

DOMESTIC ARCHITECTURE IN THE SOUTH-CENTRAL ANDES:
PLACING THE PIRQUE ALTO (CP-11) WALL FOUNDATION IN PERSPECTIVE

JACLYN ROGERS

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Abstract

During the 2007 field season a stone wall foundation of a domestic structure was excavated at the site of Pirque Alto (CP-11) in the Parotani region of the Department of Cochabamba, Bolivia. Based on its orientation, shape and structure this wall foundation shows relation to Tiwanaku domestic architecture from the southern Titicaca Basin. This relationship sheds light on the influence of Tiwanaku on peripheral regions like Parotani. Pirque Alto's (CP-11) location along three major trade routes makes it an ideal location in which to study cultural influence between different regions of this area. Based on a comparative study of the wall foundation at Pirque Alto (CP-11) against those from the Late Formative, Middle Horizon, and Late Intermediate Period in the Titicaca Basin and Moquegua Valley, I argue that the wall foundation at Pirque Alto (CP-11) shows Tiwanaku Influence.

Introduction

The site of Pirque Alto (CP-11) is located in the Parotani Region of the Department of Cochabamba, Bolivia (Maps 1 and 2).



Map 1. Map of Bolivia (<http://www.maclester.edu/courses/geog61/dcartier/vista.html>)



Map 2. Map of South America (<http://www.noquartercoffee.com/store/coffee-origins-c-11>)

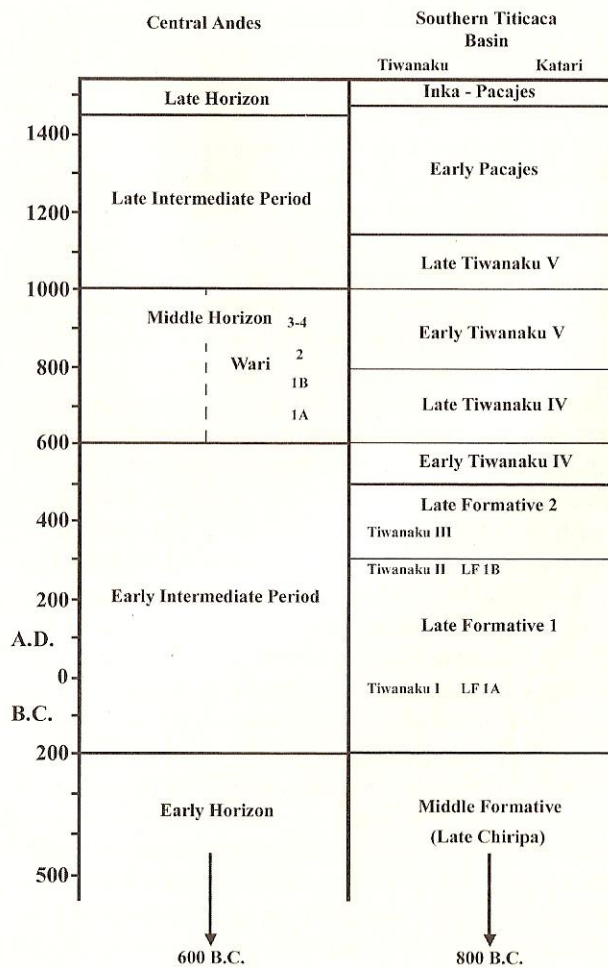


Figure 2 Tiwanaku Timeline (Janusek 2003:31).

the area from the Tiwanaku civilizations center in the Titicaca Basin (Figure 2). A total of 97m² were excavated at Pirque Alto during the 2007 field season. 84m² of these were Excavation Block V, which contained a stone wall foundation. Excavation in this area of the site took place because the 2005 surface survey indicated “dense Middle Horizon surface ceramics and a high frequency of mano and metate fragments” (McAndrews 2007).

Domestic architecture can be used as other artifacts are to determine ethnic influence. The advantage of the use of architecture as an indicator of ethnic/cultural affiliation is that architecture cannot be moved. This means that the style of construction represents the “local cultural preference” (Aldenderfer and Stanish 1993:5), where as

objects such as “ceramic vessels, metal objects, wooden artifacts, or textiles may be the product of complex exchange relationships.” Another advantage to researching domestic architecture is that it can be used as a standard unit of comparison across time and cultures. This cannot be said for all other types of artifacts because “the corporate groups” (Aldenderfer and Stanish 1993:5) that create and distribute them are different throughout time and space.

The Cochabamba region may have been colonized by Tiwanaku and definitely had relationships with the Tiwanaku state. This is clear from the hundreds of tombs that have been found in the city of Cochabamba that date from the Tiwanaku period. Also, ceramics found in the Cochabamba region demonstrate that Tiwanaku influenced the style in the area, extensively and for a long time. This includes ceramics that were imported to Cochabamba from Tiwanaku and also ceramics made in the Cochabamba region that imitated the Tiwanaku style. Ceramics from Cochabamba have also been found at Tiwanaku showing that there was a “dense network of social and economic relations that constantly intermingled people, ideas, and commodities” between Tiwanaku and Cochabamba (Kolata 1993:270).

The importance of the wall foundation at Pirque Alto (CP-11) is that other than ceramics, many of which were recovered through looting and have no provenience, there is “little primary evidence to reconstruct the history of Tiwanaku in Cochabamba” and “no systematic investigation of Tiwanaku habitations and ceremonial architecture has yet been undertaken” (Kolata 1993:270). A comparison of the stone wall foundation excavated at Pirque Alto (CP-11) to stone wall foundations from the Formative Period, Middle Horizon, and Late Intermediate Period in the Titicaca Basin and Moquegua

Valley is important because it will add to the understanding of influence in the Parotani region from other geographic areas, especially from the Titicaca Basin and the Tiwanaku civilization.

The following is a discussion of domestic architecture from several sites within the Titicaca Basin and the Moquegua Valley dating from the Formative Period through the Middle Horizon to the Late Intermediate Period. Through this discussion Pirque Alto's wall foundation becomes an apparent product of Tiwanaku stylistic influence.

Methodology

The first step in determining the influence on the Pirque Alto wall foundation was conducting a literature review in order to determine the shape, structure, orientation and size of domestic architecture from multiple sites in the Titicaca Basin and Moquegua Valley in the south-central Andes. These sites date from the Formative Period, Middle Horizon, and Late Intermediate Periods. The purpose for the creation of this dataset was to use as a comparative model against which the stone wall foundation excavated at Pirque Alto (CP-11) was compared.

The second step I employed was to use the shape, structure, orientation and size of the Pirque Alto (CP-11) wall foundation to compare this wall to those discussed in the literature review.

The third step was to consider the C-14 results from two charcoal samples taken from the 2nd level of excavation of the wall foundation.

Lastly, based on the results of the literature review and consideration of the C-14 results I have determined a general time period into which the wall foundation fits within the south-central Andes.

Background Wankarani

The Wankarani, a formative period archaeological culture, inhabited the Altiplano between Lake Poopo and Lake Titicaca. Dates taken from the type site of Wankarani place the complex between 1200 and 800 B.C. It has been found, though, that Wankarani sites also existed near the Cochabamba Valley. These sites were probably used to extract resources and to use farmland in that area. Based on material culture and settlement patterns it is believed that the Wankarani spread across the Altiplano in Bolivia and into valleys near the Altiplano.

Wankarani settlements tend to have a “cluster” of circular houses made of adobe. Compound walls made of adobe often surround these clusters (Figure 3) (Kolata 1993).

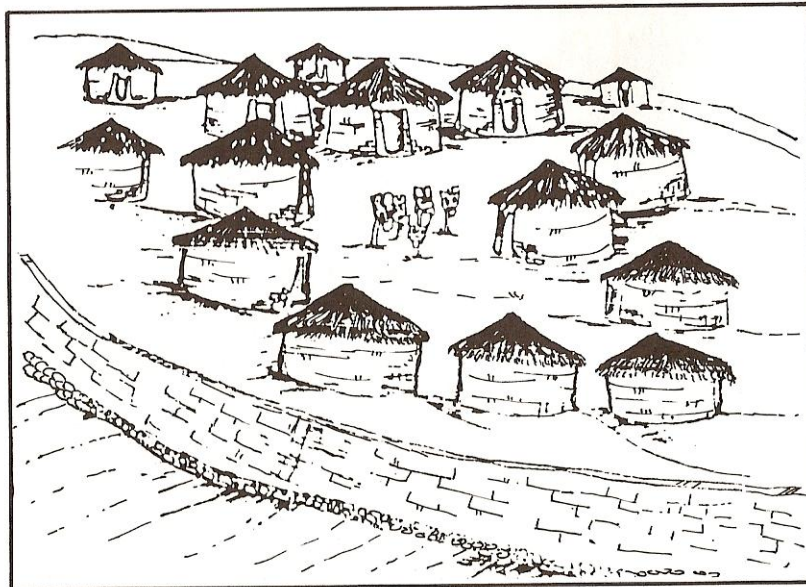


Figure 3 Wankarani Houses (Kolata 1993:62)

Chiripa

Around the southern shore of Lake Titicaca, the Chiripa, another Formative Period complex, first emerged around the same time as Wankarani, 1300-1200 B.C. The Chiripa ranged from the southern lakeshore to the eastern lakeshore and also on the

Copacabana peninsula. The pottery here was similar to that of Wankarani pottery in form and function. Later occupations of the type site of Chiripa date between 900-100 B.C. It was during this time that “subterranean houses” were built on a mound at Chiripa. A rectangular sunken court was then later built in the middle of these houses (Kolata 1993). As can be seen in the illustrations of the structures at Chiripa they had a double wall form with niches in between the walls (Figures 4 and 5).

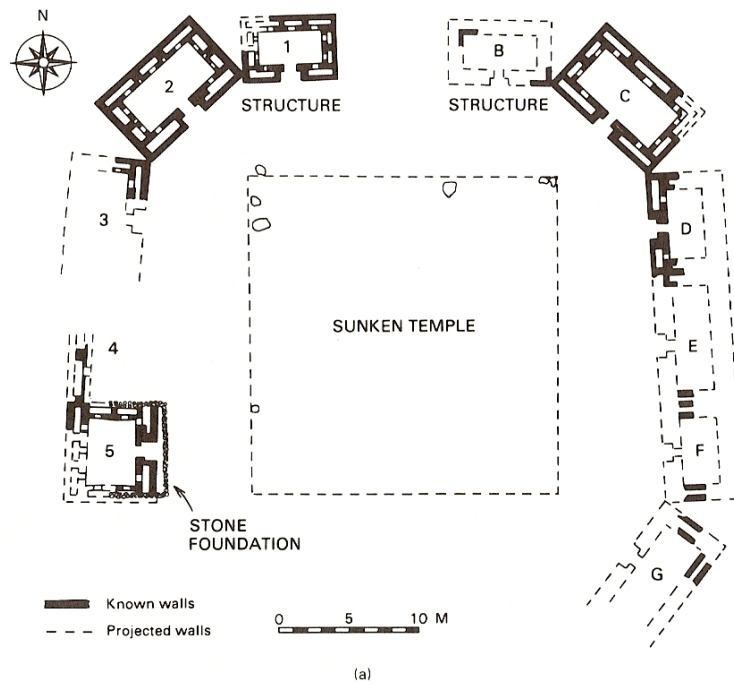


Figure 4 Structures excavated at Chiripa (Kolata 1993:64)

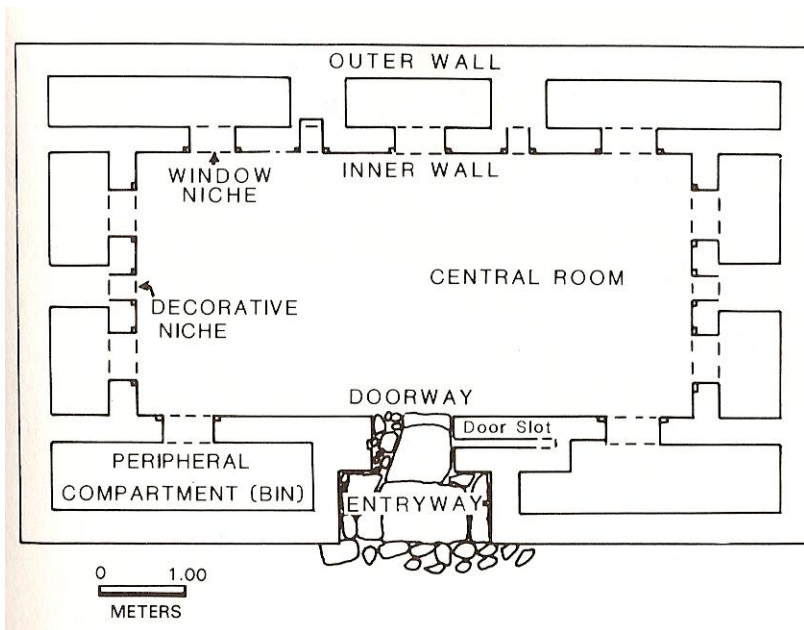


Figure 5 House Plan at Chiripa (Kolata 1993:65)

Tiwanaku

Documentation of the site of Tiwanaku began in 1549. At this time Pedro Cieza de Leon recorded the first written record of the site. It was not until the 1890s that archaeology in the Andes was carried out with scientific procedures. It was at that time that excavations were scientifically conducted. It was also at that time that cultural sequences and relative chronologies were created. (Kolata and Ponce 2003:18-29).

Max Uhle was one of the most important figures in early archaeology at Tiwanaku. He was involved with research at the site from 1894-1896. He also spent time in Peru where he found sites on the southern Peruvian coast and in the eastern selva, which he determined were related to Tiwanaku (Kolata and Ponce 2003:18-29).

Another person who had influence on early archaeology at Tiwanaku was a Swedish man named Erland Nordenskiöld. From 1899-1927 he conducted ethnological and archaeological research throughout Argentina, Bolivia, Peru and Panama. Through his research and a ceramic analysis he found evidence that Tiwanaku had influence in the

“temperate valleys and tropical montane forests east of the Altiplano” in the Department of Cochabamba (Kolata and Ponce 2003:18-29).

In 1932 Wendell Bennett conducted the first “systematic archaeological excavations” within the monumental area at Tiwanaku. Along with this, Bennett is also important because he created a “cultural chronology based on changes in ceramics styles over time” that was used until the 1960s (Kolata and Ponce 2003:18-29).

In 1957-1958 control of excavations at Tiwanaku was transferred to the Bolivians. Carlos Ponce Sangines became a director of the excavations at Tiwanaku under the new Bolivian-controlled archaeology program. Ponce was director of the Centro de Investigaciones Arqueológicas en Tiwanaku [Center of Archaeological Investigations at Tiwanaku] (CIAT) and also director of the Instituto Nacional de Arqueología [National Institute of Archaeology] (INAR). Under Ponce large excavations were carried out at the site and architectural restoration projects were undertaken. He also created a “five-phase ceramic sequence” that broke the chronology of Tiwanaku in the phases Tiwanaku I-V (Kolata and Ponce 2003:18-29).

Starting in 1986 and ending in 1998 a research project on Tiwanaku and the area around Tiwanaku was done by the University of Chicago and the INAR called the Proyecto Wila Jawira (Kolata and Ponce 2003:18-29). Proyecto Wila Jawira had four purposes. One of these was “conducting systematic, large-scale excavations in Tiwanaku and Lukurmata, primarily in domestic occupations, to redefine established cultural chronologies...” (Kolata 2003). Under the Proyecto Wila Jawira seven different residential sectors were excavated at Tiwanaku (Couture 2003:202).

In the Titicaca Basin in A.D. 400 there existed many polities that were different in social complexity and in size. Competition in the forms of “military conflict, strategic alliances, competitive feasting and ceremonialism, the co-option of exchange networks, and the intensification of economic production” existed in the area between these polities. Tiwanaku emerged from smaller polities including Chiripa to become the “first archaic state of the Titicaca region during this intense competition” (Stanish 2003:165).

Tiwanaku I, II, and III differ greatly from Tiwanaku IV and V. During Tiwanaku I, II, and III Tiwanaku was one of many similar polities in the region. Tiwanaku developed as an expansive state around A.D. 400, the period of Tiwanaku IV (Stanish 2003:166). Tiwanaku’s territory as a state is thought to cover the Tiwanaku Valley and stretches to approximately twenty-five kilometers away from the site. Tiwanaku area covered a potential of 300,000 to 400,000 square kilometers in the south-central Andes based on Tiwanaku IV and V ceramics found. It is argued that Tiwanaku influence stretches north to the Azangaro Region in the north Titicaca Basin, but Tiwanaku pottery or Tiwanaku influenced pottery has been found even further north in Cuzco, Peru. The Moquegua Valley to the west and the Majes drainage in the northwest are Tiwanaku boundaries. Finally in north central Chile Tiwanaku material has been found as far as San Pedro de Atacama, which would have been a trading station (Stanish 2003).

Through the excavations done by Proyecto Wila Jawira at the site of Tiwanaku it was found that the different residential areas throughout the site all portrayed similar characteristics. Huge compound walls with stone foundations served to create neighborhoods within the Mollo Kontu South, Akapana East, Ch’iji Jawira, La K’arana and the Putuni residential sectors. All of these compound walls were orientated north-

south based on the standardized organization of architecture at Tiwanaku. Another standardized organization that appears in all residential and monumental structures at Tiwanaku is that the structures are orientated between 7 and 8 degrees east of north. The beginning of this orientation begins in the Late Formative 2 phase at Tiwanaku and was used through Tiwanaku IV and V (Couture 2003:202-203). It is suggested that the urban area of Tiwanaku had an area of four to six square kilometers and carried a population of thirty thousand to sixty thousand (Stanish 2003:172).

The following are the excavation results of the domestic architecture at three of the residential sectors excavated as part of Proyecto Wila Jawira:

Excavations at the Mollo Kontu area of the site of Tiwanaku revealed three levels

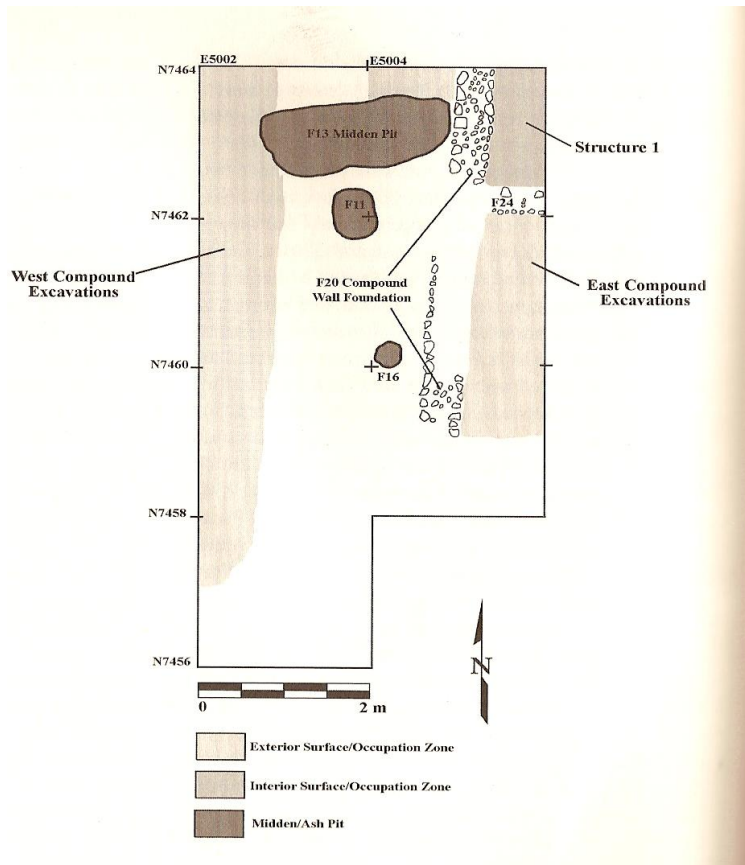


Figure 6 Late Tiwanaku IV structure at Mollo Kontu South (Couture 2003:204)

of occupation. These occupations date from the Late Tiwanaku IV phase, the Late Tiwanaku IV or early Tiwanaku V phase and Tiwanaku V phase. One defining feature of the structures at Mollo Kontu South is that the domestic structures were “frequently built directly against compound walls as they were at other sectors of the site such as Akapana East” (Couture 2003).

At the Late Tiwanaku IV phase occupation at Mollo Kontu South there is a large north-south stone foundation compound wall. This foundation measures 60 centimeters and is arranged in “two well-defined parallel rows of small and medium-sized fieldstone with a hard-packed stone and adobe core.” To the east of the compound wall there is an east-west stone wall foundation of a domestic structure. This wall foundation is built directly from the compound wall as is seen at other areas of occupation at Tiwanaku (Figure 6) (Couture 2003:203).

A large north-south compound wall also characterizes the Late Tiwanaku IV or early Tiwanaku V occupation at Mollo Kontu South. This foundation is 70 centimeters wide and consists of medium and large fieldstones (Figure 7). Here a wall foundation can also be found built directly against the compound wall, creating the western wall for a domestic structure. The boundaries of this structure include the compound wall to the west, an east-west wall to the north, and a wall to the east. There is no south wall (Couture 2003:205). As can be seen from the illustration the foundations were created with two parallel rows of larger stones that were filled in with smaller stones.

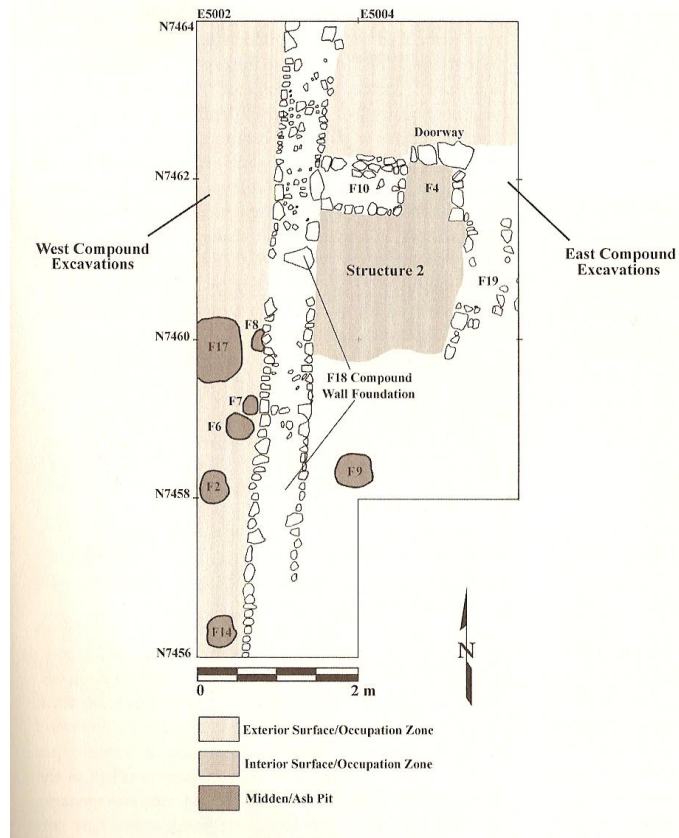


Figure 7 Late Tiwanaku IV or Early Tiwanaku V Structure (Couture 2003:207)

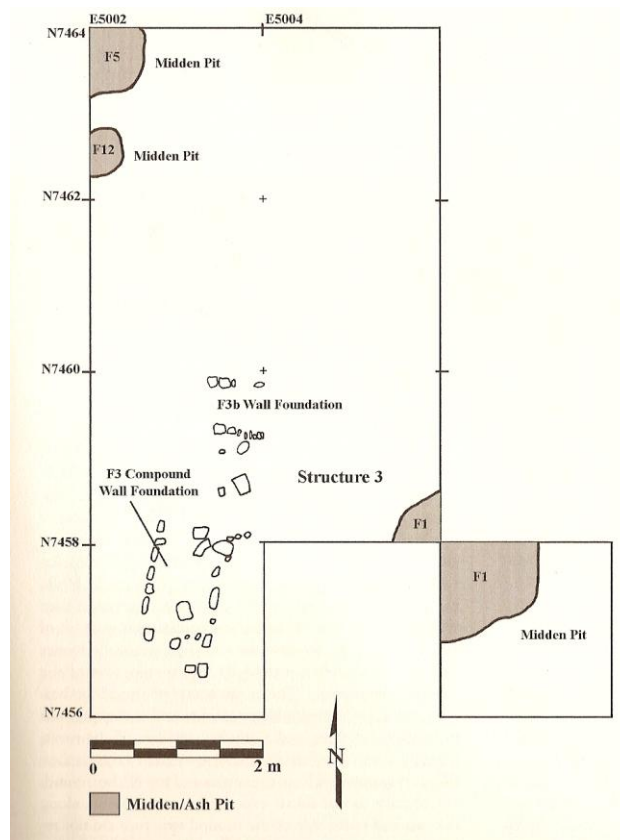


Figure 8 Tiwanaku V Structure at Mollo Kontu South (Couture 2003:211)

The Tiwanaku V occupation at Mollo Kontu South was partially destroyed and not preserved well because of plowing that took place at the site after it had been abandoned (Figure 8). However, a small portion of a north-south compound wall was uncovered. This compound wall was made of two parallel rows of small and medium fieldstones and measured to 90 centimeters in width (Couture 2003:208).

Excavations from Akapana East 2, which dates from the Late Tiwanaku IV to Early Tiwanaku V, revealed a single domestic structure that is surrounded by two compound walls (Figure 9). These compound walls were made of cobblestones. The

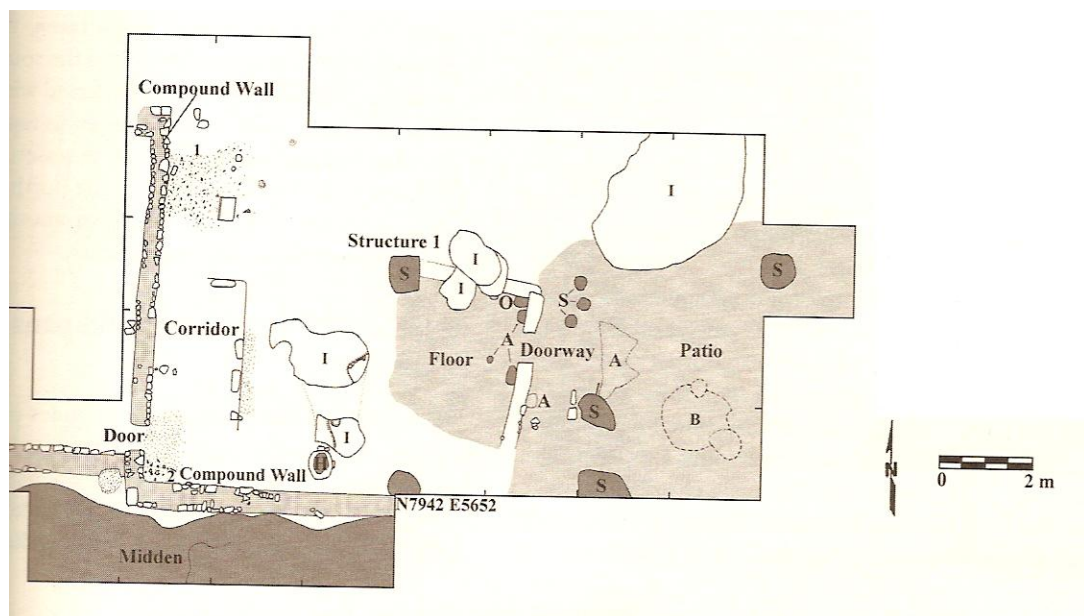


Figure 9 Domestic Occupation at Akapana East 2 (Janusek 2003:273)

structure was at least 4 by 5 meters. The wall foundations here were all orientated at 6-8 degrees east of north (Janusek 2003:273-274). This illustration shows that the compound walls here were created with two rows of parallel stones.

Dating to Tiwanaku V, Akapana East 1: The South Compound had two different compound areas, a north compound and a south compound (Figure 10). A large

compound wall separated these two areas. The compound wall consisted of cobblestone and earth. The south compound had three small structures, a kitchen, a corridor, and also a residential structure. This residential structure has three rooms and is similar to Tiwanaku IV domestic structures. Also, all of the structures in the South Compound follow the “spatial organization” that is standard at Tiwanaku (Janusek 2003:284). As can be seen in the structure 6 illustration, the foundations had two rows of parallel stones.

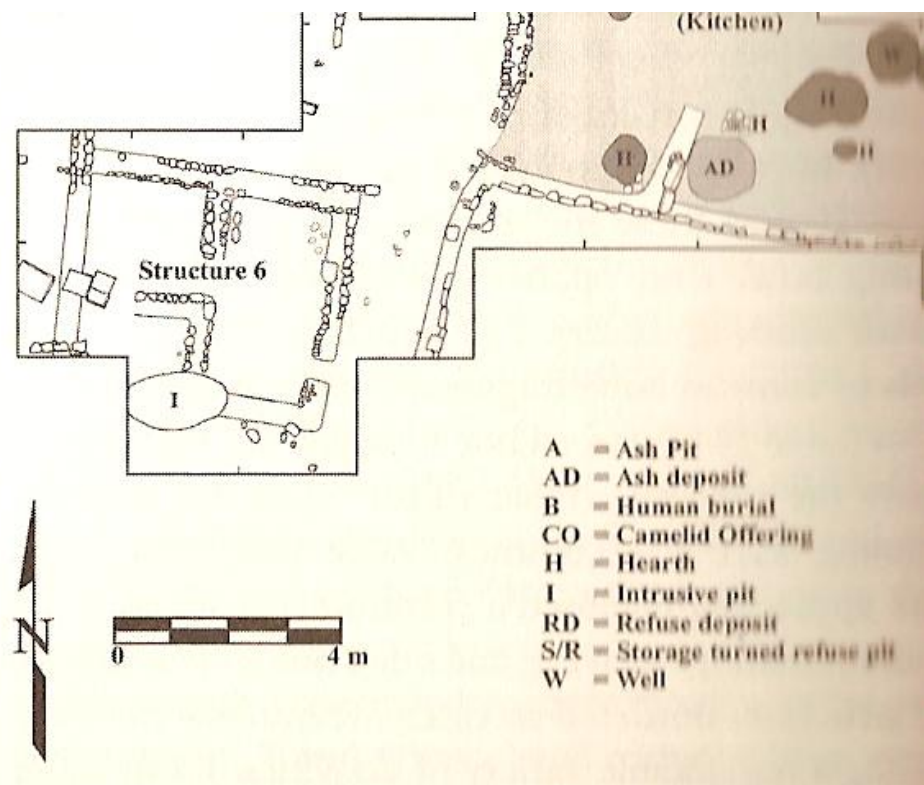


Figure 10 Domestic Structure at Akapana East 1 (Janusek 2003:286).

Residential architecture was excavated in the La K'arana area of the site of Tiwanaku. Within the Sector B two domestic structures were excavated (Figure 11). Domestic structure 1 is rectangular in shape and measures 3.8 meters north-south by 2.4 meters east-west. "Unworked fieldstones, adobe blocks, and mud mortar" make up the foundation. The entrance is on the west side of this structure and follows the spatial organization that is standard at Tiwanaku (Escalante 2003:321-322).

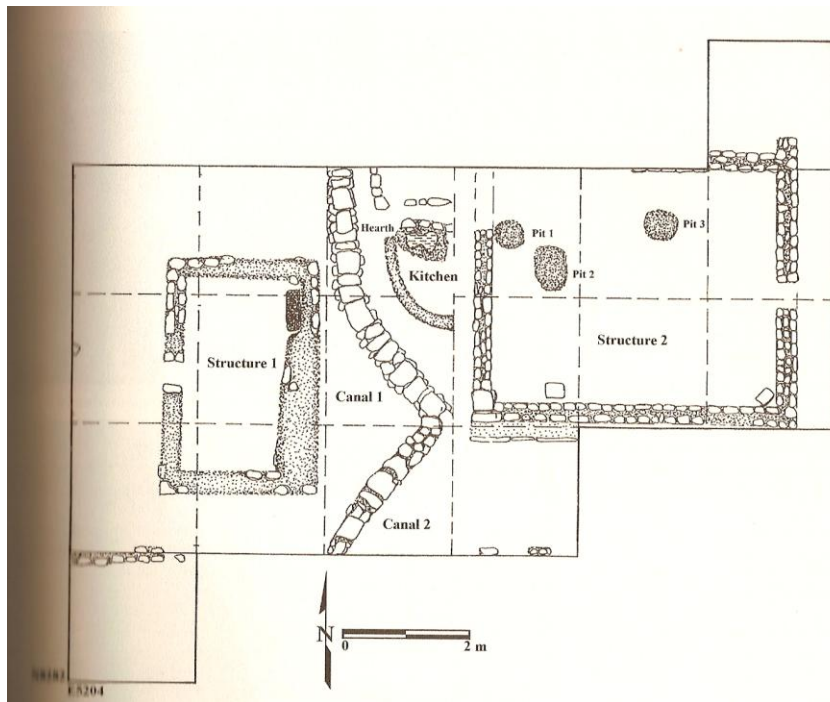


Figure 11 Domestic Structures at La K'arana (Escalante 2003:323)

The second domestic structure in Sector B at La K'arana is also rectangular in shape and measures 5.8 meters east-west by 4.2 meters north-south. This structure has a north-south orientation and the foundation consists of unworked fieldstones, except for three red sandstone ashlar. The doorway of structure 2 opens to the east (Escalante 2003:322).

This illustration shows how the foundations of both Structure 1 and Structure 2 were built with two parallel rows of larger stones and in between these two rows of stones is filled with smaller stones.

Lukurmata

The Site of Lukurmata is the “largest known Tiwanaku site outside the capital itself”. At Lukurmata there was a long occupation during the Formative period. During the Tiwanaku period, architecture at Lukurmata was changed (Stanish 2003:179). The site is located next to Lake Titicaca. Forty-three structures were excavated at the site of Lukurmata and documented by Marc Bermann (1994). These structures date from approximately 100 B.C through A.D. 1300. The dating for these structures came from a few radiocarbon dates and “the Tiwanaku decorated ceramic chronology”, although there were some problems with this “cross-reference” to Tiwanaku ceramics so the dates given to the house floors are mostly general (Bermann 1994:57)

Dated by the ceramics in association with the structures, structures 3 and 4 are estimated at a 0 B.C. to an A.D. 100 occupation. The plan of structure 3 is “slightly trapezoidal” with the foundation made from fieldstones arranged in a parallel line that supported walls that were probably made of mud bricks or cut sod (Figure 12). The structure measures 3.3 m x 3.4 m. For this occupation period the relationship between Lukurmata and Tiwanaku is not known for sure, but the presence of Tiwanaku I style pottery and domestic architecture at Lukurmata suggests that there was some sort of interaction between the two sites. This interaction may have taken the form of

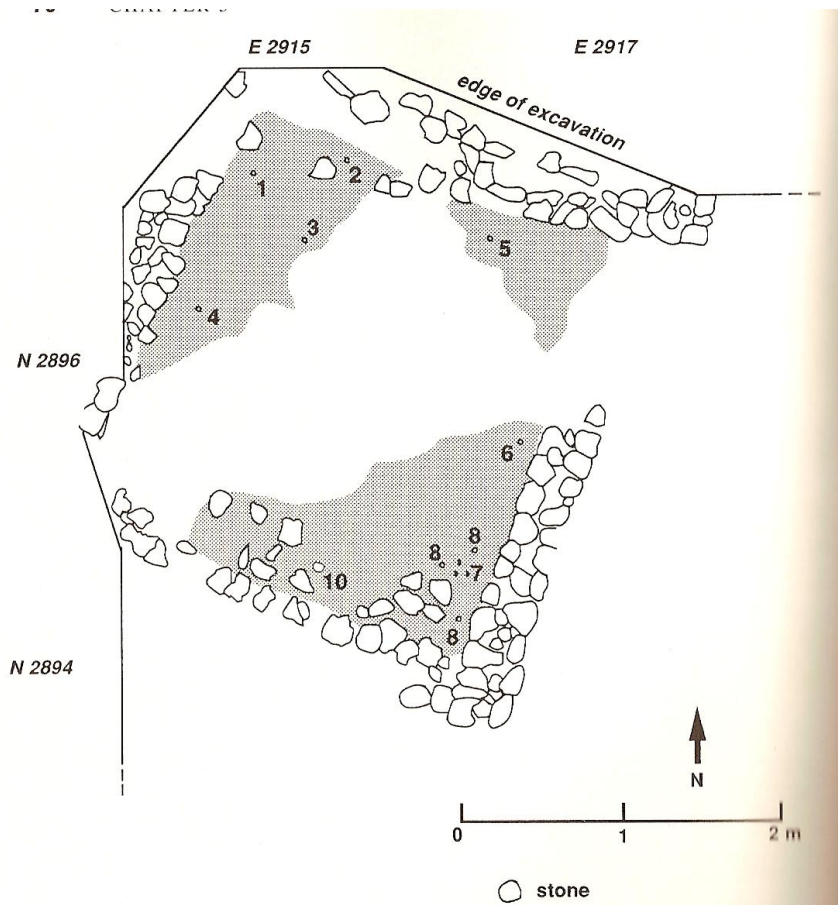


Figure 12 Tiwanaku I Structure at Lukurmata (Bermann 1994:70).

trade and exchange, a more direct interaction between the two or Tiwanaku colonists moving into Lukurmata (Bermann 1994:68-84).

Structures 9 and 10 at Lukurmata date to the third century A.D. Structure 9 measures 5 m in diameter and is “roughly circular in plan” (Bermann 1994:86) based on portions of the stone wall which were preserved and “shadow walls deposits” (Bermann 1994:86) showing curved walls instead of straight. Structure 10 is probably similar in architecture to structure 9. At this occupation level there are no signs of interaction between Lukurmata and Tiwanaku. However, there might have been interaction in

materials that did not preserve. Either way there was a change in relationship between the two. (Bermann 1994:86).

There are Tiwanaku III style materials that occur in association with structures 14-18 at Lukurmata. These structures would have had straight walls and measuring an average of 5m x 3m would have been rectangular in shape. It is suggested that at this point Lukurmata had either been incorporated into the political economy of Tiwanaku, was under the political control of Tiwanaku or that the influence seen of Tiwanaku at Lukurmata was just through trade. Bermann suggests that the relationship between the two was more than just simple trade (Bermann 1994:103-127).

Structures 22 and 23 are also dated to Tiwanaku III and a date in the late sixth-century A.D. Based on the shadow walls, these structures were rectangular in shape. Structure 22 measures 7m x 4m and Structure 23 measures 6.5m x 3m. Both of the foundations for these structures were made of one row of fieldstones (Bermann 1994:138).

Based on ceramics and stratigraphic evidence, structures 26 and 27 at Lukurmata date to the early seventh-century A.D. and the Tiwanaku IV period. The structures during this occupation level were most likely rectangular with straight walls and measured about 8m x 5m (Bermann 1994:159).

During the Late Tiwanaku IV Period at Lukurmata the organization of residential structures changed so that the structures were orientated to the cardinal directions. Also, at this time domestic structures were arranged to create small areas for outdoor activities to be shared by a few structures. This is a significant shift. Structure 38 from this period is rectangular and measures 6m x 4m (Bermann 1994:178-179).

Structure 39 at Lukurmata dates to a Late Tiwanaku IV or Tiwanaku V occupation. This structure is rectangular and measures about 6m x 4m. Based on soot marks and organic staining it is suggested that this structure was orientated north-south and had straight walls. There was also burned adobe found here suggesting that this is what the walls had consisted of (Bermann 1994:195).

Differing from the other domestic structures at Lukurmata, Structure 41, a Late Tiwanaku IV period or early ninth-century A.D (Figure 13) structure, was excavated on

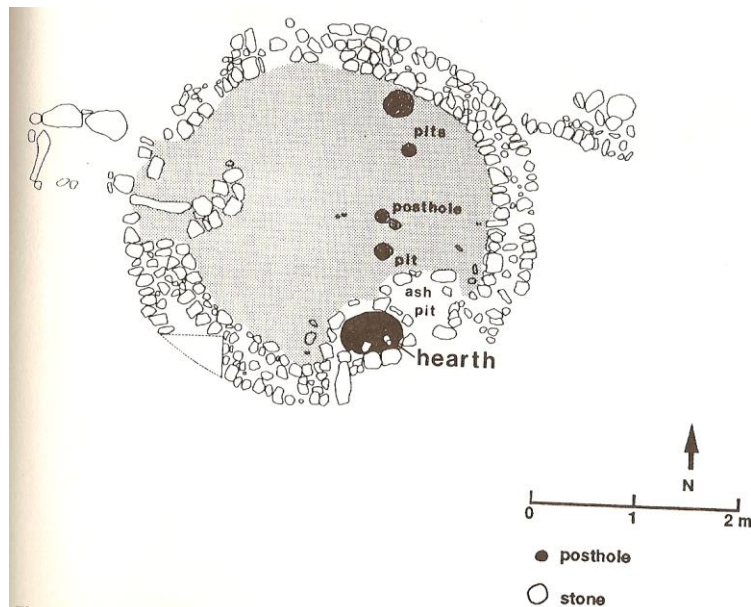


Figure 13 Tiwanaku IV Structure at Lukurmata (Bermann 1994:207).

a hill slope near the south end of the site instead of on the ridge where the rest of these structures are located. This structure differs from the other Tiwanaku IV period structures because it is circular with an interior diameter of 3m. The foundation for this structure is made of two rows of unmodified fieldstones. This structure is similar to the other domestic structures at Lukurmata, however, because its foundation consists of fieldstones and the walls would have been mud brick or cut sod. The entrance for this structure is to the west (Bermann 1994:204).

Structure 43 dates to the Post-Tiwanaku Period at Lukurmata or to the time period A.D. 1200 to A.D. 1300. This date had been determined based on several tombs and pottery associated with the structure. Structure 43 is rectangular in plan, and measures 4.2 m by 4.6 m. The foundation was of fieldstones and would have supported mud brick or cut sod walls (Bermann 1994:205).

The Omo Site

The Omo site group in the Osmore valley of Peru in the department of Moquegua is the oldest and largest colony in the periphery of the Tiwanaku state. This valley is located less than 300 km from the site of Tiwanaku. So far, 28 Tiwanaku sites have been identified in the department of Moquegua. And “Omo has been recognized as the probable regional center for Tiwanaku influence and control in Moquegua” (Goldstein 1993:27). It was during the Omo phase when the first Tiwanaku colonists moved into the Moquegua valley. There are three phases of Tiwanaku present in the Moquegua valley. The Omo site group contains occupations representing all three of these sequences. “The Omo site component M12” and the Omo Phase were around at the same time as Late Tiwanaku IV.

The domestic architecture during the Omo Phase at M12 in the Moquegua valley was for the most part the same in technique and plan between the 133 structures between the three different community areas present there (Figure 14). These structures had two to eight rectangular rooms that were connected to each other, usually in a line. Omo phase structures used thin posts that were placed close together to form a frame to support the

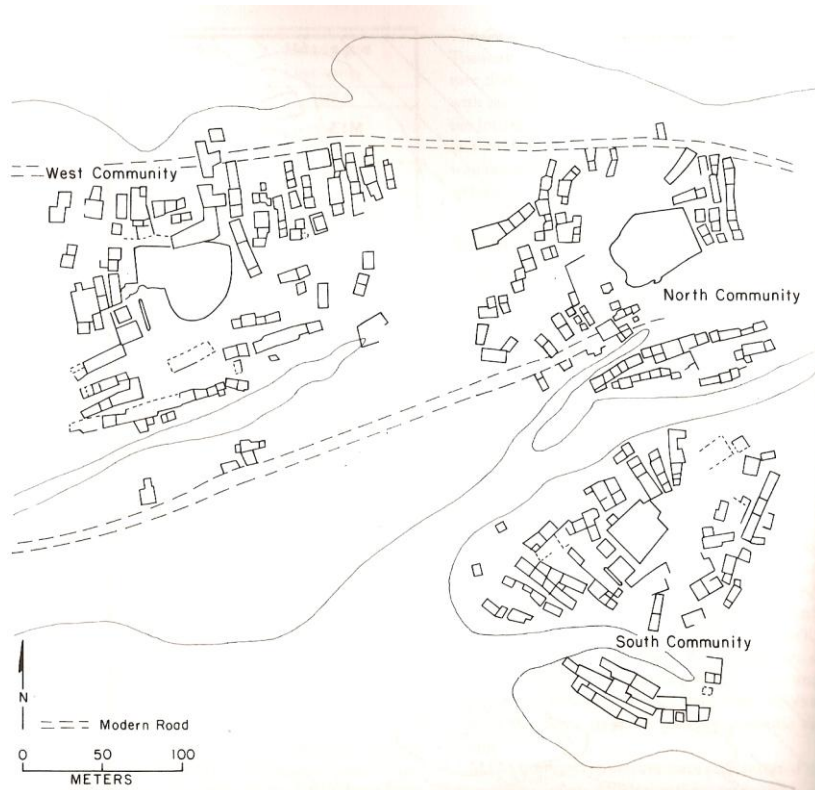


Figure 14 Omo phase occupation plan at Omo M12 (Goldstein 1993:30).

walls and the roof. The posts were from 3 to 5 cm in diameters and spaced at 60 to 70 intervals. The wall panels would have been made “prewoven vegetable fiber mats, textiles or skins”(Goldstein 1993:30).

Tumilaca

The Tumilaca site is also located within the Moquegua valley. The site is situated on a bluff that overlooks the Tumilaca River. The site measures 300 by 80 m and runs

length-wise with the river. There are three different areas of architecture at Tumulaca and these are designated areas A, B and C.

Area A contains terraces that are made with cobblestones and filled with rubble. The most common form of the domestic structures was for three rooms to be connected to each other and run along the supporting terrace (Figure 15). The foundations here were stone. Based on the ceramics associated with these structures, they date to the Tumulaca Phase, around A.D. 1000. The Tumulaca phase is the latest Tiwanaku ceramic phase.

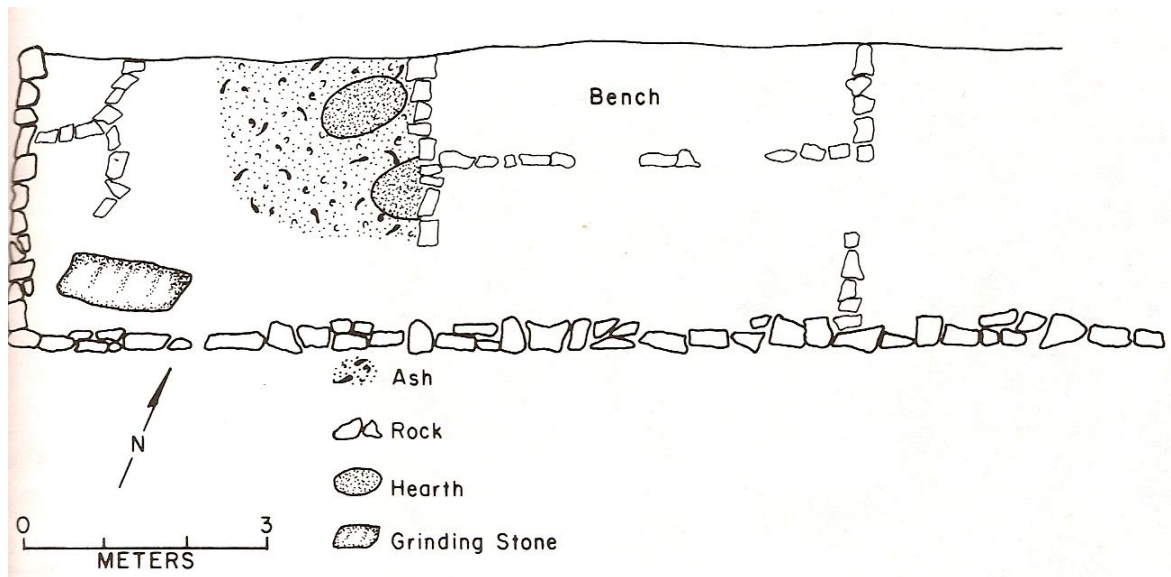


Figure 15 Domestic structure from Tumulaca Phase (Bawden 1993:47).

Area B at Tumulaca dates to the Estuquina phase, which is post-Tiwanaku, and from A.D. 1200-1500 (Figure 16). The walls here differ from the Tumulaca phase structures because the walls are made of blocks of larger stone and are not placed in rows that are the same. The structures in Area B are made into single rooms and may have walls on the inside, that are incomplete, used to divide the room. The rooms are clustered in an unorganized manner and structures share “common perimeter walls”. The rooms are square and have a single opening (Bawden 1993:42-54).

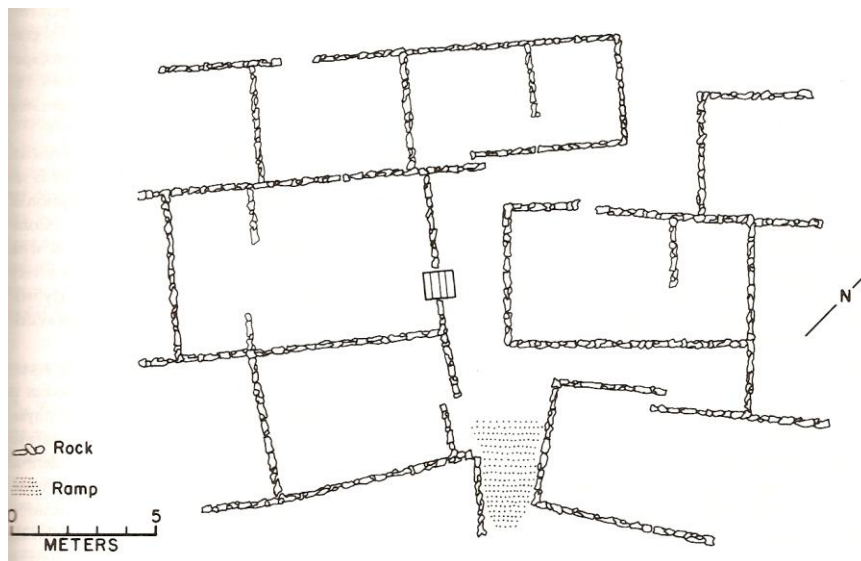


Figure 16 Domestic area from Estuquina (Bawden 1993:49)

As can be seen in both illustrations the foundations here consisted of only one row of stone.

Lupaqa

The Lupaqa were located on the west side of Lake Titicaca during the Lupaqa phase, roughly A.D. 1000 to A.D. 1500 in the Titicaca Basin. Three Lupaqa sites in the south Titicaca Basin include Pukara Juli, Huichajaja, and Llaquepa.

Located near the modern city of Juli, the site of Pukara Juli contains 40 to 60 ha of domestic structures and cemeteries that are surrounded by three to five large walls

used for defensive purposes. These defensive walls were built with two walls of fieldstones that have been filled with rubble, measure 2 m in width and have a combined length of 15m. Within these walls there are four different areas of residential activity. A large terrace that was artificially made is the main structure in the domestic area.

The area of these four that was studied was Yacari-Tuntachahui that is 9 ha in size. Yacari-Tuntachahui is itself divided into four areas of residential structure. One of the terrace platforms at Yacari-Tuntachahui was excavated. It was determined that the terraces are divided internally and that these divisions were made of uncut fieldstone as well as the support walls for the terraces.

The shape of the residential structures at Yacari-Tuntachahui is circular (Figure 17). There are three different types of domestic structure here that are all circular. This includes residential structures, chullpas (burials that are above ground), and small structures that measure 2 m in diameter and their purpose is unknown. It is thought that the structures that are larger than 3 m in diameter were probably residential in function, although this is yet to be tested. It is also believed that a large terrace with one or two round structures is the “normative” or “ideal” domestic unit on the site. This configuration characterizes more than half of exposed units at the site.



Figure 17 Lupaca site of Yacari-Tuntachahui (Stanish, de la Vega and Frye 1993:88)

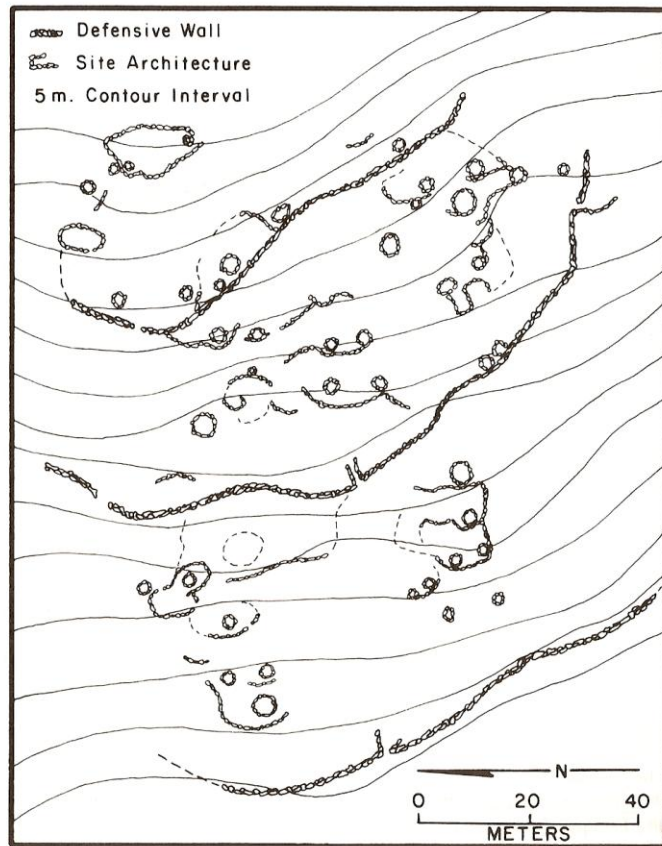


Figure 18 Domestic Structures at Huichajaja (Stanish, de la Vega and Frye 1993:90)

The Lupaqa site of Huichajaja is located near the modern city of Yunguyu. Huge walls surround this site with the residential area within the walls (Figure 18). Here, like at the Yacari-Tuntachahui area of Pukara Juli, the typical domestic architecture is one or two large round structures on a long terrace.

Another Lupaqa site is that of Llaquepa which is located near the city of Pomata. Here, domestic terraces with round structures are also the typical residential setup (Figure 19). The use of long domestic terraces is not as common, but terraces with a round structure is “repeated over the site area”. There are more round structures found here than at Pukara Juli (Stanish, de le Vega and Frye 1993:83-93).

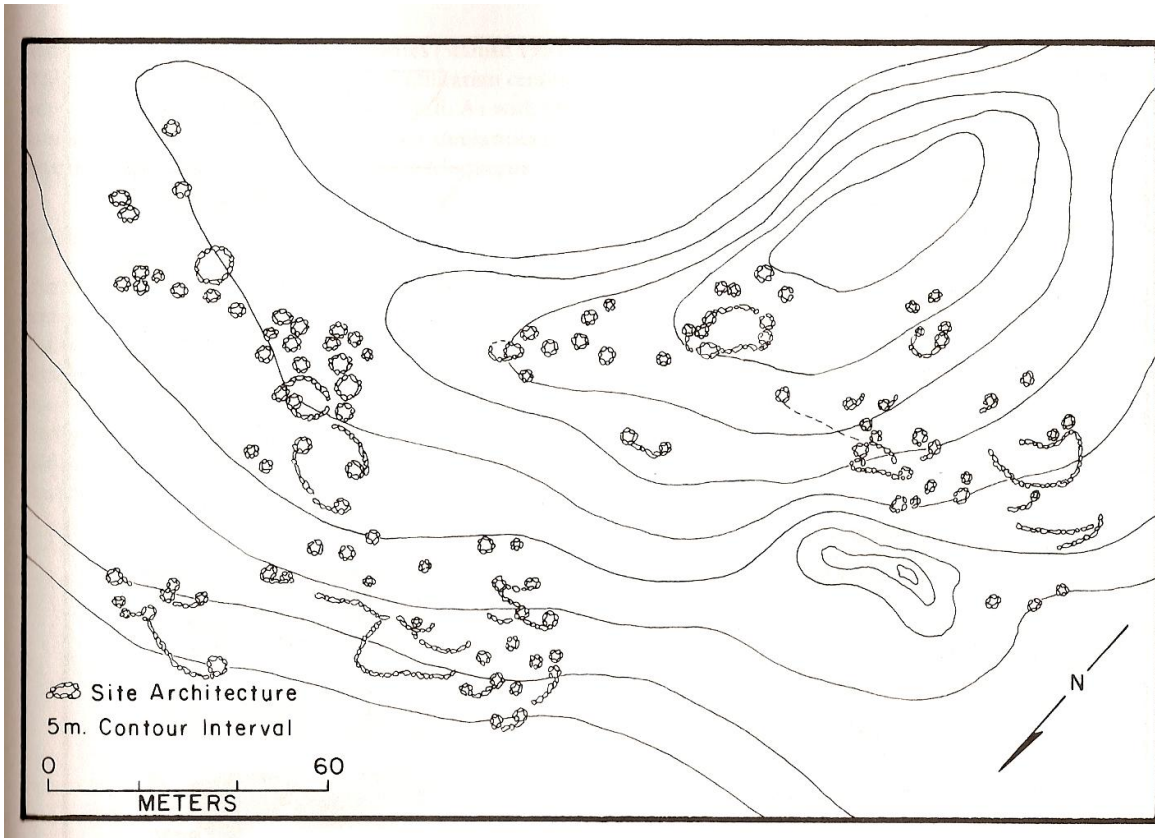


Figure 19 Domestic Structures at Llaquepa (Stanish, de la Vega and Frye 1993:91).

Pirque Alto (CP-11)

The wall foundation excavated at Pirque Alto (Figure 20) is in Excavation Block V. 84m² were excavated in Excavation Block V. Two 10 cm levels were excavated in most units and three 10 cm levels were excavated in a few. The foundation was first uncovered in a 1x1 m unit (N288 E343). Block V was excavated with 1x1 meter units and 2x2 meter units. The wall foundation is Feature 1. Instead of uncovering vertical units, the block was excavated horizontally to uncover as much of the foundation as possible (McAndrews 2007).

The foundation measures about 4m x 4.5m with a doorway facing magnetic north. The structure is rectangular in shape and the southern wall is thicker than the other three walls. This wall extends to the north and the south of the structure and may have enclosed a domestic compound with more than one structure (McAndrews 2007). The foundation was built with two parallel rows of stones that were filled in with smaller stones. The walls of the structure are built directly into the compound wall, utilizing the compound wall as the southern wall of the structure. The structure is roughly orientated to the cardinal directions with the compound wall and the northern wall running east-west and the west and east walls running north-south.

The plow zone makes up Stratum 1, which measures from 5-10 cm. It consists of a yellowish brown silt loam. In Stratum 1 there was a very high number of ceramics. Most of these were Middle Horizon but some were Early Intermediate. Also, many lithic artifacts and bone fragments were found. From these artifacts a domestic context is assumed (McAndrews 2007).

Stratum 2 consists of a dark grayish brown to grayish brown soil. The color of Stratum 2 is similar to “other Middle Horizon domestic refuse (midden) deposits” on the site (McAndrews 2007). Stratum 2 is only present on the outside of the west part of the foundation and is not found within the structure. This suggests that it is a midden. A large number of artifacts were also found in this stratum, especially ceramics (McAndrews 2007).

It is probable that the first two levels are the floor of the structure even though no exact floor could be found. A harder soil that existed near the bottom of these levels was probably “degraded adobe mud brick” (McAndrews 2007).

Not very much of Stratum III was excavated but it is obvious that this stratum is not sterile and material culture is present into this stratum (McAndrews 2007).

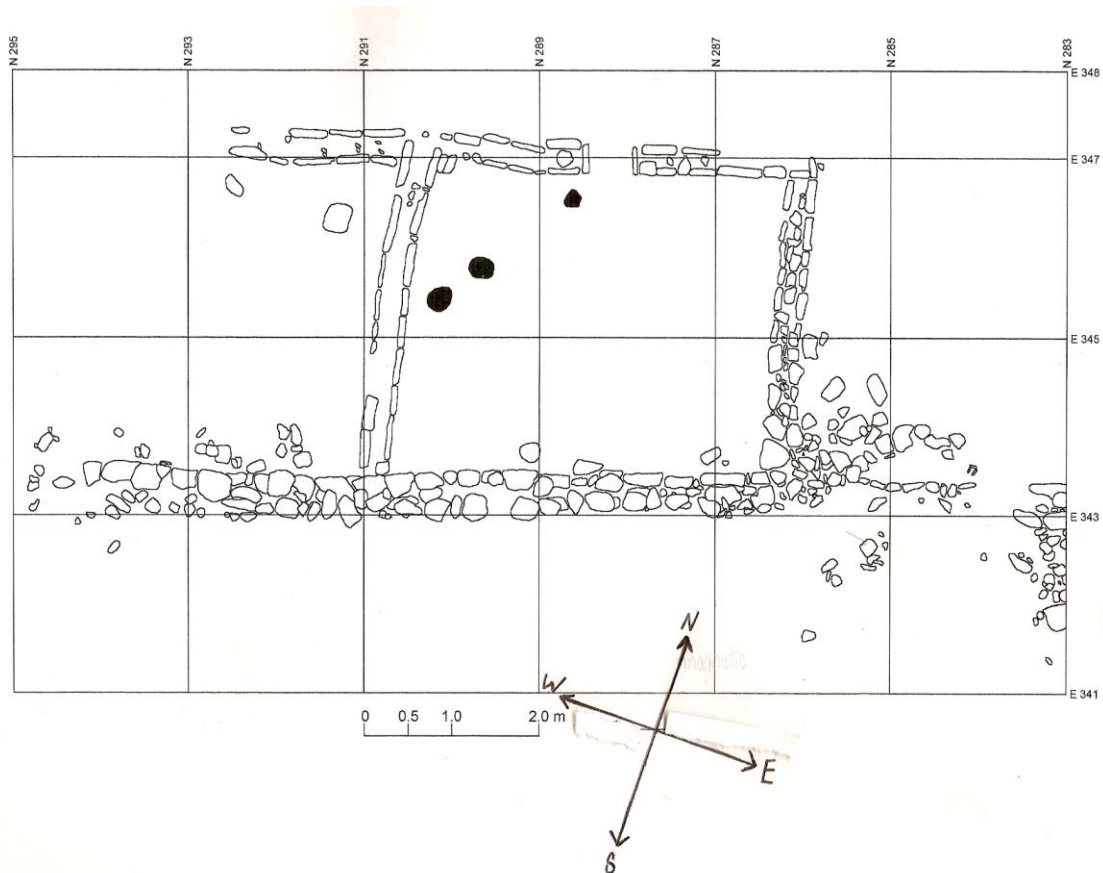


Figure 20 (McAndrews)

Results

Domestic Architecture Comparison

Even though the Wankarani spread throughout the Altiplano and into the Cochabamba Valley the foundation at Pirque Alto (CP-11) is probably not related culturally to the Wankarani because the Wankarani houses are circular.

The structures at Chiripa display a double walled structure with space in between the walls. The foundation at Pirque Alto does not display this double walled structure.

Excavations at Tiwanaku uncovered the foundations of domestic structures that are similar to the wall foundation at Pirque Alto. The earliest structure at the Mollo Kontu South occupation at Tiwanaku displays a compound wall foundation that has two parallel rows of stones with a fill of smaller stones and adobe in the center (Couture 2003). This occupation at Pirque Alto also has a wall foundation of a structure that is built directly from the compound wall. The foundation of this wall also is two parallel rows filled in the middle with stones. The compound wall foundation at Pirque Alto has two rows of large stones with smaller stones filling in the center. This Mollo Kontu South compound wall measures 60 centimeters and the Pirque Alto Foundation measures about 60 centimeters as well. The foundation from Pirque Alto has two parallel rows of stones that are filled in with smaller stones, and they are not as massive as the compound wall. These walls were located directly against the compound wall. The wall foundations of the structure have the same structures and placement as that from the earliest Mollo Kontu occupation. This Mollo Kontu South occupation is orientated north-south. The occupation at Pirque Alto is orientated north-south as well displaying characteristics of the Tiwanaku standard organization.

The Late Tiwanaku IV or early Tiwanaku V occupation at Mollo Kontu South has a compound wall that has two parallel rows of stones filled with smaller stones with foundations of a structure that are built in the same form that are connected directly to the compound wall. This occupation is orientated north-south. The structure of this occupation relates to the Pirque Alto wall with the two parallel rows of stones filled in with smaller stones and the structures walls coming directly from the compound wall. The orientation of this structure at Mollo Kontu is also similar to that at Pirque Alto.

The Tiwanaku V occupation at Mollo Kontu is not well preserved but what is left is two parallel rows of stones that are filled in. This occupation is north-south in orientation. This structure and orientation is similar to Pirque Alto.

Akapana East 2 is a Late Tiwanaku IV to Early Tiwanaku V structure measuring 4 by 5 meters and surrounded by two compound walls that were made of two rows of stones that were filled in (Janusek 2003). This is similar to the foundation uncovered at Pirque Alto because the size of the structure is very close at 4m x 4.5m. The construction of the compound wall is similar with the two parallel rows of stones that are filled in. The orientation is also similar.

The Tiwanaku V occupation at Akapana East 1 at Tiwanaku has a compound wall that is made of stone and earth and has an organization that is similar to the standard Tiwanaku organization (Janusek 2003). The domestic structure in here has a foundation that is made of two rows of stones. This is similar to Pirque Alto in the structure of the compound wall and also in the north-south organization of the structures. The foundation structure of two rows of parallel stones that is filled in is also similar.

The two structures excavated in sector B in the La K'arana area of Tiwanaku are both constructed by two parallel rows of stones that are made of the same materials. Both of the structures here are orientated north-south. This is similar to the foundation at Pirque Alto because they both are built with two parallel rows of stones and also have a similar north-south orientation.

Structures 3 and 4 at Lukurmata had foundations of stones that were created with parallel rows and had walls made of mud bricks. These structures are Tiwanaku I

(Bermann 1994). This is similar to Pirque Alto because the foundation is constructed of two parallel rows of stones and filled in and both had walls of adobe bricks.

The Lukurmata structures 9 and 10 dating to the 3rd century A.D. are “roughly circular in shape” (Bermann 1994) and material culture shows no interaction with Tiwanaku. The circular shape shows no similarities to the Pirque Alto Foundation.

Structures 14-27 at Lukurmata date to Tiwanaku III through Tiwanaku IV. All of these structures show interaction between Tiwanaku and are rectangular in shape with straight walls.

Starting during the Late Tiwanaku IV at Lukurmata the structures change to being orientated to the cardinal directions. Structure 38 from the Late Tiwanaku IV Period shows this and structure 39 also shows the orientation to the cardinal directions. Structure 39 is orientated north-south and had straight walls (Bermann 1994). This rectangular shape and north-south orientation show a relationship to the shape and orientation of that of the Pirque Alto foundation. Another similarity is that the walls at 39 and Pirque Alto were made of adobe mud brick.

Structure 41 from Lukurmata is Late Tiwanaku IV and circular. The shape has no relation to that at Pirque Alto but the parallel row of stones filled in between shows that the structures of the foundations were similar.

Structure 43 is from the Post-Tiwanaku at Lukurmata and is rectangular in plan and 4.2 m x 4.6 m with a foundation of stones and mud brick or cut sod walls (Bermann 1994). This is similar to the Pirque Alto foundation because of the size and would have had mud brick walls.

The domestic architecture at The Omo Site at M12 had two to eight rectangular rooms connected to each other, usually in a line (Goldstein 1993). The area of the foundation at Pirque Alto that has been excavated shows that the foundation for the compound wall extends further to the east and west of the one structure that is uncovered. It is possible that there are structures connected together here. The difference in wall materials shows difference though with adobe walls at Pirque Alto and walls of woven vegetable fiber mats textiles or skins at the Omo site (Goldstein 1993).

The Tumilaca Phase and Estuquina Phase foundations at the Tumilaca site, which date to the very last dates of Tiwanaku to post-Tiwanaku, were made of single rows of stones. This shows not as much connection to the Pirque Alto foundation. The shape, however, and connection of structures show some potential connection to Pirque Alto.

Domestic structures from the Lupaqa sites are from after the decline of Tiwanaku in the Southern Titicaca Basin and are all made of single rows of stones in a circular shape. These show little to no relation to the foundation excavated at Pirque Alto.

Charcoal Samples

Charcoal samples were taken from Block V during excavation. Two of these samples were dated at Beta Analytic, Inc. in Miami.

One of the samples came from the second level of unit N294 E343. This unit contains the western end of the compound wall foundation. This sample was dated by radiometric and has a 2 Sigma Calibration date of AD 1460 to 1660 (Cal BP 490 to 290). It was reported that roots disturbed this unit and it is probable that this charcoal sample is a result of that disturbance.

The other sample was collected from the second level of Unit N284 E344 during continuing excavation after I had left and therefore no level form is available. It is

believed however that this sample was taken from a post hole near the east end of the compound wall. This sample was dated through AMS and has a 2 Sigma Calibration of AD 1050 to 1090 (Cal BP 900 to 860), Cal AD 1130 to 1140 (Cal BP 820 to 810), Cal AD 1140 to 1260 (Cal BP 810 to 690). This date suggests that the Pirque Alto foundation was built after the decline of Tiwanaku in the Titicaca Basin but under the continuing influence of Tiwanaku in the Parotani region of Cochabamba, Bolivia.

Conclusions

Based on the similarities between the structure and orientation between the wall foundation at Pirque Alto (CP-11) and the structures of domestic foundations from Tiwanaku I believe that the wall foundation at Pirque Alto was built under the influence of Tiwanaku IV or V. However, based on the results of the AMS date from unit N284 E344 it is likely that Tiwanaku influence continued on in the Parotani Region of the Department of Cochabamba, Bolivia after the decline of Tiwanaku in the Titicaca Basin and this influence is manifested in the structure of the wall foundation at Pirque Alto.

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