

Evaluation of the Nature of Tiwanaku Presence in the Cochabamba Valley of Bolivia: A Ceramic Analysis of the Pirque Alto Site (CP-11)

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ABSTRACT

Some of the most important unanswered questions about Andean prehistory center around the expansive nature of the polities that dominated the area before European contact. Tiwanaku proves to leave an especially puzzling record of how and why it established peripheral settlements in different ecological regions. Relatively little is known about the economic, political, and social relationships most of these settlements maintained with the core region. This paper seeks to address these issues as they relate to Tiwanaku settlements in the Cochabamba Valley of central Bolivia. Through the systematic analysis and comparison of decorative elements and quantities of ceramic types from different cultural periods, I have determined that there is a definite degree of interaction between the Tiwanaku core in the Titicaca Basin and the Pirque Alto site in the Cochabamba Valley.

INTRODUCTION

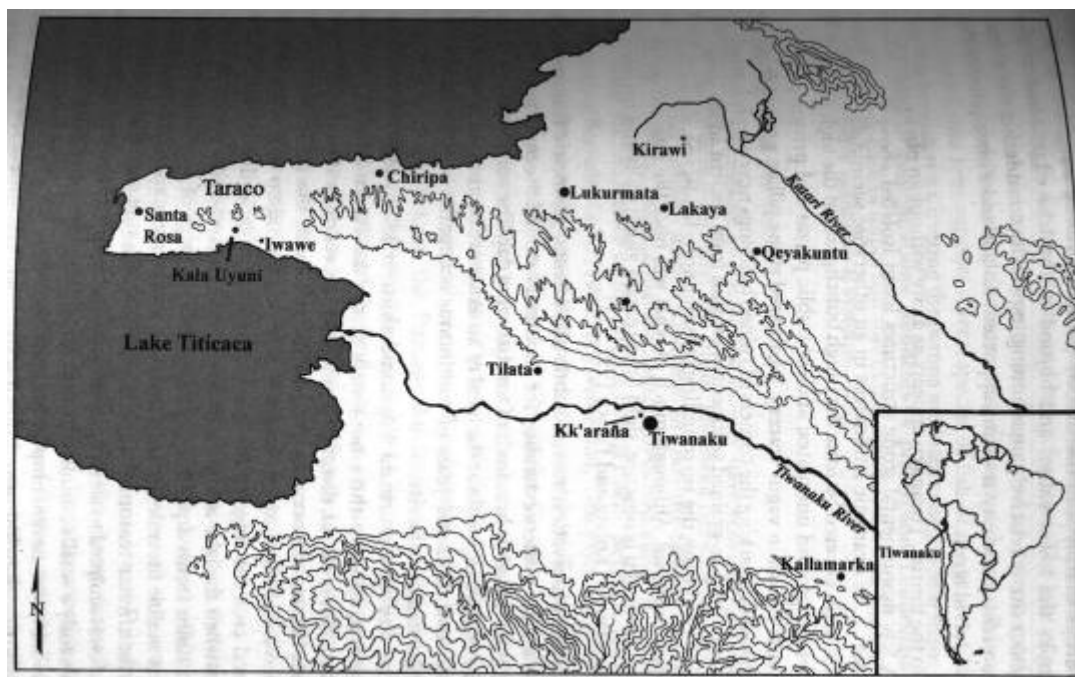


Figure 1. The Tiwanaku Core Region: The Tiwanaku and Katari Valleys (After Janusek 2004:55)

The Tiwanaku polity and its associated cultural remains have been the subject of fascination and debate since at least the time of the Spanish chroniclers. As systematic research began in the late 19th century with figures such as Max Uhle and Adolph Bandelier, one of the first questions to arise was the relationship of the core area of Tiwanaku culture (the Tiwanaku and Katari Valleys in the southern Titicaca Basin- see Figure 1.) to sites in coastal valleys and interior lowlands with significant assemblages of Tiwanaku-style artifacts (see Figure 2). Were these sites colonies, trading partners, or simply areas where elements of Tiwanaku style influenced the local material culture?

One area where the nature of Tiwanaku presence is a major point of debate is in the Cochabamba Valley of Bolivia. There are many sites in the valley and its sub-valleys with large assemblages of Tiwanaku-style artifacts, especially ceramics (Higueras-Hare 1996:iv). However, archaeologists and historians disagree about what these assemblages indicate. Some researchers believe that the area was a Tiwanaku colony or group of colonies (Goldstein 2005:102; Janusek 2004:71), while others believe that Tiwanaku-style material culture indicates nothing more than stylistic influence on local populations (Higueras-Hare 1996:162-163). However, there has not been nearly enough research on sites in the area to provide a concrete answer to this question (Goldstein 2005:102-103; Higueras-Hare 1996:8).

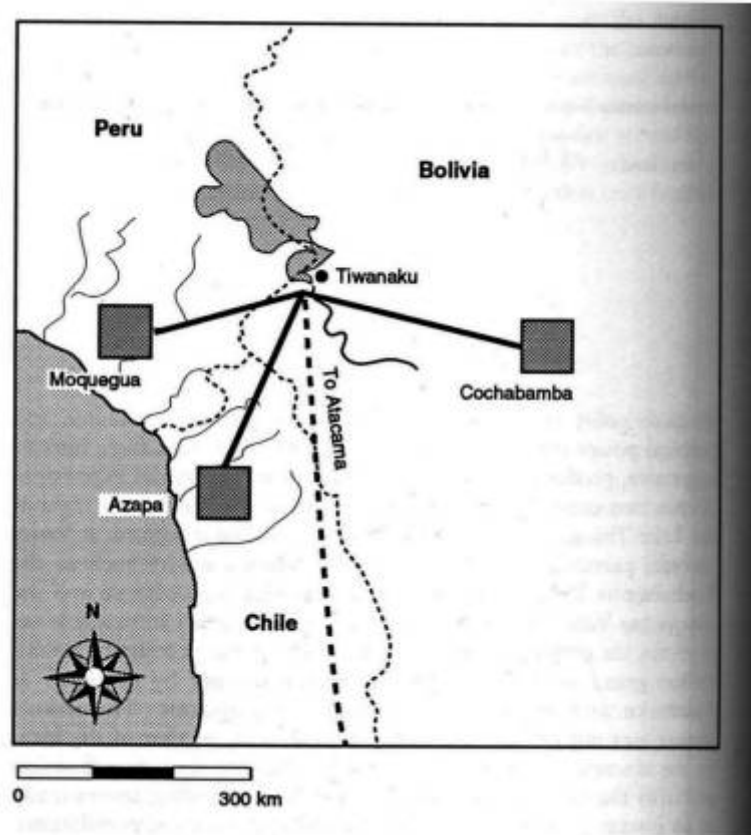


Figure 2. Tiwanaku and Areas of Influence (After Kolata 1993:244)

The present study seeks to address the question of Tiwanaku presence through a systematic comparative study of ceramics. The ceramic assemblage gathered in the complete surface recovery of the Pirque Alto site (CP-11) near Cochabamba will be evaluated and systematically compared to ceramic recovery data from sites in the Tiwanaku heartland (namely Tiwanaku itself and nearby Iwawi). The data from this analysis will be used to evaluate critical questions about the relationship between the Tiwanaku core and the Pirque Alto site. These questions may be found in the “Methods” section below. The results of this evaluation will then be applied to hypotheses regarding the possible relationship between Tiwanaku and the Cochabamba area. It is hoped that this analysis will provide at least the beginning of the answers to the many questions regarding Tiwanaku in Cochabamba, and Tiwanaku’s peripheries in general.

BACKGROUND

The Tiwanaku arose as a polity in the southern Lake Titicaca Basin around A.D. 500 (Janusek 2004:xvii), during a time period known in Andean archaeology as the Early Intermediate Period (Stone-Miller 1995:8). It is generally agreed that the Tiwanaku were the ancestors of the groups that inhabit the area today (mainly Aymara and Uru-Chipina-speaking peoples) (Kolata 1993:67). The Tiwanaku created a distinct material culture, exemplified by ceramics, stone sculptures, and monuments. A great deal of this artwork is found at the culture’s monumental core at Tiwanaku itself (Stone-Miller 1995:120-137) (see Figure 3).



Figure 3. The Sun Gate at Tiwanaku (After Albarracín-Jordan 1999:Figure 6.11)

Beginning around A.D. 700, Tiwanaku influence began to spread into coastal valleys (such as Moquegua in Peru and Azapa in Chile) and the eastern lowland areas (such as Cochabamba). This influence is manifested by large assemblages of material culture, including ceramics, stone artifacts and textiles, that display imagery and themes that originate at the site of Tiwanaku (Janusek 2004:239). The nature of this spread of influence is heavily debated, and will be further discussed below.

A Brief History of Archaeological Research on Tiwanaku

The at once graceful and imposing monuments of Tiwanaku inspired the Inca to claim descent from its already obscured builders, and they were certainly not the last to ascribe legends to the site (Kolata 1993:4).

Spanish visitors who chronicled the landscape and peoples of the area, most notably Pedro de Cieza de León in the mid sixteenth century, speculated that the huge and beautifully sculpted ruins must be pre-Inca in origin. Cieza de León, in fact, believed them to be the most ancient structures in the Andes. Archaeological (or pseudo-archaeological) interest took hold in nineteenth century, when explorers and diplomats from Europe and America began to investigate the mysterious site. One of the most famous early explorers was Ephraim George Squier. During his journey through South America in 1864, he produced photographic documentation, drawings, and plans of the ruins, including a famous drawing of the Gateway of the Sun in which its size is greatly exaggerated (see Figure 4). Squier also established the influential theory of Tiwanaku as a vacant ceremonial site or pilgrimage center, and, to his credit, attributed the site's construction to ancestors of local inhabitants, unlike the earlier Francis de Castelnau, whose 1845 account of the ruins attributed them to Egyptian immigrants (Ponce and Kolata, in Kolata 2003:19-21; Squier 1877, cited in Kolata 2003).

A great figure in the early history of archaeology as a whole, Max Uhle, also claims an important role in early Tiwanaku archaeology. He, like Squier some thirty years before, believed Tiwanaku to be a vacant pilgrimage site. In 1892 Uhle produced an illustrated volume on the ruins and established the site's place in the chronological sequence of the pre-Columbian Andes using ceramic style, correctly placing it before the Inca and after the Moche and Nazca on a cultural timeline (see Figure 5). He was one of the first to research Tiwanaku influence outside the Altiplano, and also one of the first to argue for an important relationship between the Tiwanaku core and the yungas (rainforest areas on the Andes' eastern slopes) to the east (Uhle 1892, cited in Kolata 2003:22-23).

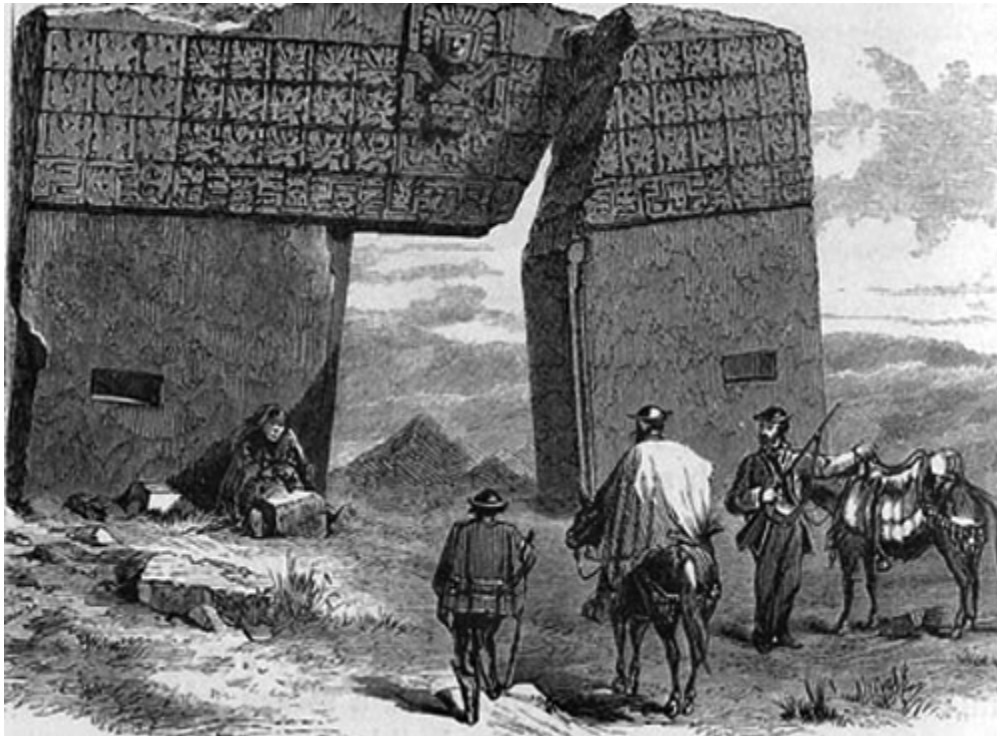


Figure 4. Squier's 1877 drawing of the Sun Gate

Following Uhle came Wendell Bennett, who conducted the first systematic excavations at the site of Tiwanaku in 1936. He established the earliest stratigraphically-based ceramic sequence for the site, which was to be the basis of all Tiwanaku ceramic sequencing until the 1960's (Bennett 1936).

Comprehensive research on the nature of Tiwanaku peripheral settlements began with Erland Nordenskiöld in 1913. Nordenskiöld demonstrated the existence of areas with significant Tiwanaku influence (especially evident in ceramics) in temperate valleys and the yungas in the Bolivian departments of Cochabamba and Santa Cruz (Kolata 2003:24).

Stig Rydén, following in the footsteps of Nordenskiöld, defined the Cochabamba Tiwanaku-influenced style as a variant of the ceramic style of the Tiwanaku core. The research of Nordenskiöld and Rydén firmly established the idea that Tiwanaku established peripheries in lowland areas in order to supplement the economy, specifically

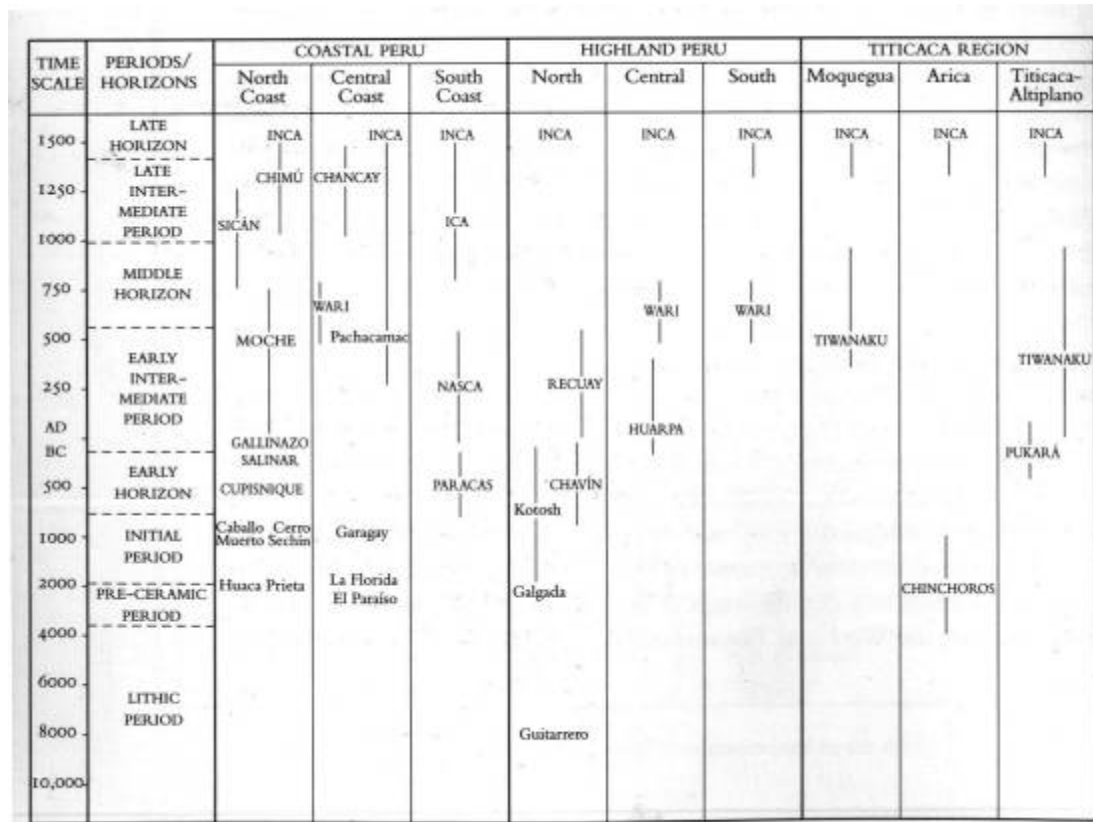


Figure 5. Chronology of Cultures in Different Andean Regions (After Stone-Miller 1995:8)

agriculturally. At this time, it was not believed that enough food to support an urban population could be grown in the Altiplano itself (Kolata 2003: 24-26; Rydén 1959).

By 1965, although some still adhered to the “vacant ceremonial site” hypothesis regarding the site of Tiwanaku, Alfred Kidder had established a theory through evidence from excavation that Tiwanaku was an urban or “proto-urban” site. The question remained of how a significant urban population could have been sustained in the relatively unproductive Altiplano. In 1972, John Murra proposed his solution. He claimed that Tiwanaku supported its population through the economic exploitation of differing altitudinal zones and their varied resources, expanding on the ideas of Nordenskiöld and Rydén. Another influential figure in Bolivian archaeology, Carlos Ponce Sanginés (responsible for a great deal of research and reconstruction at Tiwanaku) also advocated the idea of Tiwanaku’s expansion into diverse ecological zones in order to obtain products such as maize and coca. Ponce used this verticality theory as a jumping-off point for his own theories about Tiwanaku political formation and expansion (Kidder in Rice University 1964 cited in Kolata 2003; Murra 1972 cited in Kolata 2003; Ponce and Kolata in Kolata 2003:26-29).

So what exactly was Tiwanaku as a socio-political entity? Most researchers agree that Tiwanaku was an important religious center. Some believe that its widespread influence was due to adoption and active spread of its religious cult (Janusek 2004:58-61). A few researchers, such as Ponce, believe that Tiwanaku was a militaristic imperial state, much like its warlike contemporary and neighbor, the Wari empire (Janusek 2004:64-66). Alan Kolata envisions Tiwanaku as a patrimonial state which exercised direct and tight control over its peripheries (Janusek 2004:66-73; Kolata 1993). Some researchers, such as Juan Albarracín-Jordan, believe that Tiwanaku was a loosely confederated segmentary state, where original inhabitants of peripheral regions maintained a high degree of autonomy in the administration of their settlements and religious ideology and iconography was the agent that bound the confederacy together (Albarracín-Jordan 1999:79-80; Janusek 2004:72-73, McAndrews et al 1997).

Alongside the debate about what kind of socio-political entity Tiwanaku itself represents, and what its relationship to its known peripheries may have been, there is a great deal of debate about Tiwanaku in Cochabamba, as mentioned in the “Introduction” section.

Many researchers believe the Cochabamba region was actually colonized by Altiplano immigrants, such as Ponce, Kolata, Bennett, Céspedes Paz and Stanish (Goldstein 2005:103; Janusek 2004:71, Stanish 2003:191). Some simply say Tiwanaku maintained important connections with Cochabamba (Albarracín-Jordan 1999:80), some think there was only an economic exchange of prestige goods for elites (Browman and Oakland in Goldstein 2005:103), and some maintain that Tiwanaku's presence in the Cochabamba Valley consisted almost entirely of stylistic influence on locally produced material culture (Higueras-Hare 1996:162-163). So there are nearly as many opinions on Tiwanaku in Cochabamba as there are scholars who have commented on the subject. However, all those researchers agree that not nearly enough research has been done on sites in the area to come to any final conclusions.

Tiwanaku-Style Ceramics in Cochabamba

The first archaeologist to investigate the presence of Tiwanaku-style ceramics in the Cochabamba region was Wendell C. Bennett. Bennett, during his 1936 excavations, examined several sites in the Cochabamba Valley, namely Arani, Tiquipaya, and Colcapirhua. Bennett noted that the pottery found in the graves (graves later dated to what came to be known as the Middle Horizon) was most definitely related to Tiwanaku ceramics. In his discussion he refers to the style as "Derived Tiahuanaco [sic]." Although he found the forms and colors used in the "well-made" ceramics to be very similar to altiplano Tiwanaku artifacts, he states that it "lacks the full puma, condor, and human figures of the Highlands, as well as the painted hollow base incense bowls and the open flaring-rim bowl" (Bennett 1936:402).

Major excavations of Tiwanaku-affiliated sites in the region were undertaken by Stig Rydén in the late 1950's, as a follow-up to discoveries of Tiwanaku-style ceramics in the Mizque sub-valley by Erland Nordenskiöld in the 1917 (the documentation of which, unfortunately, is only available in Swedish). Rydén says of his finds from the site of Tupuraya that they appear to be not "Derived," as Bennett labeled them, but "a direct offshoot of the Tiahuanaco culture in the focal area albeit with certain specific local characteristics" (Rydén 1959:114).

Since this time, the excavation and examination of Tiwanaku sites and ceramics in the Cochabamba Valley has remained largely unpublished, or been published in difficult to obtain journals of Bolivian archaeology. However, nearly every book published regarding the Tiwanaku culture or pre-Columbian Andean cultures in general makes, at the very least, a mention of Tiwanaku artifacts in the Cochabamba region (e.g.: Goldstein 2005; Janusek 2004; Kolata 1993; Stanish 2003). The general consensus among most of these authors seems to be that Middle Horizon ceramics from the Cochabamba region are similar in most respects to those found in the Titicaca Basin, with a few minor variations in some forms and the location of some decorative elements (Goldstein 2005:99-100). However, no published work delves into the implications of these similarities and differences. In his dissertation, Alvaro Higueras-Hare (1996) states, accurately, that Tiwanaku-style ceramics from Cochabamba have been the basis for many assumptions about the area's relationship with the Titicaca Basin. Although his focus is on the evidence for Tiwanaku influence based on the changes in settlement patterns through time, he does include discussion of ceramics found at the sites in his survey. Importantly, he emphasizes that there has not been nearly enough research in the area to make definite conclusions about the possible core-periphery relationship- whether on ceramics or otherwise (Higueras-Hare 1996:8).

METHODOLOGY

The first step in the methodology I have employed to complete my thesis is background research. I have read material on Tiwanaku-style ceramics from both the core region (the southern Titicaca Basin) and known Tiwanaku peripheries (areas with significant Tiwanaku presence and/or influence that are outside the Altiplano, such as Moquegua, Peru or Cochabamba in Bolivia- see Figure 6). My research also covered many theories about Tiwanaku "expansion" both in general and specifically in the Cochabamba Valley; as well as ceramics, their production, and what ceramic assemblages may indicate/imply about socio-political and economic relationships between groups.

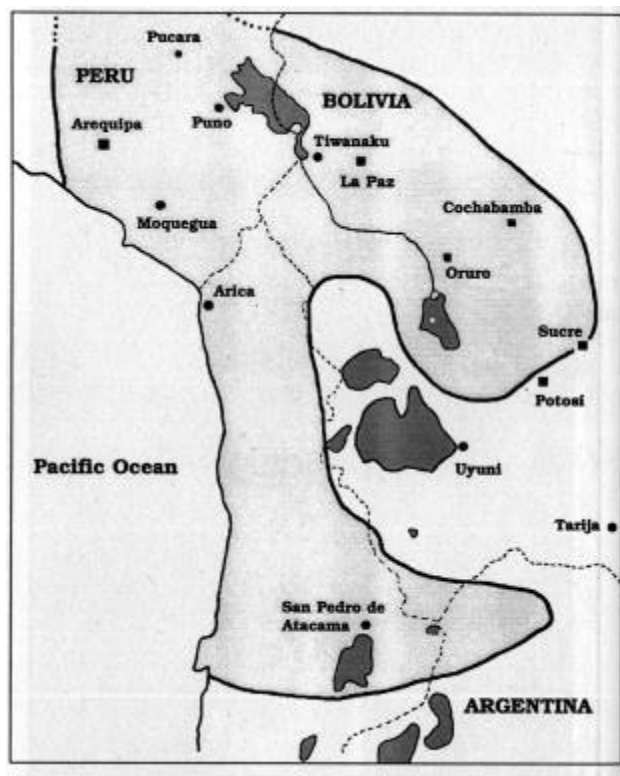


Figure 6. Tiwanaku and its Area of Influence (A.D. 800) (After Albarracín-Jordan 1999:Figure 6.27)

I also examined the data from the complete surface collection at Pirque Alto (CP-11). This data includes 329 100% scale full-color scans, 109 sherd drawings (both of sherd shape and profile), and a complete Microsoft Access Database with data (location, period, vessel form) on each of the 13,003 diagnostic sherds (sherds designated as “diagnostic” include rims, bases, handles, painted sherds, or special pieces such as effigies and appliqués).

The next step was to sort this data. I sorted the sherd scans drawings, and database entries according to a number of characteristics, including style/period, iconography and motif, and vessel shape and function.

Using these groups of data, I have done a systematic comparison of the Pirque Alto data to that gathered in similar categories in the Tiwanaku core region (specifically at the Akapana pyramid at Tiwanaku and the site of Iwawi, which is located in the southern Titicaca Basin- see Figures 7 and 8). I then examined the occupation sequences, frequencies of ceramic types, and overall similarities and dissimilarities in key aspects of the ceramic assemblages (such as vessel types, iconographic representations, etc.) and the overall assemblages from the Akapana and Pirque Alto.



Figure 7. Tiwanaku from above, with Akapana indicated (satellite photo from Google Earth)

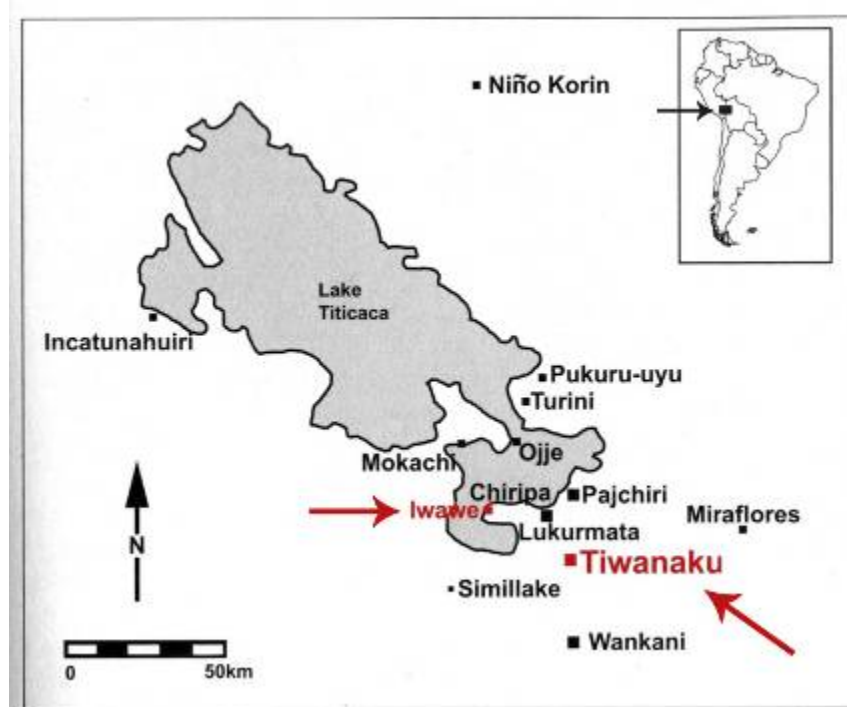


Figure 8. Map of the Titicaca Basin with Tiwanaku and Iwawe [sic] indicated (after Goldstein 2005:Figure 3.1)

I have used the results of these comparative studies, as well as what I have learned in my background research, to attempt to address the following research questions:

1. Who lived at Pirque Alto during the Middle Horizon Period¹? Locals who adopted aspects of Tiwanaku culture? Titicaca Basin immigrants? A mix of both?
2. Is there any continuity between the material remains of earlier (Formative and Early Intermediate) occupations, Middle Horizon (Tiwanaku Period) occupations, and later (Late Intermediate, Inca, colonial)

¹ This epoch is part of the Intermediate Period. It is most often associated with the expansive phases of the Tiwanaku and Wari cultures.

- occupations? What does this imply about Pirque Alto's possible relationship with Tiwanaku and how that affected the lives of the inhabitants?
3. Is there any evidence of an economic relationship with the Tiwanaku core area in the Titicaca Basin? If so, what kind?
 4. What is similar or different about the ceramic assemblages from the Titicaca Basin and those at Pirque Alto? What are possible reasons for these similarities and differences? What possibilities do they suggest about the Tiwanaku core's relationship with Pirque Alto?
 5. What does all this imply about the larger picture of why Tiwanaku established peripheral settlements and what their relationships with the core area were like?

RESULTS

Vessel Type and Functional Category Frequency Analysis

Using Microsoft Access and Excel, tables were created showing the raw numbers of sherds of each vessel form found for the Formative, Early Intermediate, Middle Horizon (domestic and plainware), Tiwanaku-style (also dated to the Middle Horizon period), Late Intermediate, and Ciaco-Inka (Late Horizon) periods (see Table 1). Tables were also made of the percentages of the total assemblage represented by each vessel type for each period (see Table 2)

In addition to the data from the Pirque Alto site surface collection, data from Sonia Alconini-Mujica's excavations at the Akapana pyramid at the site of Tiwanaku (1995: 232) was put into a comparable data table in Excel, showing both raw numbers of diagnostic sherds of each vessel type and the percentage of the total assemblage represented by each vessel type (see Tables 3 and 4).

The vessels from both datasets were then divided into three categories by known function: domestic/plainware vessels used for cooking and storage, serving and feasting vessels, and vessels used for ceremonial purposes (such as burning aromatic substances) (see Figures 9 and 10 for visual representations of vessels discussed in the text and in Tables 1 and 2). Percentages of each assemblage represented by each of these categories were then calculated. From the comparisons of the Pirque Alto and Akapana assemblages, it was found that the percentages of these vessel functional categories were highly divergent from each other (see Figures 11 and 12)

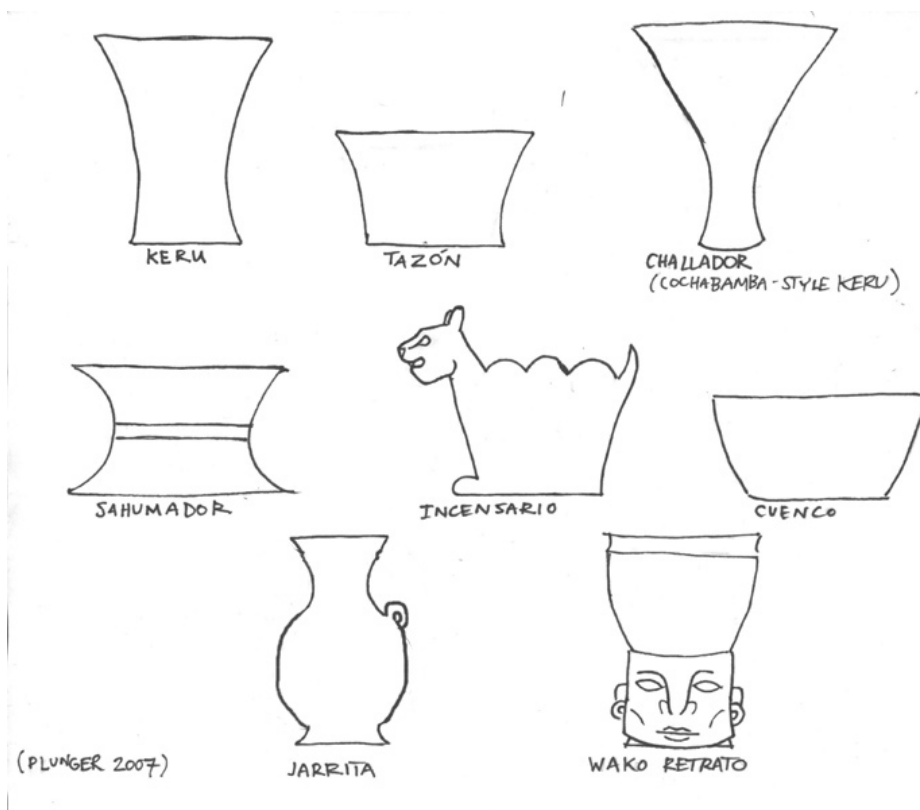


Figure 9. Tiwanaku-style ceremonial and feasting vessel forms

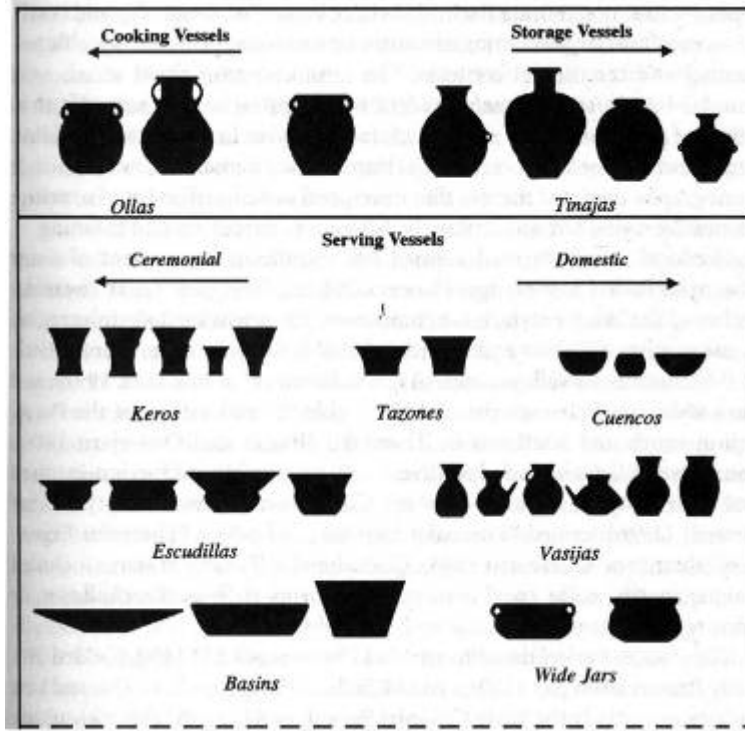


Figure 10. Tiwanaku-style cooking, storage, and serving vessel as grouped by Janusek (After Janusek 2004:Figure 3.2)

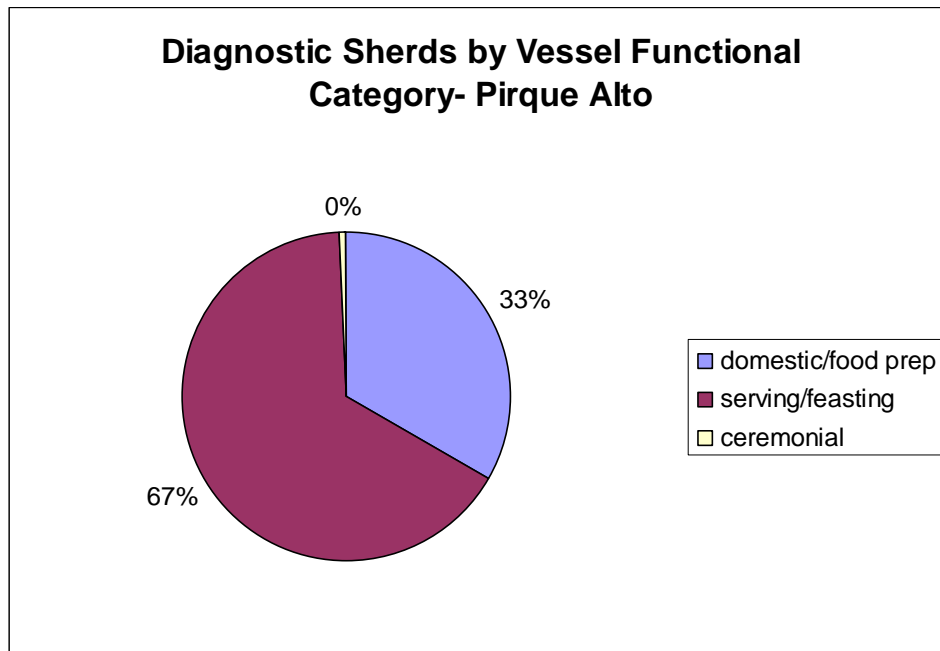


Figure 11. Vessel Functional Category Analysis Graph (N=9915)

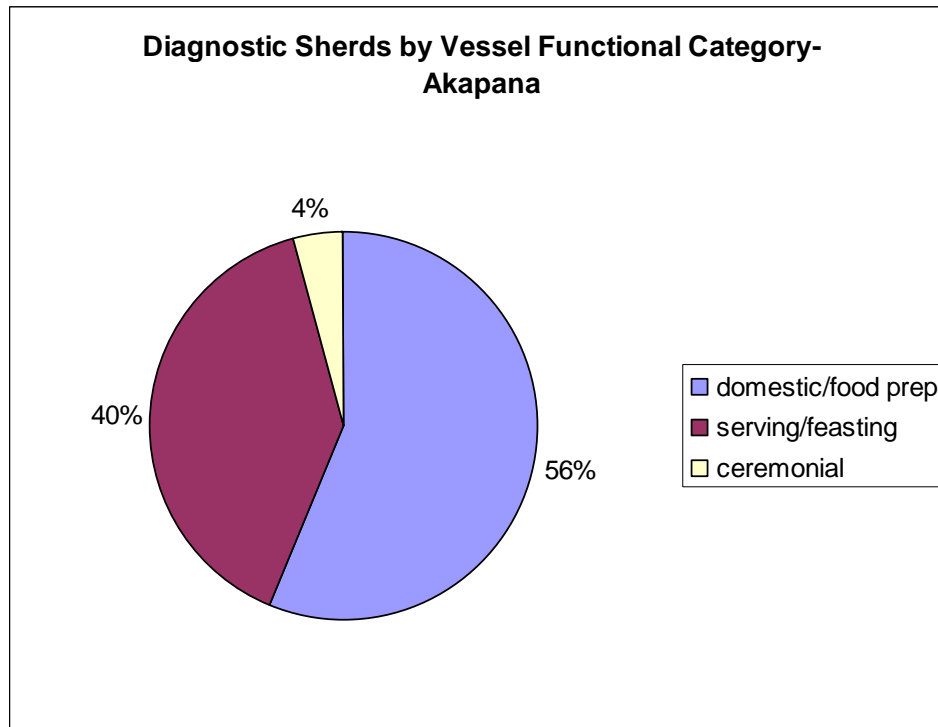


Figure 12. Vessel Functional Category Analysis Graph (N=1571)

Iconographic Analysis

One hallmark of corporate-style ceramics produced at the Tiwanaku core is the high quality of their painted and molded decorations. It would stand to reason that if the ceramics from Pirque Alto display a high degree of quality workmanship, as well as motifs sufficiently similar to those found in the Tiwanaku heartland (such as the Akapana site and Iwawi), it would be unlikely that the Pirque ceramics are merely local copies produced through word of mouth or some limited exposure to Altiplano ceramics.

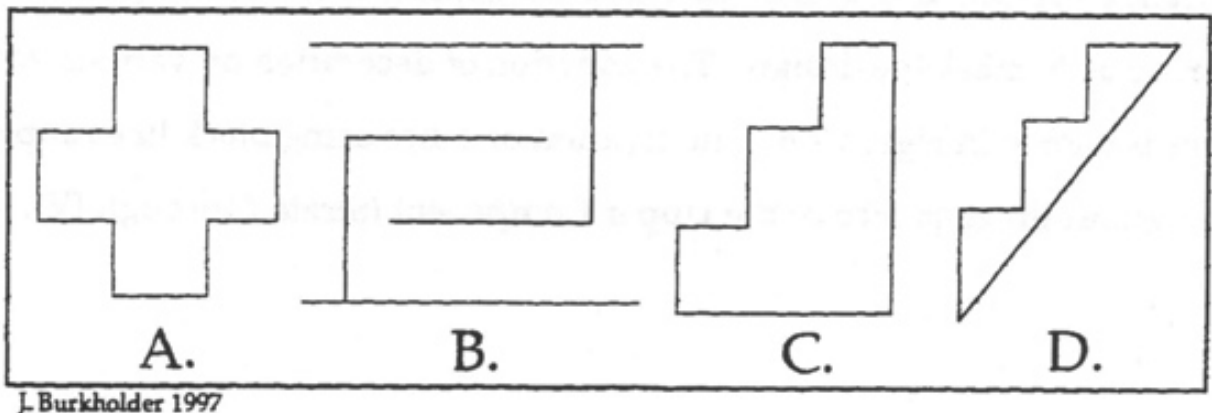
Through careful visual inspection of sherd scans, it was found that the ceramic assemblage from Pirque Alto contains a large number of painted decorations of meticulous workmanship. Painted lines, outlines, and stripes exhibit even, geometrically straight brushstrokes with an even coverage of paint. Shapes and figures are similarly well executed with straight edges and even color fill. The skillful use of negative space in many designs demonstrates a high level of intricacy and sophistication (Burkholder 1997:187).

There are a number of iconographic motifs (figures and patterns) that are commonly found on Tiwanaku-style ceramic vessels.

Geometric, interlocking, and spiral patterns found on the assemblage from Pirque Alto closely match those documented by Alconini-Mujica at the Akapana and those documented by Burkholder at Iwawi (see Figures 13-15), as well as the ceramics known from many other Tiwanaku sites both in the core region and in the peripheries (Burkholder 1997; Goldstein 1989; Higuera-Hare 1996; Young-Sanchez 2004).

FIG. INTERLOCKING		PRESENTE EN VARIETADES 5.2 Y 6.1			EN KE 6.1	EN KE, Y VA.	
		EN CUS 2 Y KE 6.1			EN TIN. 2.1.		
OTROS MOTIVOS GEOMETRICOS							

Figure 13. Common Geometric and Interlocking Motifs on Akapana Ceramics (After Alconini-Mujica 1995:Figura 82)



J. Burkholder 1997

Figure 7.7 Rectilinear Elements

A. Cross, B. Interlocking Fret, C. Regular Step, D. Angled Step

Figure 14. Examples of geometric and interlocking motifs found on ceramics at the Iwawi site (after Burkholder 1997)

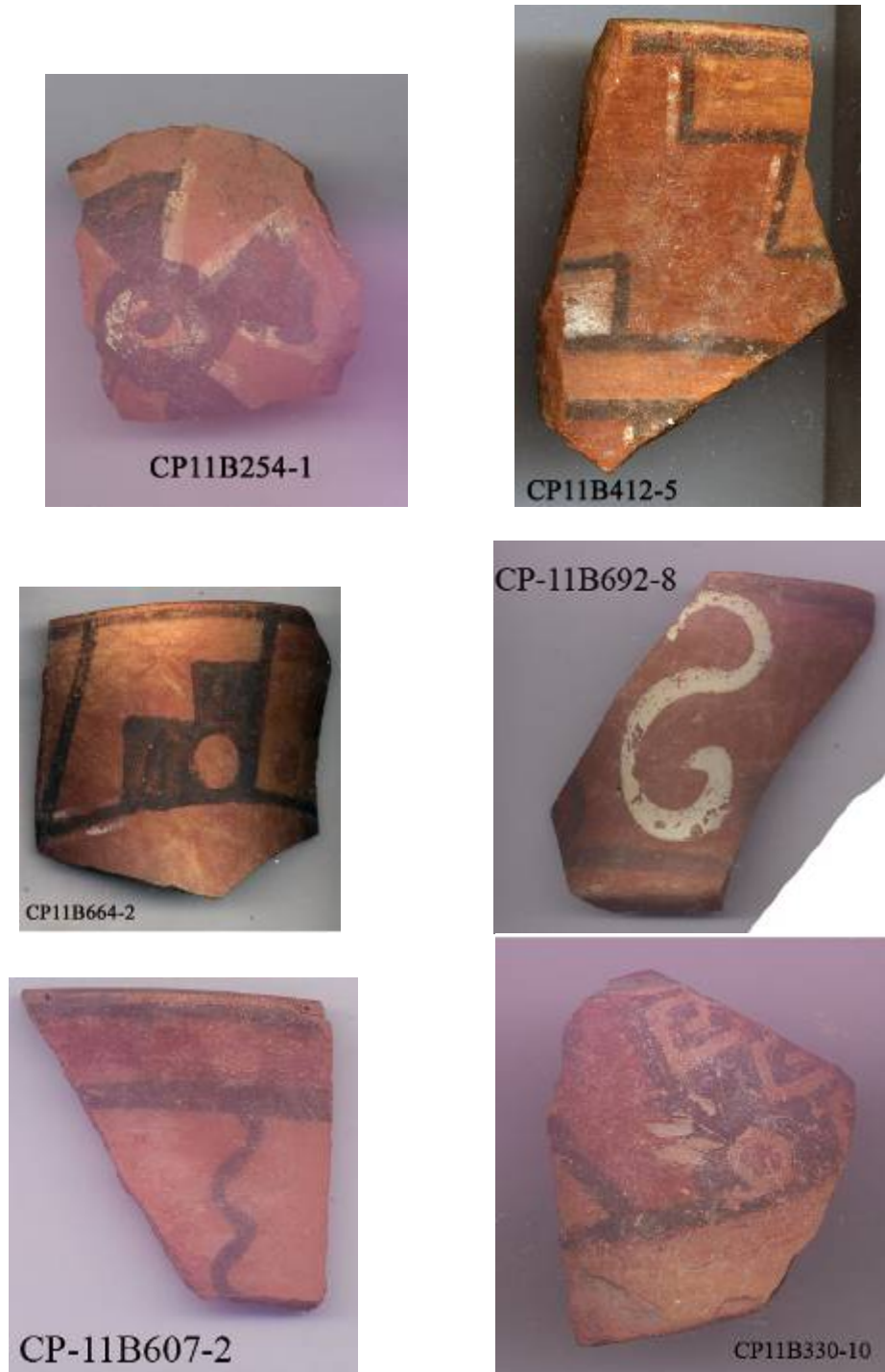


Figure 15. Examples of ceramics from Pirque Alto which display geometric and interlocking motifs (Not shown to scale)

It was also found that the representative images on the ceramics found at Pirque Alto in many ways closely resemble those from Alconini-Mujica's Akapana excavation, and at other Tiwanaku sites.

The best example by far of the uncanny similarity between the painted motifs from the two sites is that of a particular representation of the head of a feline, most likely a puma (see Figure 16).

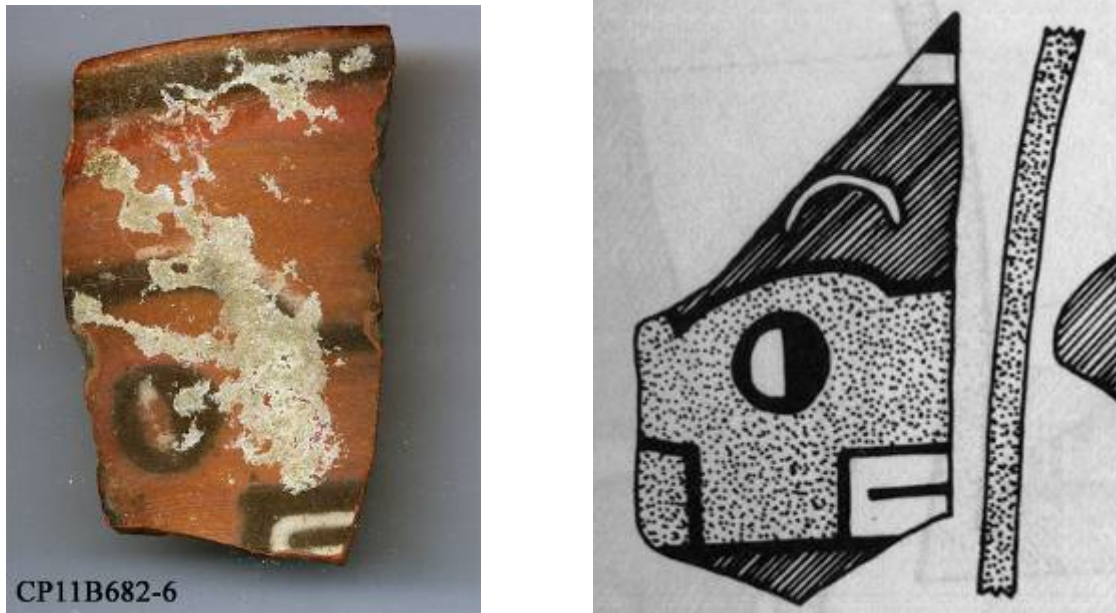


Figure 16. Puma images from Pirque Alto and the Akapana (Not shown to scale) (Right image after (Alconini-Mujica 1995:Figura 18)

The identical qualities of these two painted puma heads are not limited to general shape, but extend to details such as the bisected eye, a symbol of divinity dating back to early altiplano societies such as the Pukara (Young-Sanchez 2004:46). Interestingly, both the sherds shown in Figure 16 are from the upper rims of keru vessels.

The profile human head is a motif found on artistic and ritual objects in the Andes from the very earliest times and over nearly the entire culture area. These heads are often interpreted as severed “trophy heads” taken in battle, but in the absence of a “sacrificer” figure or obvious signs of decapitation (stylized blood spurting from the neck, closed eyes indicating death, etc) most Tiwanaku profile heads found on ceramics cannot be proved to be battle trophies. However, whatever they may represent, these symbols are important in the corporate art style of Tiwanaku, including many painted depictions on ceramic vessels (see Figure 17 and 18).

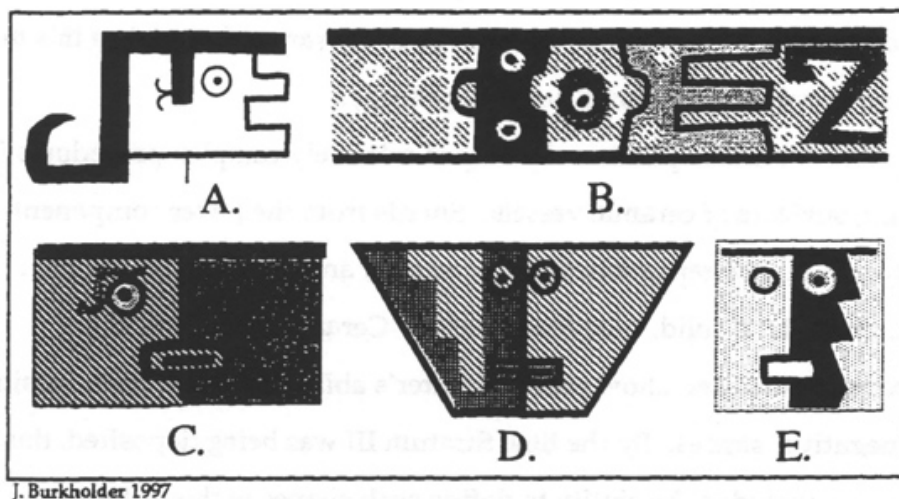


Figure 7.14 Representations of Anthropomorphic Heads
 A. Profile, B. Stylized Trophy, C.-E. Split-Faces: C. Plain, D. Decorated, E. Serrated.

Figure 17. Representations of profile heads found on ceramics at Iwawi (after Burkholder 1997)

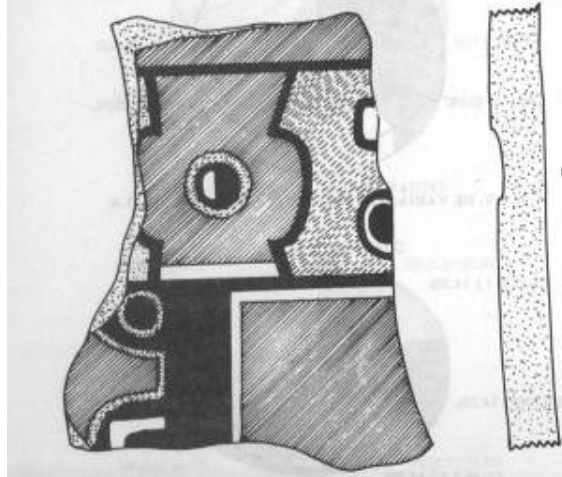


Figure 18. Representation of a profile head found on a ceramic piece from the Akapana (Not shown to scale) (After Alconini-Mujica 1995:Figura 28)

These heads (and parts of them) are also found on the ceramics of Pirque Alto, in the same distinctly stylized manner as they are in the Titicaca Basin and Altiplano (see Figure 19).



Figure 19. Representations of profile heads and parts of them from Pirque Alto ceramics (Not shown to scale)

One special find made on the surface at Pirque Alto was a large fragment of the molded ceramic head of a feline (likely a puma- see Figure 20).



Figure 20: Modeled ceramic feline head found at Pirque Alto (photo: Liz Green)

This piece almost certainly came from a puma effigy incensario, a vessel synonymous with Tiwanaku's corporate ceramic style. Animal-effigy incensarios are associated with Tiwanaku religious practices such as the burning of aromatic substances, as indicated by the analysis of the residue often present on the inside surfaces of the vessels (Bermann 1994:147).

The possible ramifications of the above iconographic and artistic similarities between the Pirque Alto assemblage and the collections from the Akapana and Iwawi are discussed in "Conclusions" below.

CONCLUSIONS

From the analysis of the numbers and percentages of sherds from different vessel types over time, as well as the analysis of frequency of vessels from specific functional categories at both Pirque Alto and the Akapana, several things have come to light:

1. According to the complete surface collection data, the largest occupation of Pirque Alto by far occurred during the Middle Horizon/Tiwanaku period (see Tables 1 and 2).
2. A large percentage of the Middle Horizon/Tiwanaku-style assemblage from Pirque Alto is composed of serving and feasting vessels (66%, see Table 3). In fact, over 30 percent of the overall surface collection assemblage for all periods is composed of Tiwanaku-style keru cups. This is in contrast to the collection from Alconini-Mujica's Akapana excavations, in which serving and feasting vessels compose 40% of the assemblage, and keru cups compose 5% of the total collection (see Table 4).

The large Middle Horizon occupation may be explained by the location of the Pirque Alto site. Pirque Alto is found on a natural corridor between the Titicaca Basin, the rest of the Altiplano, and the lowlands of the Cochabamba Valley (Higueras-Hare 1996). The increased interaction between the highlands and the lowlands east of the Andes at this time may have attracted people from nearby areas to the Pirque Alto settlement (see Figure 20).

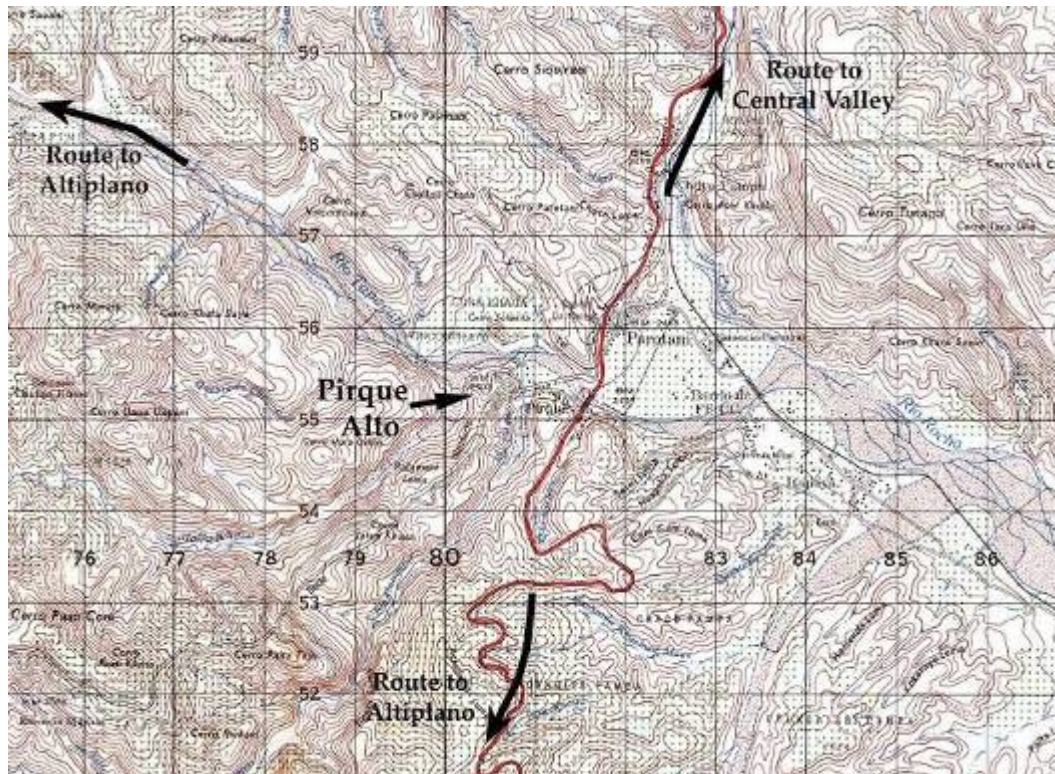


Figure 21. The Pirque Alto site in relation to major trade corridors in the region

But why the differences between the assemblages from the Akapana and Pirque Alto? Some rather mundane possibilities exist. The site has been plowed since its archaeologically represented occupations, and this disturbance may have had an effect on the distribution of the assemblage. The site also has evidence of burials that have been looted. This looting may have disturbed material once found in a burial context and altered the composition of the surface scatter.

Other possibilities concern the inhabitants of the site's past. It is possible that the Middle Horizon inhabitants of Pirque Alto may have simply had different ideas from their Altiplano counterparts regarding vessels and their function.

Also, it is important to note the large number and percentage of keru cups in the Pirque Alto assemblage (see Tables 1 and 2). Keru cups are traditionally used in the consumption of maize beer (*chicha*) (Young-Sanchez 2004:112). Maize is a major agricultural product of the Cochabamba Valley, and may be one of the reasons the area attracted the attention of the Tiwanaku, since maize cannot effectively be grown in the harsher climate and high altitude of the Titicaca Basin and the Altiplano (Stanish 2003:191). The significantly higher availability of maize to the residents of Pirque Alto, combined with the fact that four of the large jars (*virques*) used for *chicha* fermentation were found at the site (see Table 1), points to a possibility of relatively high rate of *chicha* consumption at Pirque Alto during the Middle Horizon period. Even today, the consumption of *chicha* is nearly always associated with a special occasion of some sort. This is evidence for a high degree of feasting behavior, and a possible explanation for the large number of kerus and other serving and feasting vessels found at the Pirque Alto site. This would also suggest trade with the Altiplano, since maize and coca (both lowland crops) was highly important to Tiwanaku livelihood and ritual activity.

The results of the iconographic analysis also present a number of possibilities regarding both the origin of the Pirque Alto ceramics and the possible nature of the interaction between Pirque Alto and the Tiwanaku heartland.

Many of the motifs and designs on the ceramic fragments from Pirque Alto exhibit a high degree of artistic skill and sophistication. This is consistent with ceramics from the Tiwanaku core in the Titicaca Basin. The designs and figures on the ceramics also bear a high degree of similarity to those of the Tiwanaku corporate art style found at the Akapana (Alconini-Mujica 1995) and those found at the Titicaca Basin site of Iwawi (Burkholder 1997) in both subject matter and execution.

Also of importance in the iconographic analysis of the Pirque Alto surface assemblage is the large fragment of the puma head, almost certainly from a puma effigy incensario (see Figure 20). The presence of such a ritual vessel,

with the feline so important to Tiwanaku's codified corporate iconography, may indicate a high level of acceptance of Tiwanaku culture and ideology. This may include more intimate social ties to the Titicaca Basin area or of the adoption of Tiwanaku-style motifs for purposes that strictly pertained to ritual, political, and social life at Pirque Alto itself (Bermann 1994:145).

From the uncanny resemblances of some of the designs and figures to material from the Titicaca Basin (see Figures 13-20), I have made some preliminary conclusions about the Pirque Alto ceramics.

These ceramics cannot simply be copies, produced by someone with a limited exposure to ceramics from the Titicaca Basin, and they cannot be copies of other copies. I believe that there are four possible explanations for these highly sophisticated ceramics.

1. They are imports from the Titicaca Basin.
2. They are locally-produced copies of imports from the Titicaca Basin that were owned by Pirque Alto residents.
3. There were immigrants from the Titicaca Basin living at Pirque Alto, and these ceramics are possessions they brought with them from their homeland.
4. The ceramics are locally-produced copies of the possessions of Titicaca Basin immigrants.

Unfortunately, more definite conclusions than this cannot be reached at this time, due to the unavailability to the researcher of ceramics for thin section analysis, as well as the unavailability of bioarchaeological data to corroborate the ceramic evidence (see Blom et al 1998 for an excellent example of the corroboration of artifactual and bioarchaeological data in determining population demographic at a Tiwanaku peripheral site).

Despite the relatively broad conclusions of this study, it is hoped that the data generated and the possibilities investigated will be of use to future researchers in the further study of Tiwanaku-Cochabamba interaction, as well as the investigation of the nature of Tiwanaku political formation and expansion.

APPENDIX 1: SUPPLEMENTAL TABLES AND FIGURES

Table 1. **Sherds by Period and Vessel Type (Raw Numbers) Pirque Alto Surface Diagnostics**

	Formative	Early Intermediate	Domestic/local Horizon	Middle	Tiwanaku-style	Late Intermediate	Ciaco-Inka and Late Horizon
keru (1)	2	10	48	4242	22	6	
tazón (2)	19	114	28	1123	26	0	
cuenco (3)	203	14	28	21	59	5	
challador (4)	0	0	1	133	0	0	
jarrita (5)	176	33	227	712	67	9	
chillami (6)	782	0	0	0	0	0	
cantaro (7)	1066	233	2495	151	108	1	
virque (8)	0	0	4	0	0	0	
olla (9)	66	18	560	3	5	0	
cuenco domestico (10)	11	4	82	1	0	0	
antropomorfo (11)	0	0	1	2	0	0	
zoomorfo (12)	0	0	0	5	0	0	
sahumador (13)	0	0	4	38	0	0	
disco (14)	3	2	5	2	0	0	
vasija abierta (15)	3	0	3	4	0	0	
vasija para cocinar (16)	0	0	1	0	0	0	
plato (17)	0	0	0	0	1	0	
esteque (18)	1	0	0	0	0	0	
incensario (19)	0	0	1	3	0	0	
cuchara (20)	0	0	1	0	0	0	
huaco retrato (21)	0	0	1	0	0	0	
rueca (22)	0	0	1	0	0	0	
figurilla humana (23)	0	1	0	0	0	0	
figurilla llama (24)	0	0	0	0	0	0	
alisador (25)	0	0	0	2	0	0	
total period sherds	2332	429	3491	6442	288	21	
				grand total		13003	

Table 2. Percentages of Total Assemblage by Period and Vessel Form

**Pirque Alto
Surface
Diagnostics**

	Formative	Early Intermediate	Middle Horizon/Tiwanaku	Late Intermediate	Ciaco-Inka and Late Horizon	Vessel Form Total
keru (1)	0.02%	0.08%	32.99%	0.17%	0.05%	33.30%
tazón (2)	0.15%	0.88%	8.85%	0.20%	0.00%	10.07%
cuenco (3)	1.56%	0.11%	0.38%	0.45%	0.04%	2.54%
challador (4)	0.00%	0.00%	1.03%	0.00%	0.00%	1.03%
jarrita (5)	1.35%	0.25%	7.22%	0.52%	0.07%	9.41%
chillami (6)	6.01%	0.00%	0.00%	0.00%	0.00%	6.01%
cantaro (7)	8.20%	1.79%	20.35%	0.83%	0.01%	31.18%
virque (8)	0.00%	0.00%	0.03%	0.00%	0.00%	0.03%
olla (9)	0.51%	0.14%	4.33%	0.04%	0.00%	5.01%
cuenco domestico (10)	0.08%	0.03%	0.64%	0.00%	0.00%	0.75%
antropomorfo (11)	0.00%	0.00%	0.02%	0.00%	0.00%	0.02%
zoomorfo (12)	0.00%	0.00%	0.04%	0.00%	0.00%	0.04%
sahumador (13)	0.00%	0.00%	0.32%	0.00%	0.00%	0.32%
disco (14)	0.02%	0.02%	0.05%	0.00%	0.00%	0.09%
vasija abierta (15)	0.02%	0.00%	0.05%	0.00%	0.00%	0.08%
vasija para cocinar (16)	0.00%	0.00%	0.01%	0.00%	0.00%	0.01%
plato (17)	0.00%	0.00%	0.00%	0.01%	0.00%	0.01%
esteque (18)	0.01%	0.00%	0.00%	0.00%	0.00%	0.01%
incensario (19)	0.00%	0.00%	0.03%	0.00%	0.00%	0.03%
cuchara (20)	0.00%	0.00%	0.01%	0.00%	0.00%	0.01%
huaco retrato (21)	0.00%	0.00%	0.01%	0.00%	0.00%	0.01%
rueca (22)	0.00%	0.00%	0.01%	0.00%	0.00%	0.01%
figurilla humana (23)	0.00%	0.01%	0.00%	0.00%	0.00%	0.01%
figurilla llama (24)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
alisador (25)	0.00%	0.00%	0.02%	0.00%	0.00%	0.02%
total	17.93%	3.30%	76.39%	2.21%	0.16%	100.00%

Table 3.

Prehistoric Parotani Settlement Project Surface Collection Data- Middle Horizon and Tiwanaku-style Diagnostic Ceramics

	Vessel Form	#sherds	% total	% sherds of each category
domestic/food prep	Olla	563	5.68%	
	Vasija	8	0.08%	
	Cantaro	2646	26.69%	
	Cuenco domestico	83	0.84%	
	Virque	4	0.04%	33.32%
serving/feasting	Cuenco	49	0.49%	
	Jarrita	939	9.47%	
	Keru	4290	43.27%	
	Tazon	1151	11.61%	
	Challador	134	1.35%	66.19%
ceremonial	Wako retrato	1	0.01%	
	Sahumador	42	0.42%	
	Incensario	4	0.04%	
	Anthropomorfo	1	0.01%	0.48%
Total		9915	100.00%	100.00%

Table 4.

Vessel Percentages from Diagnostic Sherds- Akapana Level 4E- Early Tiwanaku IV				
	Vessel Form	# of sherds	%total	% sherds of each category
domestic/food prep	Olla	376	23.93%	
	Fuente	3	0.19%	
	Vasija	504	32.08%	56.21%
feasting/serving	Tinaja	392	24.95%	
	Cuenco/Escudilla	158	10.06%	
	Keru	74	4.71%	39.72%
ceremonial	Sahumador	63	4.01%	
	Incensario	1	0.06%	4.07%
	Total Sherds	1571	100.00%	100.00%

(after Alconini 1995:Tabla 7)

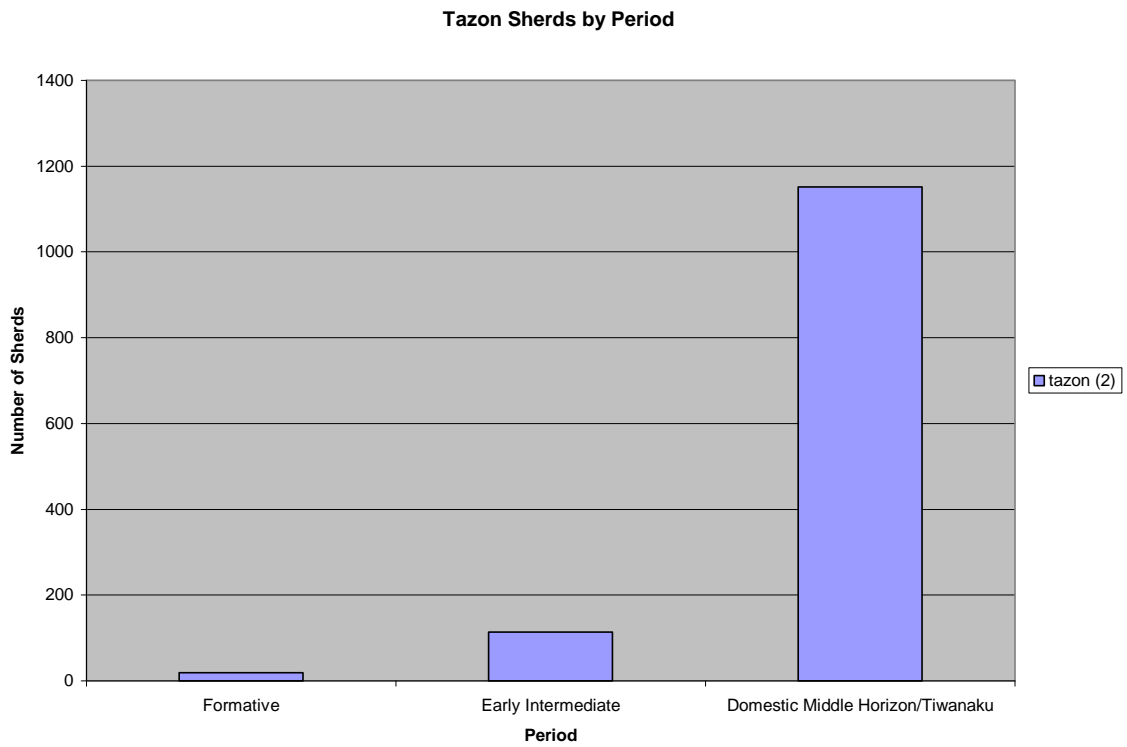
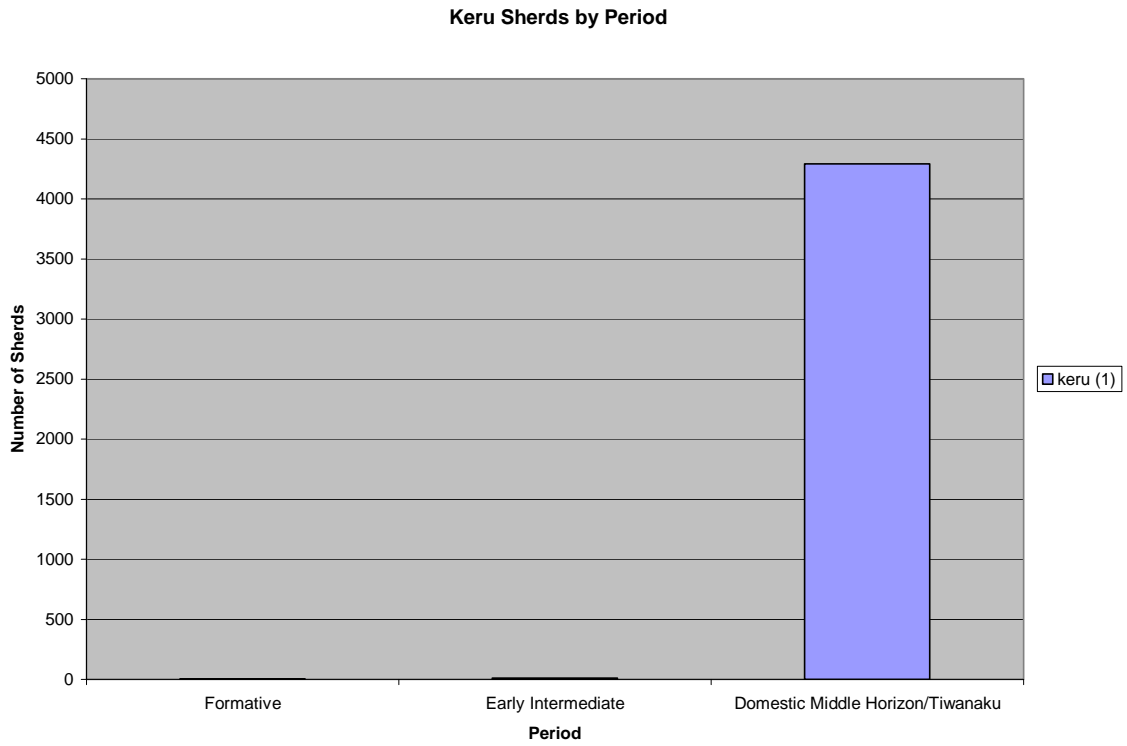


Figure 22. Vessel Form Sherds by Period for periods of largest occupation at Pirque Alto

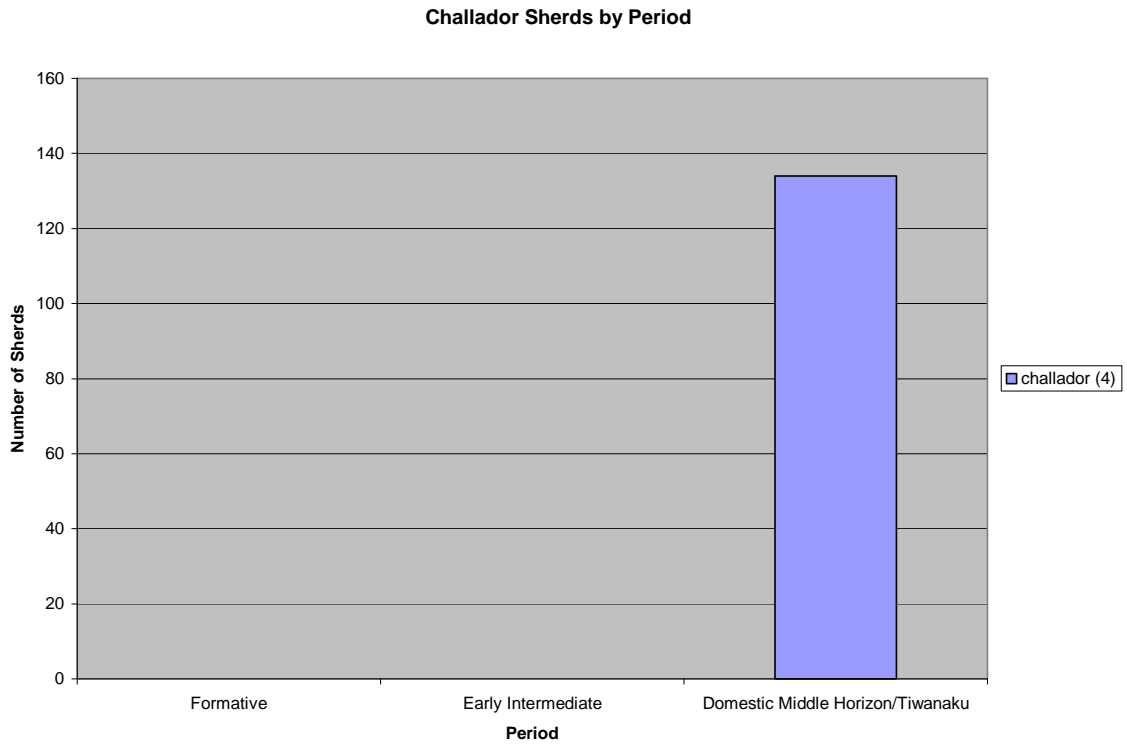
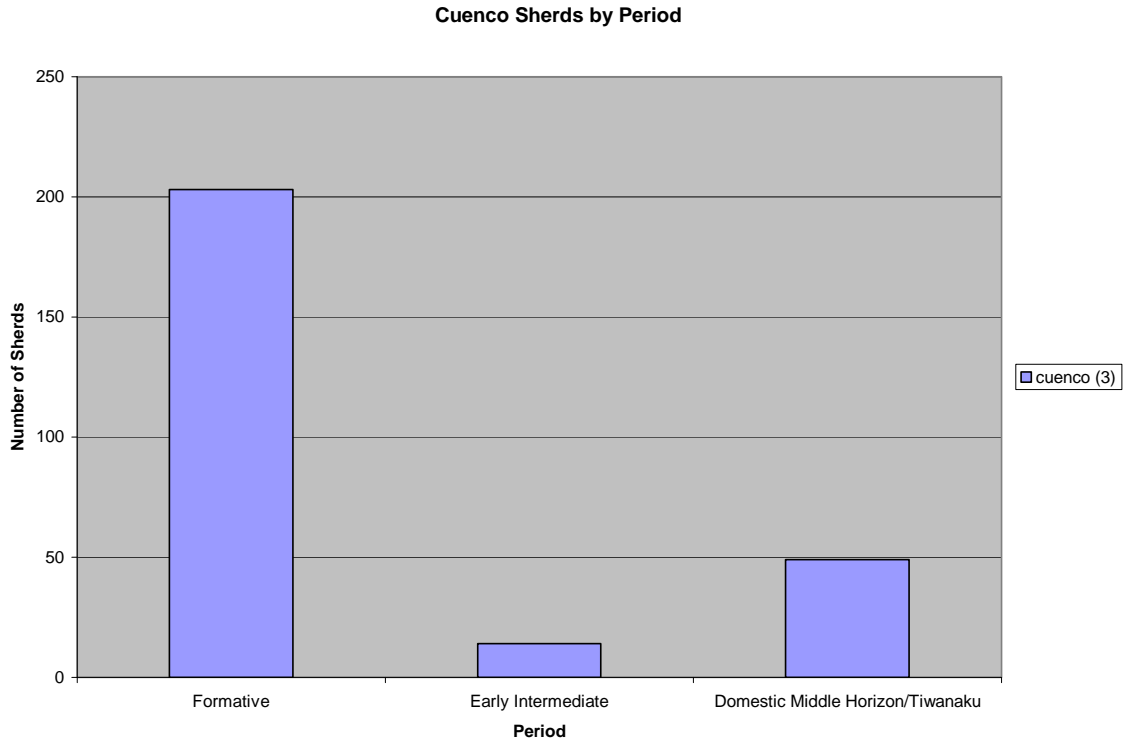


Figure 22 cont'd. Vessel Form Sherds by Period for periods of largest occupation at Pirque Alto

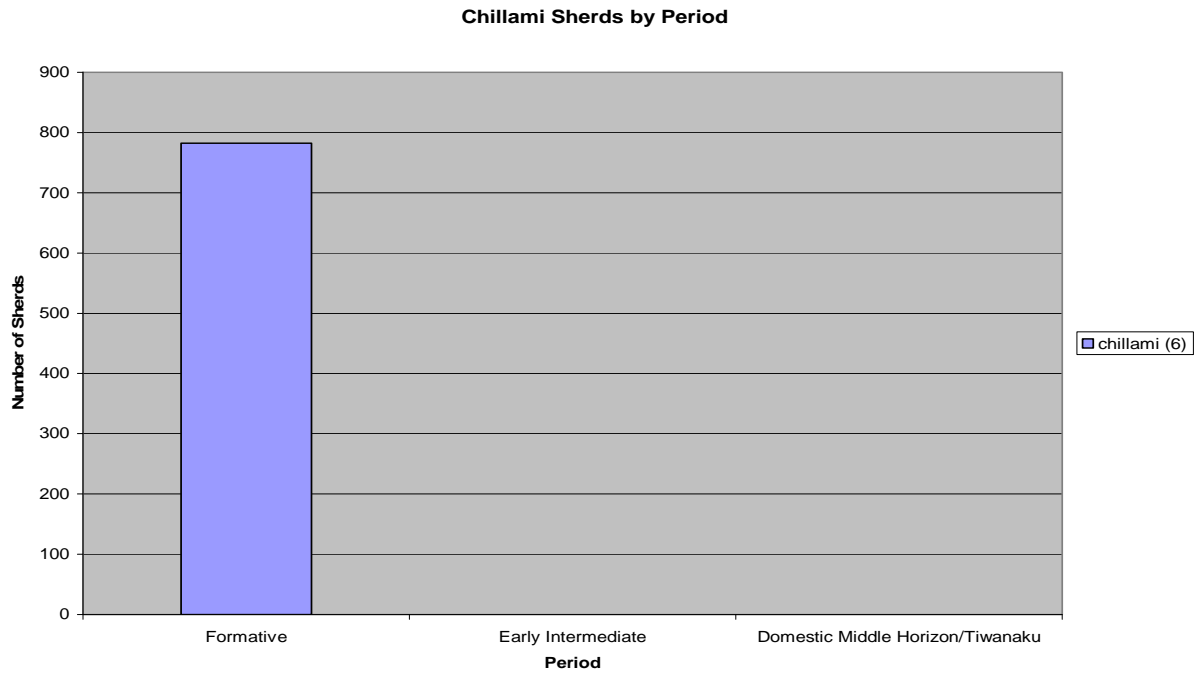
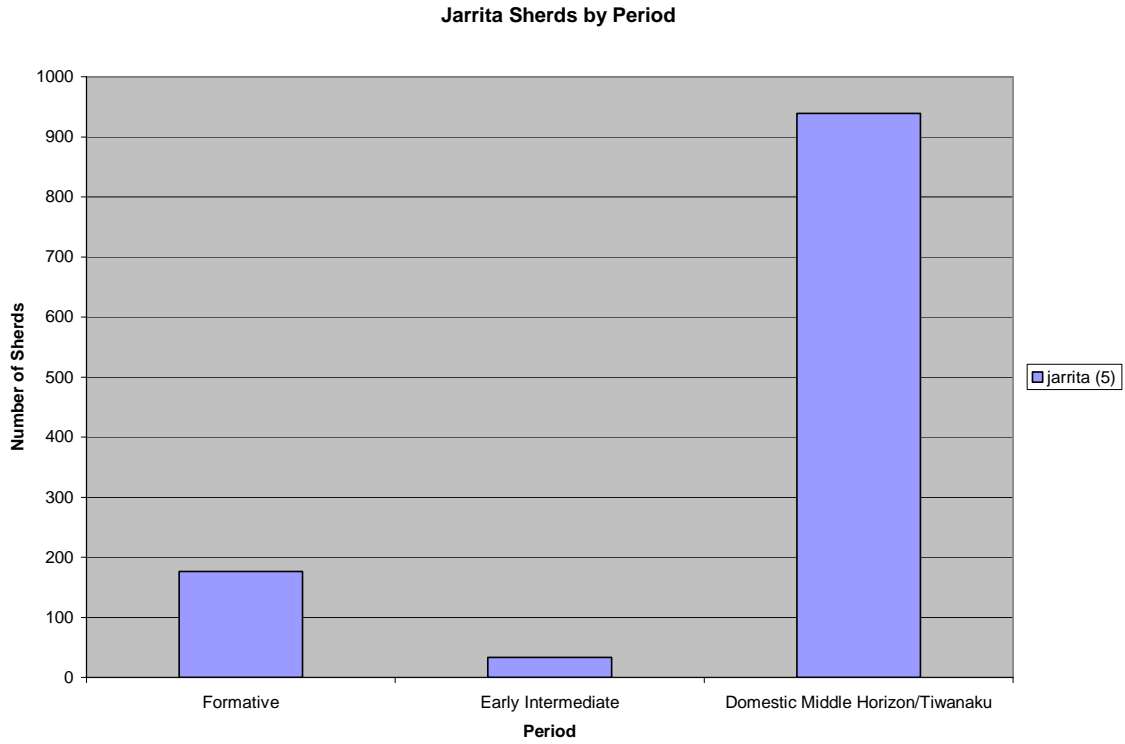


Figure 22 cont'd. Vessel Form Sherds by Period for periods of largest occupation at Pirque Alto

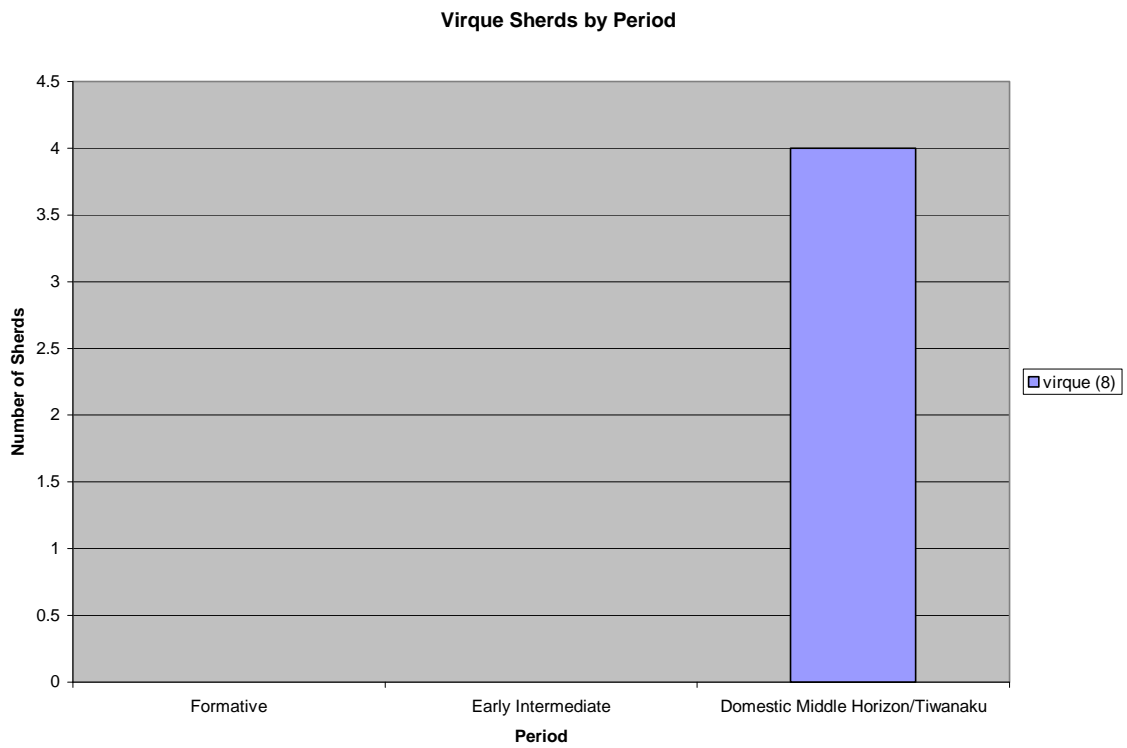
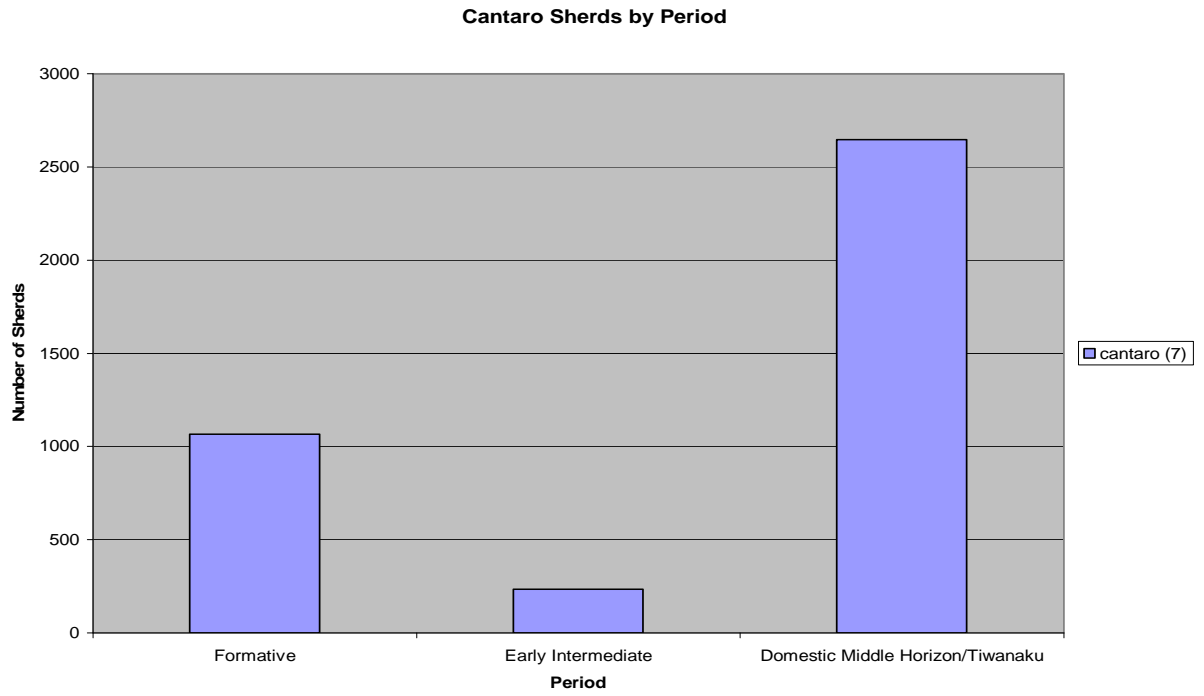


Figure 22 cont'd. Vessel Form Sherds by Period for periods of largest occupation at Pirque Alto

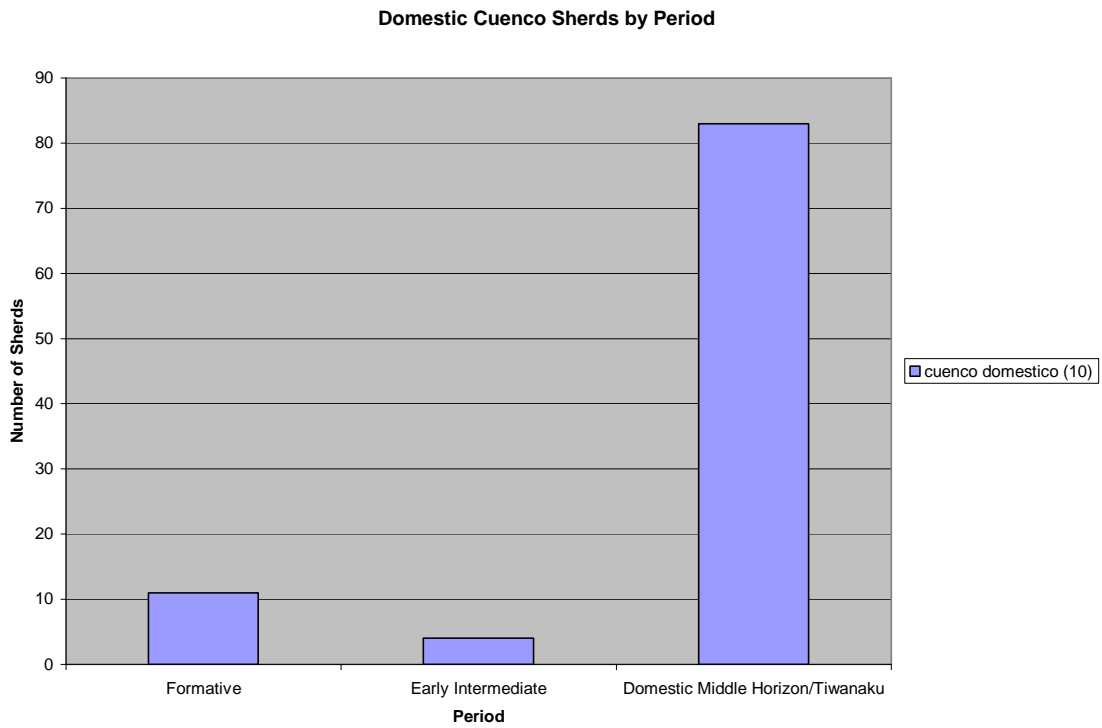
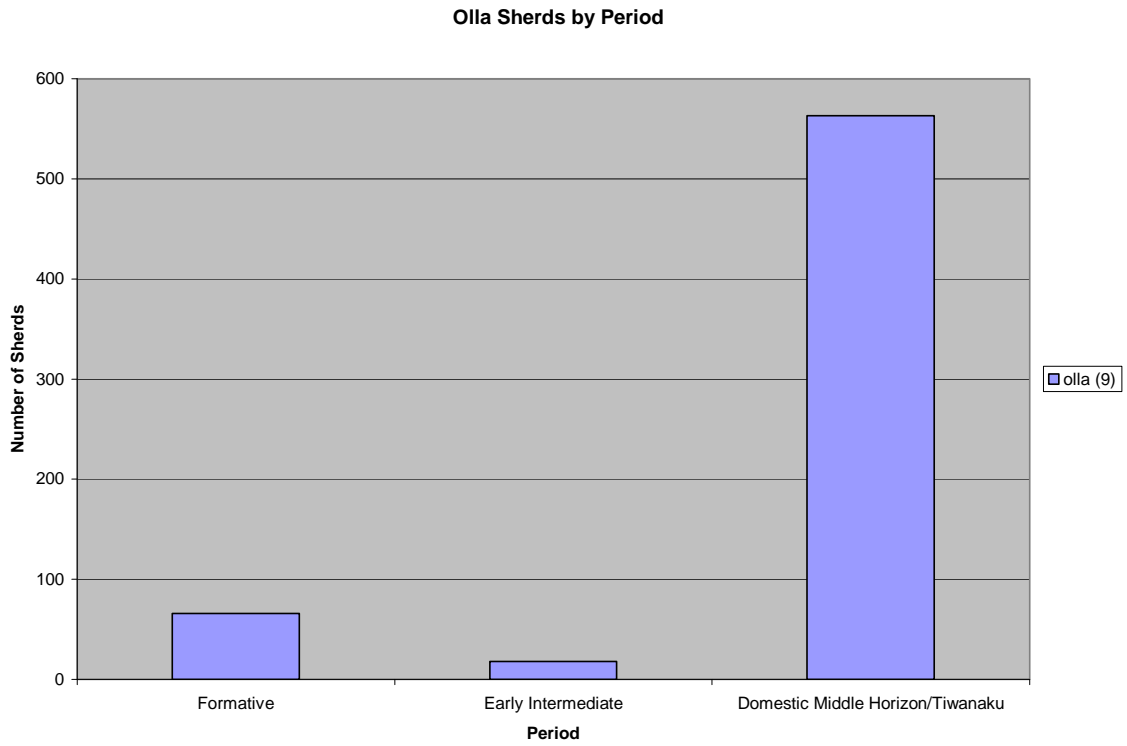


Figure 22 cont'd. Vessel Form Sherds by Period for periods of largest occupation at Pirque Alto

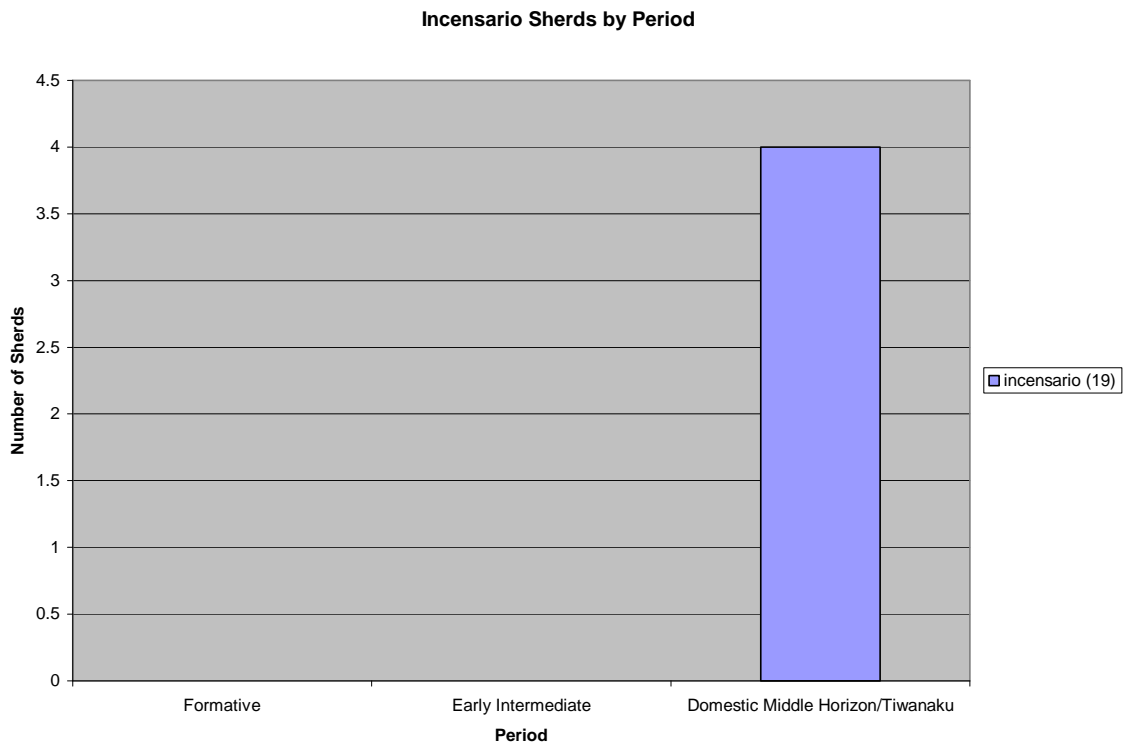
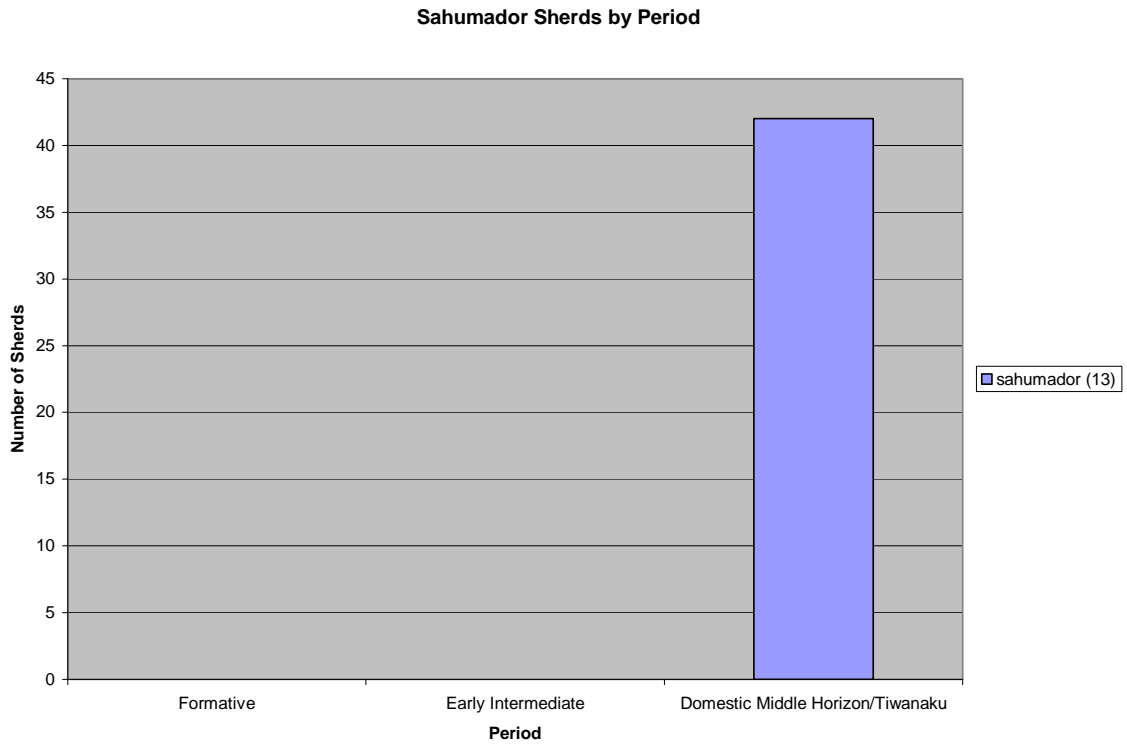


Figure 22 cont'd. Vessel Form Sherds by Period for periods of largest occupation at Pirque Alto

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REFERENCES CITED

- Albarracín-Jordan, Juan V. 1999. *The Archaeology of Tiwanaku: The Myths, History, and Science of an Ancient Andean Civilization*. La Paz: Impresión P.A.P.
- Alconini-Mujica, Sonia. 1995. *Rito, Simbolo, y Historia en La Piramide de Akapana, Tiwanaku: Un Análisis de Cerámica Prehispánica*. La Paz: Editorial Acción.
- Bennett, Wendell C. 1936. *Excavations in Bolivia*. New York: American Museum of Natural History.
- Bermann, Marc. 1994. *Lukurmata: Household Archaeology in Prehispanic Bolivia*. Princeton: Princeton University Press.
- Blom, Deborah E., Benedikt Hallgrímsson, Linda Keng, María C. Lozada, Jane E. Buikstra. 1998. Tiwanaku 'Colonization': Bioarchaeological Implications for Migration in the Moquegua Valley, Peru. *World Archaeology* 30(2): 238-261.
- Burkholder, JoEllen. 1997. *Tiwanaku and the Anatomy of Time: A New Ceramic Chronology From the Iwawi Site, Department of La Paz, Bolivia*. New York: Binghamton University.
- Goldstein, Paul S. 1989. *Omo: A Tiwanaku Provincial Center in Moquegua, Peru*. Chicago: University of Chicago.
- Goldstein, Paul S. 2005. *Andean Diaspora*. Gainesville: University of Florida Press.
- Higueras-Hare, Alvaro. 1996. *Prehispanic Settlement and Land Use in Cochabamba, Bolivia*. Pittsburgh: University of Pittsburgh.
- Janusek, John Wayne. 2004. *Identity and Power in the Ancient Andes: Tiwanaku Cities Through Time*. New York: Routledge.
- Kolata, Alan L. 1993. *The Tiwanaku: Portrait of an Andean Civilization*. Cambridge: Blackwell.
- Kolata, Alan L. (editor). 2003. *Tiwanaku and Its Hinterland: The Archaeology and Paleoecology of an Andean Civilization*, Vol. II. Washington: Smithsonian Institution Press.
- McAndrews, Timothy L, Juan Albarracín-Jordan, Marc Bermann. 1997. Regional Settlement Patterns in the Tiwanaku Valley of Bolivia. *Journal of Field Archaeology* 24(1): 67-93.
- Rydén, Stig. 1957-1959. *Andean Excavations*. 2 vols. Stockholm: The Ethnographic Museum of Sweden, Stockholm.
- Stanish, Charles. 2003. *Ancient Titicaca: The Evolution of Complex Society in Southern Peru and Northern Bolivia*. Berkeley: University of California Press.
- Stone-Miller, Rebecca. 1995. *Art of the Andes: From Chavín to Inca*. New York: Thames and Hudson.
- Young-Sanchez, Margaret. 2004. *Tiwanaku: Ancestors of the Inca*. Lincoln: University of Nebraska Press.