

## Cultural Complexity and the Ceramics of Pirque Alto

Heidi Siferd

Faculty Sponsor: Timothy McAndrews, Department of Sociology Archaeology

### ABSTRACT

This study's objective is to provide evidence that the different ceramic vessel forms present in the archaeological assemblage in Pirque Alto, Bolivia, during specific time periods were directly related to the sociopolitical structure of the culture at the site. The collection of ceramics retrieved from the archaeological site was analyzed and compiled into Microsoft® Access and Microsoft® Excel files, which were then studied thoroughly. The ceramics data from each separate time period were compared to one another and were also separated into different vessel forms. Graphs, as well as tables and charts, were created to better represent the data, and several statistics were calculated, including the percentages of each vessel in each time period. Distinct patterns in the ceramic assemblage could be seen, which led to the conclusion that the ceramic vessel forms are a direct reflection of the sociopolitical changes the culture had experienced over time.

### INTRODUCTION

The Bolivian Andes were home to many different pre-Columbian cultures, including the Tiwanaku and Inca civilizations. The Tiwanaku were a culture group based in the area surrounding Lake Titicaca on the western edge of modern-day Bolivia (see Figure 1 below) that emerged as a ritual center during the period between A.D. 100 and



Figure 1. Map of Western Portion of Bolivia (Todo Turismo)

300 (Kolata 1993:85). They are the precursors to the Inca and are known for their unique pottery styles and iconography. Sometime after about A.D. 400 (Kolata 1993:243), the Tiwanaku culture began to spread throughout much of Bolivia, southern Peru, and northern Chile, but by around A.D. 1000 or soon after, the Tiwanaku state had dissolved (Kolata 1993:284). It is unclear what type of role the Tiwanaku played in the local economy and politics

of each of the regions they influenced. There are several different theories as to why Tiwanaku material culture spread and whether the Tiwanaku culture was forced upon local people or whether it was a process of diffusion. The Inca, on the other hand, clearly imposed their culture on the regions they controlled.

Pirque Alto, a small site near Cochabamba, Bolivia, experienced several stages of development before the Tiwanaku civilization reached the area and after it left its mark on the region. These periods of development have been seen in other locations, and they can be identified by their differences in material culture, as well as by the locations of buildings and structures associated with different culture groups. The Formative Period in the Cochabamba area lasted from about 1150 B.C. to A.D. 200 (Higueras 1996:30), during which there was very little decorated pottery. The Early Intermediate Period, from A.D. 200 to A.D. 600, contains four specific pottery styles, as well as monochrome pottery. These styles are Quillacollo, Mojocoya, Sauces, and Tupuraya (Higueras 1996:32). In Cochabamba, the Intermediate Period was from A.D. 600 to A.D. 1000. The Derived Tiwanaku style and several other local styles were prominent in this period (Higueras 1996:35). The Late Period in Cochabamba ranges from A.D. 1000 until Spanish contact in around A.D. 1600. This period encompasses several styles, including the Inca style (Higueras 1996:42). Most of the styles in the time periods represented in Cochabamba as a whole are present in some quantity at the Pirque Alto site, which makes it a valuable site to study.

In May and June of 2005, Dr. Timothy McAndrews of the University of Wisconsin-La Crosse led a month-long field school in Pirque Alto. The eleven students who accompanied Dr. McAndrews on the trip assisted him in collecting artifacts in five meter by five meter units from the surface of a site that had been virtually undisturbed until that point. They collected thousands of pottery sherds over a period of ten days. These sherds range from the Early Formative Period to the Post-Incan Period, which provides an interesting glimpse into the cultural, political, and economic development of the site as a human-populated area. I propose that changes in the sociopolitical structure of Pirque Alto throughout its existence are reflected in the ceramic assemblage found on the surface of the site, and I will attempt to show those changes through my analysis of the data.

## **METHODS**

After the field school group left the country, a team of professionals in Bolivia continued to work on the analysis of the artifacts. A little over a year later I received several computer files full of data from the Pirque Alto site. These included a Microsoft Access file and several Microsoft Excel files containing the provenience information and time period classification of each diagnostic pottery sherd. I produced queries for the data that were in the Microsoft Access file and experimented with the data that were in the Microsoft Excel files. I then compared the ceramics data from five time periods and separated the ceramics into different vessel forms according to the designations provided in the Microsoft Access file. I created graphs and calculated statistics to better understand the data. I also researched not only the meanings of previously studied ceramic assemblages, but also literature relating to the idea that vessel form and function could be investigated to create a theory about the sociopolitical structure of a particular society.

## **BACKGROUND**

The Pirque Alto site is located on a high cliff, with drop-offs on three of the four sides, which makes it a very good look-out location. The area is very arid and full of cacti and small, spiny shrubs. Pirque Alto was settled from the Early Formative Period all the way through until the Incan Period, and even later. This includes the Early Formative, Middle Formative, Late Formative, Early Intermediate, Middle Horizon (Tiwanaku), Late Intermediate, Late Horizon (including Ciaco-Incan and Incan), and Colonial Periods. It should be noted that Middle Horizon and Tiwanaku were contemporaneous, so the ceramics attributed to the Middle Horizon are those that were being produced domestically at the same time as Tiwanaku but were not associated with the pure Tiwanaku style. Figure 2 below, which was provided by Dr. McAndrews, shows drawings of some of the vessel forms from different periods.

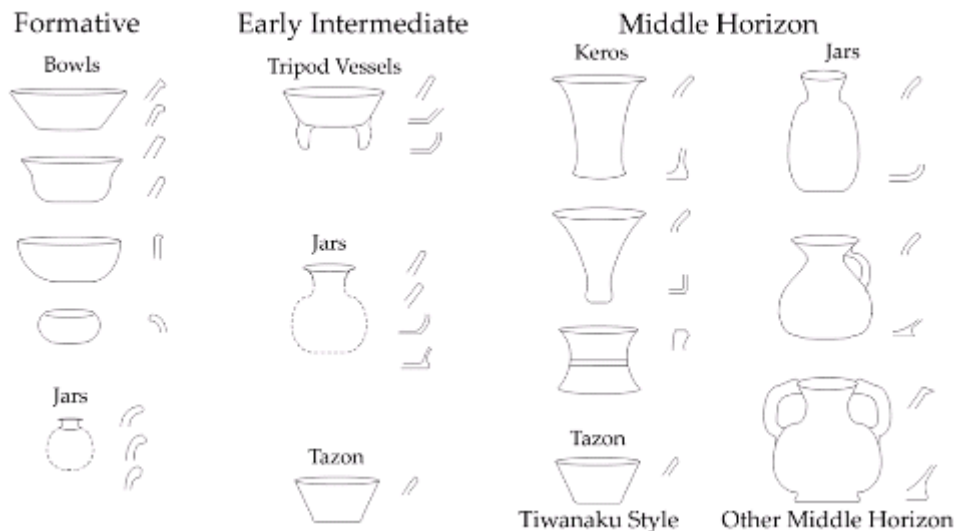


Figure 2. Ceramic Vessel Forms by Period

There are many different vessel forms from each period, including kerus, tazones, cuencos, challadores, jarritas, chillamis, cántaros, virques, ollas, sahumadores, discos, vasijas abiertas, and many others. Kerus are ceremonial drinking vessels or serving vessels for liquids like chicha, an alcoholic beverage made from corn. Tazones are small, bowl-shaped serving vessels that were possibly used for meat, were perhaps ceremonial, and are easy to stack for transport. Cuencos are bowls, and challadores are funnel-shaped drinking vessels. Jarritas are somewhat small jars used for serving. Chillamis are big bowls or basins. Cántaros are pots, pitchers, or jugs used for storage and fermentation. Virques are huge jars for preparing chicha. Ollas are large, pot-shaped cooking vessels with two handles and open rims. Sahumadores are incense burners, and discos are plates. Vasijas abiertas are basically open vessels or containers.

In her dissertation entitled “Tiwanaku and the Anatomy of Time,” JoEllen Burkholder states that “the spread of the distinctive [Tiwanaku] ceramic complex, first identified at the Tiwanaku site, throughout the southern half of the Central Andes is thought to represent the presence or influence of the *altiplano* people who created the material. At the very least, this distribution of style connotes an integrated set of social, political and economic relations reflected in artistic expression that eventually permeated the highland and many lowland areas of this region” (Burkholder 1997:7). She, along with many others, believes that ceramics can reflect certain elements of a society, such as their social, political, and economic relations. The focus of her dissertation is her attempt to create a new chronology of Tiwanaku based on the ceramic assemblage found at a small site called Iwawi, much like the small site I have been studying. Burkholder argues that studying the Iwawi site will give an adequate picture of the region’s larger trends and norms because “the presence of Tiwanaku-associated ceramics at the site suggest that its inhabitants participated in the creation and maintenance of the region’s political economy” (Burkholder 1997:13). In the same way, I believe that looking at the vessel forms of the ceramics assemblage from Pirque Alto will provide a good picture of the sociopolitical structure of the area, because it contains a wide variety of ceramics from all of the periods from Formative to Late Intermediate, including Tiwanaku.

It is unclear what the Formative and Early Intermediate periods were really like, as not much research has been performed on the subject. Most archaeologists who work in the region focus more on the Tiwanaku and Inca cultures rather than those that came before them, which can prove frustrating for those who want to gain an understanding of what was happening in the region over a longer period of time. Because of this, most of the research I was able to study was related to the Tiwanaku or Inca cultures, and I had very little previous data to which I could compare the earlier forms from Pirque Alto.

Most archaeologists who have studied the region agree that the Tiwanaku influence over the Cochabamba area was different than its influence over areas of Peru. While Peru was controlled in a more militaristic fashion, much of Bolivia, including Cochabamba, seems to have absorbed Tiwanaku culture through a more gradual process. According to Charles Stanish, after Tiwanaku pottery began to be brought into the region, the local elites in Cochabamba emulated the Tiwanaku culture and began to produce a limited range of their own Tiwanaku-style pottery, which was then used for feasting and ritual purposes. There was also a change in the local utilitarian wares,

and firing technologies shifted to Tiwanaku methods (Stanish 2003). The foreign influence of Tiwanaku seems to have reached down to the level of household production. Stanish says that Tiwanaku influence caused substantial changes in many areas of life in Cochabamba, including ceramic technology and style, burial practices, and settlement patterns (Stanish 2003).

Alan Kolata believes that the prestige that the Tiwanaku religion held for the local population was adequate to command respect and cause political subordination. He says that local elites in Cochabamba and other areas outside the Tiwanaku core adopted the state ideology and received economic advantages because they became included in the social network controlled by the Tiwanaku state (Kolata 1993). It is clear that some of the vessels found in Cochabamba were imported directly from Tiwanaku as prestige items, but there were also locally-produced vessels modeled on those made in Tiwanaku. Some of those vessels made in Cochabamba have been found in Tiwanaku, which indicates that there was a social and economic network between the two regions that allowed for the transference of ideas, goods, and people (Kolata 1993).

Kolata also believes that the Tiwanaku state's interest in Cochabamba may have been based on agriculture, because the soil there was more fertile than that of other regions under Tiwanaku control (Kolata 1993). *Kurakas* were community leaders who hosted banquets or politically sponsored drinking ceremonies, but they also were in charge of dividing up land amongst individuals and keeping accounts. The *kurakas* oversaw the ceremonial and agricultural cycle as well (Kolata 1993). Political relationships between the Tiwanaku state and the local *kurakas* were most likely mutually beneficial, with the Tiwanaku elite relying on long-standing cultural relationships and economic mutualism to gain access to the agricultural fields of Cochabamba and the *kurakas* gaining political power from their status (Kolata 1993).

Feasts have played significant roles in the social, political, and economic lives of societies around the world. Brian Hayden defines a feast as "any sharing between two or more people of special foods in a meal for a special purpose or occasion" (Dietler and Hayden 2001:28). According to Hayden, some of the archaeological signatures of feasts include unusual types of preparation vessels (such as those used for beer-making) of unusual size or unusual numbers, as well as unusual numbers of serving vessels or highly decorated serving vessels. Michael Dietler (2001) uses the case of the Luo of Kenya to show how feasts can serve as mechanisms for the transformation of informal power into institutionalized formal political roles, and how dependent the maintenance of authority is on the practice of feasting. He also points out that there is usually a highly ritualized component to feasting (Dietler and Hayden 2001). Feasting as we are most familiar with it among more complex groups is dependent on the accumulation of surpluses and the storage of those surpluses. Hayden also notes that "with the emergence of transegalitarian societies (those between chiefdoms and true egalitarian societies), the full range of feasting... becomes established. A range of other developments characterizes transegalitarian societies. These developments include the production of reliable surpluses, storage of food and valuables, private ownership of resources and products, the transformation of surpluses into prestige items, economically based competition, and the establishment of contractual debts" (Dietler and Hayden 2001:44).

## MATERIALS

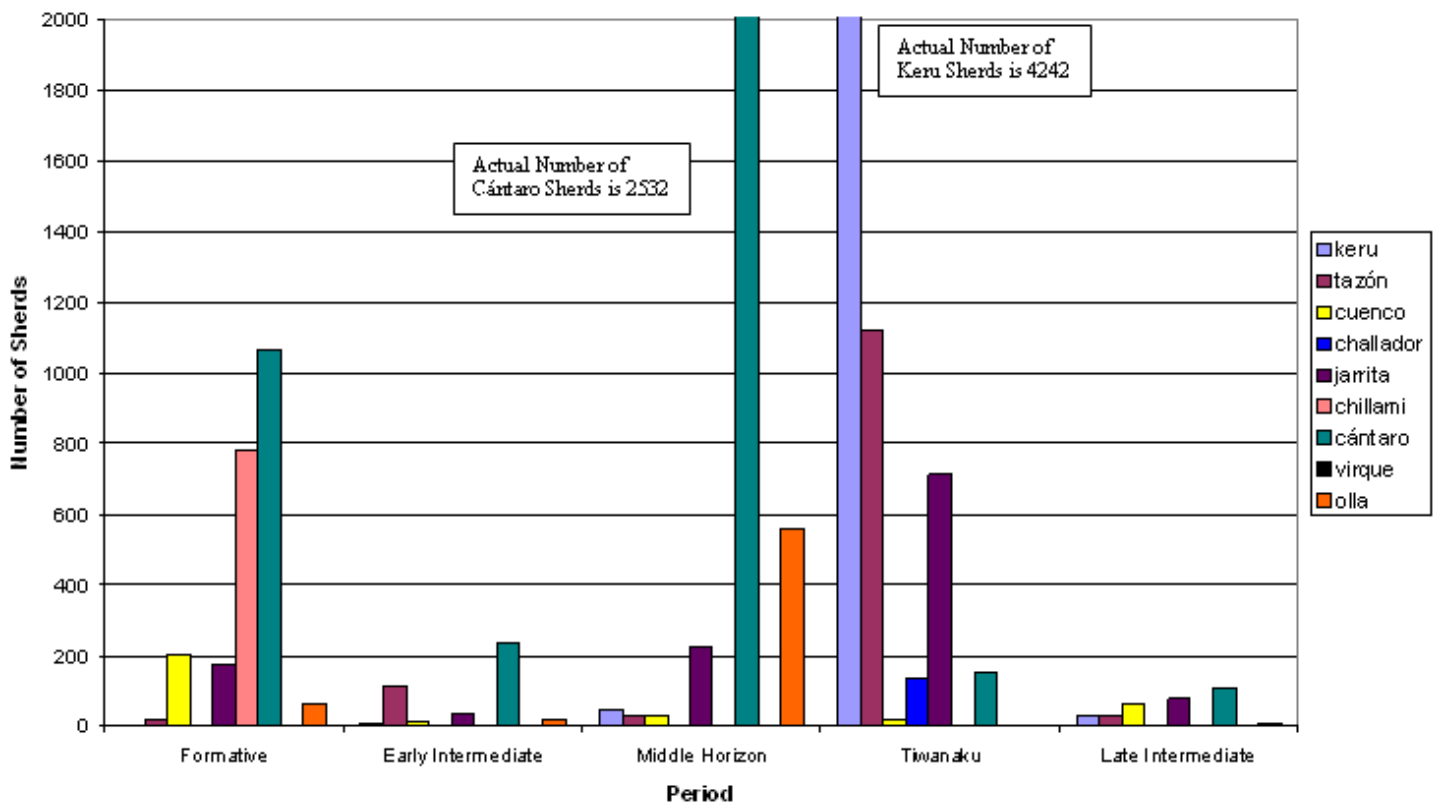
In total, the field school group collected artifacts from the surface of 406 five meter by five meter units. The students were instructed to collect all lithic artifacts, but to limit pottery sherds to only those larger than a nickel. There were differences in the perception of the size of a nickel, but most of the sherds that were kept actually were larger than the limitation set by the instructor. The students recovered 13,410 diagnostic and 40,127 non-diagnostic pottery sherds. They also collected 2,238 lithic artifacts. The data used for this study, regarding diagnostic ceramics, were originally grouped by style and/or time period, so to make it easier to compare, I condensed the data into five time periods: Formativo (Formative), Intermedio Temprano (Early Intermediate), Horizonte Medio (Middle Horizon), Tiwanaku, and Intermedio Tardío (Late Intermediate). I also limited the scope of my data analysis to serving vessels, storage vessels, and cooking vessels, which include kerus, tazones, cuencos, challadores, jarritas, chillamis, cántaros, virques, and ollas. I did not include any of the sherds that could not be placed in any particular time period and thus were grouped in "Indefinite."

The number of sherds that were found is not equal to the number of vessels, but it is suggestive of the same patterns. The final counts for each vessel form and each time period that I studied are in Table 1. As can be seen from the table, there was a sharp increase in the production of kerus, tazones, challadores, and jarritas during the

**Table 1.** Number of Sherds per Period and Vessel Form

	Formative	Early Intermediate	Middle Horizon	Tiwanaku	Late Intermediate
Keru	2	10	48	4242	28
Tazón	19	112	30	1123	26
Cuenco	203	14	29	21	64
Challador			1	133	
Jarrita	176	33	227	712	76
Chillami	782				
Cántaro	1066	233	2532	151	109
Virque			4		
Olla	66	18	562	3	5

Tiwanaku Period. Also, the highest numbers of cuencos and chillamis appeared during the Formative Period, while virques and ollas were most numerous during the Middle Horizon. Cántaros are interesting in that they appeared in high numbers during the Formative Period, declined in numbers during the Early Intermediate Period, and then returned in even higher quantities during the Middle Horizon. These changes can be seen more easily in Figure 3.

**Figure 3.** Serving, Cooking, and Storing Vessel Sherds

The scale of the graph has been altered slightly to enable the viewer to see the smaller numbers more clearly. The top portion of the graph has been cropped, which means that the two tallest bars, the cántaro bar in the Middle Horizon and the keru bar in the Tiwanaku Period, do extend higher than what is shown in the graph here.

Figure 4 singles out the serving vessels as separate entities to be studied. The graph shows a distinct spike in the manufacture of serving vessels during the Tiwanaku Period. The peak is so high that the amounts of serving vessels represented during other time periods pale in comparison to the Tiwanaku Period serving vessel production.

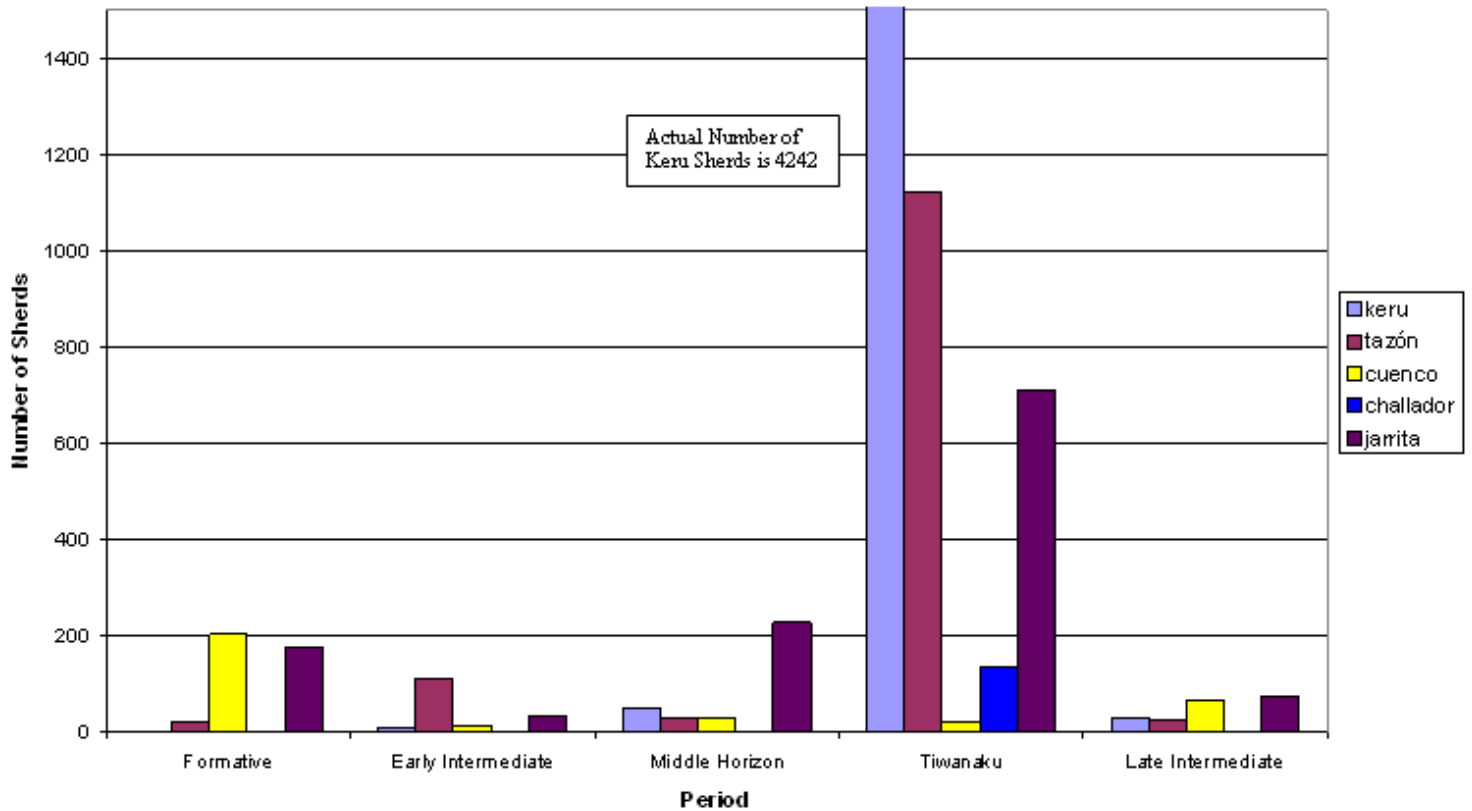


Figure 4. Serving Vessel Sherds

Like the previous graph, this graph has been altered slightly to better show the smaller quantities of vessel sherds representing the other periods besides the Tiwanaku Period, and therefore the amount of keru sherds represented on the graph for the Tiwanaku Period is only about one third of the keru sherds actually found.

In addition to simply looking at which vessel forms increased in quantity during which periods, I also examined what percentages of each form were present during each period. During the Formative Period, the majority of the vessels were cántaros (46%) and chillamis (34%). When I looked at the percentages of vessels during the Early Intermediate Period, I realized why the numbers of cántaros decreased and increased again. There were fewer sherds in general from the Early Intermediate Period than from the periods before and after that period. 55% of the sherds from that period were from cántaros. Also, 27% of the sherds from the Early Intermediate Period were tazones. Cántaros accounted for 74% of the Middle Horizon ceramics and ollas accounted for 16%. A full 66% of the Tiwanaku Period ceramics were kerus, 18% were tazones, and 11% were jarritas. During the Late Intermediate Period, 35% of the ceramics were cántaros, 25% were jarritas, and 21% were cuencos. Figure 5 is a graph that I created to better illustrate the changes of the ceramic assemblage through time.

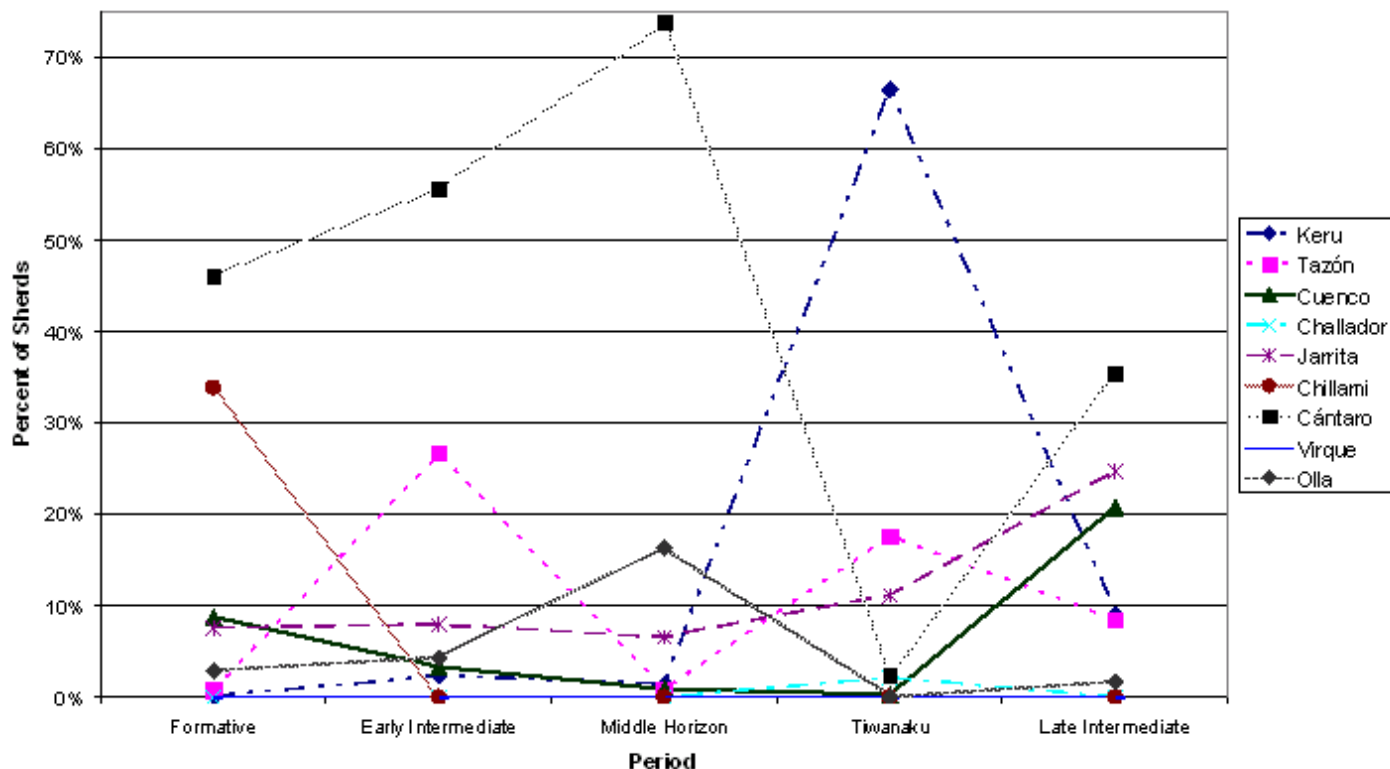


Figure 5. Percentages of Vessel Forms per Period

For my own interest, I also added the sherds from the Middle Horizon to those from the Tiwanaku Period, since they are the same time period, and computed the percentages again. Kerus accounted for 44%, cántaros for 27%, tazones for 12%, and jarritas for 10%. These numbers and the rest of the vessel forms' numbers are shown in Table 2. The total adds up to 101% only because a few of the other percentages were rounded up.

Table 2. Numbers and Percentages of Vessel Forms During Middle Horizon and Tiwanaku Periods

	Keru	Tazón	Cuenco	Challador	Jarrita	Chillami	Cántaro	Virque	Olla	Total
# of Sherds	4290	1153	50	134	939	0	2683	4	565	9818
% of Sherds	44%	12%	1%	1%	10%	0%	27%	0%	6%	101%

## RESULTS

After analyzing the data, I have realized that sometimes it is more beneficial to look at percentages in addition to raw numbers, because sometimes the raw numbers do not tell the entire truth. I found that there were a few differences between the changes over time seen in the numbers of ceramic sherds and the changes seen in the percentages. For example, the number of cántaros began in the Formative Period at 1066, decreased to 233 during the Early Intermediate Period, and then increased again to 2532 during the Middle Horizon; however, the percentages of cántaros went from 46% to 55% to 74% during the same periods, so the progression was much different due to the actual quantities of sherds found during each period.

Another data oddity that I would like to point out is that when one looks at the Middle Horizon and Tiwanaku periods as the same time period, different conclusions may be drawn from the data than when they are viewed as separate time periods. For example, the numbers and percentages for tazones show an increase, decrease, and another increase from period to period, but when one substitutes the mixed Middle Horizon and Tiwanaku data for the two separate data points, there is a steady increase and then a decrease in the Late Intermediate.

A point that stands out to me clearly is that cántaros accounted for the highest percentage of sherds in every period except the Tiwanaku Period. Obviously, cántaros were an important part of daily life, because they remained important to the people of Pirque Alto throughout its entire existence. One must remember that the Middle Horizon

is contemporaneous with the Tiwanaku ceramics, which means that the people of Pirque Alto relied heavily on their domestic, local ceramics like cántaros for storage purposes, even when the Tiwanaku cultural influence was in full force.

Chillamis seem to have been popular during the Formative Period, after which they were either replaced by some other vessel form or were no longer needed because whatever they had been used for originally was no longer a part of the culture there.

During the Tiwanaku Period, all three of the top percentiles belonged to serving vessels. This indicates a change in the importance of different forms of vessels. Since serving vessels are often associated with feasting, and feasting is often associated with more complex society, it is significant that there are such high numbers of serving vessels during this period. The combined Middle Horizon and Tiwanaku Period ceramics data still show a strong emphasis on serving vessels, so it is clear that these were important.

## CONCLUSIONS

During the Formative Period, Pirque Alto was most likely an unranked or tribe-level society, although there is not much data to which I can compare mine. I believe the society was egalitarian in nature, because there is no evidence of a class structure or hierarchy, and there is also no evidence of feasting or ritualized behavior. The Early Intermediate Period seems to have been similar to the Formative Period in sociopolitical structure, because the ceramics remained about the same in terms of vessel form.

I think that the Middle Horizon/Tiwanaku Period in Pirque Alto was characterized by more a complex society that was most likely stratified or ranked, because there was clearly some type of feasting behavior, which does not normally occur unless a society is at least transegalitarian. The evidence for feasting at Pirque Alto includes unusually high numbers of serving vessels, like kerus, which may have been used for drinking chicha. Highly decorated serving vessels, of which kerus would also be an example, are also evidence for feasting behavior. Because there was feasting behavior during this period, it is likely that there were elites or *kurakas* who hosted feasts or some kind of politically sponsored drinking ceremonies and had other types of control as well.

Although there are examples of Incan pottery at Pirque Alto, there are so few that I would highly doubt that the site was ever truly involved in the Incan state structure. What is more likely is that the site was still occupied after the fall of the Tiwanaku culture, but that the population was largely diminished in the later period. The ceramics that were collected from the Late Intermediate Period only accounted for 2% of the ceramics that were found on the site. It is not clear what type of political structure was in place during this period, but I would say that there was probably not much of a structure at all, and perhaps the site reverted back to a simpler sociopolitical organization.

The evidence suggests that changes in the sociopolitical structure of Pirque Alto throughout its existence could be seen in the ceramic assemblage. There is a clear correlation between the quantities of different vessel forms present during each time period and the sociopolitical structure of the society at Pirque Alto.

## ACKNOWLEDGMENTS

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