

Social Identities and Geographical Origins of Wari Trophy Heads from Conchopata, Peru

Tiffany A. Tung and Kelly J. Knudson

Department of Anthropology, Vanderbilt University, VU Station B #356050, 2301 Vanderbilt Place, Nashville, TN 37235, U.S.A. (t.tung@vanderbilt.edu)/Center for Bioarchaeological Research, School of Human Evolution and Social Change, Arizona State University, P.O. Box 872402, Tempe, AZ 85287, U.S.A. (kelly.knudson@asu.edu). 18 IV 08

CA+ Online-Only Material: Supplements A–C

The Wari empire (600–1000 CE) of the pre-Hispanic Andes engaged in ritual practices that included the modification and display of human trophy heads, but it is unknown from whom these heads were taken. Of 31 trophy heads from Conchopata, the majority are of adult males, and 42% exhibit cranial trauma, indicating that people whose heads were transformed into trophies commonly experienced violence. Strontium isotope analysis of five adult trophy heads indicates that at least three of these individuals consumed foods grown in a geological zone outside the Wari heartland. These data, combined with information on age, sex, and violent life histories and iconography showing bound prisoners and warriors wearing trophy heads, suggest that at least some trophy heads represent individuals from nonlocal areas who may have been perceived as enemies.

An isolated human head on display is a potentially powerful symbol, yet the meanings associated with it may vary greatly between groups and individuals, depending not only on culturally constructed notions of what dismembered bodies represent but also on how and from whom heads were taken. A head could be obtained by decapitating an enemy, by carefully removing it from an ancestor's corpse, or by collecting it after a criminal has been beheaded. The significance of this particular body part—as an icon of victory over an enemy, a loving memento of one's kin, or an emblem of judicial authority—invites inquiry into how the body and body parts are used to achieve particular ends.

In the Andes of Peru, the Wari empire (600–1000 CE) engaged in the taking, modifying, and displaying of human trophy heads. To learn from whom these heads were taken, we document the age, sex, trauma, and geographical origin of persons who were transformed into trophy heads. We report strontium isotope ratios from local burials and trophy

heads from the Wari site of Conchopata to determine whether any trophy heads were from a locale other than the Wari heartland in the Ayacucho Basin and thus whether trophy-head individuals were perceived as local (an ancestor, a local enemy, or a criminal) or as nonlocal (a foreign enemy or a recent immigrant to the Wari heartland).

Andean Trophy Heads

Nasca trophy heads from south-central Peru deserve special attention, not only because of Nasca's spatial and temporal proximity to Wari but also because numerous studies have already investigated how the heads were prepared, in what contexts they were found, and who was targeted (Browne, Silverman, and García 1993; Carmichael 1988; Drusini and Baraybar 1991; Forgey 2005; Kellner 2002; Neira Avendano and Coelho 1972; Proulx 1971, 1989; Silverman 1993; Verano 1995, 2001; Williams, Forgey, and Klarich 2001). They have been recovered from burial, ceremonial, and looted contexts (Browne, Silverman, and García 1993; Verano 1995) and are identified by a foramen magnum intentionally enlarged to extract the brain and a hole drilled in the frontal bone to insert a carrying cord (Verano 1995).

Studies of trophy heads from Nasca and other regions in the Americas have emphasized the enemy-versus-ancestor debate (Proulx 1989; Seaman 1988). Given that Nasca trophy heads are primarily from adult men (Verano 1995), some have suggested that heads were taken in raids or warfare (Proulx 2001; Verano 1995). In contrast, others point to the occasional head of a female or a child and the elaborate rituals associated with trophy heads to suggest that they represent venerated ancestors from the local area (Carmichael 1994; Neira Avendano and Coelho 1972). This debate tends to dominate trophy-head studies, but we also discuss other possible identities of these individuals.

Vanquished Enemies

Wari trophy heads could have been obtained from enemies vanquished during raids or warfare and either decapitated at the conflict site or captured as prisoners to be executed or sacrificed. Taking of enemy heads has been documented extensively in the pre-Hispanic Andes and other parts of the Americas (Chacon and Dye 2007). Among the Moche (100–750 CE) on the north coast of Peru, iconographic and skeletal evidence suggests that human trophies likely came from war prisoners (Bourget 2001; Verano 2001). Documentary sources reveal that the later Inka (1450–1532 CE) sometimes dismembered enemy leaders and used their body parts as trophies, transforming skins into drums and bones into flutes (Guaman Poma de Ayala 1987 [1615], Sarmiento de Gamboa 1999 [1572]).

Revered Ancestors

It is also possible that Wari trophy heads were from members of the local community and served as relics in ancestor-veneration rituals. The modern Uru-Uru Chipayas in Bolivia use skulls in religious rituals: *las calaveras* (ritual specialists who handle skulls) display them with Catholic ritual paraphernalia (Wachtel 2001). The Inka preserved bodies and body parts of Inka lords, venerating them in public festivals and consulting them in private meetings (Guaman Poma de Ayala 1987 [1615]). The public body (the mummy itself) was paraded on a litter in public spaces, while exuviae of the dead Inka were curated and cared for by immediate kin (Salomon 1995). The importance of preserving body parts is further exemplified by native peoples in early colonial Peru, who sometimes disinterred bodies or body parts of kin from church cemeteries for use in ancestor-veneration rituals (Gose 2003).

Executed Criminals

The trophy heads could also derive from individuals perceived as criminals. Perhaps their decapitation and postmortem modification was a form of punishment similar to gibbeting in Europe in the seventeenth through nineteenth centuries (Foucault 1977). Although nothing is known of Wari judicial practices, Spanish chroniclers documented Inka laws and punishments for violating them, such as public stonings and hangings (Moore 1973; Murúa 2004 [16th century]). After criminals were executed in the Inka system, their corpses were sometimes left on display to be devoured by animals (Karsten 1949).

Trade Items and Heirlooms

Disembodied heads may also serve as items of trade or barter. Although such practices are undocumented in the Andes, in Papua New Guinea, disembodied skulls were sometimes traded between communities, and among the Mundugumor of the same region, skulls of enemies were passed on as heirlooms. When a man died, his enemy skulls were bequeathed to his sister's children, and when they died the skulls were given back to the man's grandchildren, specifically to the children of his daughter(s) (McDowell 1991).

Wari Imperialism

The Wari empire expanded from the Ayacucho Basin of central highland Peru to incorporate various groups throughout much of the Peruvian Andes, as evidenced by the numerous Wari sites in the region (Anders 1989; Isbell 1989; McEwan 1996, 2005; Moseley et al. 1991; Schreiber 1992; J. R. Topic 1991; T. L. Topic 1991; Williams 2001; fig. 1). The abundance of Wari-style artifacts throughout the Andean area further shows Wari influence in the region (Cardona Rosas 2002;

Cook 1994; Cook and Glowacki 2003; Lau 2002; Menzel 1964, 1968; Owen 2007; Schreiber 1992; Tung 2007c).

Imperialistic expansion by Wari has been explained as a result of religious indoctrination (Menzel 1964) and/or military campaigns (Feldman 1989; Lumbreras 1974). Militaristic themes of warriors carrying weapons on state-produced ceremonial ceramics suggest the importance of militarism in Wari imperial expansion (Ochatoma and Cabrera 2002). Furthermore, about a quarter of the adults from Conchopata tombs and approximately 30% of adults from two Wari-affiliated sites in Majes valley exhibit violence-related cranial trauma (Tung 2007b). Similarly, nearly 20% of men from Wari-affiliated sites in the Nasca valley exhibit head injuries (Kellner 2002). The iconographic and skeletal data suggest that Wari imperialism was associated with military force or the threat thereof. This study therefore evaluates whether the trophy heads were also part of a strategy for achieving imperial authority and dominance over other groups.

Background on Wari Trophy Heads

Thirty-one trophy heads were recovered from Conchopata, the secondary site in the Wari heartland, located 12 km south of the capital at Huari (Isbell and Cook 2002). The site had residential and mortuary spaces (Isbell 2004; Tung and Cook 2006), public plazas for feasting (Cook and Benco 2002; Cook and Glowacki 2003; Isbell and Cook 2002), ceramics production areas (Cook and Benco 2002; Pozzi-Escot B. 1991), and at least four large ritual structures; the trophy heads were recovered from two of those ritual spaces (fig. 2).

The D-shaped ritual room (EA72 [espacio arquitectónico]) had at least 10 trophy heads (Tung 2007a), camelid offerings, and numerous ritually destroyed ceramic urns, some of which were a meter in diameter; a subset of those had images of warriors and trophy heads (Ochatoma and Cabrera 2002). The circular room (EA143) had at least 21 trophy heads, burned camelid bones, and a smaller quantity of ceramics (Tung and Cook 2006). Of the 31 trophy heads, 24 were adults (77%) and seven were children (23%); among the 17 sexed adults, 15 were males (88%) and 2 were probable females (Tung 2007a).

Forty-two percent of the adult trophy heads that were observable for trauma were affected (8/19), all of whom were males (Tung 2008). In seven cases, the trauma was antemortem, suggesting violence earlier in the man's life. The eighth case was a perimortem fracture, indicating that the trauma was sustained around the time of death, and may suggest that there was a physical conflict to obtain his head (Tung 2008).

Wari trophy heads are standardized in appearance, which may reflect rigid rules about how they were to be altered and suggests the possibility of state oversight of their production (Tung 2008). They exhibit skillfully drilled and similarly sized holes: 89% of the trophy heads have one hole on the apex of the cranium, and three-quarters exhibit at least one hole on the occipital (Tung 2008; illustrated in fig. 3). All were

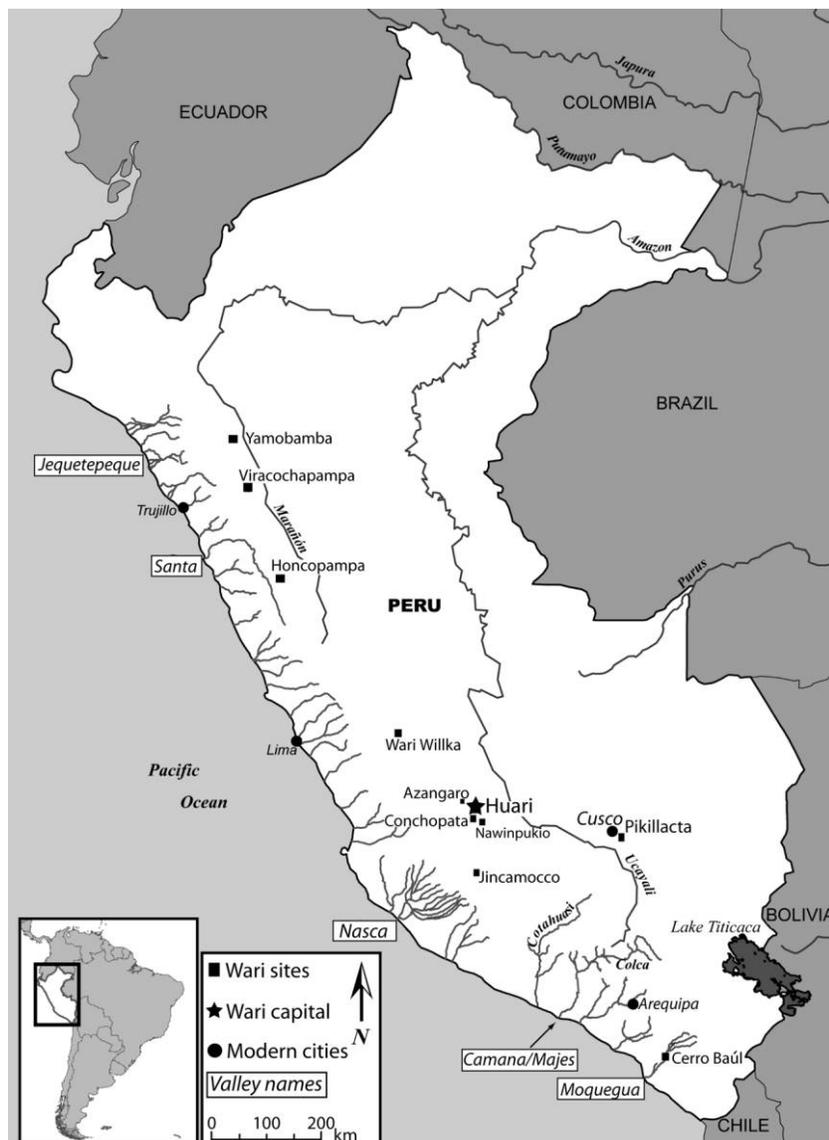


Figure 1. Map of Peru with Wari sites mentioned in the text.

deposited together on the floor of two ritual structures; no trophy heads have been recovered from any other location at the site, indicating that their use was circumscribed.

These data reveal much about the identities of the heads. They were primarily adult males, nearly half of whom had been involved in violent encounters. While they fit the profile of enemy fighters whose heads could have been obtained in *tinku* (ritual battles), real wars, and/or raids (see Arkush and Stanish 2005), they also could have been warriors or criminals from the Conchopata community. Therefore, we used strontium isotope data to determine whether any are from geological locales distinct from the Wari heartland in the Ayacucho Basin. This method is particularly well suited to this study because Wari was an expansive empire ranging over

diverse geological zones. If Wari warriors obtained heads from enemies, it is possible that these enemies lived outside the imperial heartland, in distinct geological locales.

An Introduction to Strontium Isotope Analysis

Strontium isotope ratios in an ecosystem are determined by local geology (Faure 1986; Faure and Powell 1972). That is, $^{87}\text{Sr}/^{86}\text{Sr}$ in the soil, in the plants grown in the soil, and in the animals and people who consume those plants will be the same as that of the bedrock (see Bentley 2006). Thus, the strontium isotope ratios in teeth and bones reflect the geology of the dietary resources; the strontium isotope ratio of a person who consumes local foods and water should match that



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

of the local geology. Therefore, this method of distinguishing between local and nonlocal individuals requires that the main sources of dietary strontium be local. As discussed in CA+ online supplement A, the diets of Conchopata inhabitants correspond to strontium sources from the Ayacucho Basin.

To estimate the local strontium isotope signature in the Wari heartland, we evaluated strontium isotope ratios from the following sources: (1) local geologic formations (supplement A), (2) local small fauna, and (3) burials from Conchopata that were presumed local based on archaeological and skeletal characteristics. We did not want to rely solely on strontium values from Conchopata burials until those were verified against the strontium values from local geology and local mammals.

A trophy head is defined as “nonlocal” when its enamel or bone strontium isotope ratio does not match that of the local Conchopata burials (table 1), which would suggest that the person probably came from a region outside of the Ayacucho Basin and may have been perceived as foreign by the Conchopata community. Although a nonlocal person could have been viewed as an ancestor from a mythic origin place—a common component in Andean origin stories (Urton 1999)—the demographic, iconographic, and trauma data instead sug-

gest that a nonlocal strontium isotope value indicates foreign status.

If a trophy head exhibits a strontium isotope ratio that matches the Ayacucho value, then the individual probably lived in the Wari heartland or region(s) with a similar strontium isotope signature. Several areas in the Andes have similar strontium isotope signatures; consequently, a trophy head that exhibits a Wari heartland value could actually have come from another region that is geologically similar to Ayacucho. In such a case, the method is unable to detect the nonlocal individual.

Materials and Methods

Six guinea pigs from the Ayacucho market and six archaeological skeletons from the Conchopata tombs were analyzed to establish the local strontium isotope ratio (table 2). Using local small animals is a reliable method for establishing the average strontium isotope ratio of water and food from a particular locale (see Evans and Tatham 2004; Price, Burton, and Bentley 2002), particularly when the small-animal strontium isotope ratio is confirmed against local geology and local burials.



Figure 3. Trophy heads from Conchopata.

In the subgroup in question—the trophy heads—enamel and bone samples were collected from five adults; all were from EA143 (fig. 2). Because only 24 adult Wari trophy heads have ever been recovered, a sample of five represents slightly more than 20 percent of all known adult Wari trophy heads. The teeth were fragmented, so the enamel comes from unspecified first, second, or third molars and one right maxillary canine. Enamel formation of these teeth occurs between the ages of 1 and 15 years (Hillson 1996). All samples were prepared in the Laboratory for Archaeological Chemistry at the University of Wisconsin–Madison and analyzed in the Isotope Geochemistry Laboratory at the University of North Carolina at Chapel Hill with a thermal ionization mass spectrometer, where SRM-987 exhibited $^{87}\text{Sr}/^{86}\text{Sr} = 0.710245 \pm 0.000018$ (2σ ; CA+ online supplement B; Knudson and Tung 2007).

Results

Strontium Isotope Ratios of Ayacucho Fauna

Five of the six guinea pig samples matched the strontium isotope signature expected from the geology of the Ayacucho

region (table 3); one sample ($^{87}\text{Sr}/^{86}\text{Sr} = 0.711766$, F1232) had a surprisingly high ratio. The informant may have misreported the guinea pig's diet, or its food may have been grown in another geological zone(s). It is also possible that imported fertilizers were used in the local fields; for example, mass-produced fertilizers in other regions have contributed to isotope signatures of $^{87}\text{Sr}/^{86}\text{Sr} = 0.715$ (e.g., Négrel and Deschamps 1996). Other sources of nonlocal fertilizer include *guano* (Julien 1985), which would reflect a marine isotope signature of $^{87}\text{Sr}/^{86}\text{Sr} = 0.7092$ (Veizer 1989). This anomalously high sample was thus excluded from further interpretation. The range of ratios from the other five guinea pigs was $^{87}\text{Sr}/^{86}\text{Sr} = 0.705762\text{--}0.707204$, closely aligned with the values expected from central Andean geology.

Strontium Isotope Ratios of Human Burials from Conchopata Tombs

Enamel samples from five Conchopata adults were characterized by $^{87}\text{Sr}/^{86}\text{Sr} = 0.705480\text{--}0.705647$, and bone samples from the same adults plus one infant were characterized by

Table 1. Summary of Local and Nonlocal Status Based on Strontium Isotope Ratios Obtained from Dental Enamel and Bone, along with Their Interpretive Corollaries

Enamel (childhood)	Bone (adulthood)	Interpretation
Local	Local	Local individual: spent childhood and adulthood in Ayacucho (or region with similar geology)
Nonlocal	Nonlocal	Nonlocal individual: spent childhood and adulthood in region other than Ayacucho ^a
Nonlocal	Local	Immigrant: spent childhood in a region other than Ayacucho and immigrated to Ayacucho (or a region with similar geology) in adulthood
Local	Nonlocal	Sojourner: spent childhood in Ayacucho (or region with similar geology), migrated to foreign area in adulthood, and returned to Ayacucho shortly before death (head recovered from Conchopata, indicating that s/he returned "home"); or nonlocal individual: spent childhood in Ayacucho (or region with similar geology) and migrated to a different area in adulthood

^aOr local person who consumed large quantities of imported foods or foods grown in the general vicinity but in a gorge with geology distinct from that of agricultural fields near the Wari settlement.

$^{87}\text{Sr}/^{86}\text{Sr} = 0.705663\text{--}0.706734$ (table 3). These isotope ratios from the Conchopata burials are very similar (mean $^{87}\text{Sr}/^{86}\text{Sr} = 0.705803 \pm 0.000348$; $n = 11$, 1σ) and fall within the range expected from local geology and fauna. Thus, these three lines of evidence provide both a robust standard for identifying the local strontium signal and safeguards against potentially tautological inferences from a single source.

Local strontium isotope signatures are commonly defined as the mean plus or minus two standard deviations of the values obtained from local animals (Price, Burton, and Bentley 2002) or, in this case, human burials. From the 11 enamel and bone samples from the local burials, therefore, the strontium isotope ratios for individuals from the Wari heartland should be in the range $^{87}\text{Sr}/^{86}\text{Sr} = 0.7051\text{--}0.7065$. A strontium isotope signature outside this range identifies a trophy head as nonlocal.

Strontium Isotope Ratios of the Conchopata Trophy Heads

Two trophy heads exhibit isotope ratios consistent with the bioavailable strontium in the Wari heartland (table 3). The enamel and bone from individual 2907.05, a 30–39-year-old male, exhibits strontium isotope ratios within the local range, which suggests that he spent his life consuming strontium from the Ayacucho Formation or region(s) with similar strontium isotope signatures. Individual 2985.10, an adult male with healed cranial trauma, also yields an enamel signature consistent with a childhood in the Wari heartland. His adulthood residence is unknown, because no bone was tested from this individual.

Two trophy heads have enamel and bone strontium isotope ratios higher than the local range. These are individual 2907.04, a 35–45-year-old probable female, and individual 2985.11, a 45+ year-old male (table 3; fig. 4). These data indicate that two of the trophy-head individuals consumed strontium from different geological region(s) during both childhood and adulthood and were likely not from the Wari heartland.

The fifth trophy head, a young adult male with a healed

head wound (individual 2985.18) exhibits strontium isotope ratios expected for a foreigner or a sojourner. Enamel $^{87}\text{Sr}/^{86}\text{Sr} = 0.706259$, which matches the local value, but bone $^{87}\text{Sr}/^{86}\text{Sr} = 0.707289$, suggesting that he spent his adulthood elsewhere (table 3; fig. 4). He may have lived in the Wari heartland (or a region with similar geology) as a child and migrated to a distinct geologic zone in the last 10 or more years of life. Notably, his isolated head was then returned to the place of his presumed childhood and placed in a ritual structure at Conchopata. It is unknown whether he was a sojourner who voluntarily returned to Ayacucho or a captive forcibly brought to the Wari heartland to be transformed into a trophy head (or whether only his head was brought).

Overall, the strontium isotope signatures of the trophy heads are more heterogeneous than those from the Conchopata burials. The mean value and standard deviation of the Conchopata burial samples are $^{87}\text{Sr}/^{86}\text{Sr} = 0.705601 \pm 0.000070$ ($n = 5$, 1σ) for enamel and $^{87}\text{Sr}/^{86}\text{Sr} = 0.705972 \pm 0.000403$ ($n = 6$, 1σ) for bone. In contrast, the mean value and standard deviation from the trophy-head samples are $^{87}\text{Sr}/^{86}\text{Sr} = 0.707590 \pm 0.001820$ ($n = 5$, 1σ) for enamel and $^{87}\text{Sr}/^{86}\text{Sr} = 0.707548 \pm 0.001179$ ($n = 4$, 1σ) for

Table 2. Individuals from Conchopata Selected for Strontium Isotope Analysis

Type	EA	Locus	Individual	Age	Sex
Burial	105	2095	2095.01	30–39 yr	Female
Burial	105	2095	2095.02	21–24 yr	Female
Burial	105	2095	2095.03	47–53 yr	Female
Burial	105	2095	2095.04	31–37 yr	Female
Burial	105	2095	2095.06	23–27 yr	Male
Burial	06	2004	2004.01	6–9 mo	Indeterminate
Trophy head	143	2907	2907.04	35–45 yr	Female?
Trophy head	143	2907	2907.05	30–39 yr	Male
Trophy head	143	2985	2985.10	34–50 yr	Indeterminate
Trophy head	143	2985	2985.11	45+ yr	Male
Trophy head	143	2985	2985.18	28–36 yr	Male

Note: EA = espacio arquitectónico (architectural space).

Table 3. Strontium Isotope Data from Archaeological Skeletal Samples from the Conchopata Site and Modern Guinea Pig Samples from Ayacucho

Type	EA	Locus	Individual	Laboratory Number	Skeletal or Dental Element Analyzed	⁸⁷ Sr/ ⁸⁶ Sr
Modern guinea pig	NA	NA	A1A	F1229	Mandible, femur	0.707204
Modern guinea pig	NA	NA	A2A	F1230	Mandible, femur	0.706306
Modern guinea pig	NA	NA	A3A	F1231	Mandible, femur	0.706555
Modern guinea pig	NA	NA	A4A	F1232	Mandible, femur	0.711766
Modern guinea pig	NA	NA	A5A	F1233	Mandible, femur	0.705762
Modern guinea pig	NA	NA	A6A	F1234	Mandible, femur	0.705841
Burial	105	2095	2095.01	F1218	Right fibula	0.706096
Burial	105	2095	2095.01	F1219	Left molar 2	0.705598
Burial	105	2095	2095.02	F1220	Right fibula	0.705739
Burial	105	2095	2095.02	F1221	Right molar 2	0.705632
Burial	105	2095	2095.03	F1222	Right fibula	0.705861
Burial	105	2095	2095.03	F1223	Molar 2 (unsided)	0.705647
Burial	105	2095	2095.04	F1224	Left fibula	0.705663
Burial	105	2095	2095.04	F1225	Left molar 2	0.705646
Burial	105	2095	2095.06	F1226	Unsided rib	0.705739
Burial	105	2095	2095.06	F1227	Right molar 2	0.705480
Burial	06	2004	2004	F1228	Unsided rib	0.706734
Trophy head	143	2907	2907.04	F1784	Molar enamel	0.708811
Trophy head	143	2907	2907.04	F1789	Cranial fragment	0.707186
Trophy head	143	2907	2907.05	F1785	Molar enamel	0.706270
Trophy head	143	2907	2907.05	F1790	Cranial fragment	0.706483
Trophy head	143	2985	2985.10	F1786	RC ¹ enamel	0.706404
Trophy head	143	2985	2985.11	F1787	Molar enamel	0.710204
Trophy head	143	2985	2985.11	F1792	Cranial fragment	0.709232
Trophy head	143	2985	2985.18	F1788	Molar enamel	0.706259
Trophy head	143	2985	2985.18	F1793	Cranial fragment	0.707289

Note: NA = not applicable. RC¹ = right maxillary canine. Samples that yielded nonlocal strontium isotope ratios are in boldface.

bone. The higher standard deviations among the trophy heads show that there is more variability in their strontium isotope values, suggesting that this subpopulation is more heterogeneous and may represent a mixed group of local and nonlocal individuals. Furthermore, a Student's *t*-test demonstrates a statistically significant difference between the mean values of strontium isotope signatures of the two groups ($t = -2.38$, $P < 0.038$).

Discussion and Conclusion

The six burials from Conchopata tombs exhibit strontium isotope signatures expected for individuals who consumed local strontium sources, indicating that they were lifelong residents of the Wari heartland. In contrast, three of the five trophy heads show strontium isotope signatures suggesting that they were likely nonlocal. As explained above, it is unlikely that the nonlocal strontium isotope values of the trophy heads derive from the consumption of imported foods, as there is little evidence to suggest the importation of large amounts of calcium-rich foods from other geological zones. Rather, the nonlocal strontium isotope values strongly suggest that some of the trophy-head individuals were from regions outside of the Ayacucho Basin.

If these three individuals were indeed foreigners, they could

have voluntarily migrated to Conchopata shortly before their natural or sacrificial death, after which time they were modified into trophy heads. Alternatively, they could have been enemies taken captive and later decapitated. The latter interpretation is supported by iconography that depicts the Front-Faced Staff Deity holding a bound prisoner alongside another deity dangling a trophy head from its staff (Isbell and Cook 2002, 265; fig. 5). In addition, one of the smashed ceramic urns from the D-shaped ritual space shows a Wari warrior wearing a trophy head around his neck, presumably from a vanquished enemy (Ochatoma and Cabrera 2002; CA+ online supplement C). Finally, demographic data show that the majority of trophy heads were adult males, more than 40% of whom had been in violent encounters (Tung 2008). Of the three nonlocals, one showed a healed head wound. Together, these data suggest that some of the individuals, or just their heads, were taken by Wari warriors in battles or raids, perhaps for execution or sacrifice in a subsequent ritual at Conchopata.

One of the nonlocal trophy heads was a probable female who also could have been a battle or raiding victim, although the latter seems more likely, given possible evidence of raiding in the Middle Horizon Andes (Tung 2007*b*) and elsewhere in the Americas (Kohler and Turner 2006; Wilkinson and Van

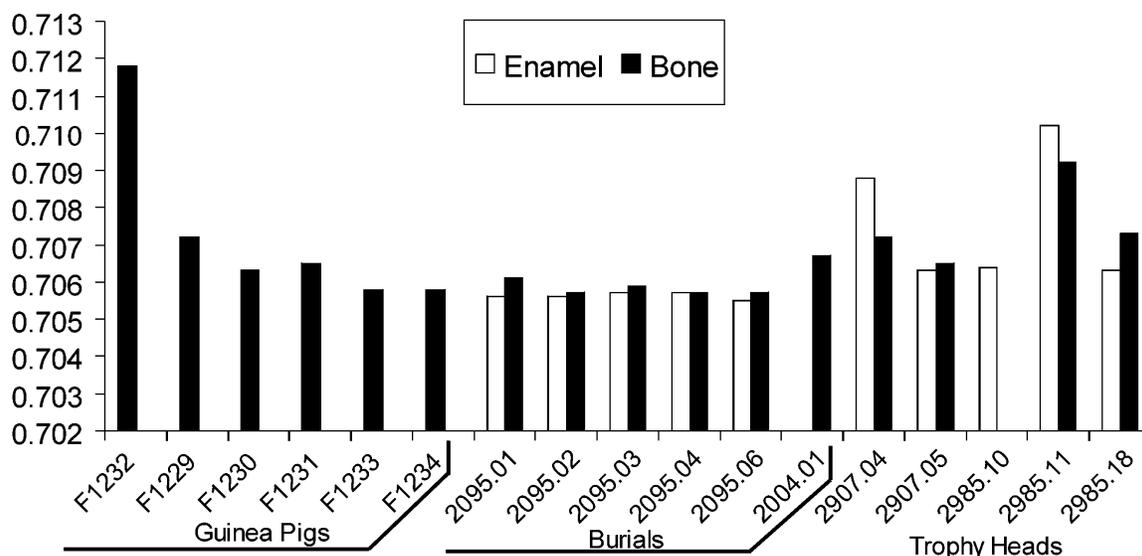


Figure 4. Strontium isotope ratios from local modern fauna, human burials from Conchopata, and the Conchopata trophy heads.

Wagenen 1993). That women could have been taken captive or decapitated during raids has also been documented among the ethnographically known Jívaro (Harner 1972), where men, women, and children from non-Jívaro communities were beheaded and transformed into “shrunken heads.” The notion of “social substitutability” (Kelly 2000) may explain the presence of child and probable female trophy heads. That is, any

person from a group may be viewed as a suitable representative of the whole, so taking anyone’s head is a literal and metaphorical attack on the entire community. Therefore, the nonlocal probable female trophy head and perhaps some of the children’s heads, which have yet to undergo strontium isotope analysis, may represent raiding victims taken from non-Wari communities (Tung 2008).

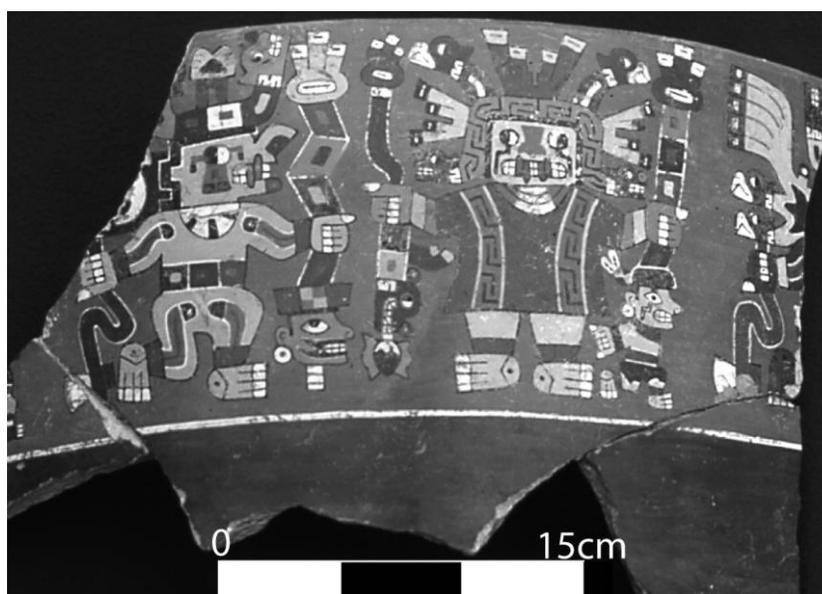


Figure 5. Ceramic urn fragment from Conchopata showing the Front-Faced Staff Deity holding a prisoner with hands bound behind his back. To its right, the Winged-Profile Sacrificer holds a human trophy head (photo courtesy of William Isbell).

In sum, these data show that victims were decapitated and transformed into trophy heads, later to be ostentatiously displayed (Tung 2008). The trophy heads were eventually smashed on the floor of ritual buildings with camelid offerings and ritually smashed ceramics, further demonstrating their ritual significance (Tung and Cook 2006). Clearly, trophy heads were culturally salient symbols in Wari society, reifying ideological notions of Wari power and authority through the iconographic and literal control of human bodies and body parts (Tung 2007a). The new strontium isotope data add to our understanding of rituals that involve human trophies by showing that at least some probably derived from foreign enemies. Indeed, the head-taking practices documented here may have been part of a larger Wari imperial agenda in which other populations were subjugated through intimidation and violence during the process of imperial expansion and consolidation.

Acknowledgments

We thank Bill Isbell, Anita Cook, Jose Ochatoma, and Martha Cabrera for granting permission to study the trophy heads and T. Douglas Price and James H. Burton (Laboratory for Archaeological Chemistry, University of Wisconsin–Madison) and Paul Fullagar (Isotope Geochemistry Laboratory, University of North Carolina–Chapel Hill) for laboratory access. Funding was provided by grants to T. A. Tung (from the National Science Foundation [NSF; Biological Anthropology, BCS-0118751]; the Wenner-Gren Foundation [grant 6680]; the Fulbright Institute of International Education; and the University of North Carolina–Chapel Hill [Latané Grant]) and to K. J. Knudson (from the NSF [Archaeology, BCS-0202329] and the Laboratory for Archaeological Chemistry at the University of Wisconsin–Madison). Finally, we thank Steve Wernke, eight anonymous reviewers, and Ben Orlove for their constructive comments.

References Cited

- Anders, M. B. 1989. Evidence for the dual socio-political organisation and administrative structure of the Wari state. In *The nature of Wari: A reappraisal of the Middle Horizon period in Peru*, ed. R. M. Czwarno, F. M. Meddens, and A. Morgan, 35–52. BAR International Series 525. Oxford: British Archaeological Reports.
- Arkush, E., and C. Stanish. 2005. Interpreting conflict in the ancient Andes: Implications for the archaeology of warfare. *Current Anthropology* 46:3–28.
- Bentley, R. A. 2006. Strontium isotopes from the earth to the archaeological skeleton: A review. *Journal of Archaeological Method and Theory* 13:135–87.
- Bourget, S. 2001. Children and ancestors: Ritual practices at the Moche site of Huaca de la Luna, north coast of Peru. In *Ritual sacrifice in ancient Peru*, ed. E. P. Benson and A. G. Cook, 93–118. Austin: University of Texas Press.
- Browne, D. M., H. Silverman, and R. García. 1993. A cache of 48 Nasca trophy heads from Cerro Carapo, Peru. *Latin American Antiquity* 4:274–94.
- Cardona Rosas, A. 2002. *Arqueología de Arequipa: De sus albores a los Incas*. Arequipa: Centro de Investigaciones Arqueológicas de Arequipa (CIARQ).
- Carmichael, P. H. 1994. The life from death continuum in Nasca imagery. *Andean Past* 4:81–90.
- . 1988. Nasca mortuary customs: Death and ancient society on the south coast of Peru. Ph.D. diss., University of Calgary.
- Chacon, R. J., and D. H. Dye, eds. 2007. *The taking and displaying of human trophies by Amerindians*. New York: Springer.
- Cook, A. G. 1994. *Wari y Tiwanaku: Entre el estilo y la imagen*. Lima: Fondo Editorial, Pontificia Universidad Católica del Perú.
- Cook, A. G., and N. Benco. 2002. Vasijas para la fiesta y la fama: Producción artesanal en un centro urbano Wari. In *Wari y Tiwanaku: Modelos y evidencias*, ed. P. Kaulicke and W. H. Isbell. Boletín de arqueología PUCP 5, 489–504. Lima: Fondo Editorial, Pontificia Universidad Católica del Perú.
- Cook, A. G., and M. Glowacki. 2003. Pots, politics, and power: Wari ceramic assemblages and imperial administration. In *The archaeology and politics of food and feasting in early states and empires*, ed. T. Bray, 173–202. New York: Kluwer Academic/Plenum.
- Drusini, A. G., and J. P. Baraybar. 1991. Anthropological study of Nasca trophy heads. *Homo* 41:251–65.
- Evans, J., and S. Tatham. 2004. Defining “local signature” in terms of Sr isotope composition using a tenth- to twelfth-century Anglo-Saxon population living on a Jurassic clay-carbonate terrain, Rutland, UK. In *Forensic geoscience: Principles, techniques, and applications*, ed. K. Pye and D. J. Croft. Geological Society Special Publication 232, 237–48.
- Faure, G. 1986. *Principles of isotope geology*. New York: John Wiley.
- Faure, G., and T. Powell. 1972. *Strontium isotope geology*. New York: Springer.
- Feldman, R. A. 1989. Speculative hypothesis of Wari southern expansion. In *The Nature of Wari: A reappraisal of the Middle Horizon period in Peru*, ed. R. M. Czwarno, F. M. Meddens, and A. Morgan, 72–97. BAR International Series 525. Oxford: British Archaeological Reports.
- Forgey, K. 2005. Osteological and ancient DNA analyses of human trophy heads and comparative skeletal material from the south coast of Peru: Origins and function in early Nasca society (AD 1–450). Ph.D. diss., University of Illinois, Chicago.
- Foucault, M. 1977. *Discipline and punish: The birth of the prison*. New York: Pantheon Books.
- Gose, P. 2003. Converting the ancestors: Indirect rule, settlement consolidation, and the struggle over burial in colonial Peru, 1532–1614. In *Conversion: Old worlds and new*, ed.

- K. Mills and A. Grafton, 140–74. Rochester: University of Rochester Press.
- Guaman Poma de Ayala, F. 1987 [1615]. *Nueva crónica y buen gobierno*, ed. J. V. Murra, R. Adorno, and J. L. Urioste. *Crónicas de America*, 29a–29c. Madrid: Historia 16.
- Harner, M. J. 1972. *The Jívaro, people of the sacred waterfalls*. Garden City, N.Y.: Doubleday/Natural History Press.
- Hillson, S. 1996. *Dental anthropology*. Cambridge/New York: Cambridge University Press.
- Isbell, W. H. 1989. Honcopampa: was it a Huari administrative centre? In *The nature of Wari: A reappraisal of the Middle Horizon period in Peru*, ed. R. M. Czwarno, F. M. Meddens, and A. Morgan, 98–114. BAR International Series 525. Oxford: British Archaeological Reports.
- . 2004. Mortuary preferences: A Wari culture case study from Middle Horizon, Peru. *Latin American Antiquity* 15:3–32.
- Isbell, W. H., and A. G. Cook. 2002. A new perspective on Conchopata and the Andean Middle Horizon. In *Andean archaeology II: Art, landscape, and society*, ed. H. Silverman and W. H. Isbell, 249–305. New York: Kluwer Academic.
- Julien, C. 1985. Guano and resource control in sixteenth-century Arequipa. In *Andean ecology and civilization*, ed. S. Masuda, I. Shimada, and C. Morris, 185–231. Tokyo: University of Tokyo Press.
- Karsten, R. 1949. *A totalitarian state of the past: The civilization of the Inca Empire in ancient Peru*. Commentationes Humanarum Litterarum. Tomus XVI, No. 1. Helsingfors: Societas Scientiarum Fennica.
- Kellner, C. M. 2002. Coping with environmental and social challenges in prehistoric Peru: Bioarchaeological analyses of Nasca populations. Ph.D. diss., University of California, Santa Barbara.
- Kelly, R. C. 2000. *Warless societies and the origin of war*. Ann Arbor: University of Michigan Press.
- Knudson, K. J., and T. A. Tung. 2007. Using archaeological chemistry to investigate the geographic origins of trophy heads in the central Andes. In *Archaeological chemistry: Analytical techniques and archaeological interpretation*, ed. M. D. Glascock, R. J. Speakman, and R. Popelka-Filcoff, 99–113. Washington D.C.: American Chemical Society.
- Kohler, T. A., and K. K. Turner. 2006. Raiding for women in the pre-Hispanic northern Pueblo southwest? A pilot examination. *Current Anthropology* 47:1035–45.
- Lau, G. F. 2002. Feasting and ancestor veneration at Chinchawas, north highlands of Ancash, Peru. *Latin American Antiquity* 13:279–304.
- Lumbreras, L. G. 1974. *The peoples and cultures of ancient Peru*. Washington, D.C.: Smithsonian Institution Press.
- McDowell, N. 1991. *The Mundugumor: From the field notes of Margaret Mead and Reo Fortune*. Washington D.C.: Smithsonian Institution Press.
- McEwan, G. F. 1996. Archaeological investigations at Pikillacta, a Wari site in Peru. *Journal of Field Archaeology* 23: 169–86.
- . 2005. *Pikillacta: The Wari empire in Cuzco*. Iowa City: University of Iowa Press.
- Menzel, D. 1964. Style and time in the Middle Horizon. *Ñawpa Pacha* 2:1–105.
- . 1968. New data on the Huari empire in Middle Horizon Epoch 2A. *Ñawpa Pacha* 6:47–114.
- Moore, S. F. 1973. *Power and property in Inca Peru*. Westport, Conn.: Greenwood Press.
- Moseley, M. E., R. A. Feldman, P. S. Goldstein, and L. Watanabe. 1991. Colonies and conquest: Tiahuanaco and Huari in Moquegua. In *Huari administrative structure: Prehistoric monumental architecture and state government*, ed. W. H. Isbell and G. F. McEwan, 121–40. Washington D.C.: Dumbarton Oaks.
- Murúa, M. de. 2004 [16th century]. *Código Murúa: Historia y genealogía de los reyes incas del Perú del padre mercedario Fray Martín de Murúa*. Madrid: Testimonio Compañía Editorial.
- Négrel, P., and P. Deschamps. 1996. Natural and anthropogenic budgets of a small watershed in the Massif Central (France): Chemical and strontium isotopic characterization of water and sediments. *Aquatic Geochemistry* 2:1–27.
- Neira Avendano, M., and V. P. Coelho. 1972. Enterramientos de cabezas de la cultura Nasca. *Revista do Museu Paulista* 20:109–42.
- Ochatoma, J. P., and M. R. Cabrera. 2002. Religious ideology and military organization in the iconography of a D-shaped ceremonial precinct at Conchopata. In *Andean archaeology II: Art, landscape, and society*, ed. H. Silverman and W. H. Isbell, 225–47. New York: Kluwer Academic.
- Owen, B. 2007. The Wari heartland on the Arequipa Coast: Huamanga ceramics from Beringa, Majes. *Andean Past* 8: 287–373.
- Pozzi-Escot B., D. 1991. Conchopata: A community of potters. In *Huari administrative structure: Prehistoric monumental architecture and state government*, ed. W. H. Isbell and G. F. McEwan, 81–92. Washington, D.C.: Dumbarton Oaks.
- Price, T. D., J. H. Burton, and R. A. Bentley. 2002. The characterization of biologically available strontium isotope ratios for the study of prehistoric migration. *Archaeometry* 44:117–35.
- Proulx, D. A. 1971. Headhunting in ancient Peru. *Archaeology* 24:16–21.
- . 1989. Nasca trophy heads: Victims of warfare or ritual sacrifice? In *Cultures in conflict: Current archaeological perspectives*, ed. D. Tkaczuk and B. Vivian, 73–85. Calgary: Archaeological Association, University of Calgary.
- . 2001. Ritual uses of trophy heads in ancient Nasca society. In *Ritual sacrifice in ancient Peru*, ed. E. P. Benson and A. G. Cook, 119–36. Austin: University of Texas Press.
- Salomon, F. 1995. “The beautiful grandparents”: Andean ancestor shrines and mortuary ritual as seen through colonial records. In *Tombs for the living: Andean mortuary practices*,

- ed. T. Dillehay, 315–54. Washington, D.C.: Dumbarton Oaks.
- Sarmiento de Gamboa, P. 1999 [1572]. *History of the Incas*. New York: Dover Publications.
- Schreiber, K. J. 1992. *Wari imperialism in Middle Horizon Peru*. Anthropological Papers 87. Ann Arbor: Museum of Anthropology, University of Michigan.
- Seeman, M. F. 1988. Ohio Hopewell trophy-skull artifacts as evidence for competition in Middle Woodland societies circa 50 B.C.–A.D. 350. *American Antiquity* 53:565–77.
- Silverman, H. 1993. *Cahuachi in the ancient Nasca world*. Iowa City: University of Iowa Press.
- Topic, J. R. 1991. Huari and Huamachuco. In *Huari administrative structure: Prehistoric monumental architecture and state government*, ed. W. H. Isbell and G. F. McEwan, 141–64. Washington, D.C.: Dumbarton Oaks.
- Topic, T. L. 1991. The Middle Horizon in northern Peru. *Huari administrative structure: Prehistoric monumental architecture and state government*, ed. W. H. Isbell and G. F. McEwan, 233–246. Washington, D.C.: Dumbarton Oaks.
- Tung, T. A. 2007a. From corporeality to sanctity: Transforming bodies into trophy heads in the prehispanic Andes. In *The taking and displaying of human trophies by Amerindians*, ed. R. J. Chacon and D. H. Dye, 477–500. New York: Springer.
- . 2007b. Trauma and violence in the Wari empire of the Peruvian Andes: Warfare, raids, and ritual fights. *American Journal of Physical Anthropology* 133:941–56.
- . 2007c. The village of Beringa at the periphery of the Wari Empire: A site overview and new radiocarbon dates. *Andean Past* 8:253–86.
- . 2008. Dismembering bodies for display: A bioarchaeological study of trophy heads from the Wari site of Conchopata, Peru. *American Journal of Physical Anthropology* 136:294–308.
- Tung, T. A., and A. G. Cook. 2006. Intermediate elite agency in the Wari empire: The bioarchaeological and mortuary evidence. In *Intermediate elites in Pre-Columbian states and empires*, ed. C. Elson and A. R. Covey, 68–93. Tucson: University of Arizona Press.
- Urton, G. 1999. *Inca myths*. London: British Museum.
- Veizer, J. 1989. Strontium isotopes in seawater through time. *Annual Review of Earth and Planetary Science* 1:141–67.
- Verano, J. W. 1995. Where do they rest? The treatment of human offerings and trophies in ancient Peru. In *Tombs for the living: Andean mortuary practices*, ed. T. D. Dillehay, 189–227. Washington D.C.: Dumbarton Oaks.
- . 2001. The physical evidence of human sacrifice in ancient Peru. In *Ritual sacrifice in ancient Peru*, ed. E. P. Benson and A. G. Cook, 165–84. Austin: University of Texas Press.
- Wachtel, N. 2001. *El regreso de los antepasados: Los indios urus de Bolivia, del siglo XX al XVI. Ensayo de historia regresiva*. Fideicomiso Historia de las Américas. México: El Colegio de México.
- Wilkinson, R. G., and K. M. Van Wagenen. 1993. Violence against women: Prehistoric skeletal evidence from Michigan. *Midcontinental Journal of Archaeology* 18:190–216.
- Williams, P. R. 2001. Cerro Baúl: A Wari center on the Tivnanaku frontier. *Latin American Antiquity* 12:67–83.
- Williams, S. R., K. Forgey, and E. Klarich. 2001. *An osteological study of Nasca trophy heads collected by A.L. Kroeber during the Marshall Field Expeditions to Peru*. Fieldiana Anthropology, new series, 33. Chicago: Field Museum of Natural History.