Andean Archaeology I
Variations in
Sociopolitical Organization

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Chapter 8

Imperial Interaction in the Andes

Huari and Tiwanaku at Cerro Baúl

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INTRODUCTION

The Middle Horizon (AD 500–1000) was a dynamic period in the Andean Cordillera of South America. Two expansive states dominated regions only eclipsed by the later Inca empire. The Huari ruled in the north and Tiwanaku in the south. Huari and Tiwanaku both utilized a set of religious icons centered on a front facing deity so similar in execution that for many years these cultures were thought to have been a single political entity. Scholars suspect that both states have a theocratic origin, but developed differently throughout the growth and expansion of their respective domains. The transformation of Huari, characterized as secular and militant, was recognized early on through a change and standardization of ceramic styles (Menzel 1964). Thus it was hypothesized that Huari was an expansive empire that governed most all of highland and coastal Peru from its upland capital in the sierra of Ayacucho through the placement of administrative centers (Feldman 1989; Isbell and McEwan 1991; Lumbreras 1974; Schreiber 1992). Tiwanaku, until recently, portrayed as ecclesiastical and mercantile, is now also considered to have transformed into a secular institution, which held hegemony over Bolivia, southern Peru, and northern Chile from a higher altiplano capital near the shores of Lake Titicaca (Browman 1985; Goldstein 1993b; Kolata 1989; Janusek 1994; Lumbreras and Amat 1968; Mujica 1985; Ponce 1969; Stanish 1995; Wallace 1980).

Although contemporary, these neighboring polities have been interpreted very differently. Economically, Huari and Tiwanaku relied on very different
resources; however, they are both associated with intensification. Huari increased agricultural revenues by constructing irrigated terraces on steep mountain slopes where maize and other crops could grow (Browman and Bird 1978; Isbell 1977; McEwan 1989; Schreiber 1992). Occupying the towering altiplano plains, Tiwanaku reclaimed flat terrain for farming potatoes and other high-altitude crops, while also herding camélids and using llama caravans to secure distant resource (Albarracin-Jordan and Mathews 1990; Browman 1984; Kolata 1986, 1994; Lynch 1983; Mujica et al. 1983; Stanish 1995). Imperial architecture was equally distinct. Tiwanaku emphasized sunken courts and massive mounds with masonry adornment, megalithic gateways, and imposing stelae (Bennett 1936; Manzanilla 1992; Ponce 1972; Posnansky 1945). Huari building focused upon grand compounds with high walls and multi-storey interior galleries, courts, corridors, and platforms (Benavides C. 1991; Bragayrac D. 1991; Conklin 1991; Czwarno 1989; Isbell 1977; Schreiber 1978). Although provincial centers served different functions, their monumental architecture provided graphic statements of the political power of their respective capitals (Goldstein 1993b; Isbell 1991b; McEwan 1991; Schreiber 1991).

Despite the vastly different economic, settlement, and political systems that characterized the two great states, they shared primary icons and apparently worshipped the same principal deity. Certain stylistic norms distinguish the Huari deity from its Tiwanaku counterpart, but there is likely a single, earlier source for the principal image that continued to be cross-fertilized by interaction between the two polities (Cook 1994). Both Huari and Tiwanaku displayed their iconography on portable ceramic and wooden vessels, as well as richly designed textiles. This “portable portrayal” appears to have been the primary medium for the dissemination of Huari cosmology. Tiwanaku also used stationary stone stelae as a media encouraging the creation of cult centers around these monuments (Schreiber 1992).

The elaborate monumental stone reliefs representing Tiwanaku iconography at the highland capital have lead some scholars to suggest that Tiwanaku was the original source of Huari iconography, while other archaeologists argue for a shared origin or coeval development with interaction between the two polities leading to the convergence of iconic portrayals. Until the last decade in Middle Horizon scholarship, most of the arguments have been based on stylistic and iconographic comparisons (Cook 1987; Isbell and Cook 1987). Evidence for interaction between the two groups had only been inferred and data was indirect. There is, however, one known area of geographic overlap between Huari and Tiwanaku territories, and it is only in this unique place that a model of direct interaction between the two states can be tested.

Since the discovery of the Huari and Tiwanaku sites in the Moquegua sierra of Southern Peru less than 20 years ago, a great deal of archaeological investigation has enlightened the mysterious nature of the relationship between these
Middle Horizon states (Figure 8.1). We take this opportunity to summarize the nature of Huari and Tiwanaku settlement in the valley, evaluate the changing relationship between the two polities based on recent excavations on and around the Huari administrative center of Cerro Baúl, and assess the potential ideological exchanges between Huari and Tiwanaku based on the direct association of materials recovered from Huari ceremonial contexts.

We hypothesize that the original occupation of Cerro Baúl was one of site unit intrusion, designed to define the frontiers of Huari imperial expansion (Moseley et al. 1991). As part of this intrusion, Huari placed monumental structures on an impressive mountain that dominates the valley’s visual landscape. In
order to preserve its self sufficiency, Huari constructed a large agricultural system to support the subsistence needs of the local colony. This project would have created a water shortage in times of drought in the lower reaches of the Tiwanaku irrigation system, and there may have been severe competition for water between AD 650 and AD 750 when water availability was at its lowest and demand for water exceeded supply (Williams 1997). Interactions between Huari and Tiwanaku would have been severely limited in this hostile climate.

During the latter half of the Middle Horizon, significant changes began to take place in the Huari-Tiwanaku interaction sphere. By the ninth century AD, Tiwanaku had established settlements on the slopes of Cerro Baúl. It is at precisely this time that the major architectural reorganization that restructures the summit of Cerro Baúl takes place, an event that mirrors changes taking place in other parts of the Huari realm (Isbell 1997; Williams 2001). Tiwanaku and Tiwanaku-influenced ceramics have been recovered from tenth century AD contexts on Baúl, and late Tiwanaku affiliated Tumilaca ceramics have been recovered in association with Huari domestic terraces on the slopes of Cerro Baúl. We hypothesize that major Huari-Tiwanaku interactions were forged between individual elites, during ceremony realized on the summit of Cerro Baúl. These relations paved the way for more significant interactions at higher level state institutions.

TIWANAKU SETTLEMENT IN THE MIDDLE VALLEY

The Moquegua sierra houses the largest, most diversified set of Tiwanaku remains found outside the Titicaca Basin. There is a published inventory of 28 sites (Goldstein 1993a) and many additional settlements have been documented in recent surveys. In addition to numerous cemeteries and the vast Chen Chen necropolis, remains range from farmsteads and villages to fortified hills and civic-ceremonial facilities. The cultural chronology for the imperial capital of Tiwanaku was used as a foundation for a separate stylistic and cultural sequence for the Moquegua area (Goldstein 1989).

The Tiwanaku occupation opens with the Omo Phase which begins ca. AD 500 and is associated with Tiwanaku IV (Goldstein 1989). The early occupation is a small scale colonization by altiplano folk who establish farmsteads and villages in the lower sierra (Goldstein 1993). The largest settlement, Omo M12, was the most important. It exhibits moderate internal differentiation in residential and communal facilities, and yields Tiwanaku ceramic imports and local productions in corporate style. A stylistic disjuncture or brief hiatus appears to separate this phase from the succeeding Chen Chen Phase, Tiwanaku V, which is characterized by a different order of organization and a well defined settlement hierarchy. A state-planned administrative and ceremonial center was erected at Omo M10,
Figure 8.2. Map of the Chen Chen (M1) site with habitation sectors 11–19, cemetery sectors 21–39 and A-M, and agricultural sectors 51–69. Ancient irrigation canals are shown, and preserved field furrows are mapped in sectors 51, 61, and 65.

A population center grew at Chen Chen M1 (Figure 8.2), and lower order administrative facilities were built at the fortified hills of Cerros Trapiche and Echenique, with another major settlement at Quebrada los Enriquez (Goldstein 1993a). Undefended agrarian settlements doubled in numbers and irrigation was extended far beyond the modern limits of cultivation in the confluence section of the valley. All settlements were systematically razed at the end of the Chen Chen phase (Moseley et al. 1991).
The ensuing Tumilaca style has been characterized as a very simplified perpetuation of earlier artistic traditions at farmsteads and fortified villages that reflect a loss of centralized state organization that persisted until the Inca conquest (Bermann et al. 1991; Goldstein 1989). Investigations of Tumilaca style contexts on the Moquegua coast suggest that Tumilaca settlers were established in various parts of the valley by the middle of the tenth century AD (Owen 1993). Recent radiocarbon dates from Cerro Baúl (Williams 2001) and the three published dates from sites with Chen Chen contexts now indicate that Huari sites in the valley are contemporary with late Chen Chen Phase and Tumilaca occupations (Geyh 1967; Goldstein 1989; Owen 1993).

Tumilaca material remains have also been found on domestic terraces on the slopes of Cerro Baúl. A 4 sq m test unit excavated in one of these terraces in 1998 yielded Tumilaca pottery in association with small quantities of Huari sherds. These data, in conjunction with the dates from the coast (Owen 1993), raises the possibility that Tumilaca may have been co-habiting the Cerro Baúl region with Huari. In fact, given the close temporal and geographic proximity of these occupations, it is possible that Tumilaca represents a group with influence from both Tiwanaku and Huari, perhaps a faction, rather than a descendant of the main Chen Chen Tiwanaku state occupation.

Classic Tiwanaku V ceramics also make an appearance in the upper valley at this time. Goldstein (1993) notes that several Tumilaca sites around Cerro Baúl have secondary affiliations of Chen Chen phase ceramics, with the possibility that even earlier Omo phase ceramics could be in the upper valley. Owen’s (1998) excavations at La Cantera and Cancha de Yacango, confirm the presence of a rustic Tiwanaku temple with Omo (Tiwanaku IV) style ceramics and a mortuary and domestic component associated with Chen Chen (Tiwanaku V) style ceramics on the slopes of Baúl by 900 AD.

THE HUARI INTRUSION

When the Huari arrived in Moquegua in the early seventh century AD, they likely found indigenous Huaracane farmers inhabiting the middle valley alongside Tiwanaku Omo colonists. Rather than insert themselves into already occupied territory, they created a new settlement system in the upper sierra (2000–2500 m asl), which was probably either very sparsely occupied or vacant (Owen 1994). The new colony consisted of settlements perched on and around three mountains (Figure 8.3) that divide the Tumilaca and Torata tributaries. The colonial capital was established on the summit of Cerro Baúl, an impressive mesa that rises high above the valley floor. Subsidiary settlements graced the other mountain tops of Cerro Mejía and Cerro Petroglifo, while domestic terraces and modest vernacular architecture are located on the slopes of all three mountains.
The largest and longest canal constructed in the upper Moquegua drainage in pre-Inca times linked all the Huari settlements together and provided water for agricultural and domestic use. At the midpoint of its course, the canal had a maximum discharge capacity of 400 liters per second. In length and discharge capacity, the El Paso canal is one of the largest in the valley, rivaled only by canals constructed by the Inca nine hundred years later (Williams 1997).

Figure 8.3. Map of the Cerro Baúl colony.
The monumental architecture atop the sheer-sided mesa of Cerro Baúl crowned an extensive colony implanted by Huari deep within Tiwanaku territory. The access to the lofty height of Baúl’s summit is blocked by a monumental wall that stretches along the western slope of the grand mesa. The wall is more than a meter in width and is preserved to a height of over two meters in portions nearest the valley bottom. The wall is not continuous, however it is only broken by steep quebradas. The adjacent mountaintop settlement of Cerro Mejía was also transformed into a circumscribed settlement encircled by massive boundary walls. Outlying walls also restricted access to the critical El Paso divide between the two major hills. At the point where the Huari canal diverges to irrigate the slopes of Cerro Mejía and Cerro Baúl, El Paso represents an important control point in the flow of traffic and the flow of water in the local Huari settlement system. The Huari enclave was strategically positioned high above the Torata and Tumilaca Rivers, more than two hours walk from either valley. Therefore, potable water was delivered to the El Paso area by construction of a sophisticated, high-elevation contour canal. More than 10 km in length, the now-abandoned El Paso canal irrigated extensive terrace flights and numerous planting surfaces along its winding mountain course. It is also likely that canals were built at lower elevations to reclaim Torata and Tumilaca lands that are farmed today.

Mapping and excavations on Cerro Baúl indicate that the summit areas can be grouped into five distinct sectors (Figure 8.4). Sector A is located on the eastern tip of the summit. Based on excavations in Units 2 and 7, this sector housed craft lapidary specialists who lived and worked in this area. The recovery of large amounts of lithic debris such as chrysacolla and lapis lazuli, as well as domestic refuse such as bones, seeds, and grinding stones support this hypothesis. Three radiocarbon dates indicate that this sector was occupied during the early period of Huari settlement, between AD 550–690 in radiocarbon years (Williams 2001).

Sector B is located in the central part of the summit architectural core. Excavations in Units 1, 5, and 8 indicate that this part of the site was the monumental and ceremonial center. The surficial level of remains in this sector represents a later addition and remodeling of the architecture that took place circa AD 900 (Williams 2001). Unit 5 is a D-shaped structure, analogous to several structures at the Huari capital and other important settlements and argued recently by Cook (2000) to represent a ritual focus of Huari culture, an area of sacrifice and symbolic activity. Unit 1 is a trapezoidal plaza surrounded by galleries that contained a burnt offering deposit composed of classic, probably imported, Huari fineware vessels and a hybrid Huari-Tiwanaku decorated kero. Units 1 and 8 also contained evidence for an earlier construction phase, and further excavations in Units 1 and 5 and the area between them will be crucial to understanding the evolution of Huari ritual as the empire developed.

Sector C is composed of several large plazas flanked by long galleries that are reminiscent of the orthogonal cellular architecture identified by Isbell as
characteristic of Huari administrative structure (1991a). Excavations in Units 3 and 6 reveal that the surface architectural pattern dates to the later part of Huari imperial presence (AD 800–1000) based on two calibrated radiocarbon dates. However, excavations in Unit 3 during the 1998 season revealed an earlier construction phase in one part of the unit that may date to Epoch I. Material remains are rare, as the buildings in this sector seem to have been cleaned out upon abandonment.

Sectors D and E are not attached to the rest of the architectural core on the summit, and have not yet been the subject of systematic study. Sector D is an architectural compound built around a large boulder at the center of the summit. Sector E is a raised platform facing a plaza 500 m west of the main architectural core. Reported surface finds near the platform structure in Sector E include a large number of aryballoid fragments; the platform is monumental and the ceramic associations suggest that it is Inca in origin. Research on Cerro Baúl indicates that it was the most important Huari site in the drainage, with D-shaped temples and orthogonal, although not necessarily cellular, architecture that reflects its affinity with the Huari capital. Elite personages and artistic specialists inhabited the summit of the great mesa, with special purpose administrative and ceremonial compounds forming the core of the settlement.
On the adjacent hill of Cerro Mejía, the architecture is also reminiscent of canons of Huari architecture; they are constructed of double faced stone masonry and there is one clear example of the orthogonal cellular form described by Isbell for Moraduchayuq (Isbell et al. 1991). Unit 145 is not the largest structure on the summit (Figure 8.5), but exhibits a relatively fine quality of stone masonry. It

Figure 8.5. Map of the summit architecture on Cerro Mejía.
consists of a patio with four flanking galleries agglutinated to a larger open plaza. However, the basic cellular unit is a stand alone structure on Mejía. The other units are irregular in form and dispersed across the summit rather than being agglutinated and structured in walled compounds as they are at Huari and most of the provincial centers. Excavations indicate that the basic construction units of Cerro Mejía are not simply single households but rather non-uniform multi-family dwellings agglutinated in small clusters of two or three. For example, Unit 118 exhibits a cluster of two dwellings each with two households, households are represented by cooking areas. These structures exhibit open access between households within a dwelling, which is a bounded residential structure with a single entrance, but no internal access between dwellings in a cluster. That is, although the dwellings share a common wall they do not share a common entrance or have access into the other dwellings through the shared wall. This contrasts with access patterns exhibited in the Moraduchayuq compound in which most structures within the compound had internal access between patio-groups (Brewster-Wray 1990; Isbell et al. 1991). Further investigations will hopefully clarify the relationship between dwellings in these clusters and the nature of this unique non-agglutinated settlement on the summit of Cerro Mejía.

The summit top settlement on Cerro Mejía is surrounded by several monumental wall fragments that limit access between the elite summit and the domestic terraces located below on the southern slope. Ascent to the top is gained by climbing a flight of monumental stairs, some of which are three meters in width and all are more than 40 cm in height. Lined on either side by megalithic stones and crowned with a megalithic gate, this stairway is a grand statement of the elite position held by the summit top occupants. These stairs lead directly from the summit of Cerro Mejía to the El Paso plaza complex with Cerro Baúl beyond (Figure 8.3). This formal monumental passage stands in stark contrast to the wide break in the boundary wall and the gradually sloping descent that leads to the agricultural fields on Mejía’s eastern slope and the site of Cerro Petroglifo.

On Cerro Petroglifo, architectural investigations reveal modest orthogonal architecture on the summit, with scores of domestic terraces on the sides (Figure 8.6). The site is divided into four sectors (Nash 1996). Sectors 1 and 2 represent the two summits of this double crested hill. The terraced northern slopes below are divided by a double stairway, which descends to the Torata basin. The northwest slope is Sector 3 and the northeast is Sector 4. A feeder canal with aqueduct, agricultural fields, and boulder inscribed with the petroglyph from which the hill derives its name are located on the south side of the hill.

Sector 1 the western summit is covered with the ruins of stone masonry structures and piles of rocks, presumably building materials. These structures may not have been completed, however it is clear that they do not represent orthogonal cellular architecture. Summit 2, the eastern summit, does have structures which consist of open patios with one or two galleries, however the
flanking room widths do not fall within the average range for orthogonal cellular architecture (Schreiber 1992). These structures are also not constructed of double face masonry and are all leveled at a similar height. Thus they appear to be the stone foundations for some other form of perishable superstructure.

The northern slope of Cerro Petroglifo is densely covered with modest residential terraces. There appears to be no differentiation between Sectors 3 and 4. They both consist of variously sized domestic terraces broken into small patches by the irregular topography or continuous and regular rows when the terrain permits. The area of terracing is divided by two narrow stairways built an average of five meters apart. These staircases are likely significant not only because their duplication exceeds functional explanation, but also because they are constructed with the only cut stone used on site. These stairs lead to the rich Torata drainage below and therefore may point to a significant source of agricultural production for the Huari colony (Nash 1996).

**AGRARIAN RESOURCES**

An analysis of the agricultural works of the Tiwanaku and Huari components of the Moquegua hydraulic system provides a means to model potential conflicts over water use in the early Middle Horizon. Survey of the study area indicates that agrarian reclamation was a significant component, if not motivation, of ancient
imperial colonization. Focusing upon flat terrain in the lower (1000–1600 m asl) Moquegua sierra, Tiwanaku expanded traditional canal irrigation well beyond its modern limits on the south side of the valley confluence. When the altiplano state ended, lower sierra irrigation contracted back to within its modern confines. Huari colonized the previously uncultivated high (2000–3000 m asl) sierra with a more labor-intensive technology based upon long sinuous canals and terraced planting surfaces. Although terraces around Cerros Bail and Mejía were abandoned when the colony withdrew, the technology persists as the modern mainstay of farming in the upper sierra.

Constructed and abandoned at different times, ancient planting surfaces and their water delivery systems cover large regions of the valley. They represent the preserved, distal ends of irrigation systems. Closer to their water sources these systems are not preserved due to surface modifications by later farming. Therefore, the location, slope, and channel configuration of preserved canal sections must be used to calculate and approximate the original canal intake, contour course, and potential areas of irrigation. These procedures are particularly important for reconstructing Huari reclamation. Due to the deflation and erosion of arid mountain slopes, good preservation of the El Paso system is confined to the region of the Bail-Mejía divide and Cerro Petroglifo, where stone was extensively employed in both canal and planting surface construction. Beyond this region there is widely scattered, but rare tracery of poorly preserved earth-banked canal sections and more numerous isolated masonry structures that may be eroded remnants of small aqueducts.

This suggests that the El Paso system was potentially very extensive and that many surfaces were farmed without benefit of masonry terracing. Excavations and analysis of the hydraulic sediments from the El Paso canal confirm its maximum discharge capacity was in excess of 400 liters per second near the midpoint of the course, making it one of the largest canals in the Moquegua Valley of all time. A strong correlation between discharge capacity and irrigated area has been demonstrated for irrigation canals in the Moquegua Valley, and this data supports the assertion that the El Paso irrigation system was monumental in scale (Williams 1997). Furthermore, recent analysis of phosphate values from the soils within the canal’s irrigable area are substantially elevated in comparison with control samples outside of the canal’s irrigated area. This is true even in areas without evidence for terracing or substantial modification of the surface. Research on agricultural terraces from the nearby Colca Valley demonstrate a strong correlation between increased extractable phosphate values and abandoned prehispanic cultivated terraces (Dick et al. 1994). Thus various data sources support the contention that the Huari irrigation system was indeed extensive.

In order to understand the relationship between the Huari and Tiwanaku agricultural systems, it is necessary to reconstruct paleo-precipitation regimes and the dynamics of water distribution networks in the valley. A complete
description of the methods of this analysis are detailed elsewhere (Williams 1997), but the results convincingly demonstrate that Huari water use in the upper sierra in combination with reduced precipitation levels during several decades in the early Middle Horizon would have severely impacted Tiwanaku agrarian production in the middle valley. The source of water for irrigation agriculture in this hyperarid desert environment are the rains that fall above 3900 m asl and course down the tributaries of the Moquegua river system. The amount of water available for cultivation in any part of the valley depends on the amount of discharge of the humid basin (3900–5100 m asl) and the amount of water being consumed by cultivators upstream. Since discharge correlates with paleo-precipitation records derived from the Quelccaya ice cap, it is possible to model the amount of water available to ancient farmers, taking into account upriver irrigation uses and water transport losses to evaporation and seepage (Williams 1997).

At the beginning of the Middle Horizon Huari occupation of Moquegua, ca. AD 600, there was an abundance of water available to farmers in the Tiwanaku zone of the valley. Approximately 209 million cubic meters of annual river discharge was available to the inhabitants of the valley below 2000 m asl during the first half of the seventh century. However, between AD 650–750, a lack of rainfall combined with the Huari intrusion and cultivation in the upper sierra would have dropped available water supplies to an annual discharge of 145 million cubic meters, a decrease on average of over 30 percent (Thompson et al. 1994). The Tiwanaku agricultural system would have suffered a concurrent decrease in productivity due to lack of water to irrigate their fields (Williams 1997). Blame would likely have been placed not only on lower rainfall levels, but on the Huari water usurpers of the upper valley, much as modern farmers today blame their upstream neighbors for taking more than their fair share of water. Thus, the co-occupation of Moquegua, during Tiwanaku IV or Epoch I times may very well have been one of tense relations over the availability of water. Increased rainfall in later decades may have alleviated some of the water stress, since average discharge available to Tiwanaku colonists between AD 750–950 is estimated at 176 million cubic meters annually. We now turn to the archaeological evidence for interaction between the two states in Moquegua to evaluate the water conflict model.

**DATING AND DEVELOPMENT**

The first Huari colonization apparently transpired during an early era of Huari expansion in Middle Horizon Epoch 1, and endured for at least three centuries, well into Epoch 2. Three radiocarbon dates, one from each investigated sector of the site, date the initial Huari presence to AD 600–675 calibrated 2 sigma (Table 8.1). We see no evidence that Cerro Baúl was occupied by a
post-imperial Epoch 3 or 4 presence, although radiocarbon dates do indicate that the summit was occupied by Huari peoples until AD 1000 and perhaps later. Based on a series of 12 radiocarbon dates whose calibrated means fall between AD 650–1100 (Williams 2001), the summit excavations indicate that ceramic assemblages include fine decorated wares that were probably imported from the imperial heartland of Ayacucho. An ongoing neutron activation analysis project demonstrates strong trace element affinities with ceramic wares from Huari. These ceramics are predominantly of Chakipampa and Okros style (Figure 8.7a), with occasional, more tentatively identified, examples of Huari Polychrome Cursive, Huarpa, Robles Moqo, and late Nazca styles (Figure 8.7b, c). Other fineware styles may have been produced locally by skilled Huari artisans.

The Unit 1 assemblage included one Tiwanaku kero and sherds from six different vessels that are “hybrids.” They consist of Huari kero forms with Huari colors that depict designs affiliated with two local Tiwanaku Phases (Omo and Chen Chen), which have Front Facing Deity iconography (Moseley et al. 1991). Monumental construction employed masonry walls one and two stories high for civic-ceremonial facilities that resemble Huari architecture at the imperial capital and, to a lesser degree, at state-built provincial centers. Excavated monumental architecture was erected over pre-existing Huari structures and thus was the product of two phases of construction.

The dynamics of Huari constructions at Cerro Baúl reflect many of the changing patterns of interaction with the Tiwanaku. The first construction phase dates to ca. AD 650 and represents the first Huari colonization of the Moquegua sierra. This occupation phase is still poorly documented in the monumental areas of the site, as the only evidence recovered thus far are the foundations of walls.
Figure 8.7. Examples of reconstructed fineware vessels from monumental contexts on Cerro Baúl.
that were torn down during later Huari occupation to make way for new structures. However, in the excavated domestic areas of the site that date to the first century of Huari occupation, no Tiwanaku nor Tiwanaku influenced materials have been recovered. Likewise, there are no early Tiwanaku settlements in the direct vicinity of any of the upper valley Huari sites that have been dated to this time period (AD 600–800). All Tiwanaku activity was focused on the middle valley, and there is no evidence for amiable interaction between the two groups at this time.

However, the situation is drastically different after AD 800. Until recently, the Huari city atop Cerro Baúl was thought to have been abandoned by this date. The recent radiocarbon dates from Cerro Baúl now indicate that the Huari occupation lasted throughout the Chen Chen phase. Furthermore, substantial activity was occurring within the Huari colony at this time. The most significant event was a complete reconstruction of the monumental component on the summit of Baúl. This second monumental construction phase is dated to ca. AD 910 (Williams 2001) and is temporally associated with increased Tiwanaku presence in the upper sierra. The final use of the Huari site terminated in systematic ritual burning of some of the buildings. One radiocarbon date probably dates this event with a calibrated two sigma range of AD 1030–1220; it is associated primarily with Epoch I ceramics (Figure 8.7a).

Classic Tiwanaku, Chen Chen phase settlements make an appearance in the upper valley at this time. Tumilaca material remains have also been found on domestic terraces on the slopes of Cerro Baúl (Figure 8.8). A review of published radiocarbon dates (see Tables 8.1, 8.2) from sites with Tiwanaku contexts in the Moquegua Valley also suggests the possibility that Tumilaca phase ceramics could be contemporaneous with late Chen Chen Phase and is most likely contemporary with Huari occupations (Disselhoff 1968; Geyh 1967; Goldstein 1989a;

<table>
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<th>Uncalibrated date</th>
<th>Source</th>
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<td>910 ± 65 B. P.</td>
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<td>Disselhoff 1968</td>
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<td>120 ± 80 B. P.*</td>
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<td>Tumilaca phase post</td>
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<td>140 ± 60 B. P.*</td>
<td>Owen 1993</td>
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<tr>
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<td>160 ± 65 B. P.</td>
<td>Geyh 1967</td>
<td>Tumilaca or Chen Chen phase? tomb</td>
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*Dates from Owen 1993 are δ13C corrected; other sources do not list a δ13C correction. The only dates from coastal sites listed are from Tumilaca contexts. Non-Tiwanaku, related, and mixed styles are not listed, but can be found in Owen 1993.
Owen 1993). The one terminal radiocarbon date for the Huari occupation of Cerro Baúl suggests the site abandonment took place no earlier than AD 1030. The latest published date from Tiwanaku contexts at Chen Chen has a nearly identical 2 sigma calibrated range (AD 1010–1250). All other Tumilaca and Chen Chen phase dates are earlier than the terminal Huari date (see Tables 8.1, 8.2). Even if one discounts the latest date from Cerro Baúl and the latest date from the Tumilaca phase settlement of the Chen Chen site, there is substantial overlap between the one sigma ranges of the latest Baúl dates and all the Tumilaca dates published thus far. Nevertheless, the terminal Huari presence, the entire Chen Chen occupation, and the upper valley Tumilaca settlements require further

Figure 8.8. Tumilaca decorated pottery encountered in association with Huari plain wares on the terracing along the access path of Cerro Baúl.
CONCLUSIONS

We propose that Huari-Tiwanaku interaction was limited and perhaps hostile in early Middle Horizon times (AD 600–800). The hydraulic analysis of Moquegua agriculture in the early Middle Horizon provides a source of conflict over water use that would have drastically affected the Tiwanaku colony’s agricultural production mechanisms. Despite these early hostilities, it is likely that significant interactions began to take place between some social units early in the ninth century AD, and by the tenth century AD institutional relationships were affirmed through ritual feasting and drinking in the ceremonial Sector B on Cerro Baúl. Furthermore, we hypothesize that the nature of interaction changed over time, this interaction influenced the course of development that each state followed, and is reflected in the architectural reorganization characteristic of the second construction phase on Cerro Baúl. We contend that this reorganization may stem from imperial growth and interaction with Tiwanaku counterparts in Moquegua and Tiwanaku emissaries elsewhere. It is interesting to note the preliminary correlation of Baúl radiocarbon dates from the second phase of construction, imperial architectural reorganization in Epoch 1B at the capital (Isbell 1997; Isbell et al.1991), and changes in ceramic iconography in the Huari heartland.

We concur with expectations that Cerro Baúl “may turn out to be our chronological Rosetta Stone for finally working out the precise temporal relationships between [Huari] Middle Horizon epochs in Peru and the Tiwanaku phases in Bolivia” (Brownman 1985). Agricultural and architectural investments at Cerro Baúl were substantial, suggesting a sizable population of over one thousand individuals (Williams and Sims 1998). The El Paso canal and its extensive terraces and planting surfaces reflect basic concerns with economic autonomy and large-scale investment in agrarian self-sufficiency. The large encircling walls of Cerro Mejía, and the strategic character of Baúl reflect concerns with potential hostilities, but also reflect substantial investment in delimiting spheres of social interaction between stratified class segments (Nash and Williams 1999).

Interestingly, the appearance of Tiwanaku and Tiwanaku influenced ceramics in the most exclusive Huari contexts, the ceremonial Sector B of Cerro Baúl’s summit, suggests that this segregation was not enforced on the basis of political affiliation. The walls around Cerro Baúl and Cerro Mejía may at one time have functioned as defensive structures, however the evidence recovered thus far shows that these walls separated symbolic activities and their practitioners from more mundane activities and the common people who conducted them. Additionally, the architecture atop Baúl reflects concerns with and investments in
maintaining Huari self-identity. The architects of Cerro Baúl created a monumental settlement that reflected affiliation with the imperial core by constructing patio groups and D-shaped structures. Thus, the largest of labor commitments was designed for economic and political independence and provided for controlled interaction with Tiwanaku populations. It is now apparent that extensive interaction between the two states was established in the late Middle Horizon.

Increased interaction does not necessarily represent a peaceful coexistence, however. The widespread demolition of Chen Chen phase settlements likely took place while Huari was still inhabiting the valley. Whether the Huari, the Tumilaca, or the Chen Chen settlers themselves completely razed the Chen Chen villages has yet to be resolved. If the dating of the destruction to the end of the first millennium AD holds true, it is clear that the end of the Middle Horizon occupation of Moquegua was violent and tumultuous. The Huari abandonment of Cerro Baúl also involved burning several summit structures, including houses, temples, and public buildings. However, the complete annihilation witnessed at Chen Chen settlements is not characteristic of the end of Huari occupation on Cerro Baúl. Rather, it is likely that certain structures were ritually burned in order to bring closure to the use of certain prescribed spaces.

Nevertheless much work remains to be done refining the modes of interaction that existed between Huari and Tiwanaku peoples in Moquegua, however the broad outlines of an extensive period of co-occupation within the valley is in evidence. It is tempting to suggest that both economically in terms of access to water and ideologically in reference to the Huari occupation of a sacred mountain peak, that Huari had in some way subjugated Tiwanaku. Yet each group maintained its separate settlement system within the valley, each with strong ties to its distant capital. Even in the period of suggested increased interaction in the later Middle Horizon, administrative control of each valley zone was inextricably linked to the events taking place at the respective political capitals in the Ayacucho sierra and on the shores of Lake Titicaca.

REFERENCES


