvy in their implementation of different strategies in distinct places, and in how they negotiated with local elites.

While there is compelling evidence for these various strategies of rule (Feldman 1989; Isbell 1984, 2007; Lumbreras 1974; Menzel 1964; Williams and Nash 2005), evidence from the imperial heartland suggests that military might, or the threat thereof, as well as ritual authority, were particularly prominent. These are apparent in iconographic depictions of Wari warriors carrying weapons and trophy heads and Wari deities holding prisoners and trophy heads. Notably, these images appear on large, state-produced ceramic urns, some of which are a meter in diameter (Ochatoma and Cabrera 2002). The “official” coupling of images of warriors, captives, and trophy heads strongly suggests that activities involving them are interrelated. Further evidence of military conflict, or violent unrest more generally, is seen in adult cranial trauma rates that average about 25 percent among those from Conchopata and other Wari affiliated sites in the Majes valley of southern Peru (Tung 2007b).

The establishment of Wari ritual authority in the heartland and hinterland is evidenced by the wide distribution of D-shaped ritual structures, some of which contained ritually smashed ceramic vessels and sacrificed camelids (Bragayrac 1991; Cook 2001; Isbell and Cook 2002; Ochatoma and Cabrera 2002; Williams 2001). The display and destruction of adult human trophy heads in ritual buildings was another significant part of establishing this ritual authority. This is apparent at the site of Conchopata, the secondary site in the Wari heartland (Isbell and Cook 2002), where 24 adult trophy heads were found burned and smashed on the floors of two ritual structures (EA72 and EA143). Fifteen of the 16 adult crania whose sex could be determined were male (94 percent), and eight of the 19 adult trophy heads (42 percent) exhibited cranial trauma (one perimortem and seven antemortem fractures) (Tung 2008). Moreover, strontium isotope ratios obtained from local burials and a subsample of adult trophy heads indicate that a majority of the adult trophy head victims came from a geographical locale outside of the Ayacucho Basin (Tung and Knudson 2008). Together, the demographic, trauma, and chemical data suggest

that adults who were transformed into trophy heads may have been victims of raids, many of whom may have been nonlocal enemies of the Wari state. This is further supported by ceramic iconography showing Wari deities controlling bound prisoners and holding trophy heads, as well as images of warriors wearing trophy heads around their necks (Isbell and Cook 2002; Ochatoma and Cabrera 2002).

Expectations: Taking Child Captives and Documenting Sacrifice

Child skulls that display the same postmortem modifications as adult trophy heads will be identified as trophy heads. Such modifications include an intentionally drilled hole on the apex of the cranium and the ascending ramus of the mandible. To determine whether the bodies of children received similar ritual treatment as those of adults, juvenile remains were inventoried to see if the same adult skeletal elements (i.e., crania, mandibles, and hand phalanges) were present among the juvenile bones. The skeletal elements were then examined for cutmarks, chopmarks, and burning. If adults and children are represented by the same skeletal elements that show similar modifications, it will be suggested that both age groups were similarly integrated into Wari rituals.

The knowledge that the Inka practiced child sacrifice contributes to the supposition that preceding Andean groups also engaged in this practice, but evidence for skeletal trauma that is consistent with intentional killing would further support the hypothesis. For example, cutmarks or chopmarks on the cervical vertebrae, the inferior edge of the occipital, and/or the posterior edge of the mandible may suggest lethal decapitation (Angel and Caldwell 1984; Waldron 1996), while a perimortem fracture on a cervical vertebra may suggest a broken neck that could have been fatal (Angel and Caldwell 1984). Because the cutmarks, chopmarks, and perimortem fracture could also result from postmortem processing for burial, the osteological data must be evaluated with information on the archaeological context and more general knowledge about sacrifice in the Andes.

The question regarding whether local or foreign children were taken captive, sacrificially killed, and then transformed into trophy heads is crucial to examine, for these insights reveal much about Wari

imperial strategies for the subjugation and integration of "outsider" polities. To estimate if children from these ritual structures were from the Wari heartland or some distant geological locale, we obtained strontium isotope ratios from four of the seven children, and compared those to the expected strontium isotope value for the Ayacucho Basin (Wari imperial core) (Tung and Knudson 2008). We hypothesize that, like the adult trophy heads from the ritual structures at Conchopata, one or more child trophy heads will exhibit a nonlocal strontium isotope value, suggesting that, on occasion, children (or just their heads and hands) were taken captive and brought back to Conchopata for possible sacrifice and transformation into trophies.

Materials and Methods

The skeletal remains analyzed in this study include hand phalanges, cervical vertebrae, and cranial and mandibular parts representing at least seven children. The child skeletal remains do not derive from mortuary spaces, so the bone modifications described below (e.g., cutmarks, chopmarks) are unlikely related to burial treatment. Three children's skulls are from the D-shaped ritual room (EA72) and four are from the circular ritual room (EA143); both spaces measured 11 m in diameter (Figure 2). Because the human remains were smashed and commingled on the floors of the ritual rooms, some crania could not be affiliated with their mandibles.

Each cluster of human bone from the floor of EA143 was photographed, mapped, and assigned a numerical code while in situ (Isbell and Cook 2002). In most cases, a cluster of skull fragments pertained to one individual. However, in other cases one skull could be dispersed among several bone piles. For this reason, alphabetical lab codes were assigned that identified each particular individual. (See Table 1 for listing of the child skeletal remains that are present for each juvenile.) Spatial and stratigraphic relationships could not be examined for crania from EA72, as there are no detailed maps or sketches showing them in situ, though field photographs do show the skulls clustered together.

Age was determined based on dental eruption whenever possible (Ubelaker 1989). Cranial suture closure and thickness of the cranial bones were also used as criteria to distinguish adult bone from

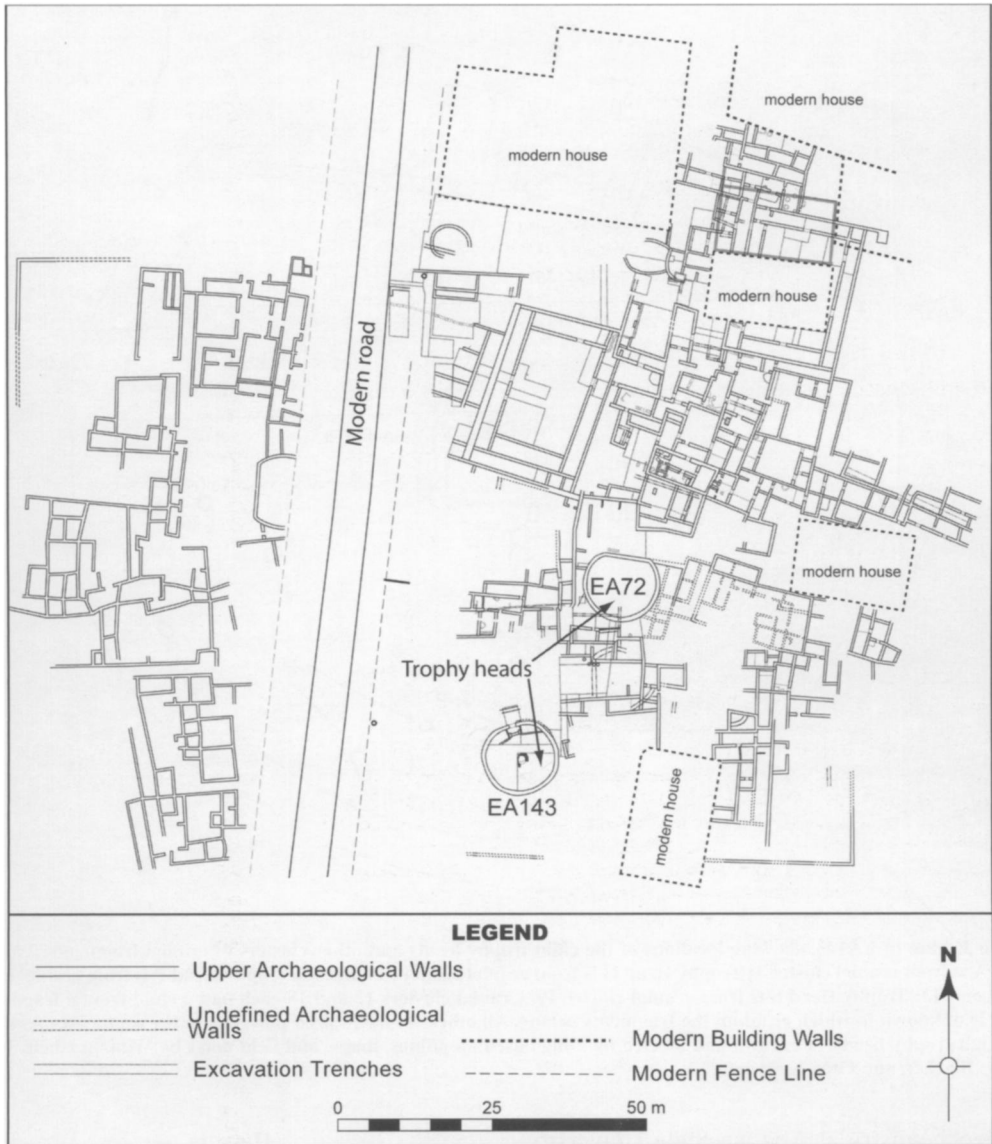


Figure 2. Map of Conchopata. (Based on map by Juan Carlos Blacker.)

juvenile bone (Meindl and Lovejoy 1985). Because sexually dimorphic skeletal traits had not yet developed on the juvenile individuals, sex could not be determined for any of the child remains.

All juvenile skeletal elements were observed with a 10x handheld magnifying lens for modifications such as drilled holes, cutmarks, chopmarks, and burning. They were also observed for ante- and perimortem trauma, and *cribra orbitalia* (an indicator of physiological stress) was observed when orbital roofs were present.

All tooth and bone samples were prepared in the Archaeological Chemistry Laboratory at Arizona State University. Archaeological bone samples were mechanically and chemically cleaned in a series of weak acetic acid washes to remove any diagenetic contamination, and then ashed at 800° C for 10 hours (Nielsen-Marsh and Hedges 2000; Price et al. 1992; Price et al. 1994; Sillen 1989). The strontium was then separated from the sample matrix using EiChrom SrSpec resin in the W.M. Keck Foundation Laboratory for Environmental

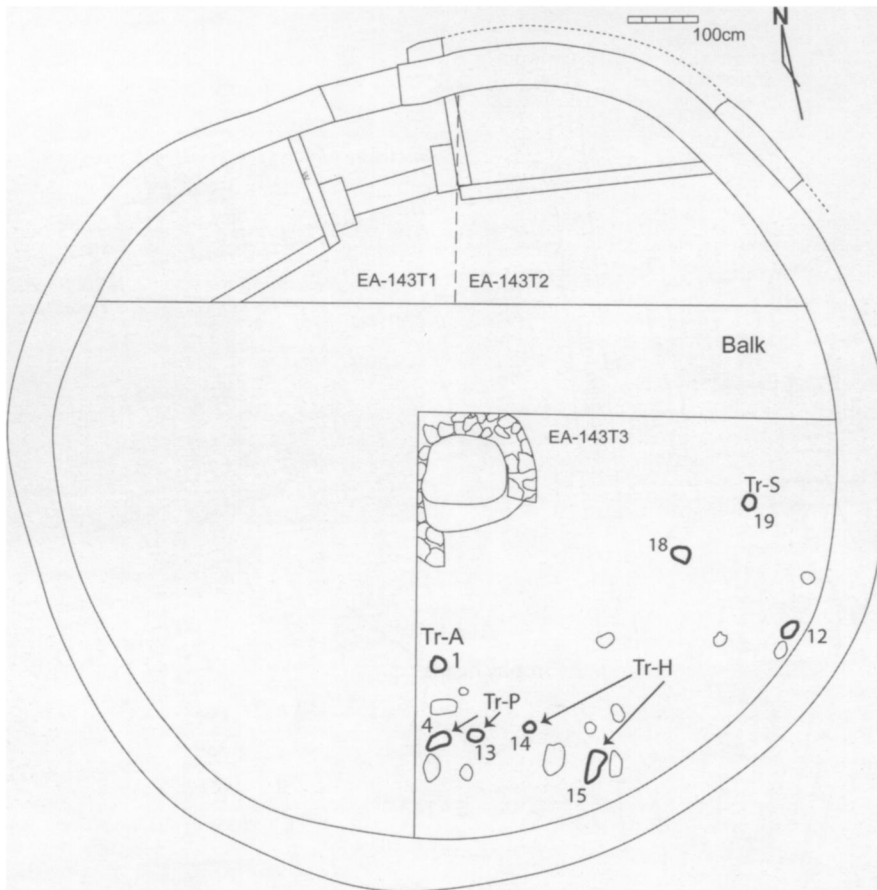


Figure 3. Map of EA143, showing locations of the child trophy heads and other clusters of cranial fragments. Trophy Head A is from cranial cluster 1; Trophy Head H is from cranial clusters 14 and 15; Trophy Head P is from cranial clusters 4 and 13; Trophy Head S is from cranial cluster 19. Cranial clusters 12 and 18 each had a child frontal fragment, but it is unknown to which cranium the fragments belong. All other similarly sized polygons in the southeast quadrant are adult trophy heads. (Redrawn and labeled by Tung based on photos, maps, and field notes by William Isbell, Juan Carlos Blacker, and Greg Ketteinan.)

Biogeochemistry at Arizona State University, where the samples were then analyzed using the Neptune multicollector inductively coupled plasma mass spectrometer (MC-ICP-MS). Recent $^{87}\text{Sr}/^{86}\text{Sr}$ analyses of strontium carbonate standard SRM-987 yield a value of $^{87}\text{Sr}/^{86}\text{Sr} = .710261 \pm .000020$ (2σ), which is in agreement with analyses of SRM-987 using a thermal ionization mass spectrometer (TIMS), where $^{87}\text{Sr}/^{86}\text{Sr} = .710263 \pm .000016$ (2σ) (Stein et al. 1997), and analyses of SRM-987 using an identical MC-ICP-MS, where $^{87}\text{Sr}/^{86}\text{Sr} = .710251 \pm .000006$ (2σ) (Balcaen et al. 2005). Additional details of sample preparation have been discussed elsewhere (Knudson and Tung 2007).

Results

Spatial Distribution of the Child Crania

The juvenile and adult skulls from EA72 were broken and deposited together in the southern half of the D-shaped structure, though specific spatial relationships between the skulls are unknown. In EA143, the skeletal elements were deposited in the south/southeast portion of the structure, where child crania were intermixed among the adult trophy heads (Figures 3 and 4). Fragments of crania and mandibles from children were recovered from both EA72 and EA143, but child hand phalanges were only recovered from EA143.

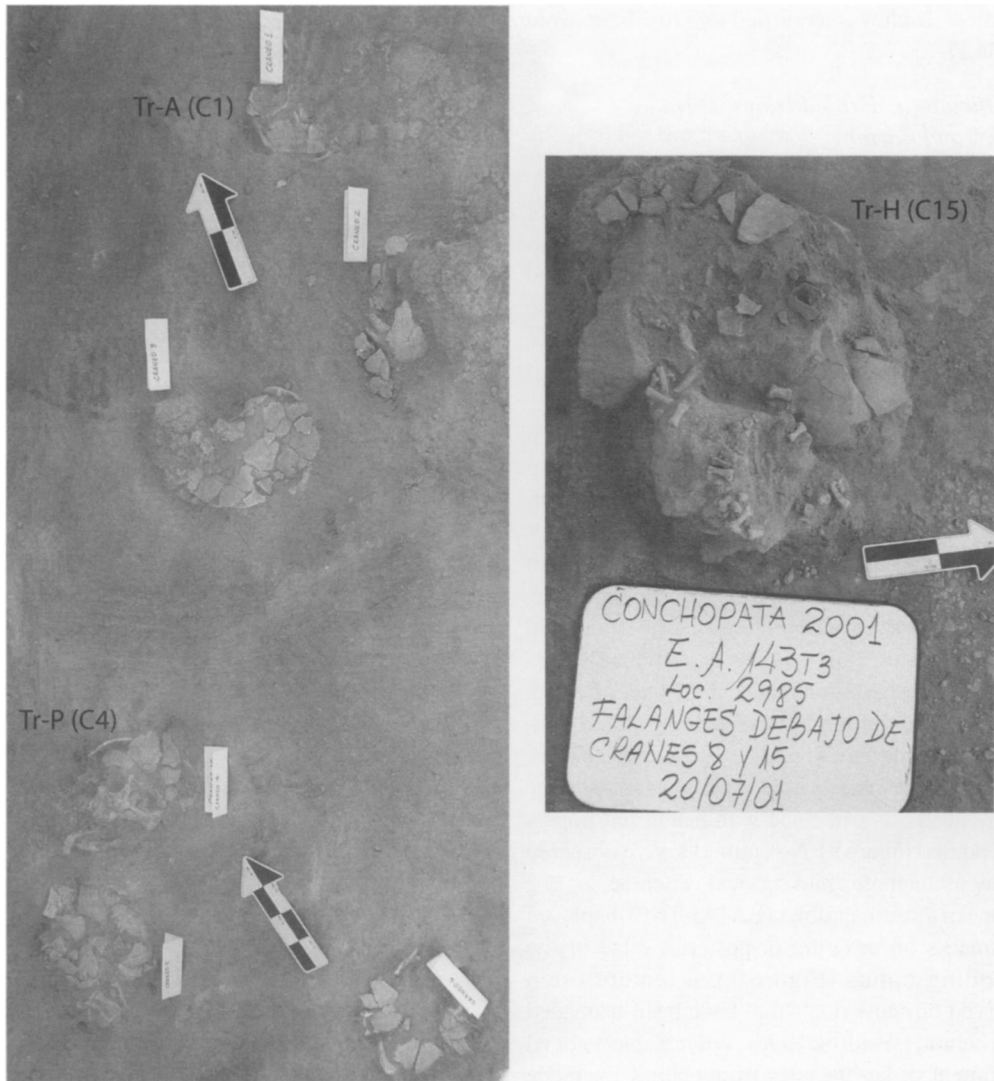


Figure 4. Skulls in situ (left photo) and hand phalanges (in situ) that were under Crania 8 and 15 (right photo). Cranium 4 (C4) included skull fragments from a child (Tr-P) and an adult (Tr-D, visible in photo but not discussed in this article). Skull fragments from Tr-P were below and immediately east of Tr-D. (Photos courtesy of William Isbell.)

Of the four child crania from EA143, two had skull parts scattered among several different clusters. Trophy Head H (Tr-H) was scattered among Cranial Clusters 14 and 15, and Tr-P was dispersed among Cranial Clusters 4 and 13 (Figures 3 and 4). Tr-A was from skeletal remains in Cranial Cluster 1 only, and Tr-S was from Cranial Cluster 19 only (Figure 3). Cranial Clusters 12 and 18 also had some juvenile bone fragments, but they could have belonged to any one of the other child skulls; therefore, they could not be added to the MNI estimate.

It is unknown if the dispersion of child skeletal parts occurred during the process of the ritual, or if they were separated after ritual activities had ceased.

Age-at-Death

Three of the four children in the circular ritual structure were 3 to 8 years old at the time of death. The fourth child in that room was 4 to 11 years old. The three children in the D-shaped ritual space were not as well preserved, but based on cranial size and

thickness, each was identified as 3 to 12 years old (Table 1).

Modifications: Drilled Holes, Cutmarks, Chopmarks, and Burning

Among the four juvenile crania with an observable calotte, all show a hole at bregma, on the apex of the cranium (Figure 5), and of the two mandibles observed, one exhibited a hole on both the left and right ascending ramus (Table 1, Figure 6). Because the locations of these intentionally drilled holes mirror those on the adult trophy heads, these child remains are identified as trophy heads.

Of the three child mandibles preserved well enough to observe for cutmarks, all exhibited them on the posterior edge of the ascending ramus, modifications that mirror those of the adult trophy heads (Table 1, Figure 7). Cutmarks were also observed on the temporal bone of EA143-Tr-P, superior to the external auditory meatus (Figure 8). Of the nine child hand phalanges, only four were sufficiently preserved to observe for cutmarks; none were affected. Nevertheless, the mere presence of isolated phalanges from children's hands suggests that their fingers were ritual objects used in conjunction with the trophy heads, as was done with heads and fingers from adults (Figure 9). No cutmarks were observed on any of the three child cervical vertebrae.

One of three mandibles (EA143-Tr-P) displayed chopmarks on the inferior-posterior edge of the ascending ramus (Figure 7), a feature often observed on individuals that have been beheaded from behind (Waldron 1996). When a sharp-edged instrument strikes the neck from behind, the blade often makes contact with the inferior corner of the lower jaw, resulting in observable chopmarks, like those on Tr-P.

Several of the child trophy heads were burned at high temperatures, as evidenced by their light gray color and vitrification. The Conchopata adult trophy heads were similarly vitrified; they sound similar to clinking glass when tapped together (Tung 2008). The color of the bones suggests that the heads were burned at temperatures of at least 800° C (if burned for about three hours surrounded either by air or topsoil), or as high as 1000° C (if burned for one hour surrounded by topsoil) (Walker et al. 2008). Although the duration of burning is unknown, it appears that the bones were burned at temperatures slightly lower than would have been

Table 1. Osteological Observations on Child Trophy Heads from Conchopata.

Excav. Code	Lab Code	Bones Present	Age	Hole at Bregma	Ramus Hole	Cutmarks on ramus	Cribriform orbitalia	Cranial Trauma	Mand. Trauma	C-vert Trauma	Burning
C1	EA143-A	Calotte	Child	Yes	?	?	?	No	?	?	Yes
C14, 15	EA143-H	Incomplete frontal, L. mand., hand phalanges	3-7 yrs	?	?	?	?	?	No	?	Yes
C4, 13	EA143-P	Calotte, mand., 3 c-verts.	6-8 yrs	Yes	No	Yes	No	No	No	Yes	Yes
C19	EA143-S	Calotte, facial, mand., hand phalanges	5-7 yrs	Yes	Yes	Yes	No	?	No	?	Yes
C12	None. (Not a separate child)	Small (4x3cm) frontal frag. w/ hole.*	Child	?							Yes
C18	None. (Not a separate child)	Small (1.5x1.5cm) frontal frag. w/ hole.*	Child	Maybe							Yes
None	EA72-C1	Calotte, L&R zyg., mand	4-11 yrs	Yes	?	Yes	?	No	No	?	Yes
None	EA72-C2	Frontal, L&R temporal frags.	4-11 yrs	?	?	?	No	No	?	?	Yes
None	EA72-C10	Frontal, L. zyg.	4-11 yrs	?	?	?	Yes	?	?	?	Yes

* Unknown to which EA143 child cranium it belongs.

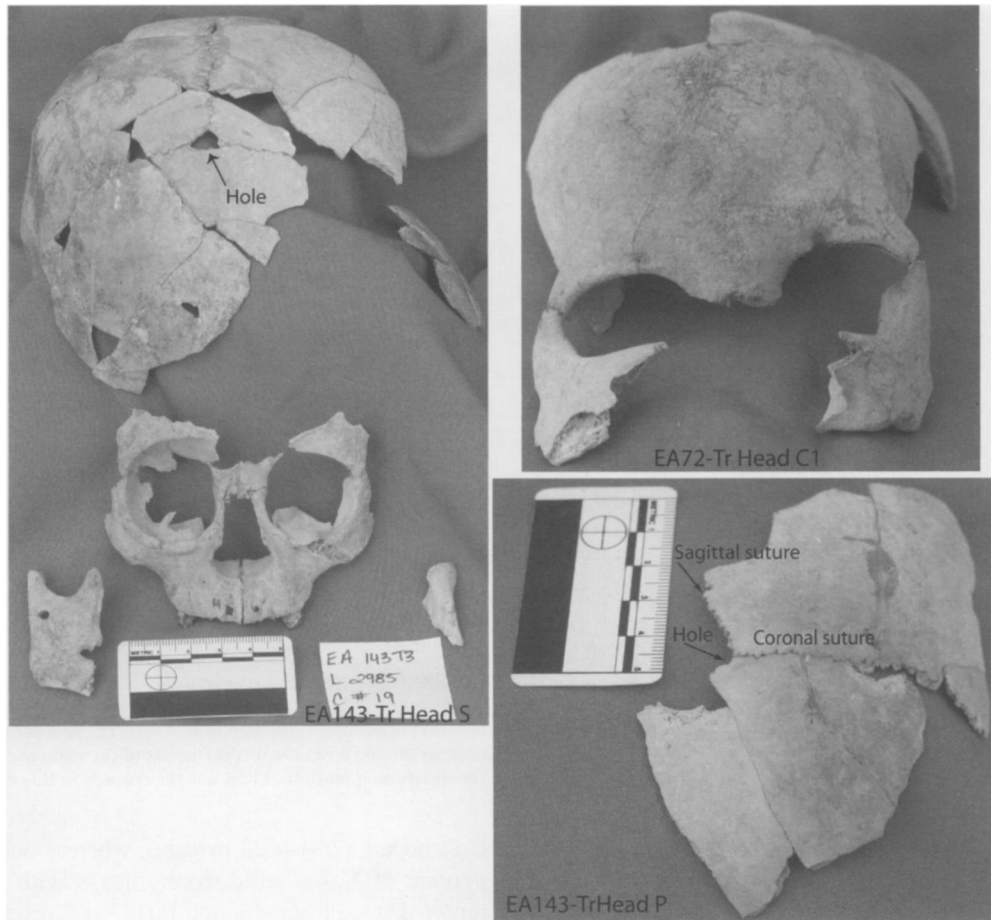


Figure 5. Reconstructed trophy heads from EA72 and EA143.

used to fire terra-cotta or earthenware ceramics (Rice 1987).

Disease

Cribra orbitalia was observed on one of the four child trophy heads (25 percent), which suggests that the affected individual may have suffered from anemia (Ortner et al. 2001; Stuart-Macadam 1987; Walker 1986; Walker et al. 2009) or inflammation caused by a dental abscess, sinusitis, or other nasoral infections (Wapler et al. 2004). In short, these lesions indicate general physiological stress among a quarter of the children that were made into trophy heads. In contrast, only five percent ($N = 19$) of children that received proper burial in a Conchopata tomb suffered from similar biological stressors. However, the difference is not statistically significant (Fisher's exact, $p = .324$, $N = 23$).

Trauma

There were four calottes, two frontal bones, two partial facial areas, four partial mandibles, three cervical vertebrae, and eight hand phalanges, none of which exhibited antemortem trauma (i.e., healed fractures). Thus, it appears that these children did not suffer from injury earlier in their childhoods.

All juvenile elements were examined for perimortem trauma (i.e., injuries that occur around the time of death). A perimortem fracture was observed on the lamina of a cervical vertebra from EA143-Tr-P (Figure 10), the same child that showed chopmarks on the mandibular ascending ramus. The affected vertebra is either cervical vertebra 4, 5, 6, or 7. The angle of the break and the homogenous color of the broken edge and the surrounding bone indicate that the fracture was perimortem, not post-mortem.



Figure 6. Mandible from child trophy head (Tr-S) exhibiting a hole on the left and right ascending rami. The arrow points to the superior edge of the hole fragment on the left ramus. The right photo shows the medial aspect of the right ascending ramus with the drilled hole; the large hole is the crypt for the developing tooth that had not yet erupted in this child.

Strontium Isotope Ratios

Strontium isotope ratios were obtained from bone from four children (five samples total): EA143-Tr-A cranial fragment $^{87}\text{Sr}/^{86}\text{Sr} = .71013$; EA143-Tr-H hand phalanx $^{87}\text{Sr}/^{86}\text{Sr} = .71601$; EA143-Tr-P cranial fragment $^{87}\text{Sr}/^{86}\text{Sr} = .70613$; EA-143-Tr-P vertebral fragment $^{87}\text{Sr}/^{86}\text{Sr} = .70607$ (the cranial and vertebral fragments are from the same juvenile); and EA72-Tr-C1 $^{87}\text{Sr}/^{86}\text{Sr} = .70616$ (Table 2 and Figure 11). Two of the four children (Tr-A and Tr-H) exhibit values outside the expected range for the Ayacucho Basin (local mean $\pm 2\sigma$ s.d. is $^{87}\text{Sr}/^{86}\text{Sr} = .7051-.7065$) (Tung and Knudson 2008), indicating that they were not from the Wari heartland. This suggests that, on occasion, Wari warriors took children captive (or just their heads and hands), and brought them back to Conchopata.

Discussion

Child Trophy Heads in the Wari Empire

The seven child trophy heads represent 23 percent of the entire trophy head sample recovered from

Conchopata (7/31 = 23 percent), whereas only 7 percent of Nasca child trophy heads with age reported were from children (8/123 = 7 percent) (Tung 2007a), a difference that is statistically significant (Fisher's exact, $p = .014$, $N = 154$).

The significantly higher frequency of child trophy heads at Conchopata is striking, and it may suggest that children were intentionally sought for this ritual program. The children's heads represent more than a couple of eccentric specimens; they seem to be a common and integral part of these elaborate Wari rituals, where the child trophy heads are integrated with those from adults. Perhaps the Wari community (or ritual specialists or other elites with decision-making power within the larger commu-

Table 2. $^{87}\text{Sr}/^{86}\text{Sr}$ Values for the Sampled Child Trophy Heads and Hands from Conchopata.

Specimen Code	$^{87}\text{Sr}/^{86}\text{Sr}$
Tr-2985-13 Vert (Tr-P)	.70607
Tr-2985-13 Cran (Tr-P)	.70613
Tr-0072-MandJ (Tr-C1)	.70616
Tr-2985-01 Cran (Tr-A)	.71013
Tr-2985-15-02 Hand ph. (Tr-H)	.71601

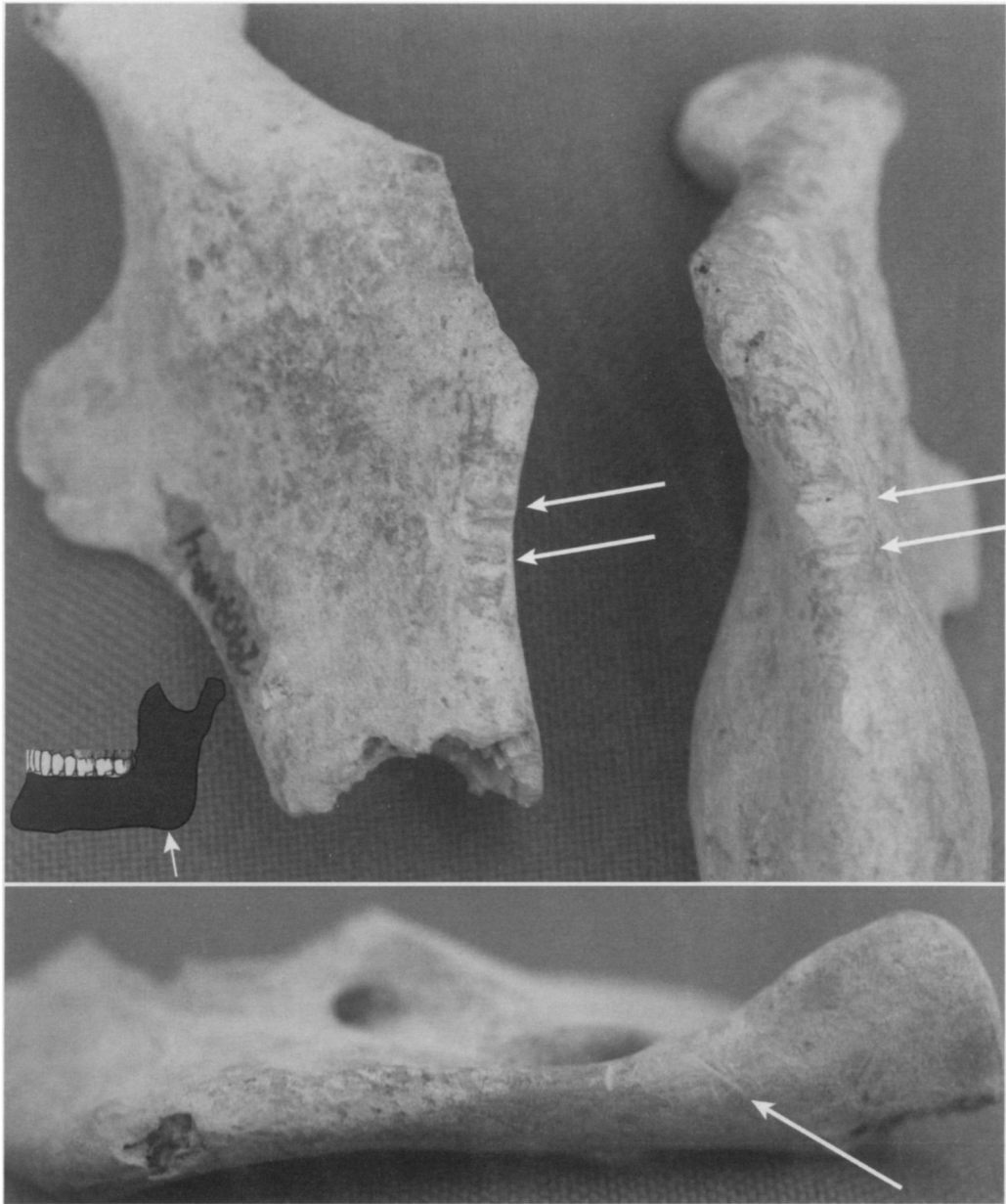


Figure 7. Top photo: chopmarks on inferior-posterior corner of mandible from Tr-P, suggesting that this child was beheaded from behind. Bottom photo: cutmarks on posterior edge of ascending ramus of Tr-S.

nity) deemed children older than three appropriate for trophy head transformation. Age is certainly a key aspect of social identity, and although it is unknown how Wari would have marked the passage of time for calculating age, it is probable that all of these children were close to or in their post-weaned years and were likely walking and talking, but not yet in post-puberty. These statuses may

have placed them in a social category that marked them suitable for sacrifice and trophy head rituals. Despite the age differences between children and adults, both were similarly processed. That is, rituals involving child trophy heads were not uniquely designed, at least as they related to their processing, display, and destruction in Wari ritual buildings. While there may have been other distinctions



Figure 8. Cutmarks on temporal bone (superior to external auditory meatus) of child trophy head.

regarding the ritual (non-mortuary) treatment of children and adults who were transformed into trophy heads, current data do not reveal them.

Dismemberment and Display of Children's Heads

The cutmarks on the mandibles and temporal bones suggest that soft tissue was intentionally removed, likely during the process of dismembering the body. This also suggests that trophy-head preparers were not working with old, skeletonized remains. That is, body parts of long-dead children whose soft tissues had naturally decomposed were not used for creating trophy heads. Rather, they must have been dismembering and modifying fresh bodies from recently deceased children.

In particular, the cutmarks on the posterior edge of the ascending ramus indicate that the masseter muscle was intentionally cut to separate the mandible from the cranium. (The masseter muscle originates on the inferior edge of the zygomatic bone and inserts on the ascending ramus and coronoid process of the mandible; thus, this muscle must be severed if the mandible is to be disarticulated from the cranium.) Cutmarks on mandibles

were also observed on 59 percent of the *adult* trophy heads from Conchopata ($N = 22$) (Tung 2008) and on a Moche skull bowl (Verano 2001a). An important insight from these observations is that trophy head preparers in the ancient Andes likely had detailed knowledge of human anatomy, and Wari ritual specialists in particular, nearly consistently severed the same muscles in the process of creating human trophy heads.

The holes on the apex of the child trophy heads were probably threaded with cord so they could be carried or dangled, as was done with Nasca trophy heads. Child mandibles also may have been hung separately, as evidenced by the hole on the ascending ramus, or they could have been tied back to the cranium at various times throughout their use-life. This kind of usage has also been proposed by Verano (1995), who describes a Moche skull bowl (noted above) with two holes on the left ascending ramus. Thus, the holes on the apex of Conchopata crania and on the ramus of mandibles likely functioned as conduits for cords, so the entire trophy head (cranium and mandible) or just one part (cranium or mandible) could be displayed. It is unknown if the child trophy heads were displayed



Figure 9. Child hand phalanges found with the child trophy heads in EA 143.

solely in the ritual structures or if they were also displayed in other areas.

Probable Evidence for Wari Child Sacrifice

Although the perimortem fracture on the cervical vertebra and the chopmarks on the posterior edge of the ramus could have been sustained shortly after death, knowledge about sacrifice in the Andes and the specific cultural context in this case require that other explanations be explored. The perimortem fracture and the chopmarks may represent the mechanism of death, suggesting that at least one of the children was intentionally killed. Furthermore, demographic analyses of prehistoric populations suggest that child deaths are rare relative to deaths among, for example, infants or young adults, so the death of these children may not have been from natural causes (Hoppa and Vaupel 2002).

Specifically, the age-at-death distribution of the child trophy heads is unusual in that this age cohort (3–11 years old) typically represents a small percentage of natural deaths in skeletal populations (Hoppa and Vaupel 2002; Lewis 2007). If individuals survive infancy and the post-weaning period—a perilous time for human infants, particularly in prehistoric times—then they are less likely to die during childhood (i.e., they will likely survive into adulthood; but see Wood et al. 1992:347). Among the general mortuary population at Conchopata, 32 percent of the deaths were among fetuses and infants (under 3 years old), while only 19 percent of the deaths were among children (3–14 years old)

($N = 290$) (Tung 2010). Thus, given that childhood deaths are relatively uncommon, it is less likely that all seven children in the ritual structures died natural deaths. Although this is circumstantial, it is an important data point to be considered with other lines of evidence.

More compelling, however, is that the perimortem fracture on the cervical vertebra may suggest a “broken neck” or case of strangulation. A fractured cervical vertebra can occur, for example, when a ligature produces excessive force that breaks the lamina (Angel and Caldwell 1984). The use of ligatures to kill sacrificial victims in the prehispanic Andes is not unknown. Female sacrifices with ligatures around their necks have been recovered from the coastal site of Pachacamac near Lima (Uhle 1903) and at the Moche site of El Brujo in northern Peru, where one female was a sacrificed retainer burial for an elite Sicán male, and another sacrificed female was placed in an isolated pit with a camelid (Verano 2001a). No ligature was found in the Wari ritual structures; however, preservation at the site is sufficiently poor that it is unlikely that any would have been preserved.

The mechanism of death also could have been decapitation. The chopmarks on the inferior edge of the ramus are consistent with marks sustained during beheadings when the blow comes from behind (Waldron 1996), and given that the perimortem fracture and chopmarks are on the same child (Tr-P), it is possible that the excessive force of the beheading caused both alterations: the peri-

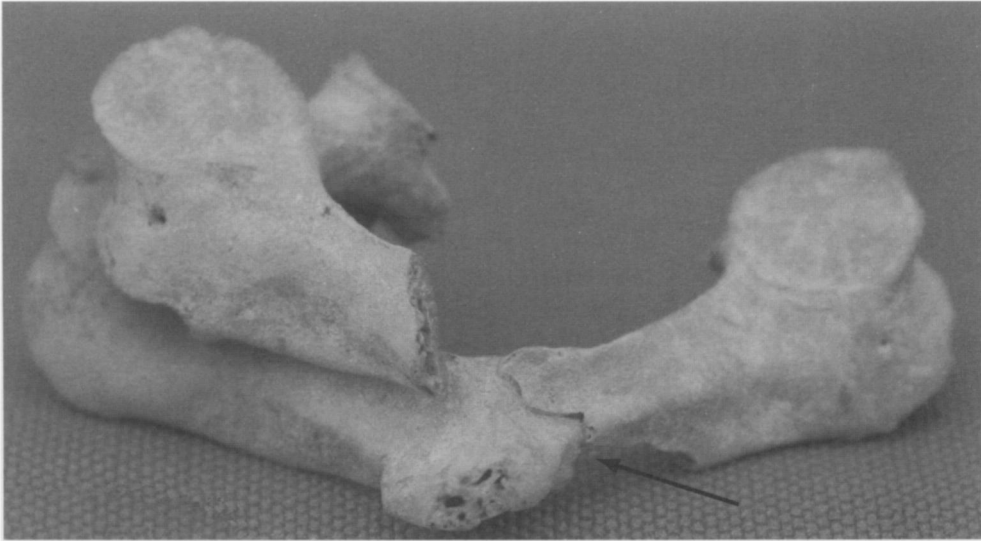


Figure 10. Perimortem fracture on cervical vertebra, suggesting that the child's neck was broken.

mortem fracture and the chopmarks.

Like strangulation, decapitation is also known in the prehispanic Andes. At the Moche site of Dos Cabezas, 18 severed heads were uncovered, and at least four of them exhibited cutmarks on the cervical vertebrae, suggesting that those persons had been beheaded (Cordy-Collins 2001). Moreover, Moche ceramic bottles and figurines depict the Supernatural Human Decapitator in the process of decapitating a person, undergirding the hypothesis that the Moche practiced lethal beheadings (Cordy-Collins 2001). Sacrifice by means of decapitation has also been proposed for five females at the Initial Period site of Wichqana (1150–750 B.C.) in the Ayacucho Basin, the region that later gave rise to the Wari empire. They were each represented by a cranium, mandible, and cervical vertebrae, all in anatomical position, indicating that soft tissue was still intact when they were dispossessed of their heads (Lumbreras 1981). It is unknown if cutmarks or chopmarks were observed, making it difficult to evaluate if the Wichqana females were indeed decapitated, either as the mechanism of death or as postmortem processing.

Children Abducted from Local and Foreign Communities

The strontium isotope data suggest that the child trophy heads came from children from a nonlocal

geological area and the local Ayacucho region (or an area with similar geology, such as the middle Moquegua valley [Knudson et al. 2004] where the Wari site of Cerro Baúl is located). If those children with the Ayacucho strontium isotope ratios are indeed from the local community, then perhaps the sacrifice was perceived as an honor for the individual and family. Similarly, for those children from nonlocal groups, the sacrifice could have been perceived as an honor by the donor community, functioning to integrate nonlocal communities into the Wari Empire, as the Inka *capacocha* was meant to do. Conversely, the nonlocal children could have been abducted as an act of overt aggression and later sacrificed and made into trophies. When only osteological and strontium isotope data are considered, it is unclear whether these nonlocal children were abducted or whether they were willingly gifted for sacrifice by the family and community.

An examination of iconography, however, provides some insights. It suggests that the children may have been abducted and that their abductions were related to capturing them for sacrifice and creating trophy heads. An oversized ceramic urn from a ritual smash at Conchopata shows the Front Face Deity dangling a person with hands bound behind the back, and to their right, the Winged Profile Sacrificer (Cook, personal communication 2006) displays a fleshed trophy head suspended

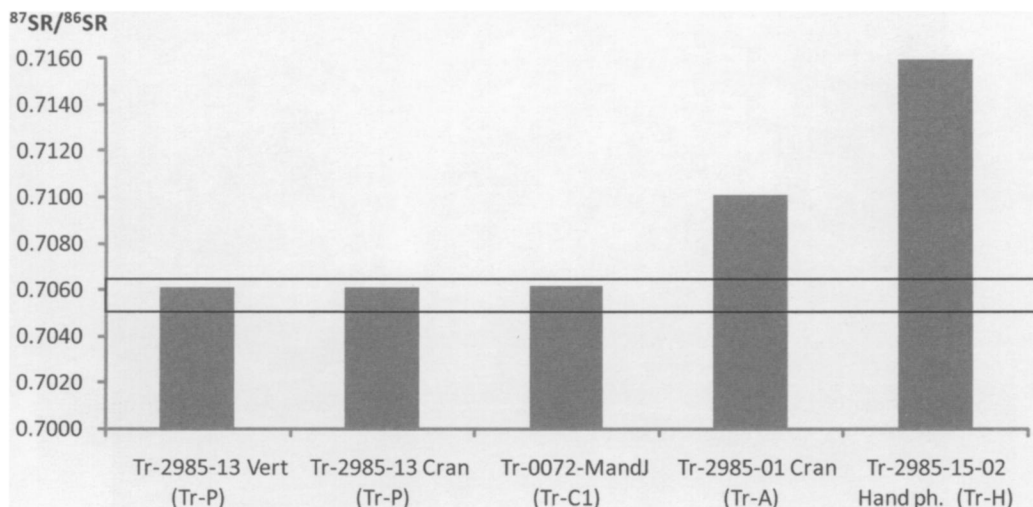


Figure 11. Strontium isotope ratios from five bone samples representing four different child trophy heads/hands. The black rectangle shows the expected strontium isotope ratio for those who were natal to the Wari heartland (Ayacucho Basin), as based upon local geology, local small animals, and local human burials (see Tung and Knudson, 2008).

from a staff (Isbell and Cook 2002) (Figure 12). In this scene, the captive and the trophy head do not appear to be the same person, as evidenced by the different face paintings. But, if the scene is representing a verisimilar act, like Moche iconography, then the depiction of a bound prisoner suggests that the Wari indeed took captives, and perhaps sacrificed them, later transforming them into trophy heads.

Wari iconography from the capital site of Huari also shows bound prisoners under the control of Wari warriors, further demonstrating that Wari engaged in prisoner capture (Ochatoma and Tung 2008). Although the artist's renderings are of adults, it is possible that children were taken in similar ways (they were certainly processed and ritually destroyed in similar ways). Specifically, the children may have been taken in village raids, not warfare battles, given that young children are rarely present on the battlefield (Tung 2008). These children may have been taken captive with the intent of sacrificing them in later rituals at Conchopata.

The interpretation that child captives were taken in village raids for sacrifice and the creation of Wari trophies lies somewhere between interpretations posited by Proulx (2001), Silverman (1993), and Baraybar (1987) as they relate to Nasca trophy heads. Proulx (2001:128) suggests that trophy head victims were beheaded during battles or raids and

later made into trophy heads for ritual use; he states, “[Nasca] iconography clearly portrays decapitation during a battle, not as a separate ritual sacrifice following capture of an enemy. There are no depictions on the [Nasca] pottery of prisoners of war” (2001:128). In contrast, Silverman (1993) and Baraybar (1987) suggest that victims were taken captive in Nasca ritual battles, with the purpose of using them as ritual sacrifices and trophy heads. Silverman's (1993) nuanced analysis of Nasca trophy heads and their contexts also makes clear that the methods and meanings associated with Nasca trophy taking changed from early to late Nasca times. In the early Nasca era, trophy heads were part of a “social formation that overtly emphasized ritual and religious sanctions as its means of cultural (social, political, economic) integration”; early Nasca headhunting was not about territorial expansion (Silverman 1993:222).

For the Wari, in contrast, captive-taking and trophy-making may have been part of a political and military system that achieved both territorial conquest *and* cultural integration. In short, the Wari likely did not kill and behead victims on the battlefield or raiding site, as Proulx (2001) has proposed was done by Nasca warriors; rather, the Wari may have taken captives with the intent to sacrifice them and transform them into trophies, similar to what Silverman (1993) has proposed for the Nasca.

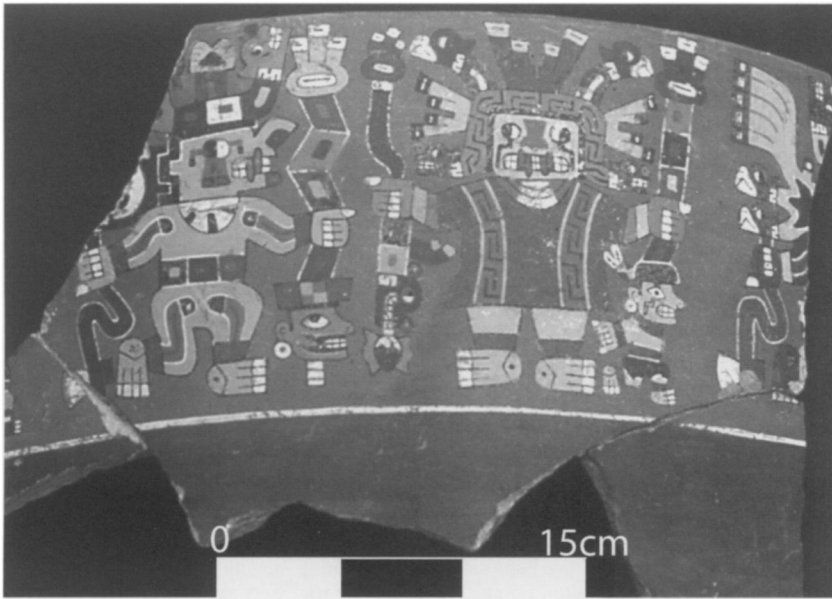


Figure 12. Ceramic urn fragment from ritual smash at Conchopata, showing the Front Face Staff Deity dangling a bound captive and the Winged Profile Sacrificer holding a fleshed trophy head. (Photo courtesy of William Isbell)

Thus, while taking captives and beheading them are practices typically perceived as components of militarism, these acts were apparently tightly interwoven with Wari ritualism, demonstrating the intimate connections between militarism, political strategy, and ritual practice.

The taking of prisoners for subsequent sacrifice and the creation of human trophies is not unique to the Wari and the Nasca. At the site of Pacatnamu in the north coast of Peru, 14 adolescent and young adult males were recovered, some of whom had ropes tied around their ankles and in one case, around the wrist, supporting the notion that they were indeed captives (Verano 1986). Several of them exhibited evidence of trauma, dismemberment, and decapitation, and four individuals had the left radius intentionally removed, likely for use as trophies (Verano 2001a:174–175).

Prisoner sacrifice may have been similarly practiced at the Moche site of Huaca de la Luna, where healed and partially healed trauma among several of the approximately 70 male victims suggests that they were captured warriors (Verano 2001b). About 50 clay figurines of nude men with ropes around their necks, all of which were intentionally destroyed and placed between the victim's bodies, further substantiate this interpretation (Bourget

2001, 2006:41–45). Moreover, numerous Moche figurines and ceramic iconography depict bound prisoners, corpses being attacked by vultures, and disembodied body parts, further evidence that the Moche engaged in prisoner sacrifice and the processing of human trophies (Bourget 2001, 2006:41–45; Verano 2001a:174–175; 2001b). Additionally, two headless children and a complete child were deposited in one of the ritual plazas at Huaca de la Luna (near the plaza with the sacrificed adults), suggesting that, like at Conchopata, children and adults may have been similarly captured and sacrificed.

While prisoner capture and headhunting of enemies to make trophies have been discussed here, we do not mean to eliminate the possibility that Wari rituals also could have included the dismemberment and display of bodies from members of their own community. Indeed, the local strontium isotope ratios from two child trophy heads suggest that some may have been from the imperial heartland. However, because they also could have come from distant Wari outposts with similar geology, local status should still be confirmed. Nonetheless, the categories of “local” and “foreigner” are not necessarily mutually exclusive in the ritual arena; children and adults both internal and external to the

Conchopata community could have been sacrificed and transformed into trophy heads. Moreover, a “local” can quickly lose his or her insider status, and be labeled an outsider, transgressor, or criminal, and thus become subject to ritual killing, dismemberment, and the like.

Craft and Ritual Specialists

The presence of isolated skulls and hands from both children and adults, as well as the identical modifications to the skulls of both age classes, demonstrate that the ritual processing followed a prescribed set of practices, regardless of the victim’s age. This in turn suggests a high level of standardization in how trophy heads were processed—much more than has been found among those from Nasca (Browne et al. 1993; Kellner 2002; Verano 1995; Williams et al. 2001). On the one hand, the coordinated outcome of the physical trophy heads and the artistic representations of them on ceramics may have resulted from work done by single individuals who were both trophy head preparers and ceramic artisans. On the other hand, different classes of people, each with distinct skills may have created the different skeletal and ceramic objects: a group of ritual specialists with specialized knowledge in human anatomy and postmortem surgery, and another with mastery in ceramics, pigments, firing, and artistry. Given the specialized training and knowledge required for producing ceramics and trophy heads, it is likely that they were distinct classes of specialists. While the coordination between them could have been self-imposed and self-managed, there also could have been official state oversight ensuring “proper” preparation and standardization (Tung 2008). That is, these elaborate rituals and ritual objects may have been produced under the auspices of the Wari state. This is supported by the observation that the huge, polychrome ceramic urns showing ritual activities related to prisoner capture and trophy-head display are depicted on state-produced ceramics (Cook and Glowacki 2003) (Figure 12).

The Agency of Ritual Specialists and the Effective Agency of Trophy Heads

This kind of state structuring of Wari rituals would not have precluded ritual specialists and master artisans from realizing their own agency. Indeed,

these political and cultural structures would have been enabling, not purely limiting (see Giddens 1984). That is, as Tung (2007a) has argued elsewhere, shared cultural norms that recognized the value of trophy heads imbued their creators with ritual authority, emphasizing their unique expertise and supernatural qualities. With each living body that they transformed into a sacred object, the ritual specialists authored and reaffirmed their ritual powers and sacred knowledge. This is similar to what Silverman and Proulx (2002:230–231) have noted regarding the manipulation of Nasca trophy heads by ritual practitioners and later by Nasca chiefs; the creation of trophy heads conferred these Nasca men with “status points.”

To elaborate, the Wari trophy heads—both objects and subjects at once—also generated authority for their makers (see Kopytoff 1986). These trophy heads were not merely passive symbols of *preexisting* authority for the ritual specialists. In a shared cultural field where the potency of trophy heads was cultivated, the trophy heads had “effective agency” (Robb 2004), such that the objects themselves were socially generative, imbuing their makers with authority and a unique status. This is not to simply suggest that “objects have agency”; they clearly do not have the volition, or “conscious agency,” of human subjects (Robb 2004). Rather, it is a more nuanced recognition that with trophy heads, once-living subjects, who were also objectified, were transformed into objects that retained effective agency in that they structured perceptions and actions of others, affected future events, and enabled those who engaged with them to embody particular ideals of militarism, ritual elitism, and Wari authority.

Wari vs. Inka Practices of Child Sacrifice

Wari and Inka practices of child sacrifice were apparently somewhat distinct. The Inka employed several techniques for the ritual killing of children, including fatal hits to the skull (Cobo 1990 [1653]). The Inka sacrifice of a young girl on the mountain of Ampato in southern Peru, now famously known as “Juanita,” appears to have been accomplished by a blow to the right side of her head, near the orbit (Reinhard 2005). If the child trophy heads at Conchopata indeed represent child sacrifices, it appears that the Wari did not use similar lethal techniques; none of the child skeletal elements

from the Wari ritual structures exhibit perimortem skull fractures. Rather, cutmarks and a perimortem fracture on the cervical vertebra suggest another mode of lethal action.

Postmortem ritual treatment of children's remains also differ between the Wari and the Inka; the Wari dismembered the children's bodies, rather than leaving them intact with ritual offerings carefully placed around the corpses, as was done by Inka ritual practitioners (Bray et al. 2005). Wari ritual specialists also continued to interact with dismembered body parts of sacrificed children, which they elaborately modified and put on display. Current data indicate that Inka ritual specialists did not engage in this kind of ongoing manipulation of sacrificed children's bodies, particularly those placed high on mountaintops.

Conclusion

The osteological, chemical, contextual, and iconographic data suggest that Wari warriors traveled to distant locales, took children and adults captive (and perhaps the occasional head and hand), and brought them back to Conchopata, perhaps for sacrifice in elaborate rituals within the D-shaped and circular buildings. The perimortem fracture on a child's cervical vertebrae and the chopmarks on the ascending ramus undergird the notion that child sacrifice may have been practiced in the Wari empire. Unlike the Inka, such rituals did not end with the child's death. Instead, skilled individuals in Wari society—perhaps ritual specialists with deep knowledge of human anatomy—continued to interact with the corpses of children. Although child sacrifice cannot be definitively demonstrated, it is clear that child body parts were eventually transformed into trophies. This ongoing tactile engagement, which must have been quite intense, included dismemberment of the hands and head, followed by drilling a hole in children's disembodied skulls to facilitate their display. Eventually, these sacred objects were ritually destroyed with fire, a common practice in Andean rituals of the past and present (Bolin 1998).

The nonlocal strontium isotope ratios from two of the four sampled children indicate that at least some juveniles were taken from distant locales, increasing the likelihood that foreign children were taken captive. As such, some of the beheaded chil-

dren who ended up on the floor of ritual structures at Conchopata were likely perceived as outsiders. Although some cultural groups, like the Huron in North America, ritually transformed captives into kin or constructed some kind of fictive kin relationship with them before they were tortured or sacrificed (Robb 2008), it is unknown whether the Wari community at Conchopata practiced a similar transformative process of relational identity.

Given that there were also two children with strontium isotope ratios that matched the local Ayacucho Basin, it appears that both local and foreign children were sacrificed and transformed into trophy heads in the ritual structures. Although the apparently local children could have come from a place with similar geology, like the southern Wari site of Cerro Baúl in the Moquegua valley, this remains unclear given current datasets.

Evidence for possible child sacrifice and the continued ritual use of child body parts (i.e., trophies) offers significant insight into the sociopolitical workings of the Wari empire. If these were indeed components of a well-coordinated Wari state program, it appears that they were not random, lethal acts against children (or others who ended up in the ritual structures). Instead, they seem to have been part of an organized, long-term ritual program that required several specific phases that, together, constituted the social life of a captive/trophy head within Wari rituals—from capture, to beheading, to dismemberment and defleshing, to postmortem processing (drilling holes), to display, and finally to destruction through burning. These acts may have been orchestrated by Wari elites and specialists who were well integrated into the Wari state apparatus. These various elites certainly could have engaged in these practices on their own accord, demonstrating their agency within particular Wari structures, but these individual agentive acts may have been coordinated as part of a larger system that simultaneously created and maintained perceptions of Wari state authority. That is, those acts that bolstered the status of individual military agents and ritual specialists may have also benefited larger state agendas. The legitimizing effects for individual military and ritual elites *and* Wari state policies and practices weren't necessarily mutually exclusive. The subjugation of foreign children's bodies through capture, apparent sacrifice, dismemberment, and trophy display were power-

ful acts that together revealed the authority and exceptionalism of those who carried out the acts, while also demonstrating the authority and exceptionalism of the Wari state.

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