POST-COLLAPSE CONSTRUCTIONS OF COMMUNITY, MEMORY, AND IDENTITY: AN ARCHAEOLOGICAL ANALYSIS OF LATE INTERMEDIATE PERIOD COMMUNITY FORMATION IN BOLIVIA'S DESAGUADERO VALLEY

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To my husband, Joel, who has supported me throughout the process

and

to our son, Henry, who let me know it was time to finish

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CHAPTER I

INTRODUCTION

In the southern Titicaca Basin, th e five to six hundred years between the collapse of the Tiwanaku state and the consolidation of Spanish Colonial power in Alto Peru have received far less archaeological attention than the preceding time periods. While regularly considered in regional surveys (e.g. Albarracin-Jordan and Matthews 1990; Albarracin-Jordan 1992; Bandy 2001; Janusek and Kolata 2003; Matthews 1992; Stanish 2003; Stanish et al. 1997), few projects have explicitly investigated the local experience of these post-collapse periods. This oversight mirrors a general lack of archaeological consideration for post-collapse periods more broadly, which are often under-researched and under-theorized compared to the eras that encompass the rise and florescence of complex civilizations. Nevertheless, studies that do address the periods after collapse (e.g. Chase and Chase 2004; Janusek 2005a; Marcus 1989, 1998; Schwartz and Nichols 2006) have found that, while often dangerous and unstable, these times can also exhibit great cultural creativity.

This dissertation focuses on the archaeological investigation of a large hilltop settlement in Bolivia inhabited during the Late Intermediate Period (AD 1150 – 1450), an era of instability following the collapse of the Tiwanaku state (AD 500 – 1150). I approach the site of Pukara de Khonkho, located at the edge of the Desaguadero Valley about 30 km south of Tiwanaku, as a test case to better understand the processes of community formation in a post-collapse society. In an effort to consider the site in

regional and temporal context, I also draw on comparisons to surrounding Late Intermediate Period settlements (especially the Late Intermediate Period occupation of Khonkho Wankane) as well as the nearby Inca-Colonial site of Ch'aucha de Khula Marka, which was initially settled following the abandonment of Pukara de Khonkho. The research presented in this dissertation challenges perceptions of post-collapse communities as isolated and stagnant, with limited interaction with other regions (see Marcus 1989; Tainter 1988). Instead, I focus on the processes of social and cultural renegotiation, specifically addressing the reimagination and reformulation of community and identity during a time of transition.

My research is informed by a body of theory on community, identity, and memory, focusing on the patterns of community formation and regeneration that follow collapse. In order to move away from an essentializing definition of community and address the intricacies of community identity, I follow Yaeger and Canuto (2000) in taking an "interactionalist" approach. Understood in this way, community identities are created through everyday and ritualized interactions and are emphasized through reference to particular material or behavioral correlates that may serve as "boundaries" between different groups (c.f. Barth 1969). The settlement of Pukara de Khonkho is clearly spatially circumscribed and materially distinct from surrounding sites, and its identity as a community would have been reinforced by everyday interaction (see Yaeger 2000), which would have marked local community members as similar to each other and different from the inhabitants at other settlements. I avoid drawing a simple correlation between "site" and community (Dunnell 1992; Marcus 2000) by considering the settlement within its broader local and regional context.

Following this interactionalist approach, the distinct individuals and groups that make up a community both structure, and are structured by, a broader system of social memory and identity, rooted in the construction of histories that are acted out in everyday and ritual practices and memorialized in a local landscape already inhabited by the remains of past human activity (Knapp and Ashmore 1999; Barrett 1999; Friedman 1992; VanDyke and Alcock 2003.) Janusek (2005a) argues that following Tiwanaku collapse people disassociated themselves from connections with a Tiwanaku past through an intentional process of "cultural amnesia," occasionally including the violent destruction of Tiwanaku state symbols. In the ceramic record the large serving, cooking and ceremonial vessels characteristic of Tiwanaku commensalism disappeared, replaced by a range of smaller, local ceramic styles. My research extends these observations by using the specific example of the Pukara de Khonkho to investigate the processes of new, non-Tiwanaku community formation in the wake of state collapse.

The Tiwanaku polity flourished from around AD 500 - 1150, expanding from the site of Tiwanaku in Bolivia's southern Titicaca Basin (Figure 1). Reasons for its collapse are still disputed. Hypotheses have alternately posited a severe drought (Binford et al. 1997; Kolata 1993; Kolata et al. 2000; Kolata and Ortloff 1996), replacement by Aymara-speaking immigrants (Bouysse-Cassagne 1987; Torero 1970), collapse of long-distance trade (Browman 1981; Dillehay and Nuñez 1988), internal political instability or administrative overextension (Bermann et al. 1989; Goldstein 1993; Janusek 2004b, 2005a; Williams 2002), or a combination of these influences.

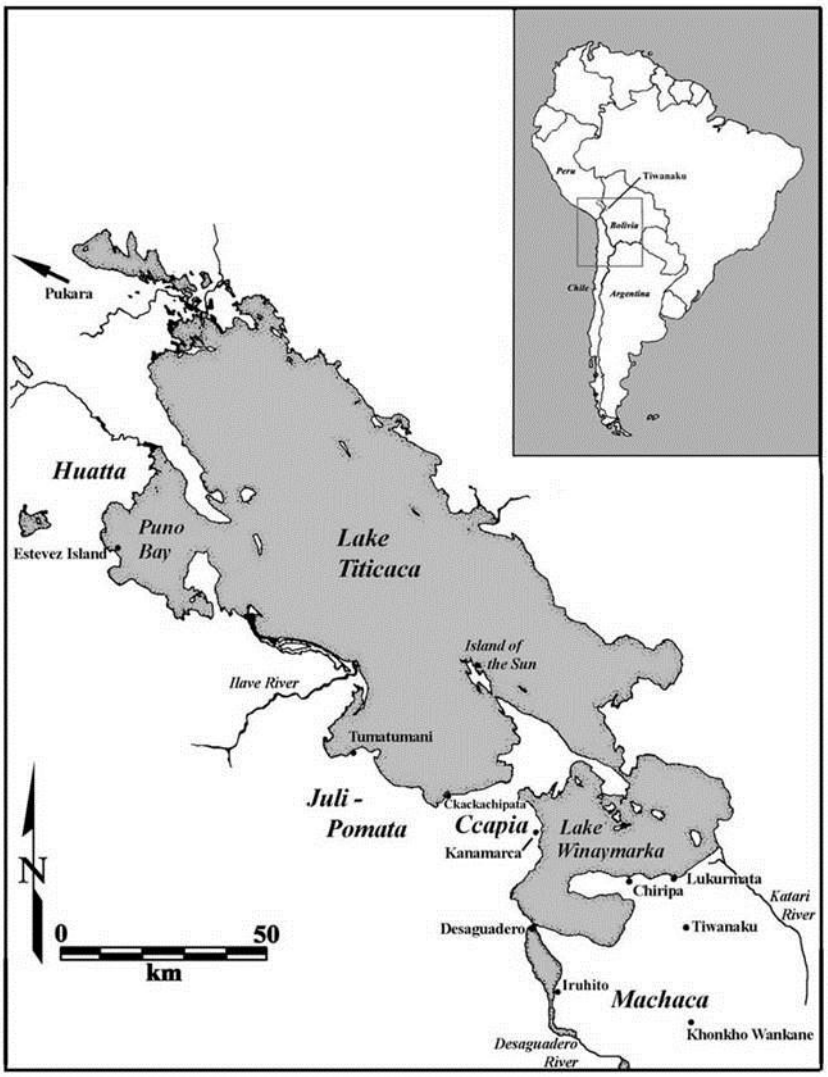

Figure 1: Map showing the location of Tiwanaku and other relevant sites in the Titicaca Basin.

In the Pacajes region, where the sites of Tiwanaku and Pukara de Khonkho are located, the subsequent Late Intermediate Period is characterized by the abandonment of large ceremonial centers and the repudiation of Tiwanaku ceremonies, ceramics, and iconography (Alconini 1995; Bermann 1994; Couture and Sampeck 2003; Janusek 2004a, 2005a; Manzanilla 1992). Pastoralism expanded as agriculture failed, population dispersed (Albarracin-Jordan 1996; Albarracin-Jordan and Matthews 1990; Bandy 2001;

Janusek and Kolata 2003; Matthews 1992), and the region entered into a period of warfare and conflict (Arkush 2005, 2011; Arkush and Stanish 2005; Frye 1997; Frye and de la Vega 2005; Hyslop 1976; Stanish 2003; Stanish et al. 1997). This pattern is best known from the Colla and Lupaqa regions (north and west of Lake Titicaca), where the Late Intermediate Period generally corresponds with the construction of *pukaras*, fortified hilltop settlements that are generally associated with chronic patterns of internecine and interregional conflict (Arkush 2005; Arkush and Stanish 2005; Frye 1997; Stanish 2003).

Figure 2: Looking north towards the Pukara de Khonkho

As a community that was settled in the Pacajes region after Tiwanaku collapse in the midst of these major changes, a study of Pukara de Khonkho (Figure 2) is uniquely suited to address questions about community development in periods of sociopolitical instability. Six long terrace walls and more than 500 circular structures cover an area of more than 20 hectares, making the settlement easily the largest and most densely populated of all known Late Intermediate Period sites in the region (for comparison see Albarracin-Jordan and Matthews 1990; Bandy 2001; Janusek and Kolata 2003; Pärssinen 2005; Wise 1993). However, despite its high research potential, Pukara de Khonkho had never before been intensively investigated. The site was first recorded by Swedish archaeologist Stig Rydén in 1938, who also excavated two circular structures (Rydén 1947), but it received no further archaeological attention until I began my research in 2005.

While somewhat distinct from the large, fortified hilltop settlements north and west of the lake (in the Colla and Lupaqa regions), the large size, dense habitation, and easy visibility of the Pukara de Khonkho suggest that it had a level of regional importance. The site is in a defensible location, and in spite of a lack of fortifications, would have been fairly easy to protect during times of conflict. Nevertheless, other lines of evidence indicate that it is unlikely that defense was the primary purpose for the settlement of such a large site. As a result, in my analysis I also consider the possibility that the Pukara de Khonkho could have been important in regional trade or ritual.

Over the course of my investigations, it became apparent that the site was characterized by a regionally distinctive settlement organization, ceramic style, and mortuary pattern. Initially, this evidence, together with the fact that the site was located

in a previously uninhabited area, seemed to suggest that the inhabitants could have been recent immigrants to the Desaguadero Valley. However, as my analysis continued, I found little corroborating evidence to support that conclusion. Instead, I suggest that these apparent differences reflect local chronological changes within the Late Intermediate Period, which may be important for identifying the processes of social change and community formation during this post-collapse context.

Research Questions and Methodology

The major theoretical question addressed through my dissertation is how communities are created, maintained, and renegotiated through the periods of social instability and widespread population movement that follow the collapse of a major state system. My research utilized an intensive ceramic analysis, supplemented by spatial, architectural, and other material analyses, to evaluate: 1) the role of population movement in the establishment of Pukara de Khonkho and the possibility that it was settled by migrants, 2) the impact of external relationships and the process of boundary formation between neighboring communities, 3) the level of social integration and internal solidarity within the community, and 4) how the Pukara de Khonkho changed over time.

My initial question considers how the settlement of the Pukara de Khonkho fits into the broad patterns of population movement that followed Tiwanaku collapse (Albarracin-Jordan and Mathews 1990; Bandy 2001; Janusek 2005a). Differences in settlement organization and ceramic style between the Pukara de Khonkho and neighboring coeval settlements raised the possibility that the inhabitants of this site may

have been recent migrants to the area. Thus, one of the goals of this research was to test this hypothesis and to attempt to identify where a possible migrant population may have come from. Recognizing that patterns of population movement in post collapse societies may be very complicated, I also considered the possibility that the site may have been settled by multi-ethnic populations, coming to the site from several different regions.

In addition, I look at patterns of interaction between communities in order to address how the inhabitants of the Pukara de Khonkho related to their local and regional neighbors. I evaluate possible relationships of conflict, ritual, and trade, and consider how these relationships may have changed over the period of settlement occupation. I look at what factors led to the initial settlement and what may have contributed to site abandonment. Specifically, I assess defensive and/or ritual characteristics of the site and look for the correlates of local or regional trade.

Another important focus is the level of integration and social solidarity within the community. I consider how patterns in spatial organization, household structure, artifact assemblages, and mortuary practices may reflect social divisions within the site and or relationships with other communities, and I evaluate the role of material culture in shaping a common community identity. I look at how these patterns play out in terms of community members' relationships with the built environment and the local landscape. In addition, I address the social organization of production, focusing on the level of centralization of ceramic production and food storage (Janusek 1999, 2002).

Finally, recognizing that the answers to any of these questions may have changed over the period that the site was occupied, I consider a temporal perspective, establishing the dates of both the initial settlement and the eventual abandonment. Different dates of

occupation may lead to radically different interpretations of the overall site function. I consider three different possibilities; the site may have been founded shortly after Tiwanaku collapse, towards the middle of the Late Intermediate Period as part of a regional growth in hilltop settlement, or at the end of the period, possibly as a defensive strategy against Inca expansion. I also consider the timing of site abandonment and address changes and continuities into the Inca/Colonial Period through comparison with the nearby site of Ch'aucha de Khula Marka.

I have investigated these issues through a multifaceted program of archaeological excavation, mapping, and artifact analysis. I worked at Pukara de Khonkho and surrounding sites for six field seasons (2004-2009), under the auspices of Proyecto Jach'a Machaca, directed by Dr. John Janusek. During that time, I completed a map of all standing architecture at the Pukara de Khonkho, directed archaeological investigations, and conducted a basic materials analysis of all artifacts collected from the site as well as a basic osteological analysis of the skeletal remains from excavated burials. I also oversaw excavations and materials analysis at two nearby sites that were useful for comparison: Khonkho Wankane (specifically focusing on the parts of the site that were occupied during the Late Intermediate Period) and the Inca/Colonial site of Ch'aucha de Khula Marka. The major analysis conducted for the project, however, was an intense ceramic attribute analysis of all ceramics excavated from Pukara de Khonkho over the course of my investigation.

Although these ceramics generated the primary database for my dissertation, I also drew on additional ceramic collections for comparative purposes including those from Rydén's excavation (Rydén 1947) at Pukara de Khonkho (curated at the

Världskulturmuseet in Göteborg, Sweden) as well as a sample of ceramics from relevant contexts at Khonkho Wankane. Additional comparisons with the Inca-Pacajes and Late Pacajes (Colonial) ceramics from the site of Ch'aucha de Khula Marka helped to address changes and continuities following the abandonment of the Pukara de Khonkho. These comparisons help to situate the Pukara de Khonkho in regional and temporal context and lead to a better understanding of the processes behind its original settlement and occupation.

Overall, the ceramic analysis identified clear differences in both form and decoration between the ceramics at Pukara de Khonkho and those from more typical small ephemeral Late Intermediate Period occupations on the altiplano below (see Albarracin-Jordan and Matthews 1990; Bandy 2001; Matthews 1992). Comparison between the ceramic collections was designed to test two competing hypotheses to explain these differences: 1) The inhabitants of the Pukara de Khonkho were immigrants or colonists from another region; or 2) The Pukara de Khonkho and the altiplano settlements were temporally distinct, being occupied at different times of the Late Intermediate Period.

I supplemented spatial, ceramic, and other materials analyses with radiocarbon and elemental testing. Inductively Coupled Plasma Mass Spectrometry (ICP-MS) identifies chemical composition groups that can be matched to clay sources (Cochrane and Neff 2006; Kennett et al. 2002). I drew on ICP-MS to distinguish whether pottery from the Pukara de Khonkho was produced locally or remotely, helping to clarify the role of trade and other interactions related to ceramic production. Stable isotope analyses, conducted on human and faunal remains from the site, helped to address the question of

migration. In addition, I used radiocarbon dates to test three competing models for the settlement of Pukara de Khonkho, asking whether it was founded shortly after Tiwanaku collapse, later in the Late Intermediate Period as has been argued for large pukaras in neighboring regions of Peru (Arkush 2005; Stanish 2003) or just before Inca conquest. I consider the implications of each model in creating a more nuanced chronology for the Late Intermediate Period.

Thesis Organization

In subsequent chapters I describe the local context of the Late Intermediate Period in the southern Titicaca basin and present the theoretical approach that I find to be the most useful for analysis. The archaeological site of Pukara de Khonkho is described in detail, as are the Late Intermediate Period occupation of Khonkho Wankane and the Inca/Colonial settlement of Ch'aucha de Khula Marka. A ceramic typology based on materials found at Pukara de Khonkho is presented and then compared with analyses of other Pacajes period ceramics. This new data provides a more nuanced understanding than was previously possible of Late Intermediate Period occupation in the southern Titicaca Basin, and illustrates the broader value of post-collapse studies.

Chapter 2 draws on theoretical literature addressing collapse and post-collapse periods as well as literature related to community archaeology in order to set up a framework for my discussion. I review the literature dealing with the process of collapse as well as the (somewhat scant) literature on post-collapse developments, drawing on examples from various world regions. I argue that, perhaps due to a focus on the reasons

behind and the process of "collapse" itself, post-collapse periods have been widely ignored in the archaeological literature, often written off as periods of sociopolitical fragmentation, cultural stagnation, and conflict. Nevertheless, I suggest that the actual situation is much more complicated, and that the current state of academic inquiry overlooks the countless variety of actions that are possible in response to the challenges and possibilities of post-collapse periods. What is more, the individual choices that are made during these periods set the stage for future cultural developments, including the rise and expansion of later state systems (i.e. Inca). Because in a post-collapse society such developments often take place at local levels, a community archaeological approach (which considers the local community as well as interactions at a larger scale) is ideal for addressing these time periods. I review the basic literature for community archaeology and show why it is appropriate for this study.

In Chapter 3 I provide a basic literature review of previous research in the region focusing on the Late Intermediate Period, with some consideration of Inca and early Colonial developments. I draw on both archaeological and ethnohistoric sources. While I consider the entire Titicaca Basin in order to put the results of my research into larger context, I focus specifically on the work that has been conducted in the Pacajes region, to the southeast of the lake, where the Pukara de Khonkho is located.

My overarching research goals and methodology are outlined in Chapter 4. I aim to use detailed data from the site of Pukara de Khonkho to fill in some of the gaps in our understanding of the post-Tiwanaku period, and, if possible, to extrapolate some lessons learned to a broader understanding of post-collapse periods in general. I specifically address issues of post-collapse population movement by testing the hypothesis that the

inhabitants of Pukara de Khonkho were recent migrants to the area and delve into issues of chronology by nailing down more precise dates for the original settlement and abandonment of the site. I also consider the role of intercommunity interaction (trade, warfare, ritual, etc.) through a comparative analysis of regional ceramic styles and settlement organization and use domestic architecture and ceramic analysis to address levels of social and cultural homogeneity with the community of Pukara de Khonkho itself. In this chapter, after articulating my research questions, I outline my basic approach to mapping, excavation, and ceramic analysis and explain my use of specialized testing including radiocarbon dating, ICP-MS analysis, and strontium isotope analysis.

After the introductory material has been presented, I move on to the more data-intensive chapters. Chapter 5 introduces the research conducted at the site of Pukara de Khonkho between 2005-2009. The chapter itself has four basic sections: 1) I introduce the site and its location and review previous research; 2) I describe the spatial organization of the site: the empty upper terraces, the organization of domestic and other structures, the location of the burials, and the lower agricultural terraces, as well as the chronology of site occupation; 3) I discuss the burials, including the significance of their location, and provide the details of a basic osteological analysis; 4) I discuss in more detail the 20 circular structures that were excavated at the site (18 by myself, two by Rydén [1947]), including here an assessment of the artifacts (ceramics, bone, lithics, metal) that were found in and immediately outside of the structures.

In Chapter 6 I provide similar discussions of the Late Intermediate Period occupation of Khonkho Wankane and the Inca/Colonial occupations of Ch'aucha de Khula Marka. These two sites are both located in close proximity to the Pukara de

Khonkho, and comparison with these settlements helps to provide a more complete local and temporal context to the site. In this chapter I describe both sites separately, including a brief review of previous research, a discussion of the spatial organization of the site, and a description of the excavated contexts.

Chapter 7 provides the results of my ceramic analysis. In this chapter, I first provide a review of established Early Pacajes ceramic typologies, based on the work of Albarracin-Jordan and Matthews (1990) among others. I then present the results of my complete analysis of ceramics from the Pukara de Khonkho, describing form, decorative motifs, and paste composition, including ICP-MS results. Finally, I compare the results from Pukara de Khonkho to those of other post-Tiwanaku occupations in the region, including those I analyzed myself (Early Pacajes components at Khonkho Wankane and samples of Inca/Colonial material from Ch'aucha de Khula Marka) and those that have already been published (e.g. Albarracin-Jordan and Matthews' [1990] work in the Tiwanaku Valley, Bandy's [2001] work on the Taraco peninsula, etc.) I use this data to address issues related to population movement and intercommunity interaction in the Late Intermediate Period and to discuss the formation of new community identities during this time period and moving into the Inca/Colonial period.

In Chapter 8 I bring together the results of the data described in the previous three chapters to specifically address my broader research questions. Expanding on the discussion from Chapter 7, I also draw on evidence from settlement patterns, community organization, ceramic analysis, strontium isotope testing of human bone, and ICP-MS analysis of ceramics. I first discuss evidence for population movement and possible migration in the southern Titicaca basin during the Late Intermediate Period and

specifically address the question of whether the inhabitants of Pukara de Khonkho were recent migrants or long-term inhabitants of the Pacajes region. I use my radiocarbon dates together with supporting data from my comparative ceramic analysis to articulate a more nuanced chronology that describes the settlement and growth of Pukara de Khonkho as well as its ultimate abandonment and the growth of smaller Inca/Colonial centers like Ch'aucha de Khula Marka. I also evaluate the role of intercommunity interaction in the formation and maintenance of the community of Pukara de Khonkho and evaluate the evidence that the site could have been a defensive settlement or a center for trade or ritual. Finally, I summarize the process of community formation and dissolution at the Pukara de Khonkho and surrounding areas.

In the final chapter I synthesize the results of my research and discuss the broader implications for post-collapse studies in other parts of the world. In addition, the dissertation includes appendices which describe in more detail the specific units excavated at the sites of Pukara de Khonkho and Ch'aucha de Khula Marka as well as additional information about the ceramic attribute analysis.

Broader Significance

The study of post-collapse periods is undeniably important both to our understandings of collapse itself and for the ways in which society reshapes itself in the time periods following major turmoil (see Schwartz and Nichols 2006). The results of the investigations at Pukara de Khonkho and neighboring sites demonstrate that in the South-Central Andes, the post-collapse communities of the Late Intermediate Period

were not only reacting to the turbulent realities of post-collapse society but also creatively (re)inventing local identities.

This work attempts a few major interventions. First, its focus on the Pacajes Late Intermediate Period allows an in-depth analysis of the time period following collapse in the Tiwanaku heartland. Although the Late Intermediate Period has been well-studied in other parts of the Andes (e.g. Arkush 2005, 2011; Covey 2008; Frye 1997; Frye and de la Vega 2005; Hyslop 1976; Julien 1983; Wernke 2003), most of the work that has been conducted on this period in the former Tiwanaku heartland was in the form of large-scale regional surveys (Albarracin-Jordan and Matthews 1990; Bandy 2001; Janusek and Kolata 2003). This project was the first major excavation of an important Late Intermediate Period site in the Pacajes region and helps us to understand this period in more depth. The results have highlighted possible variation over time in ceramic and settlement styles that will be useful for future investigations.

More than merely filling a gap, however, a focus on the revitalization of community following collapse has implications for our understandings of later periods of history as well. By the time of the Spanish conquest, the polity of Tiwanaku was largely forgotten, remembered only through mythic stories (Janusek 2005a; Kolata 1993).[1] In contrast, the cultural processes taking place in the Late Intermediate Period lay the groundwork for future patterns of social organization and cultural identity formation (e.g. Bouysse-Cassagne 1986; Isbell 1997; Julien 1983). An investigation of community formation processes at the large Late Intermediate Pacajes site of Pukara de Khonkho

[1] There was some occupation of the city of Tiwanaku during the Late Intermediate Period and significant Inka ritual use of the site (Yaeger and López 2004), but the occupants did not appear to identify with the original Tiwanaku population. According to the chronicler Cieza de León, by the time the Spanish came, the local inhabitants of the area attributed the construction of the city to mythical forces rather than to their own ancestors (Cieza de León 1959[1553]:283).

gives a window into that influential time period. Moreover, an analysis of the process of site abandonment and the subsequent settling of the nearby Inca/Colonial site of Ch'aucha de Khula Marka allows an assessment of the impact of Inca and later Colonial occupation, another understudied theme in the local area.

It is hoped, however, that the research will also be useful outside the area of Andean archaeology. On a broader, more theoretical level, I am attempting to problematize a common theoretical approach to studies of collapse. There is an often-noted tendency to assume post-collapse periods have little of interest. (This point is also made by Marcus [1989] and Tainter [1988]). Nevertheless, following Schwartz and Nichols (2006) as well as Janusek (2005a), it is my contention that post-collapse periods are actually periods of great complexity, creativity, and influence to future generations.

It is often difficult to investigate post-collapse periods simply because, almost by definition, there is no large-scale centralized authority, and there tends to be a broad range of local variation. An approach guided by an archaeology of communities (following Yaeger and Canuto 2000) is ideal for this sort of study, considering the local community as well as interactions on a larger scale. In the following chapter I present that approach and discuss how it guides my research.

CHAPTER II

THEORETICAL APPROACHES TO POST-COLLAPSE COMMUNITIES

Theory in archaeology often concentrates on "rise" or "collapse" of complex civilizations, but the periods of sociopolitical instability subsequent to collapse have received far less scrutiny. In the south-central Andes, the majority of archaeological investigations have long been focused on the growth and development of the Tiwanaku state (e.g. Albarracin-Jordan 1996; Bennett 1934; Bermann 1994; Janusek 2004b, 2006; Kolata 1993; Ponce Sanginés 1981, 1995; Stanish 2003). In contrast, few projects explicitly investigate the post-collapse period in the Titicaca Basin (but see Arkush 2005, 2011 in the north basin and Pärssinen 2005 in the south).[2] In his seminal analysis, Tainter (1988) suggests that periods following the disintegration of an influential political system are generally characterized by an increase in conflict and a retraction of interregional contact. Following this basic assumption in the Andes, the time following the collapse of the Tiwanaku state is commonly characterized as an Andean "Dark Age" of sociopolitical fragmentation and conflict. While in a broad sense, this characterization is not incorrect, it overlooks the countless variety of actions that are possible in response to the challenges and possibilities of post-collapse periods.

In this chapter I present my theoretical framework, drawing on literature that deals with the process of collapse as well as post-collapse developments. My theoretical approach expands Janusek's (2005a) suggestions that it is necessary to explain both

[2] The Late Intermediate Period (1150-1450 AD) has been addressed through regional surveys (e.g. Albarracin-Jordan 1992; Albarracin-Jordan and Matthews 1990; Bandy 2001; Janusek and Kolata 2003; Matthews 1992).

changes and continuities in post-collapse periods as the result of choices made by knowledgeable, meaning-making agents at a particular point in time. By constructing a theoretical framework informed by an interactionalist approach to communities, my research is better able to evaluate the situations and structures within which these choices are made and to construct a better model for the post-collapse experience. I propose that a closer examination of post-collapse communities will demonstrate not only a reaction to the turbulent realities of post-collapse society, but also the creative (re)invention of local identities.

Archaeology of Communities

The archaeology of communities is a relatively new arena of investigation, but one that is suitable for post-collapse studies for a number of reasons. Primarily, the community is the scale at which post-collapse society is experienced. By definition collapse is a loss of socio-political complexity, which involves a breakdown of centralized authority and a return to more localized levels of organization (Tainter 1988), and thus in a post-collapse society there is rarely a regional-level infrastructure to investigate. However, this should not be taken to mean that regional interaction necessarily disappears or even declines in the years following collapse. To the contrary, collapse often precipitates interregional population movement, and the breakdown of political structure can lead to new opportunities for interaction between communities, interaction which could easily be overlooked if considered solely from a surveyor's regional perspective or through an overly myopic focus on an individual site or section of

a site. An archaeology of communities fills the gap between regional surveys, which have the potential to ignore the lived experience of human actors, and household archaeology, which focuses primarily on day-to-day domestic activities. It effectively negotiates the tension between individual experience and structural organization. By considering post-collapse regeneration at a community level, we are able to see how social identities were restructured through everyday interactions and the processes through which newly forming communities situated themselves in regional and historical contexts.

Defining Communities

While traditional definitions assumed communities to be small, isolated, and bounded (e.g. Redfield 1955; Murdock 1949), today we recognize larger, more conceptual communities, including national and other "imagined" communities (Anderson 1983). The concept is also complicated by including communities of practice (Lave and Wenger 1991; Wenger 1998), which are formed as people interact within a shared field of human activity. In most communities the idea of a shared history is essential in formulating social bonds (Hobsbawm and Ranger 1983; Lowenthal 1985; Trouillot 1995). The community exists at a scale that is larger than a household but has no upper scalar limit.

In this dissertation, I define "community" in its loosest sense as a social group defined by shared experiences, self-ascription, and self-identification, which is formed as members interact (actually or symbolically) with each other and with members of other communities. This definition draws heavily on the "interactionalist" approach favored by

Yaeger and Canuto (2000), taking inspiration from two theoretical camps which on the surface seem to be diametrically opposed – those who define community as being primarily based on locality and those who see individual ascription as being more important.

The early "community studies" of the 1950's and 1960's uniformly took the first approach, following a structural-functionalist theoretical paradigm (see discussion in Yaeger and Canuto 2000:2). Murdock (1949), for example, defined community as an entity formed through everyday face-to-face interaction, as a result of living in a common area, sharing common ties, and having regular social interaction. Likewise Redfield (1955:4) saw the "little community" as being characterized by "distinctiveness, smallness, homogeneity, and all-providing self-sufficiency." For these theorists, one community was representative of an entire society and there was little meaningful difference between individuals, households, or smaller non-familial groups within a given community. According to Redfield, the "community" would disappear as rural settlements grew into cities and people were integrated into a larger social system that was not dependent on face-to-face interaction; "[N]ew characteristics of human life appear: impersonal institutions; what has been called atomization of the external world; perhaps a new kind of character structure" (Redfield 1955:5).

While a focus on the way locality may define community and identity is a useful contribution (especially in archaeology), the structural-functionalists overlooked the fact that communities could also exist in cities and that small communities were never as isolated as Redfield and others would suggest. Wolf (1982) and other critics argued that isolated "folk" communities never existed, because they were always tied into larger

systems; "[T]he social scientist's model of distinct and separate systems, and of a timeless 'precontact' ethnographic present, does not adequately depict the situation before European expansion; much less can it comprehend the worldwide system of links that would be created by that expansion" (Wolf 1982:71). Wolf argues that it is essential to study the history of any given system in order to understand it, and focuses on how past and present interactions at a global scale make it impossible to talk about individual, isolated, or bounded systems.

In opposition to the idea that locality is the defining quality of community, Cohen (1985) and Anderson (1983) both take what Yaeger and Canuto (2000:2-3) label as "ideational" approaches, putting primary importance on practices of individual affiliation and the use of symbols as tools of integration, even when face to face interaction between members of a community is minimal or non-existent. Cohen (1985) argues that communities exist primarily in the mind of the members, and that is why a definition from the outside is somewhat difficult. From an experiential point of view, the community is defined as a group of people who see themselves as having something in common and as being distinct from other groups. For Cohen, communities form not around localities, interactions, or even specific ideas, but around symbols, which tie individuals together in part because they are abstract enough that they can mean different things to different people. For example, it is possible to unite a group of people around an American flag even when that flag may have very different meanings for individual members of the group. Drawing from this example it is easy to follow Anderson's (1983) argument that nations are "imagined communities – "*imagined* because the members of even the smallest nation will never know most of their fellow-members, meet them, or

even hear of them, yet in the minds of each lives the image of their communion" (Anderson 1983:6).

Following this symbolic, ideational approach, Isbell (2000) completely eschews the concept of the "natural" or "local" community, arguing that all communities are ultimately "imagined" products of individual affiliation. It is indubitably correct to note that community does not have to be locally situated. However, the solipsistic argument that affiliation is all that matters assumes too much agential control over identity without recognizing the influence of external power structures. As Silverstein (2005) argues, cultural symbols are not "inert representations," that can be placidly drawn on by individual actors; both practice and symbol (what he terms "politics" and "poetics") are inextricably interconnected – "inscribed in relationship to interpersonal, intersubjective spaces of mutual adjustment of people" (Silverstein 2005:3).

Moreover, while subscribers to the ideational approaches to community recognize that a community identity may mean different things to different people, it is also important to remember that communities can serve to reify or hide unequal power relations, especially at the level of the nation-state. The stories that are told to support the "imagined community" of the nation also serve to justify the place of individuals in social hierarchies and institutionalized inequality (Bhabha 1991; Trouillot 1995). A single community may include social groups that are in conflict with each other. In his early analysis of a specific encounter between Zulu and colonial actors, for example, Gluckman (1958) refers to the entire group as a "community," noting "I did not intend to convey that Zulu and white formed a harmonious, well-integrated lot of people, but a lot

of people co-operating and disputing within the limits of an established system of relations and cultures" (Gluckman 1958:35, n. 1).[3]

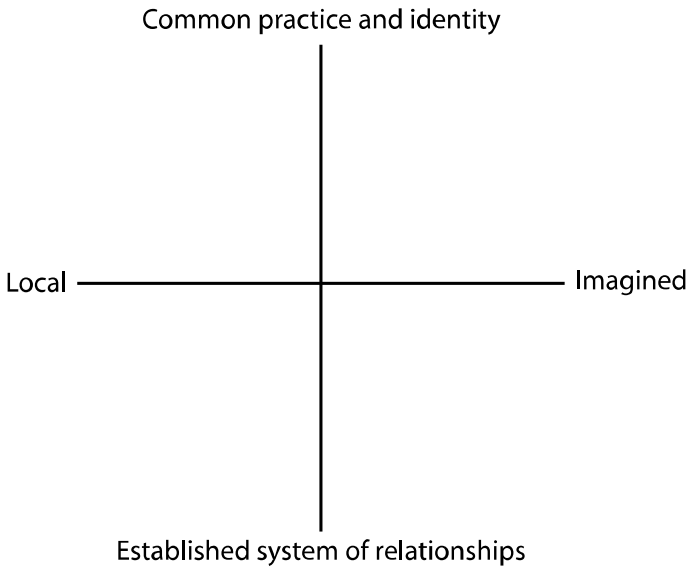

Figure 3: Theoretical approaches to community

It is possible to look at the major analytical approaches discussed thus far along two intersecting continuums (Figure 3). Gluckman and others complicate a simple understanding of the term "community," recognizing that while some communities may be based on outward, spoken understandings of shared identities, others are formed through interactions of individuals who may understand their relationships in radically different ways. This continuum forms one axis of a graph that also contrasts those who, like Redfield, see a "natural" community forming among individuals who live, somewhat isolated, in the same local area, and those who ascribe to a more "ideational" approach, recognizing "imagined" communities held together by less concrete mechanisms. I

[3] Balibar and Wallerstein (1991) make a similar argument regarding the incorporation of different racial groups into a nation-state where racism is institutionalized.

suggest that none of these positions are in themselves sufficient, and are ultimately reductionist, in that they do not recognize that a range of different types of communities may form at different scales or over different time periods, and each may be defined slightly differently.

It should be noted that I have often used the plural in speaking of the communities within which an individual may interact. This is because an individual will always identify with communities at different scales of association. People may belong at the same time to local, national, vocational, and special interest communities. Communities of practice may unite people around a particular activity, even if these interactions are not permanent or strictly localized; Wenger (1998:6-7) uses the example of families, workers, students, bands that perform at weddings, ham radio operators, laboratory scientists, or computer programmers. A person will belong to several communities of practice at any one time and these communities will change over the course of a lifetime. While there is an analytical tension in the discussion of the presence and intersection of these various identities, it mirrors a tension that exists in the everyday practice of the individual who must balance his or her identities in differing situations.

An Interactionalist Approach

An interactionalist approach to community is favored because it starts with a recognition that "community" is never stagnant, but is constantly in the process of being created and defined. One of the problems with strict functionalist or behavioralist approaches is that they either implicitly deny human agency or expect individuals to behave as purely rational actors, without fully considering cultural constraints (Yaeger

and Canuto 2000; Yaeger 2000). Furthermore, because functional approaches heavily emphasize material correlates, they tend to lead to understandings of community that are purely spatially defined and fail to consider the way in which different "practices of affiliation" (Yaeger 2000) can cross-cut spatial boundaries. At the same time, fully ideational approaches are overly solipsistic, failing to recognize the power of broader social structures and intersubjective networks.

In the Andes, Janusek (2004b:28) bridges localized and "imagined" communities by considering the indigenous group known as the *ayllu*, "a flexible term for community that, to varying degrees, was partly imagined and partly the concrete product of kin-based relations, productive activities, access to common lands, ritual practices, claims to common ancestry, and political activity." The *ayllu* was the way community was understood, experienced, and created in the Andean context – a group with collective control over resources who considered themselves to be related through an actual or fictive common ancestor. While the *ayllu* was often tied to land and other resources, landholdings were not generally contiguous, and members of different *ayllus* could share the same settlement. In fact, even the *llacta* (the prehispanic model of a settlement) was not strictly locally bounded, but understood as being conceptually based around a particular *huaca* (a shrine or important feature on the landscape associated with the ancestors). The *ayllu* was maintained through everyday interactions, participation in collective work projects, and adulation of the ancestors (Salomon 1991:23-24; Wernke 2003:12-15). Examples like this illustrate that community does not have to be *either* local *or* imagined, but can be both at the same time.

Rather than reduce community to a simple matter of either spatial location or individual affiliation, I follow Yaeger's (2000) approach, which envisions both local and imagined communities as different scales of identification. A community can be more or less locally situated, more or less consciously defined, and more or less marked by material correlates. All communities are based on the idea of common affiliation and identity, and they may form at local, sub-local, or supra-local levels. However, the local community is also formed out of the everyday and often subconscious practices of subsistence, production, and consumption. While still different from the "bounded" or "natural" community that is seen as a primordial social institution, the local community is formed out of everyday social interactions, and as such, is somewhat localized, although the scale can vary depending on subsistence patterns that draw individuals away from a community center (e.g. pastoralism or long-distance trade.) In contrast, the "imagined" community is the product of identification with a set of symbols or ideas that are not necessarily localized, and may form through more intentional ascription and self-ascription (cf. Barth 1969). Social interaction is still necessary for this larger, more disperse sense of community to coalesce, and ties to an imagined community can be maintained through feasting, ritual practices, participation in large-scale community construction projects, or by an individual's use of specific symbols in order to associate him/herself with a particular set of ideas.

An interactionalist approach to community is ideal for mediating the tension between these different scales of identification. Following Yaeger and Canuto (2000:5), the interactionalist community is defined as a "dynamic socially constituted institution that is dependent upon human agency for its creation and continued existence." As Barth

(1969) emphasizes, a group's identity is formed in part through interactions with other groups. The substance of differences between two different communities is not really as important for each group's identity as the simple presence of these differences and boundaries, which are established not through isolation, but through regular contact. Community members are fundamentally linked by the idea of regular interaction with each other, but that interaction does not need to be face-to-face; as discussed above it can be mediated by symbols and/or words, and in today's world, interaction can be increasingly virtual. Communities are also defined by interaction with other communities, which can serve to normalize both community identity and the often unequal relationships within and between communities.

It is also important to consider how community identification changes over time. Pauketat (2000), for example, noted how, during the time leading up to the establishment of Cahokia as a major power in the Mississippi Valley, the politicization of certain symbols and practices across the region led to a larger scale of identification than that of the local village or community. Different farmsteads affiliated with the larger community of Cahokia, not through elimination of traditional local community identities, but through an explicit linkage of shared practices. The creation of a broader Mississippian identity was the product of a long process of negotiation – of community promotion as well as co-option of local symbols by the larger polity.

Following Pauketat (2000), Yaeger (2000), Janusek (2004b), and Wernke (2007) my approach to community draws heavily on agency-oriented practice theory (see Ortner 1984). I situate my analysis between an objective structuralism, which tends to deny individual agency, and a subjective phenomenology, which often ignores the structuring

power of society (c.f. Hutson 2010). Practice theory, on the other hand, directly interrogates the dialectic between agency and structure.

As individuals grow up within a community (or communities) they internalize the practical logic of lived experience that Bourdieu (1977) terms *habitus*, and it is this logic that guides their interactions with other members of their communities and with members of other communities, establishing and reconfirming through everyday practice their role within their communities and the role of their communities in wider society. The idea of *habitus* emphasizes shared, unspoken understandings rather than overt rules governing individual and group actions within the community. Like an orchestra without a conductor, community social order persists without conscious obedience to social rules. "Objectively 'regulated' and 'regular' without being in any way the product of obedience to rules, they can be collectively orchestrated without being the product of the organizing action of a conductor" (Bourdieu 1990:53).

Bourdieu's model is sometimes critiqued as overly deterministic, with individual agency and the potential for structural change being constrained by a somewhat synchronic *habitus* (e.g. Calhoun et al. 1993; Jenkins 1992:75). Giddens (1979, 1984), however, provides a more involved discussion of how practice, agency, and structure may lead to social change, a discussion which is very relevant when dealing with community formation in a post-collapse context. As Giddens emphasizes, even in times of tumultuous change, "structure" is unconsciously involved in action.

For Giddens (1979) "structure" refers to the "rules and resources" that are used and reconstituted by competent actors who produce and reproduce (or reject) social structures, which in turn formulate new "unacknowledged conditions of action."

Individuals are structured through their sense of community and community identity, but they also structure how their community is maintained and understood through their actions and interactions within the community and with members of other communities. As Sewell notes (1992:27), "Even the more or less perfect reproduction of structures is a profoundly temporal process that requires resourceful and innovative human conduct. But the same resourceful agency that sustains the reproduction of structures also makes possible their transformation – by means of transpositions of schemas and remobilization of resources that make the new structures recognizable as transformations of the old." In other words, change (and continuity) occurs as a result of knowledgeable agents working within and as part of a preexisting structural system. Significant to a study of post-collapse communities, Giddens challenges the idea that it is only the dominate classes that have the ability to create structure and stresses the power of any actor to understand, and to some degree affect, the construction of various social forms.

Expanding on a practice approach to change in a way that is very applicable to a study of post-collapse communities, Pauketat's (2001) theoretical perspective of "historic processualism," which is discussed in more detail later in this chapter, helps to explain historical practices at the community level. For Pauketat (2001:74), practices do not just *lead* to change, "practices *are* the processes, not just consequences of processes." In the context of collapse, the actions and interactions of communities and other groups *created* collapse even as they experienced it, formulating new community identities through everyday practice. The community does not just passively react to outside forces, but actively produces its own history. Such an approach encourages us to consider the period of collapse within its own historical context, not looking on it as an inevitable stage in a

known, teleological trajectory. What van der Leeuw (1991:13) suggests for ceramicists is true for all archaeologists; we should "travel back in time and look forward with those whom [we] study," attempting to understand the archaeological community in the context that it was experienced.

The practice approach is ideal for an archaeological study of communities because of its concern with the practical aspects of lived experience and interactions within a living landscape. By considering the "microscale" of the community rather than the "macroscale" of regional survey, the archaeological practice theorist can "model the dynamic social processes involved in on-going, day-to-day technological endeavors, and … consider the differential participation of the actors and groups involved" (Dobres and Hoffman 1994:213). These everyday actions, undertaken by members of the community, both create and reconstitute the structure of community itself.

The Archaeological Community

It is important to remember that the units investigated by archaeologists may not correlate with the units that were understood as meaningful by the individuals whose lives the archaeologists are attempting to study. In the same way that an archaeological "structure" is not a "household" (Ashmore and Wilk 1988; Wilk and Rathje 1982) and an archaeological "region" does not necessarily conform to any sort of ancient interaction network (Silverman 2002), an archaeological "community," which would have had relevance to groups of people in the past, is not the same thing as a "site," which is defined by archaeologists in the present (Dunnell 1992; Marcus 2000). In other words, a "site" has no objective reality, but is merely defined by the archaeologist who "discovers"

it. While the point should be obvious, it is easy to ignore the implications of the fact that "sites, as they are observed by archaeologists, are created by the act of observation at a particular point in time" (Dunnell 1992:27). If sites are artificially defined by archaeologists, they cannot then be treated as objective units in analyses of settlement patterns or site hierarchies. In order to use material culture to understand an archaeological community and not just to define a site, we must recognize the depositional processes that take place over time and space.

First, the "site" that is observed by archaeologists is a palimpsest of the material remains of cultural processes that have taken place over days, years, or generations. Dunnell (1992:29) warns, "Objects found in spatial proximity… may have, and frequently do have, entirely unrelated histories that preclude a simple equation between spatial proximity and systematic relevance." The material manifestations of a community are never stable – the boundaries of a local community may shift over time and the symbols an imagined community draws upon may change. Nevertheless, in the absence of extremely well-defined stratigraphy, the archaeologist sees the remains of many years of use by many groups of people collected together in one place at one time. While this place may well be defined as a "site" for the purpose of archaeological shorthand, governmental protection, or tourist advertisements, the material remains that compose it could represent a single community, a portion of that community, the interactions of various communities, or even a compilation of the remains left by members of widely distinct communities who had little or nothing to do with one another.

Furthermore, while a "site" is broadly understood as a particular, bounded area where a certain concentration of artifacts are present, it is important to remember that

humans inhabited (and still inhabit) entire landscapes, rather than merely clustering together in specific settlement loci. A site-centered approach to archaeological investigation may overlook important aspects of a people's interactions with the surrounding environment due to an overemphasis on the location of the site itself. As Tilley (1994:3) notes, the archaeologist often appears as "a mole whose head hardly rises above the site itself to consider wider sets of relationships between it and the environment on which it is situated." In contrast, an approach focused on communities rather than sites places primary importance not on the concentrations of architecture and artifacts, but on how those remains reflect "dynamic patterns in community organization and identity" (Yaeger and Canuto 2000:8). This approach necessarily moves beyond the site itself to the entire "micro-region" within which individuals and communities moved, lived, and interacted.

A micro-regional analysis was first proposed by Gaffney and Gaffney (1988) who recognized the necessity of moving beyond the artifact-rich "site" to consider surrounding areas that would have fallen within the regular use-range of the "site's" inhabitants, but which were utilized in such a way that they may have been overlooked by traditional survey methods. Kolb and Snead (1997), who define communities locally as units of social reproduction, subsistence production, and self-identification, propose the use of micro-regional analysis as a method of investigating not only community residences, but also the places that were involved in that community's everyday subsistence practices. This approach, they suggest, identifies archaeological correlates of community in order to make it a meaningful unit of analysis. Taking a strongly materialist definition of "community," Peterson and Drennan (2005) likewise identify

"communities of social interaction" at different scales by conducting a cluster analysis of artifact densities to identify "small local communities" and larger scale interaction spheres. These approaches can be criticized as utilizing an overly functionalist and spatially determined definition of community, and since their definition is based on archaeological correlates, the identification of archaeological communities becomes somewhat circular (see Yaeger and Canuto 2000:5). Nevertheless, the recognition that the archaeological study of community needs to move far beyond the investigation of a "site" as traditionally defined is an important contribution and the methodologies developed through these approaches can be extremely useful in identifying and expanding our knowledge of communities with a local spatial component.

Addressing non-localized communities is predictably more difficult, but not impossible. Communities of all different scales are inscribed through material media (ritual, domestic, and vernacular architecture and artifacts), which help to incorporate the individual into the community as he/she moves through everyday life (Joyce and Hendon 2000). Non-localized or imagined communities, perhaps even more than communities with a primarily local component, need to utilize material objects in order for members to maintain symbolic interaction and for individuals to reaffirm community affiliation. Goldstein (2000, 2005) for example, is able to identify diasporic Tiwanaku communities over large distances due to the way that local settlements structurally reproduced their homeland. In order to address this scale of community interaction, however, it is necessary to investigate the full local and regional context of any object, structure, or settlement. Joyce and Hendon (2000) suggest a "multiscalar" approach, considering the material manifestations of community identity from the household to the landscape,

beginning with objects of everyday use. Such an approach allows archaeologists to investigate the "local" community of everyday interaction while also considering the different scales of community affiliation that incorporate, intersect with, or subdivide any local community.

In this dissertation, I attempt to follow this multiscalar, micro-regional approach in my analysis of Pukara de Khonkho and other late prehispanic settlements in the Desaguadero Valley. I tack between a consideration of the tools and technologies of local ceramic production to a broader assessment of the role of the settlement in regional and temporal context, also considering the relationship between the human population, the built environment, and the landscape. I address Pukara de Khonkho as the center of a local community, while at the same time acknowledging that simultaneously existing communities of different scales may have cross-cut the settlement. Ultimately, Pukara de Khonkho and related contemporaneous sites serve as examples to help discuss the way that communities reconstitute themselves following sociopolitical collapse, which in this case was associated with the dissolution of the "imagined community" of Tiwanaku.

Social Memory and the Post-Collapse Community

While no community is ever static, communities of all scales face special challenges during tumultuous periods like those attendant upon the collapse of a major political system. A community is in part defined by shared histories and social memories and by a particular relationship with the landscape. When a state or polity collapses, all of these relationships are inevitably renegotiated. New communities may be formed and

preexisting communities transformed, while other communities cease to exist as the wider social sphere changes around them.

According to Bourdieu (1994) a major role of the "state" is to make its citizens think that the order promoted by the state is the natural, common sense order of things and that there is no possible way that things could be any different. "This is why there is no more potent tool for rupture than the reconstruction of genesis: by bringing back into view the conflicts and confrontations of the early beginnings and therefore all the discarded possibilities, it retrieves the possibility that things could have been (and still could be) otherwise" (Bourdieu 1994:4). Shared social memory is essential in the formation of community identities, and it should not be surprising that a disruption in these memories often accompanies (and may even be a causal factor) in the collapse of a large scale sociopolitical system. As discussed later in this chapter, Janusek (2005a) finds the period following the collapse of the Tiwanaku state to be rooted in what he terms intentional "cultural amnesia," a process of "forgetting" the shared social memories of the "imagined community" of Tiwanaku, and replacing them with something new.

Using the Pukara de Khonkho as an example, my dissertation explores the interconnections between collapse and community formation and renegotiation. In this context, collapse may be best understood not only as the process of internal restructuring of local community groups breaking away from a larger system, but also by the development of new interregional contacts as local populations enter a period of cultural and sociopolitical renegotiation. These interactions may lead to larger systemic changes as everyday interactions begin to bring individual agents in contact with members of

other communities, whose presence needs to be accounted for via social memory and the construction of clear boundaries (c.f. Barth 1969) that delineate community identity.

Parsons and colleagues (1997) see this process taking place in the Late Intermediate Period in the central Andes, as new ritual relations were developed between herding and cultivating groups. Following their argument, during the Middle Horizon interactions between herding and cultivating populations were mediated by the Middle Horizon states (Wari and Tiwanaku.) As these states collapsed, however, there was no regional level infrastructure to fall back on, even as herders and cultivators continued to need a symbiotic relationship. It was at this time in the Late Intermediate Period that large settlements begin to appear in areas that were not beneficial for either farming or cultivation, but which sat at the border zone between each group. Parsons and colleagues suggest that the communities were reinventing themselves in the wake of Middle Horizon collapse. They interpret the large settlements as places where integrative rituals (possibly including *tinku* fighting) were held that were intended to solidify the relationship between the herding and cultivating groups (Parsons et al. 1997). In this way, new interactions created new social identities and new community formations at the same time that ritual events lay the framework for the establishment of social tradition and memory that held these communities together.

In this case and others, the social memory that helps unite individuals into a community is formed not through conscious memorization of historical "facts," but through the way the past is experienced in the present both as a part of everyday "habitus" and through special commemorative ceremonies (Connerton 1989; de Certeau 1984; Lowenthal 1985; Trouillot 1995). As Trouillot notes, "We are never as steeped in

history as when we pretend not to be" (Trouillot 1995:xix). The stories we create about ourselves, the stories promoted by those in power, are effective because they are taken for granted. Nevertheless, the control of the elite over these stories is not absolute; social memories are born out of practice, which is necessarily a contested domain. Individuals interacting within the same social groups or communities will share more similar social memories than those in the wider collective, state, or culture as a whole (Connerton 1989). Following de Certeau (1984), for example, the materiality of the constructed city influences people's tactics as they move through it, but does not determine their choices. Social groups and individuals both experience *and* create an urban "text," without being wholly conscious of it. In the Andean context, the Tiwanaku and Wari once promoted a particular vision of history, but local meaning-making processes were still present through everyday practice, which continued through the disintegration of the state.

Material manifestations of the performance and experience of social memory can be seen archaeologically through commemorative objects, monuments, buildings, and the landscape (Mills and Walker 2008; VanDyke and Alcock 2003). Joyce (2008) suggests that we move from seeing these objects as passively reflecting the shared social memory of a particular static "stage" of history to understanding the relationship between memory and materiality as being constructed through "historicized chains of practice." This approach is well-demonstrated by Nielsen's (2008) discussion of *chullpas* in the southern Andes. Nielsen illustrates that the creation of the *chullpas,* burial towers most commonly constructed during the Late Intermediate Period, contributed to the practice of memory work from the Late Intermediate Period through the Inca and Spanish conquests – "inventing, remembering, contesting, and forgetting a past in which present social

relations were always contained" (Nielsen 2008:207). The *chullpa* towers were the mediums through which the ancestors were involved in everyday life, from the quotidian practice of agriculture to the more formal feasts that the living shared with the ancestors, "incorporating collective memory into daily experience" (Nielsen 2008:216). Following the Inca and later Spanish conquests, these relationships were explicitly attacked. In the case of the Inca, local ancestors were directly supplanted by Inca ancestors; in the case of the Spanish, the system of ancestor veneration itself was targeted. Nevertheless, the materiality of the *chullpas* meant that they continued to be seen as important and powerful, even if the original connections were lost.

As the example of the *chullpas* shows, people of the past, like people in the present, inhabited a landscape already filled with the remains of past human activity, and they were confronted with the process of understanding their own actions through reference to the actions of other people at other times in the same place (Barrett 1999).[4] In the early part of the Late Intermediate Period, the inhabitants of the Titicaca basin would have been living within a landscape already inhabited by the material ruins of Formative and Tiwanaku occupations. Even as they rejected Tiwanaku religion and government, they would have been surrounded by the monumental, architectural remains of former Tiwanaku grandeur. As a new, local, community identity was formulated and renegotiated, the inhabitants of a post-collapse community would have had to find a way to deal with the recent history of collapse as well as the constant reminders of lost Tiwanaku glory.

[4] This process continues in our own time. Note, for example, battles over the "proper" location of the Bennett monument (Scarborough 2008) and the use of the site of Tiwanaku for the inauguration of Evo Morales, Bolivia's first Aymara president.

The Process of Collapse

While the issue of collapse has always intrigued scholars of past states and civilizations, collapse studies did not develop as a topic of theoretical interest in archaeology until about twenty years ago, when two major books on the subject were published in the same year – Joseph A. Tainter's *The Collapse of Complex Societies* (1988) and a work of collected essays entitled *The Collapse of Ancient States and Civilizations,* edited by Norman Yoffee and George L. Cowgill (1988). Both volumes bemoaned the neglect of collapse studies in archaeological theory, for which Yoffee (1988:1-2) blamed the prevalence of evolutionary theory in archaeology: "The concern with rise, to the near exclusion of collapse, in evolutionary studies, has had important theoretical implications: change has been perceived as a process of mutually supportive interactions that produce an irreversible succession of "emergent" levels of holistic sociocultural integration." A focus on collapse, on the other hand, forces otherwise teleological socioevolutionary theories to account for the fact that increased complexity is not inevitable and to explain the process of collapse as well as the process of development. Because, following a socioevolutionary framework, collapse was never expected, it tended to be treated in the literature as a dramatic *event* rather than as an explainable process: "Explanations of collapse have tended to be *ad hoc*, pertaining only to one or a few societies, so that a general understanding remains elusive" (Tainter 1988:3). To draw on Sahlins (2004), collapse, as an interruption in expected societal progression, was told as "story" rather than "analysis." It tended to be portrayed in the

context of a particular civilization as a rare or unusual event rather than as a locus for theoretical investigation.

Perhaps due to this oversight, it is still a common mistake to at least implicitly assume a sharp division between pre and post collapse communities. While "collapse" is generally understood as a relatively "rapid" sociopolitical shift, it does not necessarily lead to abrupt discontinuity in the lives of individuals or communities, especially in non-elite circles. Nevertheless, this image is perpetuated through archaeological projects focusing on the "rise and fall" of particular civilizations (which overlook or skim over post-collapse developments) and is also indirectly reinforced by the widespread use of chronological charts, like that seen below for the Titicaca Basin (Figure 4), which abruptly divide pre- and post-collapse periods into two individual, bounded cultural moments.[5] However, when the periods surrounding a political collapse are considered in more detail, it becomes clear that collapse itself is a multifaceted and locally experienced process, which radically shapes any post-collapse developments.

End dates are assigned as a sort of historical shorthand – the Roman empire ended in 476 A.D. and Soviet-style communism collapsed with the Berlin Wall in 1989 – but it is often actually very difficult to pinpoint exactly when "collapse" takes place. Although the decline and fall of Rome has been investigated for centuries, for example, Bowersock (1988) notes that, despite the well-known date of 476 A.D., historians are actually hard-pressed to pin an absolute date on the collapse of the Roman empire. Instead, he suggests that it may be possible to argue that there was no Roman collapse. The empire had

[5] See Stone Miller (1993: 21-22): "At base, a chart in and of itself sends the message that history can be subdivided into simple, often symmetrically placed and 'filled in' adjoining categories. History is thus automatically seen as discontinuous and as potentially known (despite its lack of 'intrinsic segmentation' and the fact that we reconstruct history through a tiny extant proportion of the original evidence, not to mention through the veil of our own inescapable ethnocentricity)."

always absorbed new people, and even many of the "barbarian" Goths who are generally credited with causing the collapse actually considered themselves to be Romans. Indeed, the medieval Holy Roman Empire, which continued through the eighteenth century, was considered to be the reconstitution of Rome. Bowersock promotes a discussion of change and transformation rather than decay and collapse, because although the overall effect was great, the dissolution of the Roman empire took place over many centuries.

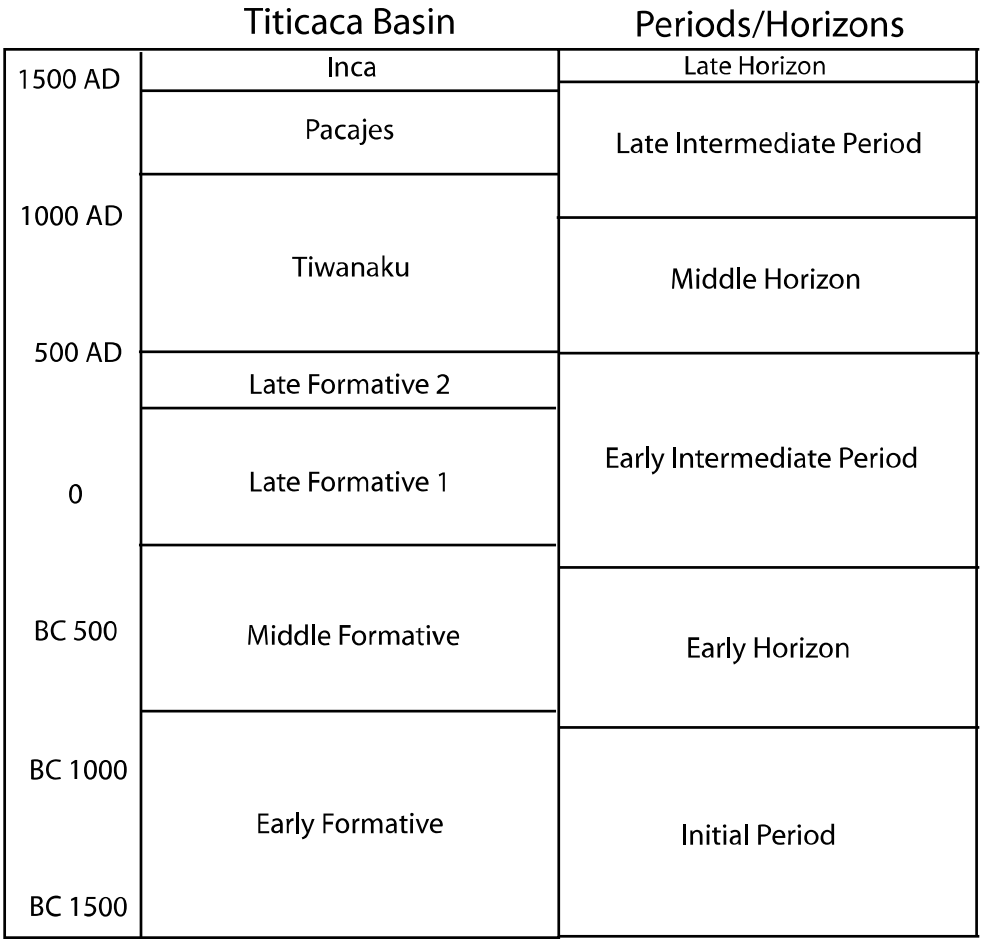

Figure 4: Chronology Chart for the Titicaca Basin

While such dissolution is harder to track in prehistoric societies, it is undoubtedly true that major changes do not spring up out of nowhere, nor do influential paradigms simply disappear. "[A] civilization is a complex configuration of institutions built upon a foundation of shared religious, political, and economic ideas and concepts. Even after major catastrophes, traumas, and declines, these elements can continue and be transformed into subsequent new configurations" (Demarest 2004a:275). In most cases the factors that lead to collapse will extend into the post-collapse period. Drought does not end because of political failure, nor do negative sentiments towards a particular ethnic group or social class, and migrations that begin during collapse have significant implications for later cultural formations. Instead of expecting that political collapse will automatically lead to abrupt social change, it is necessary to explain both changes and continuities in post-collapse periods as the result of choices made by knowledgeable agents at a particular point in time (Janusek 2005a). Society is continually rebuilding itself through an important play of change and continuity, and it is often true that "whenever one sets out to discuss collapse, one ends up by talking about continuity" (Bowersock 1988:174).

The picture of collapse as "event" is further blurred by the fact that, as Demarest (2004b; Demarest et al. 2004) demonstrates among the Maya, collapse can be experienced differently and at different times in various regions. He suggests that unrest in the Petexbatun region of what is today Guatemala led to warfare, depopulation, and regional collapse. However, while the effects of the Petexbatun collapse radiated throughout the Maya heartland (along with displaced refugees), the results were very regionally specific, with some areas experiencing profound destabilization and others a

period of growth and florescence. While the net result was the complete dissolution of what Demarest terms the Maya "theatre state," "collapse," as a rapid loss of sociopolitical complexity, was never experienced in many parts of the Maya world. In northern Belize, for example, D. Chase and A. Chase (2004) find little to no evidence of abrupt change or a loss of sociopolitical complexity, but simply of the sort of gradual transformations that are normal at any time in history.

Local and temporal variations in the effects of "collapse" emphasize the need to contextualize any study both temporally and geographically, but they also beg the question – If collapse is so difficult to delineate, is it a truly useful concept? Scholars like Bowersock (1988) and Chase and Chase (2004) take issue with the word "collapse," suggesting that the Roman and the Mayan cases (respectively) are better understood as transformations. Likewise Eisenstadt (1988) discusses "collapse" as merely an extreme case of restructuring boundaries. Indeed, as discussed above, the word "collapse" is too often associated with abrupt change and extreme discontinuity, when in most cases such characterizations are incorrect. Nevertheless, when considered in the larger view, major changes do occur; they simply are not neat.

In this dissertation I continue to use the word collapse as defined by Tainter (1988:4) to refer to a "rapid, significant loss of an established level of sociopolitical complexity." Rapid, however, is not immediate, and the collapse of a sociopolitical system should never be equated with the disappearance of a civilization or cultural group, which is a different issue entirely (Yoffee 1988:14-15). It is natural that certain aspects of social structure, technology, religion, or economy would survive regardless of the fate of a political system, as long as they continued to be useful and meaningful to individuals

and communities following political collapse (see Graffam 1992). Indeed, it is the very multifaceted nature of change and continuity, developing through the process of collapse and subsequent post-collapse reorganization, that makes these time periods so interesting to investigate.

General Theories of Collapse

It is a common truism that all things must come to an end, and an interest in collapse of ancient civilizations is often very much linked to fears about our own societal collapse. Popular images of mysteriously abandoned cities and "lost" civilizations are dramatic and catastrophic with a very clear subtext – Could it happen to us?? This preoccupation with the end of civilization goes back to ancient times. The earliest known reference to collapse dates to the second century BC, when Greek writer Polybius proposed the idea that societies are like living organisms – They are born, they grow, they age, and then they die (see discussion in Tainter 1988:74-75). Using this analogy, Polybius predicted the fall of Rome six centuries before its actual collapse. The analogy of civilization as organism continued to inform perceptions of societal collapse into the late nineteenth and early twentieth centuries. In *Decline of the West* Spengler drew on seasonal metaphors to discuss the growth from "culture" to "civilization" to "imperialism" to collapse (Spengler 1991[1918-1922]).

From an archaeological perspective, however, the question of the inevitability of collapse is less interesting than the process(es) by which civilizations do collapse and the impact this has on subsequent societal developments. Over the past 25 years, various scholars have suggested a number of different general explanations for collapse, which

attempt to develop a coherent theory that could explain collapse in a variety of contexts. In the section that follows, I present some of the more important of these theoretical contributions, and assess their utility for a better understanding of post-collapse community structure.

Systems and Organization, Catastrophe and Chaos

Many of the early general explanations for collapse grew out of systems theory type analysis. For example, Renfrew (1978) adapts the mathematical "catastrophe theory" for archaeology in order to illustrate how slow, steady changes in a system can cause apparently sudden changes in behavior. While "collapse" (or any other rapid transformation) may seem abrupt, the systems that do collapse are actually constantly changing, just as a bridge may slowly deteriorate unnoticed until it finally collapses in an instant. Following this argument, looking for "ultimate" causes of collapse is essentially pointless; the cause of a polity's demise is intimately interwoven into the fabric of the system itself. The trick is to find variables which are useful in explaining this process.[6]

Similarly, drawing on organization theory, Kaufman (1988) argues that large state systems, while apparently robust, are actually so fragile, and composed of so many different, interconnecting parts and sub-systems, that any number of events or disruptions would be sufficient to lead to collapse in the right circumstances. Under the circumstances, it is generally impossible to identify the "root" cause of collapse, or even to identify the major variables:

[6] For example, Renfrew uses his formula to look at the classic Maya collapse. He argues that as the variable "Investment in Charismatic Authority" slowly increased, it led to an increase in both centralization of the state and in "Net Rural Marginality." An increase in marginality, however, put the system under stress, and after a brief delay (according to the mathematical equation) the centralized state suddenly collapsed, followed by a somewhat slower drop in the "investment in charismatic authority." While the argument is compelling, an obvious problem is that choosing different variables would lead to radically different explanations for the same example of collapse.

> "[T]he initial, precipitating factor that started the fall of living standards, the deterioration in the quality of life, and the breakdown of the functions performed by the overarching governmental institutions in the systems examined is difficult to isolate even when we understand the way these features of those societies interacted. Any of the factors could have occurred independently in the first instance, but once one did, its effects rippled through the polity in question, tripping other factors until they were all activated and reinforced each other" (Kaufman 1988:230).

Kaufman posits that any successful political system exists in such a delicate equilibrium that a change in any of its subsystems could be enough to affect other systems and thus initiate a decline.

Expanding on the notion that a simple or linear explanation is not adequate to deal with the process of collapse, Stone (1999) has more recently drawn on chaos theory to help explain the disintegration of the Chacoan interregional system in the American Southwest. She sees chaos theory as helping to create a "non-linear model of culture change which states that small perturbations to certain parts of the system can result in the disruption of the structure of the entire system, resulting in instability" (Stone 1999:111). Her analysis differs from other systems theories in that she considers the role of individuals within the changing system. Stone draws on the concept of "dissipative structures," arguing that a disruption in information flow could result in local experimentation, which could further disrupt information flow within an interregional system, ultimately leading to the disintegration of that system.

Like Renfrew and Kaufman, Stone insightfully calls attention to the interconnectedness of all aspects of any sociopolitical system, causing us to think critically about cause and effect in any individual case of collapse. This contribution is especially important for observations of the process of collapse that continue into the post-collapse period. By recognizing that observably dramatic changes can follow from a

series of apparently small events, these theorists laid the groundwork for an understanding that many of the processes taking place through the period of collapse will extend into the post-collapse period. Nevertheless, while each of these theories clearly demonstrates how sociopolitical systems may fall apart, they are not, in themselves, theoretically satisfying as a general theory of collapse, in that they do not actually *explain* anything about the mechanisms of collapse itself.

Joseph Tainter and "Declining Returns"

Perhaps the most complete and best-articulated general hypothesis explaining collapse is Tainter's (1988) proposal of declining marginal returns, which is laid out in his book *The Collapse of Complex Societies.* Here Tainter makes the argument that societies collapse as increased investment in cultural complexity leads to declining marginal returns (see Figure 5). As sociocultural complexity develops, any investment (into agriculture, technology, or expansion into new lands) has the potential to return benefits that far outweigh the cost of the endeavor, as "rational" actors first take advantage of the resources that are easiest to access. However, as a civilization grows in complexity it is forced to expend more and more resources while receiving less and less benefit, making it less likely to be able to respond to both catastrophes and regular, predictable needs of the population. When a political system reaches the point where it is expending more and more resources for less and less benefit, "the option to decompose (that is, to sever the ties that link localized groups to a regional entity) becomes attractive... Many of the social units that comprise a complex society perceive increased advantage to a strategy of independence, and begin to pursue their own immediate goals rather than the long-term goals of the hierarchy" (Tainter 1988:121). At this stage, it is

no longer beneficial to participate in a complex political system, and collapse can occur in response to a natural catastrophe, political revolt, or in response to slow dissolution. Tainter (1988:127) summarizes his argument:

> "The shift to increasing complexity, undertaken initially to relieve stress or realize an opportunity, is at first a rational, productive strategy that yields a favorable marginal return. Typically, however, continued stresses, unanticipated challenges, and the costliness of sociopolitical integration combine to lower this marginal return. As the marginal return on complexity declines, complexity as a strategy yields comparatively lower benefits at higher and higher costs. A society that cannot counter this trend, such as through acquisition of an energy subsidy, becomes vulnerable to stress surges that it is too weak or impoverished to meet, and to waning support in its population. With continuation of this trend collapse becomes a matter of mathematical probability, as over time an insurmountable stress surge becomes increasingly likely. Until such a challenge occurs, there may be a period of economic stagnation, political decline, and territorial shrinkage."

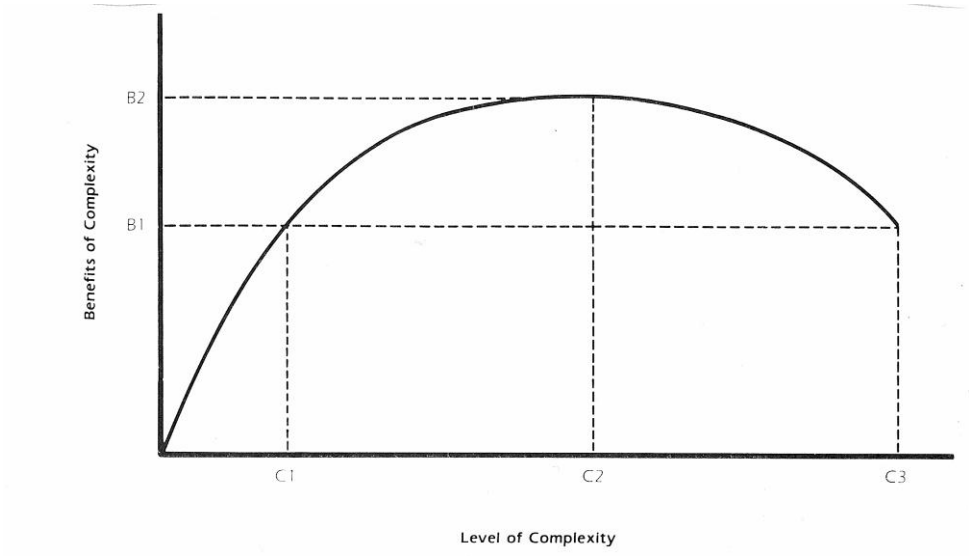

Figure 5: Declining marginal returns of increasing complexity (From Tainter 1988:Fig. 19, pg. 119)

Collapse, for Tainter, is best understood not as a failure of civilization, but as a rational reaction to a pattern of declining marginal returns. He argues that there are times when complexity simply is not the best option, especially when faced with new or sudden

challenges. However, according to Tainter, collapse is only an option in a setting where no other political power is able to take advantage of the perceived weakness of its competitor and expand its own polity. In cases where other political entities are waiting to expand, the result is not simple collapse, but the slow dissolution of one system as the other grows in power. For this reason collapse, as Tainter describes it, can only occur "in a power vacuum" (Tainter 1988:202). If there is no other rising political entity that can take over, a loss of sociopolitical complexity results, but if other complex polities border the collapsing state they may expand as their competitor falls.

Tainter's explanation is strongly influenced by Western economic theory, so it is easy to wonder if all of his assumptions are valid for non-Western (and non-capitalist) economic systems. While he acknowledges that individuals do not always behave rationally, his model is essentially based on the assumption that societies form as rational responses to specific problems and collapse as the costs of complexity begin to outweigh the benefits. Following this approach one society (and one collapse) is essentially just like any other in process if not in specific experience. The book has been critiqued as overly simplifying many of the complexities of collapse by failing to differentiate between the widely different social phenomenons that can be subsumed under the heading of "collapse" (Trigger 1989). In addition, Trigger (1989) argued that Tainter's emphasis on the inevitability of collapse after marginal returns begin to decline effectively ignores the decision-making power of individual agents and social classes.

Tainter himself does not dwell on the reconstitution of society following sociopolitical collapse, except to note that these periods are widely characterized by conflict, lawlessness, and reduction in regional level infrastructure (Tainter 1988:18-21).

Because his goal was to "develop a general explanation of collapse, applicable in a variety of contexts, and with implications for current conditions" (Tainter 1988:3), he was less interested in discussing variation in the process of collapse, and as a result, his approach has little utility for explaining the challenges and possibilities of post-collapse periods. Nevertheless, Tainter deserves credit as the first archaeological theorist to bring a coherent theory of collapse into academic conversation. Subsequent collapse theorists and any archaeologists dealing with collapse uniformly reference or respond to Tainter's seminal work.

Sunk-cost Effects and the Rigidity Trap

Janssen and colleagues (2003), for example, attempt to complicate Tainter's assertion that declining marginal returns is the ultimate cause of political collapse in every context. They suggest that "failure to adapt" (an explanatory model that Tainter considered and rejected) may, in some cases, have stronger explanatory power. Tainter's critique was that complex societies developed in part because of their ability to adapt to changing situations – that "human societies are problem-solving organisms" (Tainter 1988:93). Following his logic, if a given society did not respond to changing circumstances or sudden catastrophe, it must be as a result of some previously-existing factor in the social system. In contrast, Janssen and colleagues draw on the "sunk-cost" model of human decision-making to show how individuals and groups often continue to invest heavily in failing systems or products because of a sense that they don't want to "waste" their prior investment, even when the more rational choice would be to "cut their losses" as it were, and change course. Using examples from the American Southwest, they suggest that:

> "…people with large investments have, *as a result of those investments*, a tendency to attempt rather rigidly to maintain a previously successful way of life in areas and times when they are experiencing severely reduced returns on those investments – even to the point where they make additional investments in trying to maintain what perhaps ought to have been perceived as a lost cause. As a result, local depletion becomes more severe than would have been the case had they chosen to leave earlier or otherwise changed the nature of their adaptation. In turn, the final collapse appears all the more dramatic, given the more impressive nature of the final structures left behind in a desolate landscape" (Janssen et al. 2003: 272).

Janssen et al. do not attempt to use the sunk-cost effect to explain all collapse, but suggest that it be taken into consideration as a possible mechanism in individual cases.

Building on this idea, Hegmon and colleagues (2008) consider the "sunk-cost effect" as one mechanism that can lead to a "rigidity trap" – a concept drawn from resilience theory (see also Redman 2005) to explain why some societies collapse so much more catastrophically than others. Resilience theory, which has been adapted from ecological studies, identifies an "adaptive cycle," which moves from "exploitation," when new resources are quickly exploited, to "conservation," when the system stabilizes as resources are slowly accumulated and stored, to "release," when stresses lead to increasing fragility and ultimately the collapse of the system, to "reorganization," when the new and remaining resources are reordered to form a new system (Redman 2005). Resilience theory grew, in part, out of systems theory analysis, but differs in that, while systems theory tends to focus on stable systems, resilience theory puts more emphasis on the continual transformations of the "adaptive cycle," making it more applicable to studies of collapse and post-collapse periods.

Hegmon and colleagues (2008) focus on the "release" and "reorganization" aspect of this adaptive cycle to explain the different experiences of the sorts of cultural transformations generally referred to as "collapse." They argue that while "resilient"

systems can change while still leaving some of the system intact, attempts to remain too long in the "conservation" phases result in systems that are less and less able to respond flexibly to changing situations. This "rigidity trap" creates systems that become "increasingly unable to absorb disturbances, with the result that they are eventually transformed, often in dramatic and painful ways" (Hegmon et al. 2008:314). They name the "sunk costs effect" (or attachment to tradition) as one mechanism that can lead to collapse, but also consider that a society may fall into a "rigidity trap" because of the absence of other social options, the unintended consequences of particular adaptations, and/or an attachment to specific technologies or to place, causing a more precipitous transformation during the "release" phase.

Such an approach is intuitively appealing, especially considering some of the better known examples of decline and collapse. It is easy to see in the Late Roman Empire (and perhaps in the modern United States?) how an overwhelming concern for the conservation of power and the political system may have led to a "rigidity trap" in which the government was no longer able to respond effectively to the needs of the population, with negative results (see for example Goldsworthy 2009; Murphy 2007). Indeed, in light of this perspective, it is suggestive that the centuries before the collapse of Tiwanaku saw a consolidation of elite power and the centralization of political economy (Janusek 2004b, 2005a). While it is beyond the scope of this dissertation to fully investigate this possibility, it is surely possible that the collapse of Tiwanaku could have followed from a situation very similar to the "rigidity traps" described above.

A basic problem with all of the general explanations for collapse discussed above is that these systems-based analyses often tend to gloss over differences between different

types of collapses that would have had large implications for the people living through them. Furthermore, with the possible exception of Stone's (1999) use of chaos theory, the role of individual agents or interested groups in the initiation of or reaction to political collapse is generally overlooked. By focusing on process rather than practice, these theorists tend to erase the role of the individual and create an image of a society populated by automatons, or, as Patterson (1995:126) would say, cyborgs – "essentially interchangeable, androgynous individuals that aggregate and form the lower-level components of a society. They act ergonomically in accordance with the optimizing or maximizing policies of the higher-order components, policies that incorporate the rationality of neoclassical economics and repackage it as a law of nature."

Despite their faults, systems-based approaches are valuable in articulating the complex and interconnected nature of any sociopolitical structure, and systems theories can aid in providing rough models that can serve as shorthand to explain the process of political collapse. In order to more closely articulate the experience of groups and individuals during and following the process of sociopolitical collapse, however, more information is needed regarding the various internal and external factors that can lead to collapse.

Factors Leading to Collapse

As the above systems-based analyses suggest, a discussion of the reasons for collapse is complicated by the fact that, in order for full political collapse to occur, a number of things are probably going wrong at the same time. As a result, it is often

difficult to separate cause from effect and "proximate" from underlying causes. In regards to Maya collapse Demarest (2004a:240-241) notes:

> "Much apparent disagreement in Maya archaeology is simply due to scholars talking about different 'levels' of causality. Often, archaeologists posit 'causes' from the data in their particular regions or sites that would have been local *proximate* causes of the specific kind of culture change observed in that area. Yet such local economic and ecological conditions and regional political events were combined with pan-lowland problems or processes to generate the specific manifestation of the end of the Classic period political systems in any given area."

This situation is likely often the case in any example of collapse, but identifying the "root" in a sea of proximate causes can lead to a "chicken or the egg" sort of argument, which is not in itself ultimately useful, and as a result any single or primary cause "explanation" of collapse is likely to be somewhat dissatisfying. Bronson (1988:197-198) queries: "How do we know that the symptoms we observe are those of decline? Because the state in question eventually falls. And how do we know that these symptoms of decline are causative agents? Either because we think we see them getting worse as the end approaches or because we have defined them that way." In any case, it is unclear how much there is to be gained by identifying an "ultimate" cause in a complicated chain (or knot) of events. "All we can do with confidence is identify the circumstances that *could* have been the triggering events and piece together reasonable reconstructions of what happened after the triggers were pulled" (Kaufman 1988:230).

For clarity's sake, I have divided the discussion below into proposed causes for collapse that are due primarily to external causes and those that are due primarily to internal causes. As the above discussion suggests, however, I do not see this as a clear distinction. Although these factors are often popularly cited as single or primary causes for collapse, I suggest that it is best to consider them together as both possible causes and consequences, focusing investigation instead on the way these social, ecological,

economic, and political factors interact as the collapse is experienced and the way in which this sets the stage for post-collapse reorganization.

External Factors

External factors refer to causes for political disintegration that place the primary stimulus for collapse on something *outside* the sociopolitical system. These causes include attack by outsiders, the collapse of trade, or environmental disaster. One of the earliest factors commonly credited with leading to collapse was invasion by foreign "barbarians." Although the idea today seems somewhat outdated, Bronson (1988) makes a convincing case that barbarians (which he defines as "member[s] of a political unit that is in direct contact with a state but that is not itself a state" [Bronson 1988:200]) can actually be a substantial deleterious force that ultimately can lead to state collapse.[7] The primary reason for the efficacy of "barbarian" attacks is that the political, social, and economic costs of going to war for a state (to protect borders and resources) are far greater than for a non-state group, which is primarily interested in raiding. Using examples from India and Rome, among others, Bronson illustrates that "barbarians" could both prey on an already weakened state and slowly bleed an otherwise healthy state to the point of collapse. Bronson wisely makes no claims that attack by a non-state group is ever the only or even the primary cause of collapse, but does remind us that it is a possibility that should not be overlooked.

The idea that political collapse could result from a collapse of trade networks, on the other hand, is not as widespread as one might expect, given a modern emphasis on the interconnections between politics and trade. Nevertheless, the explanation of collapse as

[7] The destruction of a state due to invasion and incorporation by another state is not actually collapse as defined here, because sociopolitical complexity is not actually lost. Instead it is better defined as conquest or colonization.

a result of problems with long-distance trade systems has been suggested for Roman, Mesopotamian, and Mayan civilizations. In an early explanation of Roman collapse Pirenne (1952[1925]) suggested that a crucial issue was the loss of trade between western Europe and the Mediterranean due to Muslim conquest. Likewise Ekholm (1980) attributes the collapses of the third dynasty of Ur and of Mycenaean civilization, among others, to an overdependence on foreign markets over which they had no control. The best known trade explanation is probably that which Rathje (1973) sets forth for the Maya. He argues that competition between the Maya core and the periphery led to an expansion of trade in the buffer zones to the extent that the Maya heartland was cut off from essential resources, and that collapse was due to lack of access to these resources. One problem with this theory is that it is not sure to what extent such trade systems were truly incorporated into the fabric of society. As Culbert (1988:78) argues, in preindustrial societies, long-distance trade primarily benefited the elites, and its loss would have little effect on the commoner class. Furthermore, elites would likely be able to find new sources for or categories of elite goods.

Sudden catastrophe or accumulative climate change to which a particular society could not adapt is a much more common theme, although the popularity of environmental explanations for collapse tends to fluctuate over time. These catastrophes could include earthquakes, volcanoes, droughts, floods, or changes in temperature. Perhaps because of a contemporary concern with changing climate conditions, climatological explanations are currently becoming more popular, despite the often-repeated critique that socio-political structures are explicitly designed to withstand environmental (even suddenly

catastrophic) stresses (see Erickson 1999), and, if they cannot, "the interesting factor is no longer the catastrophe but the society" (Tainter 1988:53).

Explanations depending on sudden and severe changes in the climate or in the productivity of the land are especially prevalent in the Americas and have been cited as primary causes in collapses in the Andes and in Mesoamerica. Moseley (1983), for example, suggests that collapse of societies along Peru's north coast may be due to gradual tectonic shift, which disrupted irrigation systems, leading first to agrarian collapse and then to political collapse. Similarly, Kolata and colleagues attribute Tiwanaku collapse to the collapse of large-scale state-run agricultural production on raised fields around Lake Titicaca. Drawing on data from icecaps, paleolimnological studies, and the charting of prehistoric lake levels, they find evidence for a severe, long-term drought around the Titicaca Basin beginning around the time of Tiwanaku collapse (Binford et al. 1997; Kolata and Ortloff 1996; Kolata et al. 2000; Ortloff and Kolata 1993). Kolata argues that this drought interfered with the productivity of state-sponsored raised fields, which were designed to protect against short-term droughts, but were rendered useless by rapidly dropping lake levels. Following this explanation, as agricultural productivity dropped, the Tiwanaku state was no longer able to provide for its citizens, who abandoned the state as they were left with no reason to support the system. Lucero (2002) makes a similar argument for the collapse of the Classic Maya, suggesting that Maya kings, in a land with few natural water sources, attracted citizens through their control of artificial reservoirs. As these reservoirs dried up due to a long-term drought, the kings were no longer able to provide for their followers, who lost faith in the supernatural powers of Maya leadership.

Although it is undoubtedly true that the final years of both the Tiwanaku and the Classic Maya political systems saw a substantially drier climate, the argument that this event was the ultimate cause of collapse in either case is still highly questionable. Erickson (1999, 2000), for example, argues that we should be careful of theoretical models which posit that humans were passive beings, helpless in the face of great environmental change, finding instead that human influence on the environment is (and always has been) just as great as the environment's influence on humanity. He notes that modern populations around Lake Titicaca often find ways to benefit from lowered lake levels during times of drought, including farming on that newly fertile soil, and finds the argument that an otherwise healthy political system would not have been able to deal with variations in rainfall and lake levels to be unconvincing.

The central critique for any of these external factors as being the "single" cause for a collapse is that political power is not completely dependent on military prowess, trade, or a particular subsistence practice, and while the sudden collapse of any of these systems may well have a major effect on social organization, there is no reason it would necessarily lead to complete sociopolitical collapse. As Tainter (1988:53) points out, "The fundamental problem is that complex societies routinely withstand catastrophes without collapsing." In fact, it is often argued that the rise of complex societies can occur as an adaptation to help deal with uncertain circumstances and sudden catastrophe. Tainter (1988:50) notes, "Complex societies are characterized by centralized decision making, high information flow, great coordination of parts, formal channels of command and pooling of resources. Much of this structure seems to have the capability, if not the designed purpose, of countering fluctuations and deficiencies in productivity." In order

for barbarian attack, trade problems, or environmental catastrophe to lead to political collapse, administrative leaders would have had to observe a major problem and do nothing to address it. As a result, while any of the external factors discussed above could obviously play a role in destabilizing a society, it is difficult to make the argument they could be the ultimate, causal factor leading to collapse. Nevertheless, any catastrophe undoubtedly puts pressure on any centralized government or political system, and, when present, should certainly be considered as a contributing factor when theorizing about particular reasons for collapse.

Internal Factors

In addition to the external factors discussed above, there are also a range of commonly cited explanations for collapse that place the blame not on an outside force, but on a problem inherent within the sociopolitical system itself. A variation on the idea of collapse due to catastrophic climate change is the idea that humans may have played an inadvertent role in the creation of this catastrophe, by overusing the resources they were themselves depending on. For example, many scholars have historically attributed the collapse of the Classic Maya to overshoot and environmental degradation (Abrams and Rue 1988; Culbert 1977, 1988; Sabloff and Willey 1967; Santley et al. 1986). Culbert (1988) argues that overpopulation led to deforestation and an agricultural system stretched to capacity, so that population could only be provided for through unsustainable ever-increasing agricultural production. When the fields were no longer able to produce at the high level necessary for a growing population, the result was demographic collapse that became a political collapse. Similar explanations focusing on the overexploitation of

land have been used to explain Hohokam (Weaver 1972) and Mississippian (Fowler 1975) collapse in North America.

In a world with (justifiable) concerns about the dangers of global warming and the over-exploitation of natural resources, this explanation for collapse has become very common in the popular media and in cross-over academic literature. For example, in *Collapse,* Diamond (2005) recently made the argument that "collapse" (which he defined as a drop in population rather than a loss of sociopolitical complexity) was primarily due to Malthusian overpopulation leading to resource degradation (esp. deforestation) and thus to collapse: "Deforestation was a or *the* major factor in all the collapses of past societies described in this book" (Diamond 2005:490). Nevertheless, Tainter (2006) finds that none of the examples used by Diamond, or in fact any example popularly cited as a case of overshoot leading to collapse, were credible. The idea of overshoot, he argues, is "teleological, as if humans could set a target for population or consumption. Overshoot denies the human capacity for flexible adjustments…" (Tainter 2006:72)

Even in cases where natural resources may have been stretched past a sustainable level, Tainter worries that placing the blame on an unqualified human tendency to overexploit resources merely circumvents the question: why would societies act in this way? There are plenty of examples of societies where resources are not over-exploited – The Inuit could live in Greenland sustainably, where the Norse civilization could not, so clearly overshoot is not inevitable. The real question is more often one of elite mismanagement or a failure to react appropriately to changing situations. As with sudden catastrophes, environmental overshoot may well contribute to collapse, but can never wholly explain it.

A more promising explanation, at least in certain cases, is the idea that some form of internal rebellion could lead to collapse. Unlike environmental catastrophe, overshoot, and breakdown of trade, an internal rebellion explicitly targets the centralized political system, with the explicit or implicit goal of bringing it to an end, or at least diminishing its power. This explanation has been used to explain numerous collapses in different areas of the world. For example Hsu (1988) suggested the fall of the Han dynasty was at least partially due to the growth of a periphery that gradually came to identify more strongly with their region than with the core. As a result, they wanted to support their own local leaders rather than those in control of the central system. Likewise, Cowgill (1979) sees Maya collapse in the context of growth as a result of conflicts between regional systems that could also be defined as warring states.

States can be divided by regional differences and also by stresses between commoners and the elites. For example Joyce et al. (2001) suggest the dissatisfaction of commoners played an essential role in Oaxacan collapse. Likewise Millon (1988) and Manzanilla (1992) see a role for rebellion in the fall of Teotihuacan. Millon (1988) argues that Teotihuacan was destroyed by fire, but that the fire was specifically focused on temples, suggesting ritual destruction rather than looting or raiding. He suggests that violent social upheaval was made necessary by a rigidity in Teotihuacan political organization, which did not make allowances for any other kind of social change.

Predictably, the critique of an explanation based on regional or class revolt against a centralized political system begins by asking why regional or class dissatisfaction developed and how it was allowed to get to such extreme levels. After all, a certain level of dissatisfaction as a result of exploitation and/or mismanagement is expected with any

centralized government, but does not necessarily lead to revolt. If a situation is allowed to get to that point, it is through weakness or disregard by the central government, which would normally be expected to react to the situation. Furthermore, "revolutions usually aim at a transformation of regime, or at restoration with modification… not at sociopolitical collapse" (Tainter 1988:73). While revolt or revolution may well be the mechanism that leads to collapse in specific cases, it is still necessary to explain how and why the conflict developed.

It is often the case (or the assumption) that dissatisfaction by regional elites or commoner classes develops through either elite mismanagement and/or a Marxist "contradiction" in the political system itself. Demerest (2004), for example, argues that while particular regions of the Maya heartland experienced collapse in different ways due to a variety of different local factors, the underlying cause in all cases were inherent contradictions in the system of the Maya "theater state," which locked Maya elites into a feedback loop from which there was no escape. The system caused an unsustainable growth in the elite class, leading to a need for a higher labor cost and increased warfare. Without changing the system completely, elites could only react to problems by increasing their "theater state" performance, which only made things worse by leading to even higher labor costs and warfare. The entire system collapsed as each of these stresses led to internecine war in the Petexbatun, which in turn put stress on other regions, leading to overall collapse.

The problem with this analysis is that it assumes such a level of inflexibility in the political system that it would be inconceivable for elites to act in any other way and impossible for the system to adapt except through collapse – that collapse is actually the

only way to redress conflicts within the system. In fact, major changes and transformations in political systems often occur without a concurrent drop in sociopolitical complexity. A dominant elite cannot always be expected to continue with the same course of action when it becomes obvious that it is no longer in their self-interest (Tainter 1988:72).

While all of the above explanations refer to particular events or processes which are argued to initiate the process of collapse, as single-cause explanations, they each elicit the same critique: Many societies are able to deal with a given problem (invasion, climate change, internal discontent) without collapse, and so it also becomes necessary to explain why collapse should occur in one such instance and not in another. Furthermore, in many cases different deleterious events and processes may occur on or about the same time, and it is naïve to attempt to identify the single factor that is the "ultimate" cause of collapse without considering the larger context. Nevertheless, all of the above factors are important issues that should be considered when they accompany collapse, in order to better understand the process of collapse itself as well as the way that post-collapse society is reorganized.

Practice, History, and Collapse

Ultimately, both "single-cause" and general, systems-based theoretical approaches to collapse suffer from the same fault. They give agency to an outside force, in the first case internal or external crises or catastrophes, and in the second to rational, economic, and/or mathematical "patterns" or models that complex sociopolitical systems are said to follow, without fully considering the role of individual agency and community practice in

creating and/or responding to the collapse of a sociopolitical system. In contrast, my approach considers collapse itself as meaning-making practice, drawing on agency-oriented practice theory to explain historical processes (c.f. Pauketat 2001) at a community level.

This explicitly relational approach (c.f. Hutson 2010) is situated between the actorless models described above and an individualist agency which is divorced from cultural context. Following Giddens (1984), culture change occurs as a result of human action at a particular time and in a particular place. However, these actors are not solipsistic individualists. Through interaction and everyday practice, they are shaped by the sociohistorical context through which they move, even as they themselves create, recreate, and challenge their own history and identity. "Human beings make their history in cognizance of that history, that is, as reflexive beings cognitively appropriating time rather than merely 'living' it" (Giddens 1984:237). Sociopolitical collapse is a major social transformation, but one that is shaped through the creative actions of humans, who are themselves socially constructed beings.

When we ask "why" cultures change, transform, and ultimately collapse, we're asking the wrong questions. The unstated assumption is that stability is natural, so change needs to be explained. Practice theory, on the other hand, acknowledges that society and history are *continually* in the process of creation, so when we address collapse the question should not be "why," but "how." "Why" questions elicit "abstract law-like principles of *why* something occurred. These ultimate explanations [tend] to leapfrog over historical data, making them reductionist to the point of being trivial or easily debunked" (Pauketat 2001:74-75). The answers to these questions essentialize the

actors, assuming that all people and all cultural processes are ultimately the same, reducible to simple functionalist and rational explanations. "How" questions, on the other hand, are more conscious of the role of time and place in creating structures, agents, and processes that do not necessarily respond to the same stimuli. Pauketat (2001) suggests interrogating practice (at macro- and micro-scales) as a historical process that is structured by the past at the same time that it structures the future.

Collapse viewed through the paradigm of a "historic processualism" (c.f. Pauketat 2001) informed by practice theory provides a unique opportunity to interrogate the creative responses of socially and historically constituted individuals and social groups to the loss of the sociopolitical structure that had been instrumental in constructing their identities. Even further, it allows us to look at the ways that human practice and agency constructed collapse itself as meaningful. The search for outside forces that somehow led to a collapse is less important for an understanding of the process of collapse than is an appreciation of the ways in which collapse was constructed through the practices of elite and non-elite actors. "[F]rom a practice perspective, causes do not exist as abstract phenomena outside the realm of practice" (Pauketat 2001:85). Pauketat argues, for example, that the Cahokia mounds were not constructed as the *result* of a state centralization, but as part of the political *process* through which Cahokia as an idea was created. In the same way, collapse cannot be said to happen as a simple consequence of drought or rebellion, and certainly not because all humans everywhere follow the same model or pattern in the organization of social systems. Instead collapse occurs as a historical process, created, defined, and experienced through the "undirected and creative negotiations of people whose dispositions were affected by their experiences" (Pauketat

2001:87). Collapse is the process of action, representation, and negotiation through which the social space of a particular polity is deconstructed as a new set of relationships and structures are negotiated.

As a result, the mechanisms of time and place are important in developing an understanding of any social process (see Giddens 1984:355-368). Neo-Darwinian or social-evolutionary explanations which begin with the expectation that people act the same across time and space do little to elucidate the way that social changes took place, and simple "why" questions and answers "essentialize macroscale phenomena to the detriment of explaining historical processes" (Pauketat 2001:86). Instead, investigations need to be locally and historically situated in order to address *how* historical processes took shape.[8] In the context of this dissertation, understanding the process of Tiwanaku collapse is essential to addressing the system of sociopolitical organization that arose out of it.

Tiwanaku Collapse

The Tiwanaku polity flourished between AD 500 and 1150, expanding across the southern Titicaca basin, with colonies extending to Peru's Moquegua valley, Bolivia's Cochabamba Valley, and Chile's Atacama Desert (Goldstein 2005). The site of Tiwanaku itself was a large urban center with a magnificent monumental core, which attracted a multiethnic population from across the region (Blom 1999; Janusek 2004b; Kolata 1993). The large urban population was supported in part by raised field

[8] I do not mean to suggest that there is no value in comparative analyses of similar historical processes that took place in different periods or on different parts of the globe. Rather I suggest that in order for these comparisons to be productive, they have to based on an accurate understanding of the unique social and historical context of each situation.

agriculture, and rituals of consumption both united a diverse population and served to emphasize social differences (Janusek 2004b; Kolata 1993). Secondary Tiwanaku cities in the southern Titicaca basin like Lukurmata evidenced similar patterns of material culture (Berman 1994). Beginning around AD 800, Tiwanaku began to show signs of the development of sharp status differentiation and the appearance of a distinct elite class (Janusek 2004b:221-226). The centralization of authority, however, was not long-lasting. By AD 950, the Tiwanaku colonies in Moquegua were abandoned (Sims 2006; Williams 2002), and by AD 1150 Tiwanaku "collapse" was complete, even in the heartland. The monumental core of the site was virtually abandoned, and surrounding populations explicitly shunned Tiwanaku symbols, practice, and ideology (Janusek 2004b, 2005a).

Like many examples of collapse, the case of Tiwanaku has been host to a variety of answers to the question of *why* the state ultimately failed. For some, the very location of the site was itself the answer; early thinkers like Ephram Squier and Arthur Posnansky thought that collapse was inevitable due to the harsh climate. Posnansky even argued that Tiwanaku was originally settled on the coast, and moved up to its current, uninhabitable location due to tectonic shift (Stanish 2002:171). Other theorists, especially linguists, cited Aymara invasions/migrations around the time of Tiwanaku collapse as possible factors in Tiwanaku failure (e.g. Bouysse-Cassagne 1987; Torero 1970). The collapse of long-distance trade networks was also noted as a possible factor. The failure of the Wari state, just prior to Tiwanaku collapse, for example, could have disrupted trade networks between the altiplano and the coast. Overall, long-distance trade did collapse with the Tiwanaku state, as many of the settlements that had previously

acted as "middlemen" for the Tiwanaku trade developed into regionally independent axis settlements in their own right (Dillehay and Nuñez 1988).

Currently, however, the most common answer to "why" the Tiwanaku state collapsed is environmental. Specifically, the argument of Kolata and colleagues (discussed above) that a severe drought put stress on Tiwanaku raised field systems around the time of collapse (Binford et al. 1997; Kolata et al. 2000; Kolata and Ortloff 1996; Ortloff and Kolata 1993) is now widely accepted, although the role that this drought played in collapse is still contested. Kolata and colleagues suggest that the Tiwanaku state failed as a direct result of raised field farming systems, which were not able to withstand the drought. This position is heavily critiqued by Erickson (1999) as "neo-environmental determinism," and most investigators today agree that a combination of environmental and sociopolitical factors led to collapse (Janusek 2005a; Stanish 2003; Williams 2002).

Moving from "why" to "how," I follow Janusek's (2005a) depiction of Tiwanaku collapse as the culmination of a process of disassociation of local elites and their followers from Tiwanaku ideology and state symbolism, a process which was probably influenced by the state's inability to respond to increasing environmental stresses. An interrogation of the historical process of collapse complicates the simplistic picture of people merely responding to major changes in the world around them, instead forcing us to consider the effects of the actions of elites and non-elites who may or may not have realized that they were living through an important historical moment. Despite the seemingly abrupt shift in material culture, residential areas at the site of Tiwanaku itself were slowly abandoned, with activities continuing as normal in some sectors while others

were reduced to trash dumps. The Akapana was not rapidly abandoned either, but instead there was a gradual shift in its use as it became a place for remembering the past through sacrifices rather than the location of more active, communal feasts and ceremonies.

Tiwanaku collapse was not an event, but "a cultural movement in which old local practices, ideals, and identities were adapted to a transformed social context involving multicentered sociopolitical relations, new ritual practices, and more overtly egalitarian ideals" (Janusek 2005a:202). Collapse was created, understood and made real through the practice of individuals who, for example, mutilated and destroyed stone monoliths and other symbols of Tiwanaku statehood. Through a process of what Janusek (2005a) terms an intentional "cultural amnesia," people and groups disassociated themselves from the Tiwanaku state and began to structure new identities for themselves and for their communities.

Beyond Collapse

Unfortunately, the post-Tiwanaku period, like post-collapse periods in most parts of the world, has been inadequately investigated and remains poorly understood. Tainter (1988:197) blames, in part, a fear of collapse for the notion that post-collapse periods have little to teach us:

> "The notion that collapse is a catastrophe is rampant, not only among the public, but also throughout the scholarly professions that study it. Archaeology is as clearly implicated in this as is any other field. As a profession we have tended disproportionately to investigate urban and administrative centers, where the richest archaeological remains are commonly found. When with collapse these centers are abandoned or reduced in scale, their loss is catastrophic for our data base, our museum collections, even for our ability to secure financial backing. (Dark ages are rarely as attractive to philanthropists or funding institutions.)"

Likewise Marcus (1989:201) notes, "relatively few archaeologists have studied the process of dissolution, recovery, and reorganization, preferring instead to study the 'golden ages' of ancient civilizations, when those societies were 'in full flower.'" Even the recent volume *After Collapse: The Regeneration of Complex Societies* (Schwartz and Nichols 2006) focused primarily on secondary state regeneration following collapse rather than the formation of post-collapse society itself.

Collapse and Regeneration

The question of regeneration following collapse is an interesting one, and one that has traditionally received less attention than primary state formation. One notable attempt to deal with the often cyclical process of collapse and regeneration is Marcus's (1998) "dynamic model," which describes the "competitive cycles of consolidation, expansion, and dissolution" (Marcus 1998:60) that she noted in many ancient state systems. The "peak" of the cycle marks the typical expansive state, which gradually loses power only for something very similar to rise again. The model was developed using the example of the Maya, and Marcus convincingly demonstrates that Maya history is made up of a complex pattern of the growth, expansion, and collapse of many different Maya states centered around different capital cities, some of which grew in power as others waned, due primarily to the ambitions of secondary elites who drew away from the "primary" centers as their own power grew. Nevertheless, despite the rise and fall of various powerful centers, Maya "civilization" continued unabated, with commoners continuing to support the basic structure of Maya elite hegemony, even as state boundaries grew, changed, and disappeared.

While Marcus (1998) also applies this model to Zapotec, Central Mexican, Andean, Mesopotamian, Egyptian, and Aegean cases, it is not clear to what level the model is accurate for other cases, as patterns of centralization and decentralization can have widely different causes (see Schwartz 2006:6). In the Andes, for example, Marcus cites the Moche, Wari, Chimu, and Inca states as "peaks" in her dynamic model without recognizing important distinctions in hegemonic identity and political boundaries between these states that do not exist in the Maya example.

After Collapse (Schwartz and Nichols 2006) presents a number of essays, each introducing different examples of post-collapse regeneration of complex societies, making it clear that this is not a simple phenomenon. Post-collapse regeneration can turn previously existing social hierarchies on their head, providing opportunities of advancement for secondary elites and non-elites. Furthermore, the newly forming states can develop their identities by both drawing on and refuting specific aspects of the previous political system (Schwartz 2006). Bronson (2006) differentiates between what he calls "template" regeneration and "stimulus" regeneration. "Template" regeneration of sociopolitical complexity involves roughly the same group of people following roughly the same pattern of government, and centered around either the same or different political center. Examples could include the Classic Maya (following Marcus 1989), the regeneration of various Chinese dynasties (Bronson 2006:140) and the reinstitution of Middle Kingdom Egypt following Old Kingdom collapse (Morris 2006). Because template regeneration is basically a self-conscious restoration of an earlier political system, it often occurs relatively quickly after collapse. "Stimulus" regeneration, on the other hand, generally occurs after a long period of decentralization or outside control and

bases political reconstruction on a combination of "hazy historical memories that may or may not be accurate" (Bronson 2006:138) and ideas from neighboring states, often repackaged as past heritage.[9]

The question then becomes: what factors cause states to regenerate relatively rapidly, and what can lead to protracted periods of decentralization? As noted earlier in this chapter, Hegmon and colleagues (2008) blame the "rigidity trap" for situations in which sociopolitical complexity does not rapidly regenerate. Following their argument, sociopolitical systems that become less flexible are less able to regenerate after collapse, leading to more severe transformations between the pre- and post-collapse periods. A comparison of three cases from the American Southwest (Mimbres, Mesa Verde, and Hohokam) along specific measurements designed to assess pre-collapse rigidity (levels of integration, hierarchy and conformity) and the severity of post-collapse transformations (number of people affected, levels of population displacement, degree of cultural change, increase in physical suffering) is used to illustrate the connection between rigidity and the severity of transformation. This interpretation equates the "fitness" of a particular sociopolitical system with its flexibility to changing external impetus (Hegmon et al. 2008).

A different argument is set forth by Kolata (2006), who suggests that the issue is not inflexibility on the part of the pre-collapse government, but rather the extent to which the subject population has identified with the hegemonic power of the state. In states which follow what Kolata terms "hegemony with sovereignty" over a long period of time, citizens develop a historical consciousness that naturalizes state orthodoxy – "[T]he

[9] The Holy Roman Empire and even the early United States can be seen as examples of "stimulus regeneration" because they both drew on ideas of the Roman republic without fully understanding the context (Bronson 2006:138-139).

ubiquitous physical and social presence of the state serves, over time, to ingrain social habits, political structures, patterns of production and consumption, and, not least, familiarity with and acceptance of hierarchical institutions and specific forms of class relations. The status quo ante becomes the natural, familiar model for regenerating and reproducing state formations" (Kolata 2006:216). In these situations, a relatively quick "template regeneration" is the expected result following a collapse scenario. In situations where a pre-collapse state practiced "hegemony without sovereignty," however, subjects of the state never fully identify with the state, practicing orthopraxy (in which subjects do not internalize the values of the dominant group, but only go through the motions) rather than orthodoxy. In these cases, where local identities are maintained and the benefits of centralization are never internalized by the local populace, longer periods of decentralization are probable following sociopolitical collapse.

Sims (2006) contributes the only article in the collected volume describing a situation in which regeneration does not occur. He suggests that Tumilaca communities in central Peru did not regenerate socio-political complexity following Wari collapse because migrant Tiwanaku and Tumilaca communities were never fully integrated into the Wari system.[10] As a result, community administrators were poorly prepared to oversee regional systems following the withdrawal of the Wari state. This "administrative underdevelopment" led to a situation where local elites were not heavily invested in the state system, and thus local systems survived collapse with few changes. In contrast, this interpretation suggests, communities that were more heavily invested in the state system (like those within the Tiwanaku heartland) were more likely to undergo

[10] The Tumilaca are the descendants of Tiwanaku immigrants in the Moquegua valley during the period that followed the withdrawal of the Tiwanaku (AD 950) and the Wari (AD 1050) from the region (Sims 2006).

dramatic transformations following collapse if rapid "template regeneration" did not result.

Formulating Post-Collapse Identities

Without negating the importance of investigating the regeneration of complex societies in the periods following collapse, in this dissertation I am more focused on the formation of identity during the periods of decentralization that follow collapse, however long they may last. In general, post-collapse periods are marked by diminished sociopolitical complexity, a loss of centralized control, a loss of elite privilege, population movement (especially depopulation of the core area), declining regional interaction/trade, and the abandonment or decay of ritual/ceremonial architecture. According to Tainter (1988:20), "Organization reduces to the lowest level that is economically sustainable… The world as seen from any locality perceptibly shrinks, and over the horizon lies the unknown."

When we begin to look at individual examples of collapse, however, we see that they do not all fit so neatly into this mold. For example, Parsons and colleagues (1997) found that interactions between herding and cultivating groups in central Peru actually increased following the Middle Horizon collapse. As D. Chase and A. Chase (2004) note for the Post-Classic Maya, the defining characteristics of post-collapse society are most often defined by the *absence* of traits which characterize pre-"collapse" society rather than by any new developments in the post-collapse period. As a result, post-collapse society is often interpreted as a "lesser" manifestation of a particular culture. "[T]he aftermath of empire is often imagined as a period of cultural degradation, a backsliding

into ‘dark ages’ shorn of the rich material trappings of imperial splendor” (Kolata 2006:208).

More research is necessary for us to understand post-collapse periods as qualified by anything more than a lack of what went before. Post-collapse societies are not diminished copies of their predecessor states, nor do they represent a simple return to a local, primordial identity. Following collapse, society does not simply break down into its component parts. Janusek (2005a) suggests that we consider “collapse as cultural revolution,” considering what was being created through the process of collapse, rather than what was lost. Such an understanding would “… require that archaeologists reckon on the active participation of individuals who make choices among the multiple and overlapping identities available to them. We must ask who profits from which choices and who does not” (Yoffee 2006:227). This sort of investigation benefits from the approach of “historical processualism” described above (Pauketat 2001) and necessitates in-depth investigations that take into account the practice of community identity formation at a variety of scales.

Investigating the Post-Collapse Community

My dissertation begins with the assumption that collapse in general can only be understood as a broad category that encompasses the specific manifestations of a variety of unique historical processes. As a result, it is necessary for research to concentrate on in depth analyses focusing on the practices that constituted the process of collapse in particular places at particular points in time. Janusek’s (2005a) article “Collapse as

Cultural Revolution" provides a good example of this sort of analysis for the collapse of Tiwanaku. My research extends this analysis further into the post-collapse period, focusing on a community which formed following Tiwanaku collapse in the former Tiwanaku heartland.

A focus on the local is necessary, especially for post-collapse histories, since during those time periods there is no centralized authority hegemonically shaping identity formation. Instead, identities are created out of a combination of past structuration and present practice. Individuals and communities create new identities by both drawing on and repudiating the traditions of the past, and new traditions help to form these identities. As Pauketat 2001:80 notes, "tradition is the medium of change." Post collapse communities also need to deal with the material manifestations of particular pre-collapse identities that occupy the same space (Barrett 1999) and may alternately ignore, deface, or assign new meaning to structures, monuments, and cultural landscapes. Because of the locally situated nature of post-collapse practice, widely different manifestations of post-collapse identities are possible even within a small region, depending on the practices of specific communities. This may be part of the reason post-collapse periods are not widely investigated. The high level of variation inhibits the creation of grand theories about the reconstruction of cultural ideals following collapse.

The analysis of these issues through the lens of an archaeology of community provides an answer to this dilemma. Consideration of community from an interactionalist perspective provides insight into how community identity is formed and maintained through individual interactions within the community as well as through interactions between members of different communities. A consideration of the

ramifications of post-collapse identity formation must deal with the same issues that Pauketat (2007) identifies as necessary for an understanding of the early growth of Mississippian towns and villages. Such an investigation:

> "…is about understanding how collective memories were negotiated, remembered and forgotten, how traditions were invented and reinvented continuously, and how politics and daily practice intersected… Theory suggests that such intersections happened in the guise of community, where community was (and is) an open, malleable, materialized, and spatialized field of cultural identity formation. Communities weren't static. They never are. They were subject to politicization, cooptation, or reinterpretation by politicos, factions, and hidden (or unofficial) interests at local, regional, and even transregional scales" (Pauketat 2007:107).

A multiscalar approach to an archaeology of communities (Joyce and Hendon 2000) considers both the local production of identity through everyday activities and the way in which a community situates itself in regional context.

My investigation of the community of Pukara de Khonkho provides the detail necessary to begin to understand the sorts of processes that were taking place in the decades and centuries following Tiwanaku collapse. The experience of the inhabitants of the Pukara de Khonkho in the formation of their post-collapse community identity was no doubt unique and dependent on the specific practices of individuals and small groups within the community, so should not be understood as descriptive of all post-collapse communities, even those within the Pacajes region of the post-Tiwanaku Titicaca Basin. Nevertheless, I present the following analysis as a detailed case study that can help us to better understand the kinds of processes and practices that continually help to shape community identity formation, recognizing some of the special challenges of post-collapse periods. While focusing specifically on the community of Pukara de Khonkho, I also try to understand its relationships within the broader spectrum of the Late Intermediate Period societies in the Titicaca Basin.

CHAPTER III

POST-TIWANAKU DEVELOPMENTS IN THE TITICACA BASIN

While the Late Intermediate Period has not been as intensively studied as other time periods in the Titicaca Basin, sufficient ethnohistoric and archaeological data exists to present a fairly detailed picture of LIP life. A recent growth of interest in the time period is, in fact, leading to a more nuanced understanding that can even begin to address local and regional variation (e.g. Arkush 2005, 2011; Covey 2008; Frye 1997; Frye and de la Vega 2005).

With the collapse of Tiwanaku, there was a seemingly abrupt shift in material culture, as groups and individuals began to disassociate themselves from symbols of the Tiwanaku state. The standardized serving vessels associated with Tiwanaku commensalism fell into disuse, and other symbols of the Tiwanaku state, including many stone monoliths, appear to have been ritually defaced or destroyed around this time period (Janusek 2005a). The shift in material culture was associated with a major shift in settlement patterns, as populations dispersed across the landscape. The large ceremonial centers of the altiplano were virtually abandoned, and a new pattern of small, ephemeral (likely part-time or temporary) settlements emerged, covering even previously non-inhabited areas of the landscape (Albarracin-Jordan and Matthews 1990; Bandy 2001; Frye 1997; Janusek and Kolata 2003). The widespread construction of *qochas*, manmade basins designed to collect rainwater, also suggests a change in subsistence practices during this time (Erickson 2000; Lémuz 2007), while an increase in new mortuary

practices (including the construction of burial towers known as *chullpas*) may suggest a change in social organization (Isbell 1997). In addition, the development of fortified hilltop settlements known as *pukaras* points to an increase in warfare and/or conflict during this time period (Arkush 2005, 2008, 2011; Arkush and Stanish 2005).

In this chapter, I provide a brief history of investigations into the Late Intermediate Period in the Titicaca Basin, synthesizing recent research into and current understandings of the time period and the region and drawing on both archaeological and ethnohistoric sources. While I consider the entire Titicaca Basin in order to put the results of my research into larger context, I focus specifically on the work that has been conducted in the Pacajes region, to the southeast of the lake – the location of the former Tiwanaku heartland and the region where the Pukara de Khonkho is located. I conclude with a brief consideration of the influences of Inca and Spanish conquest on Aymara social and political life.

The Andean Late Intermediate Period

The Late Intermediate Period was initially defined as part of the "horizon" system established by John Howland Rowe (1960, 1962), situated during the time period following the collapse of the Middle Horizon states of Tiwanaku and Wari and before the widespread expansion of the Inca empire. As an "intermediate" period, it is explicitly characterized by a *lack* of the unifying "horizon styles" that tied the Andean region together under the Tiwanaku and Wari (during the Middle Horizon) and the Inca (during the Late Horizon.) Following Rowe's (1962) "master sequence," which links general

regional periods to the specific chronology of the Ica Valley, the Late Intermediate Period dates from A.D. 1000-1476, ending with the Inca expansion into the Ica Valley.

Since the Middle Horizon states did not collapse evenly, however, the actual dates of the Late Intermediate Period vary somewhat across the Andean region. Those in the central Andes generally see the loss of Tiwanaku/Wari influence around AD 1000 (Covey 2008; Williams 2002), while in the Tiwanaku Valley abandonment of Tiwanaku sites and raised fields range from between AD 1000 – 1200 (Stanish 2003:207-208). Following Janusek (2004b:249), I define the Late Intermediate Period in the Desaguadero Basin as dating between AD 1150-1450.

Over the entire Andean region, the Late Intermediate Period has been broadly characterized in the ethnohistoric sources as a period of war (e.g. Cieza de León 1959[1553]; Cobo 1991[1653; Guaman Poma 1992[1615]), and this assessment has been supported by recent archaeological research (e.g. Arkush 2011; Arkush and Stanish 2005; Torres-Rouff 2005). Nevertheless, multiregional comparisons of the Late Intermediate Period experience also show that experiences across the basin are multifaceted and diverse (e.g. Covey 2008). Studies of this time period help to demonstrate regional variation and also set the stage for a more complete understanding of the various reactions to and experiences of the Inca and later Colonial conquests. Our understanding of this influential period in Andean history benefits from reference to both ethnohistoric and archaeological sources.

The Ethnohistoric Sources

The documentary sources that reference the Late Intermediate Period date to the early years of Spanish colonialism, and, as such, report on pre-Inca history through the lens of both Inca and Spanish conquest. Chroniclers include Spanish soldiers (e.g. Cieza de León), priests (e.g. Bernabe Cobo), administrators (e.g. Luis Capoche) and observers (e.g. Juan de Betanzos and Sarmiento de Gamboa), as well as some indigenous and/or mestizo writers. While the best known is Guaman Poma, who wrote from Huarochiri, on the Peruvian coast, a local Aymara voice that was recorded was Santa Cruz Pachacuti Yamqui. Also important for local histories are the documents resulting from colonial *visitas,* official Spanish colonial inspections of local communities designed to assure that native communities were living in accordance with colonial requirements (Guevara-Gil and Salomon 1994; Murra 1968). In the Lake Titicaca region, the most notable *visita* records are those by Garci Diez de San Miguel, regarding the Lupaqa (Murra 1968) and by Mercado de Peñalosa (1965[1583]) regarding the Pacajes. Finally, the Aymara dictionary compiled in 1612 by Ludovico Bertonio (1993[1612]) helps us to better understand Aymara socio-political organization through in-depth descriptions and definitions of important terms and categories.

When utilizing these ethnohistoric resources for archaeological interpretation, it is important to remember that all histories have motives. When we read colonial depictions of Inca and pre-Inca pasts, "We have to be aware of the history of composition and the complex authorship of such works. Change can be introduced in the transmission process, but the major events in the history of these texts are the composition episodes" (Julien 2000:14). Those who wished to portray the Inca as a "civilizing" force, for

example, had an interest in portraying the people they conquered as savage warriors. Because there can be a variety of historical narratives encoded in a specific document, it is best to read each in the context of both other documents and archaeological evidence. By approaching the documents through an explicitly geographical perspective, for example, Julien (1993) is able to better situate both archaeological and ethnohistoric data and to present a picture of the past that is both locally situated and informed by regional politics.

Archaeological Evidence

While early interest in the Late Intermediate Period was informed primarily by documentary research and the review of colonial period chronicles (e.g. Murra 1968, 1972; Porras Barrenchea 1962; Rowe 1945, 1946, 1948; Zuidema 1964), archaeological research into the time period took a bit longer to develop, and until recently, surprisingly little research has focused on the LIP in the Titicaca Basin. This is especially surprising, given that features dating to the Late Intermediate Period (including *pukara* fortified hilltops, *chullpa* mortuary monuments, and *qocha* water basins) are clearly visible throughout the landscape and have been noted by travelers and naturalists since the beginnings of European interest in the prehispanic past (e.g. Markham 1962; Squier 1877; Weiner 1880).

Covey (2008:288) has suggested that "the documentary record too often skews researchers' overall conceptualization of the pre-Inka period as one characterized by decentralization and warfare," arguing that archaeological research allows for a more detailed discussion of continuity and change at both the local and the regional levels. In

his review of recent archaeological research into the Late Intermediate Period across the Andean region he demonstrates that, while there are significant differences in economic, political, and social organization between the coastal and the highland regions (and between different localities within those regions), each area is responding to the same broad pattern of collapse and regeneration as well as many of the same climatic stresses. While recognizing that these broad patterns extend throughout the Andes, in this dissertation I focus specifically on the Titicaca Basin, where the Late Intermediate Period was characterized by the development of the Aymara *señorios.*

Defining the Aymara *Señorios*

The so-called Aymara *señorios* (variously defined as chiefdoms or kingdoms) around Lake Titicaca include the Colla, around the northern part of the lake; the Lupaqa, to the southwest; and the Pacajes, to the southeast (Figure 6). Additional Aymara groups recorded in the colonial period (specifically from Capoche's 1585 list of *mitayos*) included the Canas and the Canchis, north of the Colla, and the Carangas, Soras, Charcas, Quillacas, Caracaras, Chuis, and Chichas, south of the Pacajes (Bouysse-Cassagne 1986). While the Pacajes *señorio*, where the Pukara de Khonkho is located, closely corresponds to the former Tiwanaku heartland, the majority of the research focusing on the Late Intermediate Period Titicaca basin to date has been conducted in the Colla and Lupaqa *señorios* north and west of the lake. In this section I provide a general introduction to the Aymara *señorios*, focusing on the Colla and Lupaqa groups (which have been most

intensively studied), but referencing the surrounding Aymara *señorios* as well.[11] In the next section, I more explicitly address the Pacajes region, suggesting that the experience of the Late Intermediate Period in the former Tiwanaku heartland may not fit the model proposed for the better-known Colla and Lupaqa *señorios*.

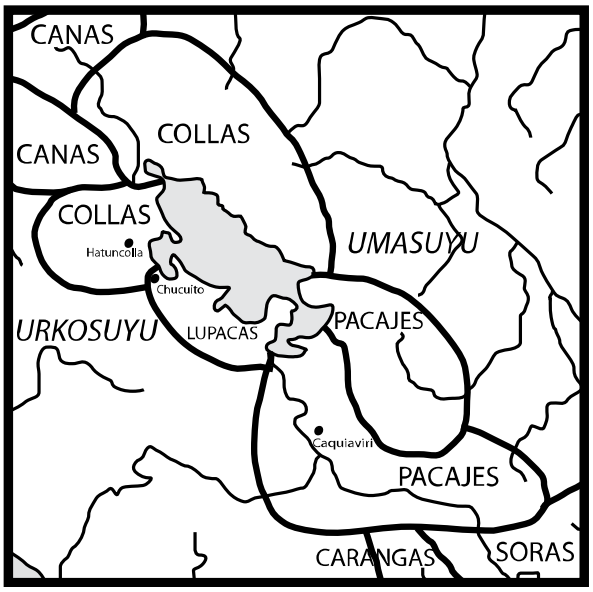

Figure 6: Late Intermediate Period Aymara *señorios* around the Titicaca Basin

Early Archaeological Research in the Titicaca Basin

Beginning in the 1930's and 1940's, archaeologists initiated a few large scale surveys across the Titicaca Basin that laid the groundwork for investigations into the Late Intermediate Period. For example, surveys conducted in 1941 by Alfred Kidder II (1943) and his team identified a number of Late Intermediate Period sites in the Colla and Lupaqa areas of the north basin. Tschopik's (1946) monograph described a number of these sites and outlined the major ceramic styles for the region, including the Collao

[11] For a more detailed history of research in the north basin, see Arkush (2005:163-176).

Black-on-Red, which was identified as diagnostic for the Late Intermediate Period.[12] Rowe (1942), who also took part in these expeditions, specifically described two *pukaras* – Pukará and Llallahua – which correspond to two of the fortifications described in colonial documents that were used in the Colla rebellion against the Inca.

In the southern basin (Pacajes area), the major archaeologist to address the late prehispanic period was Stig Rydén (1947), who came to Bolivia in 1938-1939 with a specific interest in *chullpa* mortuary monuments. In addition to his work with mortuary resources, he also conducted a number of other excavations and surveys at Tiwanaku, Khonkho Wankane, Pukara de Khonkho, Ch'aucha de Khula Marka, Palli Marca, Sollkatiti, and the Pukara de Tiquina, among other locations. While he mistakenly dated Khonkho Wankane as a primarily "decadent Tiwanaku" site, he did notice that there were also representations of what he termed "post-decadent Tiwanaku" ceramics. (It turns out that most of what Rydén termed "decadent Tiwanaku" ceramics were actually Late Formative sherds, but he was correct in also noting the presence of Pacajes and Inca forms, especially on the surface.) In addition, Rydén recorded sherds from the same time period at Sollkatiti and Taquiri, and conducted a number of excavations at Inca sites in the region (including most notably for this dissertation, Chaucha de Khula Marka, discussed in Chapter 6.)

Rydén (1947) was also the only individual to excavate at the Pukara de Khonkho before my own investigations began, although the site is noted in other sources (Bennett 1950; Portugal Zamora 1941). He took meticulous notes and provided drawings of almost all of the diagnostic ceramics. Based on comparative analysis, he argued that the

[12] Relevant ceramic styles are discussed in more detail in Chapter 7.

site dated between the Tiwanaku and the Inca periods and suggested that it served as a place of refuge in times of war rather than a permanent settlement.

Another major early investigation took place in the eastern part of the Titicaca Basin. In 1932, Bennett (1950) conducted a survey in what he termed the Achacache sub-area, recording over forty Late Intermediate Period[13] villages in that area, some with more than a thousand houses. The majority of the villages were fortified hilltop settlements surrounded by defensive walls, and Bennett noted the presence of both circular and rectangular structures. He also recorded stone *chullpas* in a couple of different styles at many of these settlements. While commenting on a similarity between Collao Black-on-Red and Khonkho Black-on-Red, Bennett argued that there were clear and significant distinctions in ceramic styles around the basin, and particularly between the northern and southern basin, throughout the archaeological history of the region. He fully expected that future research would reveal even higher levels of diversity in different sub-areas.

Warfare and Leadership in the Ethnohistoric Record

Both ethnohistoric and archaeological evidence suggest high levels of conflict within and between the various Aymara groups of the LIP (Arkush 2008, 2011; Arkush and Stanish 2005; Cieza de León 1984[1533]; Cobo 1991[1653]; Guaman Poma 1992[1615]), and this, together with the evidence for population dispersal and diminished sociopolitical complexity following Tiwanaku collapse (e.g. Albarracin-Jordan 1996; Albarracin-Jordan and Matthews 1990; Bandy 2001; Matthews 1992; Sims 2006; Stanish

[13] Bennett termed the Late Intermediate Period pottery from the southern Titicaca basin "Khonkho" style, because of its similarities to the style recorded at the site of Pukara de Khonkho.

2003; Williams 2002) has led to a common portrayal of the Late Intermediate Period as a sort of Andean "Dark Age" of sociopolitical fragmentation and conflict. Colonial documents uniformly portray the Aymara as the bellicose warriors of the high plains, camelid herders who were almost always in a state of conflict and constructed large fortresses on rugged mountain peaks. The defining factor in descriptions of the Aymara Late Intermediate Period is conflict; it was *awqa runa*, a time of war, when the most important leaders were war-chiefs.

Pedro de Cieza de León, a soldier and careful observer who traveled through the Titicaca Basin in the 1500's, wrote fairly extensively about Inca and pre-Inca history in the region (Julien 2000). Like most of the early chroniclers, he described a savage pre-Inca landscape of barbarism and warfare. According to Cieza, many of the Aymara were naked and savage, without true houses. They would come screaming down from their *pukaras* to fight with each other over land or for other reasons, returning with their plunder to the mountains, where they made human and animal sacrifices to their gods. He noted that they lived without order and that some claimed they had no true lords or recognized leaders other than war captains.[14]

While Cieza de León appeared appalled at the Aymara barbarity and apparent disorder, other chroniclers emphasized Aymara strength and nobility. One Aymara lord (from the Charca *señorio*, south of the Pacajes) remembered the warlike nature of the

[14] "[D]izen que todos bivían desordenadamente y que muchos andavan desnudos, hechos salvajes, sin tener casas ni otras moradas que cuevas de las muchas que vemos aver en riscos grandes y peñascos e donde salían a comer de lo que hallavan por los canpos. Otros hazían *en los serros* castillos que llaman 'pucarais', desde donde, aullando con lenguas estrañas, salían a pelear unos con otros sobre las tierras de lavor o por otras causas y se matavan muchos dellos, tomando el despojo que hallavan e las mugeres de los vencidos; con todo lo qual, yvan trufando [sic] a lo alto de los cerros donde tenían sus castillos y allí hazían sus sacrificios a los dioses en quienes ellos adoravan, derramando *delante* de las piedras e ydolos mucha sangre umana y de corderos. Todos ellos heran behetrías sin horden, porque cierto dizen no tener señores ni más que capitanes con los quales salían a las guerras" (Cieza de León 1985[1553]:6).

southern Aymara groups with great pride, noting that the Charcas, Caracaras, Chuis, and Chichas were exempt from other tribute to the Inca due to their skill as warriors:

> "We were the most important lords of all; some commanded ten thousand vassals, other eight thousand, six thousand, or a thousand Indians, just like the dukes, counts and marquesses of Spain, and this was so both before the Inka and after them… We, men of the four nations, we were the conquerors. We were victorious against the Chachapoyas, the Cayambis, the Cañaris, the Quitos and Quillacingas who are peoples of Guayaquil and Popayan" (Espinoza Soriano 1582, quoted in Bouysse-Cassagne 1986:206).

In many of the documents the Aymara leaders are discussed as "kings," strong rulers who were conquerors in their own right and put up fierce resistance to Inca domination (Arkush 2005, 2011; Cieza de León 1984[1533]; Cobo 1991[1653]; Lumbreras 1974; Murra 1968). According to Bernabe Cobo, the Colla leader was very powerful, controlling a broad expanse of land: "His state started from the sierra of Vilcanota from where, up to the town of Hatuncolla, where he resided, it is more than twenty-five leagues" (Cobo 1991[1653]:139). The indigenous author Juan de Santa Cruz Pachacuti Yamqui, a native of the provinces of Canas and Canchis, just north of the Colla, agreed (Bouyesse-Cassagne 1986). He emphasized the power of the Colla lord before Inca conquest. "Chuchi Capac of the Hatun Collas is said to have arrived at Viracocha Inca's wedding in grand style, in a litter with a bodyguard and his portable *hauca*, and made insistent comparisons presenting himself as equal or only slightly inferior in status to the Inca, who meekly agreed" (Arkush 2005:134). Likewise, Juan de Betanzos (a Quechua interpreter who married the widow of Atahualpa) described the Colla lord as a very powerful and warlike king who had already conquered the surrounding area:

> "In [Hatun Colla] there was a lord named Ruquicapana. This town of Hatun Colla and the lord already mentioned had subjugated and controlled a great many other lords within twenty to twenty-five leagues of Hatun Colla. This lord also called

> himself Capac Capa apo yndi chori, which means king and unique lord of the Sun. He was very powerful and had very powerful forces that were very warlike" (Betanzos 1996[1557]:93).

Not all of the chroniclers consistently portrayed the Aymara lords as great kings. Sarmiento de Gamboa, writing in 1572, actually referred to the leader of the Colla as a *sinchi* or temporary war leader, who had no peacetime authority (Arkush 2005:130). Nevertheless, he seemed to be somewhat confused as to the level of power, as he also used the term *capac*, a hereditary ruler, noting that the Colla ruler had given himself this title (Arkush 2005:137).

Prior to Inca conquest, Cieza de León describes a rivalry between the Colla and the Lupaqa, both of which are described as led by great lords who also fought successfully against the Canas and the Canchis, conquering many pukaras within the land (Cieza de León 1984[1533]:273-274; see also Arkush 2005:134). He names Zapuna (or Capana) as the leader of Hatuncolla and describes this as a hereditary position (Arkush 2005:138). According to Cieza, both the Collas and the Lupaqas tried to curry favor with the Inca, but it was Cari, the Lupaqa leader, who made peace with the Inca, submitting to Inca rule without bloodshed, while the Colla were militarily defeated and their leader, Capana, was killed (Cieza de León 1985[1553]:124-126). Sarmiento de Gamboa noted that the sons of the Colla leader were captured by the Inca, just as would be expected if *capac* were a hereditary position (Arkush 2005:137).

According to Betanzos, the Inca Pachacuti Inca Yupanque respected the power of the Colla ruler and sought to prove himself against the powerful adversary. While the Colla leader was eventually defeated, he put up a strong fight:

> "When the lord of Hatun Colla got the news that such powerful forces were coming against him, he had a meeting of his men where they say he assembled more than two hundred thousand warriors. With them he waited in his town of Hatun Colla.

> When the Inca reached there he attacked. The battle was so fierce and bitter that though it started in the morning victory was not in sight until evening. In this battle it is said that more than one hundred thousand men died from both sides. At the end of the battle the Inca and his men won the victory. That lord of Hatun Colla was captured and killed in the battle" (Betanzos 1996[1557]:94).

Following the conquest of the lord of Hatun Colla, according to Betanzos, the Inca traveled through neighboring provinces which "offered" to obey him, and all became the Inca province of Collasuyu. Cobo tells a similar story of battle and defeat:

> "[T]he Colla Indians came out to meet him in battle array, inciting the Inca to make war. The two military camps attacked each other with equal courage, and both sides fought with much fury and persistence. But, owing to their lack of experience, the enemy started to weaken; sensing this, the Inca's men began a victory chant. Seeing that the majority of their men were dead, the Colla Indians lost courage, retreated with as many men as possible, and repaired to Pucará. The Inca destroyed the town of Ayavire, and on his orders, all the people his men could lay hands on were beheaded. Without stopping to rest after the battle, the Inca went looking for Colla Capac, as the king of the Collao was called. The Inca fought with him a second time at Pucará, and he defeated him there also. A great many Colla Indians died in both battles, those who escaped ran away at first, but later they came back and turned themselves over to the Inca" (Cobo 1991[1653]:140).

According to both Cobo and Cieza de León, after the defeat of the Colla, the cacique of the Lupaqa welcomed the Inca and peacefully turned his state over to the Inca empire, as did other Colla lords.

Many Colla continued to be rebellious subjects, however, and later rebelled against Topa Inca, along with some of the Lupaqas (Cieza de León 1985[1553]:157-160). Both Betanzos and Santa Cruz Pachacuti also relate stories regarding a later Colla rebellion against Inca rule. According to Betanzos, the Colla fought (but ultimately lost to) the Inca at various fortified sites throughout the region (Betanzos 1996[1557]:143-149). Following Sarmiento de Gamboa, the rebellion was led by Coqauiri, one of the sons of the former Colla leader, who renamed himself Pachacuti Inca. This rebellion was harshly put down, although it took some years of fierce fighting at "strong places" including Llallahua, Asillo, Arapa, and Pucará (Arkush 2005:146-147). Santa Cruz

Pachacuti, another native chronicler, wrote that during the Colla rebellion, the Incas had to besiege the rebellious Collas for three years at the site of Llallagua before they finally defeated them (Arkush 2005:148).

Despite all the documentary evidence describing the Aymara lords as powerful leaders, however, archaeological investigations show that the Aymara *señorios* were not as centralized as the colonial documents suggest. While the chronicles portray a monolithic image of Aymara identity as defined by a discrete number of centralized warring kingdoms, the reality appears much more complicated. In fact, it is likely that different Aymara regions may have had radically different experiences that varied throughout the Late Intermediate Period. Unfortunately, until recently the entire 400 – 500 year LIP was discussed as an undifferentiated block of time (see Arkush 2008, 2011) and little research has focused on local or regional variation. Nevertheless, as the discussion below will demonstrate, such variation was substantial.

Boundaries and Ethnic Identity

Despite apparent similarities in social and political organization as well as general subsistence patterns, there do appear to be some differences in ideology and identity between different Aymara regions, which are partially reflected in material culture. One important conceptual division of the Aymara landscape was that between the western *Urcosuyu*, defined as high, dry, and masculine, and the eastern *Umasuyu*, which was understood as low, wet, and feminine (Bouyesse-Cassagne 1986). The *Urcosuyu/ Umasuyu* boundary ran down Lake Titicaca, designated as *taypi*, or center, and divided the Canchis, Canas, Collas, and Pacajes into two opposing groups. These divisions

continued to be designated into the colonial period and show up in Bertonio's dictionary as well as Luis Capoche's list of *mitayo* workers for the mines of Potosí. Although this document describes the Aymara divisions that were utilized during the Inca and Spanish administration of the area, it is thought to have older roots and is the source most often cited as representative of the original Aymara layout of the *señorios*. Capoche also discusses the *Urcosuyu/Umasuyu* division:

> "The Collasuyu was divided into two suyus which bore the names of Urcosuyu and Umasuyu. Urcosuyu refers to the dwellers of the mountain peaks, called *urco* in this language… whereas the umasuyus were those who inhabited the level lands below, beside lakes and rivers (*uma* means water); some say that urcusuyu implies a manly and courageous people, since *urcu* denotes the masculine sex, and *umasuyu* whatever is feminine and of less value. The urcosuyus have always had a higher reputation, and the Inca placed them at his right hand in public places; they were preferred to the umasuyus and were better thought of than them" (Capoche 1585, quoted in Bouysse-Cassagne 1986:202).

Bouysse-Cassagne (1986) argues that these concepts represent a dual organization of Aymara space that linked the valleys and the highlands. It was, in fact, a double dualism – the highland *Urcosuyu* on the west of the lake were the highest status highland warriors, with access to the lowland crops of the lowland *Urcosuyu* in the Pacific valleys. The highland *Umasuyu* of the lakeside valleys had similar access to goods from the lowland *Umasuyu* in the Amazon. While the system was reworked after Inca conquest, the *Urcosuyu/Umasuyu* division remained important within Inca Collasuyu.

It should also be noted that the Aymara were not the only ethnic group in the Titicaca Basin at the time of contact, and the presence of different groups, including the Uru and the Pukina, while poorly understood, appears to extend back to at least the Late Intermediate Period, if not before. Browman (1994) suggests a *"salpicada"* (or spattered) model of multiethnic settlement for the late prehistoric period, with Pukina-

speakers scattered throughout the Aymara federations of the north basin and the Uru-speakers more active in the south.

These ethnic variations are noted in the chronicles. The inspector Garci Diez de San Miguel traveled to the Lupaqa *señorio* in 1567 and recorded their sociopolitical organization from lords to peasants. He noted the presence of dual leaders – lords of both the upper and lower moieties – which he wrote was a system that went back to pre-Inca times. The Lupaqa were described as very wealthy due to the large herds of alpacas and llamas, another quality which was said to have a long history in the region: "In Inca times… there was a vast quantity of community herds, so many that despite the many lands in this province, there were insufficient pastures for the many animals grazing in those days" (Diez 1567, quoted in Murra 1968:120). The Lupaqa, as well as the neighboring Pacajes, were also said to have had control over lands in the Pacific valleys to the west, giving them access to different kinds of crops (Murra 1968). Garci Diez de San Miguel divided the population into Aymara, who were regular tributaries, and the low-status Uru fishermen, who were not taxed as heavily due to their poverty. Cieza de León also noted the presence of Pukina-speakers on the eastern side of the lake, characterizing them as "extremely dirty" (Bouyesse-Cassagne 1986).

Stanish (2003) proposes that Uru was not actually a language group, but rather a category for a lower social class of people who subsisted on fishing rather than herding or farming. In response, Janusek (2004b) notes that Uru designation had deep roots, and that, whatever else it was, "Uru" was "a native social categorization that crosscut others, melding social status and identity with specific productive practices, relative wealth or civility, and ecological associations" (Janusek 2004b:47). In any case, it is clear that

there was a complicated pattern of language, ethnic, and social groups at the time of contact. While the specifics of language and ethnicity during the Late Intermediate Period remain a question for debate, there is undoubtedly a long history of multi-ethnic and multi-lingual interaction in the Titicaca Basin, and any discussion of sociopolitical organization should take this into account.

Aymara Settlement Patterns and Subsistence

Building on the earliest archaeological investigations, some archaeological interest in the Late Intermediate Period continued on the Peruvian side of the border during the 1960's and 1970's, but in Bolivia post-Tiwanaku periods received little to no focused attention. In the Colla area small scale surveys identified a number of *pukaras* (Arkush 2005:164-165), and excavations were conducted at Hatuncolla (Julien 1983), Sillustani (Ayca 1995; Ruiz 1976), and Chila (Arkush 2005:167). In the Lupaqa area, the major research was conducted by John Hyslop (1976, 1977) who surveyed the region's settlement and mortuary sites. In both regions, archaeological investigation demonstrated that the Aymara "capitals" of Hatuncolla and Chucuito were in fact Inca sites, indicating that the Late Intermediate Period Aymara *señorios* may not have been as centralized as the documents suggest.

While Julien (1983) was primarily interested in Hatuncolla as an Inca center, she was, nevertheless, somewhat surprised to find no evidence of pre-Inca occupation at the site, since it is discussed in the chronicles as the seat of Colla government prior to Inca conquest. Her excavations, however, demonstrated that Hatuncolla was built as an administrative center by the Inca and that there was no such centralized center prior to

Inca contact. LIP ceramics were found on hilltop sites behind the town (Ale and Esturi), which could represent the earlier center, and in addition the nearby cemetery site of Sillustani was found to date primarily to the Late Intermediate Period, although use started sometime in the Late Formative. While primarily a mortuary context, Sillustani also has a small area of habitation. The large variety of different *chullpa* styles represented suggests that it may have been used by a number of different groups and communities throughout the region (Arkush 2005:166; Ayca 1995; Ruiz 1973).

Primary research in the Lupaqa area during this time period was initiated by Hyslop (1976), who conducted a large-scale survey of the Lupaqa area, looking at 52 sites (25 of which dated to the Late Intermediate Period)[15] in order to learn more about the formation of the Lupaqa "kingdom" and its sociopolitical organization. He took as a starting point the colonial documents, specifically the *visita* of Garci Diez de San Miguel, using the documents to form hypotheses which he tested through archaeological data. The survey results illustrated clear break in settlement patterns between the Tiwanaku and the Late Intermediate Periods.

Hyslop (1976:109) found that there were three basic kinds of Lupaqa settlements during the Late Intermediate Period: hilltop towns, lowland towns, and burial sites (Hyslop 1976:109). Hilltop sites were strongly defensive, surrounded by large walls, which would have protected both habitation areas and camelid herds. Houses were almost always circular in shape, of variable size and with doors in any direction, and would have been built of adobe on stone foundations. Slab cist, subterranean cist and/or *chullpa* graves were found at all of the hilltop sites. Lowland sites were smaller and

[15] Hyslop used the term "Altiplano Period" to refer to the time that I am referencing as "Late Intermediate Period" in this dissertation.

habitation structures were less likely to be preserved, but ceramics suggested that they were inhabited for longer periods of time. Cist graves and *chullpas* were also found at lowland sites. In addition, purely cemetery sites were also noted. In a later publication Hyslop (1976) presented a chronology for *chullpas* throughout the region.

Hyslop (1977:132-135) suggested that the growth of hilltop settlements in the LIP was related to a breakdown in sociopolitical structure after the Tiwanaku collapse, which issued in an uncertain period of warfare, although he also considered the idea that the inhabitants of the hilltop sites may have been invaders who were in part responsible for Tiwanaku collapse. He argued that the shift up to hilltop sites also reflected an increase in pastoralism. Hyslop seemed to accept the chroniclers' depiction of the Aymara kingdoms' strong, relatively centralized polities and for the most part attempted to reconcile ethnohistoric and archaeological evidence. Hyslop did note that an Inca center was built at Chucuito, known as the Lupaqa capital, but, like Hatuncolla, it showed no archaeological signs of pre-Inca use.

In the last twenty years, research into the LIP, especially in the Colla and Lupaqa areas, has really begun to expand, although work done today owes much to the early pioneers who began these investigations. Since the 1990's a number of projects, many directed by Charles Stanish or his students, have begun to focus on the LIP in the Colla and Lupaqa areas.[16] For Arkush's (2005) dissertation, she surveyed a number of hilltop settlements in the Colla area, while Stanish and colleagues (Frye 1997; Frye and de la

[16] Other works of interest that provide a more regional perspective on the LIP around the Titicaca Basin include research focusing on the northern Canas/Canchis regions [Dean 2005], further south [Neilsen 2008], and in northern Chile [Rivera 1991]. See Covey (2008:300-304) for an excellent summary of the Late Intermediate Period in the Titicaca Basin, which also considers the region in larger Andean context.

Vega 2005; Stanish et al. 1997; Stanish 2003) have conducted a number of surveys through the Lupaqa area that have helped to better understand settlement in that region.

In general, recent archaeological research of both *señorios* confirms that they were not actually integrated until after they were conquered by the Inca. Instead, regional survey and settlement hierarchies imply that the Colla and the Lupaqa were organized around semiautonomous polities that often engaged in both internecine and interregional conflict (Arkush 2005; Arkush and Stanish 2005; Frye 1997; Stanish 2003). Major fortified sites, or *pukaras*, were not codified across the region, and generally appear unplanned, without specialized architecture or separated elite areas. Stanish (2003; Stanish et al. 1997) and Arkush (2005) note that most *pukaras* were not actually built until the second half of the Late Intermediate Period, and that earlier settlements were generally more ephemeral.

The Lupaqa

The most comprehensive of the recent archaeological surveys conducted in the Lupaqa region is Stanish's Juli-Pomata survey (Stanish 2003; Stanish et al. 1997). Overall a major shift in settlement patterns was noted from the previous Tiwanaku period, as large lakeside centers were depopulated (e.g. Stanish 2003; Stanish and Bauer 2004; Stanish et al. 1997). Frye's (1997; Frye and de la Vega 2005) analysis of settlement patterns illustrates that the Lupaqa were not politically integrated during the Late Intermediate Period as ethnohistoric records suggest, but were organized around semiautonomous polities that were often in conflict.

The overall settlement pattern in the Lupaqa region during the LIP was composed of a combination of small, unfortified settlements associated with fortified hilltop

settlements of different sizes. Frye (1997; Frye and de la Vega 2005) found a population shift away from the agricultural lands of the lakeshore and into lands more suitable for pastoralism. He suggests that the population was relatively mobile during this time period and that sociopolitical organization may have been relatively fluid due to fluctuating patterns of competition and coalition-building. Small villages seemed to cluster around refuge *pukaras,* which were probably used as safe places in times of war, while larger *pukaras* may have served as political centers, which would have been only loosely linked to each other.

Stanish (2003; Stanish et al. 1997) differentiates between major pukaras (large inhabited sites usually encompassed by three or more defensive walls) and minor *pukaras* (uninhabited refuges or smaller inhabited fortified sites with less than two hectares of domestic residence). Chronological data illustrates that the inhabited minor *pukaras* date to earlier in the LIP than the major *pukaras,* implying an increase in conflict over time. Domestic occupation on the inhabited *pukaras* was generally characterized by one or more circular structures, often also associated with storage or other structures, built on a long domestic terrace (Stanish et al. 1993).

While *chullpa* burial towers, which could house numerous individuals and generally stood on prominent features of the landscape, are the best known and most recognizable form of LIP burial, other burial types are noted in the Lupaqa area. These include slab-cist tombs, in which a ring of upright stones mark the below-ground burial of multiple individuals, below-ground cist tombs, which usually lacked an obvious above-ground component and contained a single individual, and cave burials (de la Vega

et al. 2005). Variation in burial practices may reflect temporal differences or differences in status or ethnic or regional identity (Stanish 2003:34).

The Colla

Other than Arkush's (2005, 2008, 2011) very thorough survey of hilltop *pukaras* in the Colla region, very little work has been conducted in the northern section of the Titicaca basin that focuses on the Late Intermediate Period, which means that the larger picture of regional settlement remains somewhat undeveloped. Nevertheless, a number of recent and/or ongoing survey projects (still unpublished) in the Colla region will serve to correct this problem before too long (see Arkush 2005:167-168). Stanish et al. (2005) have published a brief article describing some of the sites that fall outside the range of these surveys.

Arkush (2005, 2008, 2011) has recently conducted a survey of *pukaras* in the northern Titicaca basin with the goal of establishing a clearer chronology for the Late Intermediate Period, specifically addressing the construction and occupations of *pukaras* during that time. She found that *pukaras* tended to be located on steep hills between 3,900 – 4,600 masl, surrounded by thick defensive walls with good views of the surrounding area, which often included other *pukaras.* While most *pukaras* did not have a year-round water source within their walls, there was evidence of habitation at the majority of the sites, although the thin levels of habitation suggests that individual houses may not have been used for long periods of time. Most *pukaras* were associated with above-ground graves or *chullpas.* The layout generally appears to be unplanned and there is significant variation between different *pukaras* in the Colla area.

Like Stanish and colleagues, Arkush (2005:250-256) recognizes different types of *pukaras,* but makes finer distinctions, using size and number of structures to establish six categories ranging from "unoccupied refuges" to "very large *pukaras*." The defensive nature of these sites is suggested not only by their hilltop location, but also by the thick defensive walls, sometimes with parapets and lookout towers along with caches of slingstones and other weapons. Most Colla *pukaras* date to the latter part of the LIP, suggesting that an increase in conflict took place well after Tiwanaku collapse, and Arkush (2005, 2008) suggests that this increase could well have been in reaction to changes in climate that put stress on the resources in the area.

Other Aymara Señorios

Because the majority of the recent archaeological investigations into the Late Intermediate Period in the Titicaca basin have focused on the Lupaqa and Colla *señorios*, the findings from these areas are often projected onto other regions. Nevertheless, the more that is learned about the Late Intermediate Period, the more it becomes obvious that it incorporated significant regional and temporal variation.

South of the Pacajes, for example, Nielsen (2008) also notes changes from the first part of the Late Intermediate Period[17] (prior to A.D. 1250) and the second phase, but this shift is expressed somewhat differently than in the northern basin. Specifically, Nielsen (2008:216) sees "a sustained tendency toward population aggregation, which is slow during the early phase and very rapid during the late one." While early settlements are small and ephemeral, by the end of the period large settlements (including some that may have had as many as 3,000 people) had begun to form. These communities were

[17] In the South Andes the time period between AD 900-1400 is more commonly referred to as the "Regional Developments Period," but I continue to use Late Intermediate Period here for consistency's sake.

also characterized by the presence of nearby *chullpas*, burial towers that were likely associated with ancestor veneration and collective memory production. Similar patterns may be noted in the Pacajes *señorio*, which demonstrates clear differences from the Lupaqa and Colla models.

The Late Intermediate Period among the Pacajes

Recent research in the Pacajes region is discussed separately and in more detail, since this is the area where this dissertation will focus. Unfortunately, since the pioneering work of Stig Rydén (1947), discussed above, few projects have specifically focused on this time period in the Pacajes region. Nevertheless, both the available documentary evidence and the relatively limited archaeological data suggests that the area surrounding the former Tiwanaku heartland may have experienced the period following the collapse of the Tiwanaku state somewhat differently than neighboring *señorios*.

Mercado de Peñalosa and Other Colonial References

Don Pedro de Mercado de Peñalosa, who conducted the *visita* to the Pacajes in 1583, is the only one of the colonial authors to describe the Pacajes region in any detail. (Most of the others focused on the Colla and the Lupaqa, which appear to have been more involved in Inca wars and conflicts.) Since the area of interest in this dissertation falls within the Pacajes region, I discuss this *visita* document in detail. Mercado de Peñalosa describes the land as cold, with little water other than the Desaguadero River.

However, he noted abundant livestock and good pasture, although the only crops were potatoes, *quinoa*, and *cañagua.* He described the people as being of medium build and well-dressed, although they both ate and slept on the ground.[18]

According to Mercado de Peñalosa, the pre-Inca Pacajes were "barbarians" who lived a vicious life-style where only the strong prospered. The inhabitants of the region told of their migration to the area from two original locations – one group from near the lake, and the other, which subsequently lived in the higher altitudes, from further south.[19] He describes Inca conquest as taking place at a town called *Llallagua*, where others had placed the battles of the Colla rebellion.[20]

Other chroniclers do briefly reference the Pacajes resistance to the Inca, describing the construction of forts on high hills, which the Inca besieged. Cobo, for example, relates the story of a particular battle at the Desaguadero River: "Also for a few days the Pacasa Indians defended the bridge over the outlet [Desaguadero] of Lake Titicaca or Chucuito, and in order to win it from them, the Inca sent part of his army to look for a ford eight leagues downstream" (Cobo 1991[1653]:140-141). According to the story, it was then that the Inca saw the site of Tiwanaku, which influenced their own construction style in Cuzco. Further south, near the Pacajes "capital" of Caquiaviri,

[18] "Es tierra fría y seca; tiene pocas aguas y algunas salobres. Corre por medio della el río que llaman del *Desaguadero*. Es abundante del ganado de la tierra; tiene buenos pastos; en partes es sana, estéril de comida, porque no se coge en ella sino *papas* y *quíñoa* y *cañagua*, porque maíz trigo ni cebada no se da en la dicha provincia. La gente desta provincia es de mediana estatura; es bien vestida, de buena contratación; las mujeres no de muy pequeña. Hablan la lengua *aymará.* Comen en el suelo, sin manteles; echan en el suelo un poco de *hicho* limpio, que es paja; duermen en el suelo sin colchón ni camas altas" (Mercado de Peñalosa 1965[1583]:334).

[19] "Los cuales dichos indios *Pacaxes* dijeron los indios antiguos haber tenido su origen, unos de la una parte de la laguna de *Chucuito* y otros de hacia la parte de los *Carangas,* de donde salieron y poblaron en esta provincial en los ceros más altos que hay en ella; y vivían a manera de behetria, sin reconocer señorío a nadie, sin pagar tributo, porque todo era traer guerra unos con otros, y el que más valiente y sabio era entre ellos, ese los mandaba y reconocían por Señor" (Mercado de Peñalosa 1965[1583]:337-338).

[20] Arkush [2005:148] suggests that Mercado de Peñalosa may have confused the two battles.

Garcilaso de la Vega also described the flight of the Pacajes to defensible hills, where they offered sacrifices to their gods.[21]

According to Mercado de Peñalosa, after Inca conquest, in which many men died, the Inca Topa Yupangui organized the conquered Pacajes, naming *caciques*, *principales*, and *hilacatas* (second order nobles) and dividing the province into the upper *Hanansaya* and the lower *Urinsaya.* This detail is interesting, because it suggests that the Pacajes were not centrally organized prior to Inca conquest. He also relates that, in order to more efficiently control the population and their production, the Inca forced the Aymara from their hilltop *pukaras* and brought them into closer contact with the Uru, who had up to that point lived along the lake (Mercado de Peñalosa 1965[1583]; see also Bouyesse-Cassagne 1986).

Like the chroniclers of the Colla and Lupaqa, Mercado de Peñalosa put a lot of emphasis on the Aymara predilection for warfare. He actually was one of very few chroniclers to describe in detail the manner of Pacajes warfare. According to Mercado de Peñalosa the warriors fought in large groups, completely naked except for body paint on their arms and legs, intended to make them look fierce. They fought with hardwood swords, lances, bow and arrow, and wooden shields.[22] He also described the high altitude

[21] "Sabiendo que el Inca iba a conquistarlos, se conformaron y redujeron en un cerro que hay en aquella comarca hecho a mano, alto menos que un cuarto legua y redondo como un pilón de azúcar, con ser por allí toda la tierra llana. A este cerro, por ser solo y por su hermosura, tenían aquellos indios por cosa sagrada, y le adoraban y ofrecían sus sacrificios" (quoted in Pärssinen 2005:125).

[22] "Peleaban estos indios de la dicha provincial de los *Pacaxes* de ciento en ciento y de docientos, a modo de escuadrones, desnudos, y el más valiente dellos era el que los capitaneaba y mandaba en la Guerra. Salían embijados las piernas y brazos y rostros con colores, para mostrarse fieros a sus enemigos. Peleaban a pie con unas macanas [hardwood swords] a manera de hachas darmas, con algunas lanzas a manera de las nuestras, con arcos y flechas, con hondas y algunas rodelas [wooden shields] traídas de los *Yungas*" (Mercado de Peñalosa 1965[1583]:338).

refuges where the Pacajes retreated in times of war, noting that the fortresses were located on steep hills with access to spring water, and encircled by dry stone walls.[23]

In addition, Mercado de Peñalosa wrote about cultural traditions regarding sickness, marriage, burials, houses, trade, and agricultural, animal, and mineral resources in the Pacajes region. The people wore yellow *chucos* on their heads to differentiate themselves from their neighbors, whose hat styles were similar in all but color. They ate potatoes, quinua, cañagua, and had access to maize from towns in the lower valleys. Other than that, however, Mercado de Peñalosa writes that they did not travel as much prior to Spanish conquest as they did at the time of his report (due to tribute) and, as a result of harder work (and more alcohol) in the colonial period, they were not living as long. Houses were small and round, made of stone and adobe, although *caciques* lived in larger rectangular structures constructed with wood brought from the *yungas*. Tombs were described as located outside of the town and were painted, tall, square structures (Mercado de Peñalosa 1965[1583]).

The primary sites under consideration in this dissertation – Pukara de Khonkho (the Late Intermediate Period center) and Chaucha de Khula Marka (Inca/Colonial Period) are located within what would have been the *Provincia de Pacajes,* specifically within the region of Machaca and the subregion of Jesus de Machaca (Machaca la Chica), although they are not specifically mentioned by Mercado de Peñalosa. He does, however, discuss subdivisions within the Pacajes. At the time of the report, the province of the *Pacaxes* was divided among five *repartimientos,* including Callapa, Caquingora, Caquiquire, Machaca, and Tiaguanaco. While before the *reducciones,* people lived in

[23] "Y las fortalezas que tuvieron eran los ceros altos que tenían áspera subida y donde había algunas fuentes de agua; en los cuales se acogían n tiempo e guerras y hacían un muro de piedra seca que cercaban (*así*) la entrada; y así estaban seguros de sus enemigos" (Mercado de Peñalosa 1965[1583]:340).

various towns across the landscape, after the *reducciones*, he describes two or three towns within each *repartimiento*. The *repartimiento* of Machaca was divided into *hanansaya* (where the town of Machaca la Chica, today Jesus de Machaca, was located) and *urinsaya* (where the towns of Machaca, today San Andres, and Santiago de Mamañeca [Machaca], today Santiago, were located) (Astvaldsson 2000). Mercado de Peñalosa recorded 800 tributary Indians in the town of Machaca and an additional 600 in Machaca la Chica and 600 in Santiago de Mamañeca. The region was said to be populated by both Urus and Aymara (Mercado de Peñalosa 1965[1583]).

Recent Archaeological Research in the Pacajes *Señorio*

While few archaeological research projects have explicitly focused on the Late Intermediate Period in the former Tiwanaku heartland, a number of regional surveys and limited excavations in the Tiwanaku (Albarracin-Jordan 1992, 1996; Albarracin-Jordan and Matthews 1990; Bandy 2001; Matthews 1992), Katari (Janusek and Kolata 2003; Wise 1993), and Desaguadero (Lémuz 2005, 2006; Zovar 2007a, 2008, in press) valleys, together with additional investigations near Caquiaviri (Pärssinen 2005), have helped to clarify a general picture of Pacajes settlement and social organization. Janusek (2005a) notes an overall drop in population following Tiwanaku collapse, along with the virtual abandonment of the large ceremonial centers of the altiplano. Instead, like coeval Colla and Lupaqa sites, most Late Intermediate Period Pacajes settlements were small, ephemeral, and scattered, reflecting a shift to a subsistence pattern focusing on pastoralism rather than agriculture (Albarracin-Jordan and Matthews 1990; Bandy 2001; Matthews 1992). Janusek (2005a) also observes a possible reaffirmation of the

urkosuyo/umasuyu distinction in the form of two clearly different ceramic styles. Interestingly, there are few pukaras or other defensive settlements in the region as compared to the Colla and Lupaqa areas, which could suggest a less intense experience of conflict (Arkush 2005:169).

Although it is possible that a lack of *pukaras* may reflect a lack of research, few *pukaras* are noted even in intensively surveyed areas. Systematic survey of the lower and middle Tiwanaku valley by Albarracin-Jordan and Matthews (1990:142-146; Albarracin-Jordan 1992:279-281; Matthews 1992:190) recorded only four hilltop settlements: Cerro Pakollu, Cerro Chullpa, Cerro Pukara, and an unnamed site. Bandy (2001:223-235) reported an additional site, Cerro Pulpera, on the edge of the Taraco Peninsula. Janusek and Kolata (2003:155; Janusek 2004:261-264, 2005a:199) record a similar *pukara* in the Katari valley to the north and note reports of a few others that have not been formally investigated between the Katari and Tiwanaku valleys. In the Pampa Koani, while noting some larger hillside sites with terraces and *chullpas*, Graffam (1990:163-164) also records at least one small hill-fort (Lakaya), characterized by domestic terraces, stone houses, and stone-fence wall. All of these hilltop settlements are small (between 1 and 6 hectares) with little or no standing architecture except for defensive walls and are generally interpreted as refuges without permanent habitation. Further south near Caquiaviri, Pärssinen (2005:103-104) records two *pukaras* – Pukarpata (discussed below) and Ticoniri, and also notes the site of Pirapi in Achiri (Figure 7).

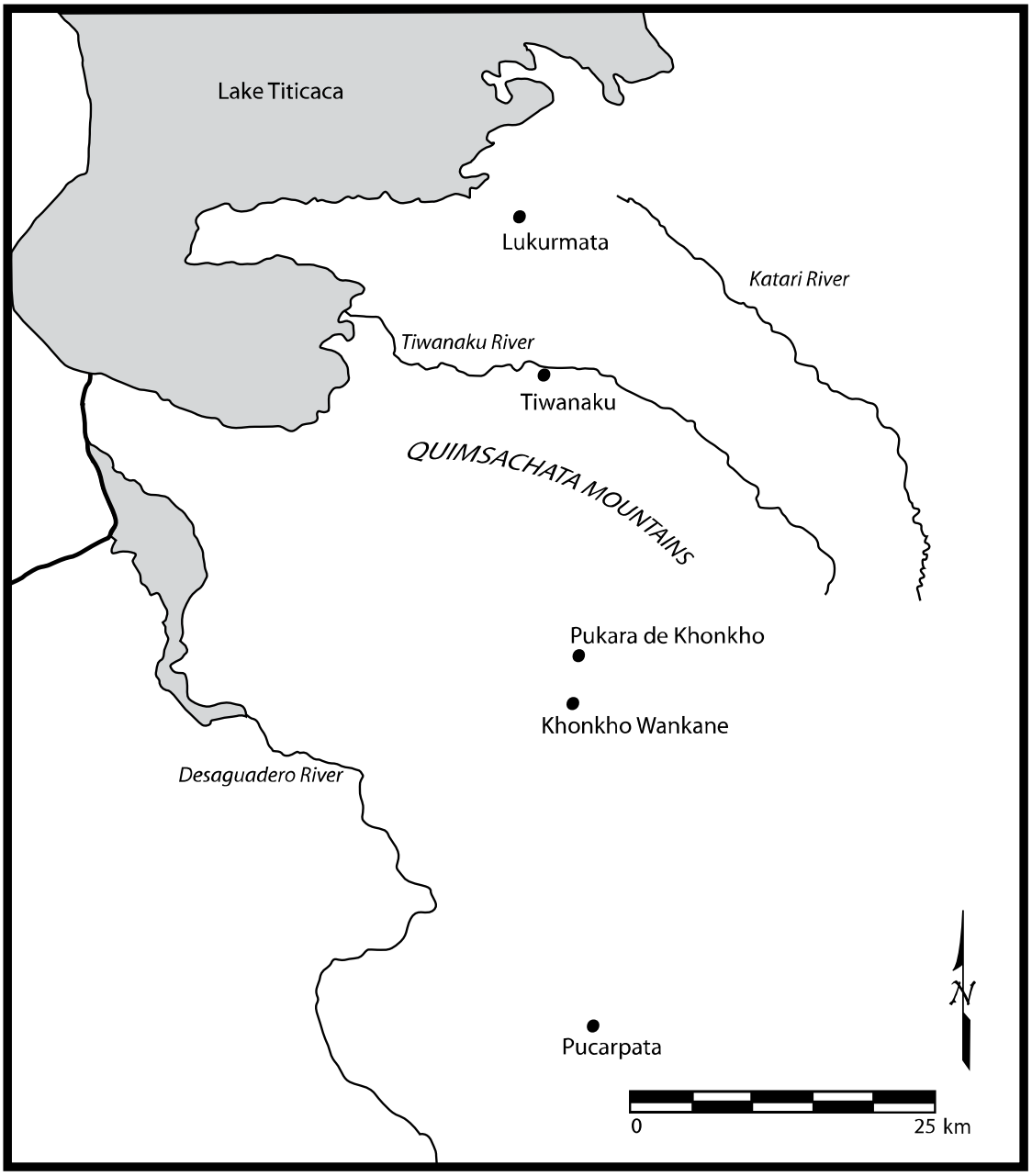

Figure 7: Important Pacajes sites

Non-fortified settlements recorded over the course of these surveys are widespread, but most appear to be temporary and/or ephemeral. In the south, Pärssinen (2005:104) finds that, despite the scattered *pukaras* and the reputation for warfare, the majority of LIP settlement is found in the unfortified altiplano. In general, the population

dispersed, such that while there are more sites in the LIP, they are so much smaller and more ephemeral that population estimates tend to be much lower. The population reorganization is most dramatic in the Tiwanaku core area, where the majority of large scale settlement surveys have been conducted, but the local experiences of each valley are slightly different. Matthews (1992) finds that LIP settlements in the Tiwanaku Valley itself are quite small and scattered randomly throughout the valley without any trace of settlement hierarchies, but only posits a slight population decrease. On the nearby Taraco peninsula, Bandy (2001) also notes a shift to a more dispersed pattern of settlement, but suggests a much more drastic drop in population to about a fifth of its previous Tiwanaku Period size. In contrast, Janusek (2004b, 2005a) and Pärssinen (2005) find evidence of actual population growth in the drier areas just south of Tiwanaku, near the sites of Pukara de Khonkho and Caquiaviri. They posit that populations may have moved into the region to take advantage of its suitability for pastoralism as Tiwanaku-sponsored agricultural production began to decline.

Another sign of a shift in agricultural practice during the Late Intermediate Period is the construction of numerous *qochas* across the landscape. A *qocha,* or *qotaña* in Aymara, is a relatively shallow manmade basin designed to collect and store rainwater in order to mitigate against drought in the dry altiplano (Erickson 2000; Flores Ochoa 1987; Lémuz 2006, 2007). Collected water can be used for agriculture (cultivation of potatoes and other crops around the depression), to provide better pasturage for livestock, and/or simply as a reservoir to supply readily available water to animals and humans. The antiquity of *qocha* use in the Andes is not clear, as the features are often difficult to date

directly, but in the Desaguadero basin the constructed reservoirs are most often associated with ceramics dating to the Early Pacajes or later phases.

In the southern Titicaca basin, Late Intermediate Period sites are generally recognized by a surface scatter of Pacajes ceramics. A more complete review of LIP Pacajes ceramics will be presented in Chapter 7, but I here briefly characterize understandings of Pacajes period ceramics to date. The most common vessel forms are jars, ollas, and bowls, while the complex serving assemblage of the Tiwanaku state completely disappears. There are few finewares, no polychromes, and usually bowls are the only decorated forms (Albarracin-Jordan 1996; Bandy 2001; Janusek 2003a; Matthews 1992). Decorations, when present, are generally geometric, and one common motif is an undulating black line painted under the interior lip of the bowl. The most common non-geometric design is a llama motif. The majority of Pacajes bowls have a "disk" or "pedestal" base, which Matthews (1992) has suggested is diagnostic of early Pacajes wares. Another characteristic of Pacajes bowls is that many have an everted lip (Bandy 2001; Matthews 1992), which appears on as many as 75% of the bowls in some regions (Janusek 2003a:84).

Since Rydén's (1947) excavations between 1938-1939, very few LIP sites have been excavated in the Pacajes region other than scattered test pits excavated in the context of larger regional survey. One noticeable exception is the excavation of LIP residential structures at the site of Lukurmata (Wise 1993). These structures were located on an area of the site known as North Point, which contained superimposed Inca, Late Intermediate, and Tiwanaku period occupation levels. Two rectangular Inca/Early Colonial structures (whose remains were visible on the surface) overlay a stratum

containing two circular Late Intermediate Period structures, one of which abutted a straight wall that could have delineated a compound. Like the Inca structures, the LIP constructions would have been built of adobe on stone foundations. These structures measured approximately 4 m in diameter and contained superimposed floors with artifacts including numerous LIP ceramics, fish and camelid bone, lithic fragments, including groundstone artifacts, and a copper *tupu*. Two trash pits located outside the structures were characterized by large amounts of fishbone, and Wise (1993:111) suggests a predominately "lake-oriented fishing economy," that only began to incorporate a significant amount of camelid pastoralism after Inca conquest. An interest in fish is noted in the ceramics as well, where an apparent variety of the Pacajes-Inca bowls painted with stylized animals depicts fish rather than llamas. Based in part on the predominance of fish at this site, and noting their historical connection to the Uru populations, Wise (1993:112) suggests the LIP inhabitants of Lukurmata may have been Uru rather than Aymara.

In addition, Pärssinen (2005:102-120) conducted limited excavations at a large hilltop settlement called Pukarpata further south in the Desaguadero Valley, near Caquiaviri, which is distinct because of its large size and the presence of numerous circular structures as well as a few rectangular ones (Figure 8). It is located between 4060 – 4160 masl, above the modern town of Caquiaviri, bordered on the north, south, and west by steep ravines. Defensive walls are noted on the south face, but toward the east, where a paved Inca road approaches the site, it appears less protected. Ceramic sherds cover the site, which spreads over 20 hectares, and includes "hundreds" of circular structures and a few rectangular structures. Pärssinen (2005:109-114) excavated three of

these circular structures and one rectangular one. The circular structures measured between 3 – 6 m in diameter, and the rectangular structure was at least 6 m X 3 m, although it was not excavated in its entirety. Artifacts were not very dense, but included ceramics of the black-on-red pattern noted by Rydén at Pukara de Khonkho (Pärssinen also notes similarities to the Carangas region and northern Chile) with geometric designs (mostly undulating lines and concentric circles) as well as "fat llama" motifs. Three carbon dates were taken from the structures, dating the rectangular structure to AD 1298-1424 and the circular structures to AD 1212-1381 and AD 1165-1398, all squarely within the LIP, concentrating around the thirteenth century, although the rectangular structure is of a slightly later date than the circular ones (Pärssinen 2005:118). Pärssinen concludes that the site was inhabited relatively briefly, over only one or two generations, which were also characterized by extreme drought and harsh climactic conditions.

Figure 8: Pukarpata, showing the remains of a stone foundation

Pärssinen (2005:121-166) also conducted a brief survey of *chullpas* in the Caquiaviri area, most of which postdated the occupation at Pukarpata. For the most part *chullpas* are not often found in the region immediately around Tiwanaku (Albarracin-Jordan and Matthews 1990), but do become more common as you move towards the southern part of the Pacajes region, including the two large *chullpas* at Wisamaya, just south of Pukara de Khonkho. Pärssinen observed 30 intact rectangular adobe *chullpas* at 15 sites in the area around Caquiaviri in addition to other possible *chullpas* that may have been destroyed. Doors of all recorded *chullpas* faced towards the east. In this review Pärssinen describes the decorations on the *chullpas* and the ceramics found around them (dating to Pacajes and Inca-Pacajes periods), discussing them in regional context. He concludes that *chullpas* appeared in the area during the 13th century and spread from south to north. These *chullpas* were closely related to the sacred mountains and reflected a belief system in which the dead interacted closely with the living.

The above discussion suggests differences not only between the Pacajes, Lupaqa, and Colla regions, but also within the Pacajes region itself, so it becomes essential to more closely address the area of interest in this dissertation. In the area directly around Pukara de Khonkho Lémuz (2005, 2006, 2007) has conducted pedestrian surveys over more than 44 square km, the results of which are discussed in more detail in Chapter 5. In general, however, following the expected pattern for the region, he found a 50% increase in the amount of land used by Pacajes populations as compared to the Tiwanaku (especially in zones over 3,900 m) although with a much less centralized settlement pattern. Settlement sites tended to be small, while there was an increase in sites that

seemed to be used solely for agricultural or funerary purposes. The Pukara de Khonkho stands out at both a local and a regional (Pacajes) level due to its size, its location on a steep rocky hill slope, its dense domestic habitation, its distinctive burial patterns, and a somewhat unique ceramic assemblage (Zovar 2007a, 2008, in press).

Inca and Spanish Conquest

The Late Intermediate Period came to an end with Inca conquest of the region, followed no more than 100 years later with Spanish conquest and colonization. While not a focus of this dissertation, these sequential conquests ultimately had major impacts on all aspects of Aymara life. Nevertheless, following Wernke (2007), it is best to understand the processes of both Inca and Spanish colonial restructuration as processes of negotiation between indigenous and colonial actors. Conquest did not always have an immediately visible impact, and as a result it is often difficult to distinguish Pacajes, Inca-Pacajes, and Early Colonial sites based on artifactual evidence alone.

Inca Period

An approximate date of AD 1445 (Rowe 1945) is generally accepted as a good estimate for the Inca conquest of the Titicaca Basin, although it is probable that conquest was a multifaceted process that did not progress equivalently across all parts of the region. The Inca expansion is described in great detail in the Spanish chronicles, which focus specifically on the military defeat of the Colla and the early Inca alliance with the Lupaqa. While there is some discrepancy in the details, the chroniclers generally agree

that it was the Inca Pachacuti who brought the Aymara *señorios* under the control of the Inca empire, through a series of battles in which the Colla were defeated (Julien 2000). A greater part of the Pacajes region, however, may not have been integrated until after Pachacuti's successor, Topa Inca, took power. A later rebellion led by the Colla was also decisively put down under Topa Inca's reign (Betanzos 1996[1557]; Cieza de León 1959[1553]; Cobo 1991[1653]; D'Altroy 2002; Pärssinen 2005; Rowe 1945).

Archaeological evidence demonstrates that the Aymara *señorios* did centralize under Inca rule, and hierarchical settlement patterns developed around the newly constructed capitals of Hatuncolla (Colla), Chuquito (Lupaqa), and Caquiaviri (Pacajes) (Arkush 2005; Frye 1997; Julien 1983; Pärssinen 2005). Hatuncolla, for example, appears to have been built according to an Inca plan and served as an Inca administrative center, with local elites working within the Inca government structure (Julien 1983). Throughout the empire, radical population movements can be traced to the Inca system of *mitimae* relocation (Patterson 1991; Wachtel 1982), a pattern that is particularly noted in the Cochabamba valley, where migrants worked fields for the Inca state (Ellefsen 1978; Wachtel 1982). Produce from state farms were sent around the empire, where they were kept in storage facilities known as *tambos* (Condarco 2001). Relocated settlers also tended important Inca *wak'as* (shrines), like those on the Islands of the Sun and the Moon on Lake Titicaca (Bauer and Stanish 2001). Nevertheless, with the exception of the abandonment of many *pukaras*, there did not appear to be much population shift within the Pacajes region at the time of Inca conquest (Matthews 1992).

The Pacajes province is not discussed in the chronicles in great detail, although as previously discussed, Cobo (1991[1653]:140-141) does describe a specific battle with the

Pacajes for the Desaguadero River, and the *visitador* Mercado de Peñalosa (1965[1583]) relates that the Inca forced the Pacajes down from their hilltop *pukaras* in order to better control the population. Archaeological surveys of the Tiwanaku valley show strong continuity between Pacajes and Inca-Pacajes settlement patterns, with the addition of Inca administrative centers like Guaqui, which is mentioned in the chronicles as a large site to which numerous indigenous inhabitants were relocated (Albarracin-Jordan 1996; Albarracin-Jordan and Matthews 1990; Matthews 1992). On the nearby Taraco Peninsula Bandy (2001) also notes an increase in population, suggesting a forced Inca resettlement of areas closer to the lake, which were more suitable for agriculture. Pärssinen (2005) describes numerous administrative divisions within the Pacajes region, and investigations in and around the provincial center of Caquiaviri demonstrate the strong presence of Inca authority and organization. In addition to administrative sites, Tiwanaku, and specifically the Pumapunku pyramid, became an important ritual center, which served to legitimate Inca authority by linking the ancient structure to Incan mythic history and cosmology (Kolata 1993; Yaeger and López 2004). It is even said that the Inca emperor Pachacuti was so impressed by the stonework at Tiwanaku that he ordered his workmen to use that construction style in Cuzco (e.g. Cobo 1991[1657]:141).

The Pukara de Khonkho, like most hilltop settlements, appears to have been abandoned at the time of Inca conquest. Oral traditions collected in the 1930's by Paredes (1955:154-155) held that the site was fortified to resist the Inca, but that after fierce battles the settlement was destroyed and survivors forced to resettle in the nearby town of Jesus de Machaca, which became the regional center in colonial times. Lémuz (2005, 2006) found only 26 Inca settlement sites within his 44 sq km survey area and

suggests a brief and intense Inca occupation aimed at controlling the Pacajes exploitation of agricultural, herding, and mineral resources.

At more than 7 ha, the settlement of Chaucha de Khula Marka, located 2 km southeast of Pukara de Khonkho and 2 km northeast of Khonkho Wankane, represents the major Inca-Pacajes settlement in the local area. Rydén (1947) excavated seven structures at the site in 1938, including five apparently residential circular structures as well as two rectangular structures. Excavations directed by the author in 2006 identified possible additional circular structures, which, together with those excavated by Rydén, encircled a common area where a hearth was found (Zovar 2007b). The majority of the ceramics from both excavations were in the typical Inca-Pacajes style, but some colonial sherds were also noted. These investigations are discussed in more detail in Chapter 6.

Early Colonial Period

The first Spanish entrance into the Titicaca Basin was in late 1533, when two scouts were sent to report on the area. However, full Spanish military occupation was not officially established until 1538, and it likely took longer for Spanish presence to spread throughout the countryside (Julien 1983:246-247; Pärssinen 2005:253-254). Following the initial conquest, land was partitioned into *encomiendas* and given to the early *conquistadores*, who had the authority to work and tax the indigenous inhabitants (Andrien 2001; Spalding 1984). The discovery of silver mines in Potosí (south of the Pacajes lands) in 1545 shaped the course of Spanish colonialism from that point forward, as silver, mined by forced labor, became the primary export from the colonies into Spain. Major trade networks grew up around Potosí, importing European foodstuffs for high

status residents, although many artifacts continued to be, for the most part, locally produced (deFrance 2003; VanBuren 1999).

Beginning in 1569, reforms under the Toledo viceroyalty organized indigenous labor for the mines through a *mita*, which conscripted the labor of around 13,500 men each year, most from the *altiplano* region around the Titicaca Basin (Andrien 2001:52,85). Luis Capoche's 1585 list of *mitayos* shows that workers coming from the Aymara *señorios* were organized into political divisions that seem to have prehispanic origin (Bouysse-Cassagne 1986). Nevertheless, the Toledo reforms of the 1570's also had a radical impact on settlement organization, as previously dispersed indigenous populations were resettled into larger towns known as *reducciones* (Andrien 2001).

By this time, the origins of sites like Tiwanaku were all but forgotten (Kolata 1993:1-10). The Spanish chronicler Pedro de Cieza de León, who traveled through the Titicaca Basin and first saw Tiwanaku in 1549 noted, "There is no knowledge of who the people that built these great foundations and strongholds were, or how much time has gone by since then…" (Cieza de León 1959[1553]:282), adding that the local inhabitants had "heard from their forefathers that all that are there appeared overnight" (Cieza de León 1959[1553]:283). Likewise, the Jesuit Father Bernabe Cobo, writing a century later, observed that the Indians had no memory of who had constructed the pre-Inca monuments or when they were built (Cobo 1991[1653]:94-95,145). Nevertheless, many prehispanic sites did continue to be revered, albeit clandestinely, well after Spanish conquest, as demonstrated by the resistance indigenous communities showed towards abandoning their *wak'as* (shrines) even after official "conversion" to Catholicism (e.g. Andrien 2001:153-184; MacCormack 1985; Spalding 1984:239-269).

Settlement surveys in the Tiwanaku Valley find a return to Early Pacajes (LIP) patterns of dispersed settlement in the Early Colonial Period, although over time many of these sites were abandoned as the area was depopulated, in part due to the demands of the *mita* in Potosí (Albarracin-Jordan 1996; Albarracin-Jordan and Matthews 1990; Matthews 1992). On the Taraco Peninsula Bandy (2001) notes a similar pattern but records population growth rather than decline, suggesting that this may be due to the fact that Taraco was never given in *encomienda*, and, as a result, life may have been easier than in the surrounding valleys. By the 1583 *visita* of Mercado de Peñalosa, the Pacajes province had been subdivided into five *repartimientos,* and the dispersed populations had been "reduced" into two or three large towns within each *repartimiento.*

In the survey region around Khonkho Wankane, Lémuz (2005, 2006) recorded 15 settlement sites with signs of Early Colonial occupation in addition to 9 agricultural or funerary sites. Colonial ceramics were also observed near many of the *qochas* in his survey (Lémuz 2007), and Gladwell (2007a) notes Colonial period use of the Quimsachata mountain range just north of Khonkho Wankane, likely as pasture land. Chaucha de Khula Marka continued to be occupied into the Early Colonial Period, when an early colonial church was built at the site. While few artifacts from the domestic habitations appear explicitly colonial, carbon dates suggest both village and church were in use during the Inca-Colonial transition period. This church, and the implications of its location in the Khonkho area, will be discussed in Chapter 6.

Conclusions

While incomplete, this brief review of the LIP and subsequent periods in the Titicaca basin is intended to emphasize both the regional and temporal variation across the Basin and the need for further investigation into this important time period. Although research is spotty, in the areas where systematic surveys and/or excavations have been conducted, there is evidence of significant levels of regional and subregional variation in the years following Tiwanaku collapse, which emphasizes the utility of an approach based on an archaeology of communities. The Pacajes region has fewer *pukaras* than either the Lupaqa or the Colla, and an understanding of the time period based only on assumed pan-basin similarities is no longer adequate. Furthermore, differences in settlement patterns, *chullpa* distributions, and ceramic styles point to significant variation (both temporal and regional) within the Pacajes area itself. This chapter was primarily designed to help situate the Pukara de Khonkho and neighboring late prehispanic sites in regional context, considering the larger Titicaca Basin, the Pacajes *señorio* and the local area. I now turn to the specifics of my research into that site, starting with a discussion of my research methodology.

CHAPTER IV

RESEARCH OBJECTIVES AND METHODOLOGY

My primary goal in this dissertation is to use detailed data from the site of Pukara de Khonkho to fill in some of the gaps in our understanding of the post-Tiwanaku period in the Pacajes region, and, if possible, to extrapolate some lessons learned to a broader understanding of post-collapse periods in general. I have outlined a series of research questions designed to elucidate the way that communities form in post-collapse periods and to identify methods of community maintenance and renegotiation during these somewhat unstable times. I have addressed these questions through a multifaceted program of archaeological excavation and intensive ceramic analysis, supplemented by a more basic consideration of site architecture and spatial organization as well as a brief assessment of non-ceramic artifacts. In this chapter I briefly review my research questions and discuss how I planned to go about answering them. I then describe my specific methods in more detail.

Research Objectives

The goal of this investigation was to use the large, densely populated settlement of Pukara de Khonkho as a test case to examine community development following the collapse of the Tiwanaku state, specifically considering the roles of population movement and intercommunity interaction. I address issues of post-collapse population movement by testing the hypothesis that the inhabitants of Pukara de Khonkho were recent migrants

to the area and issues of chronology by establishing more precise dates for the original settlement and abandonment of the site. I also consider the role of intercommunity interaction (trade, warfare, ritual, etc.) through a comparative analysis of regional ceramic styles and settlement organization and use domestic architecture and ceramic analysis to address levels of social and cultural homogeneity within the community of Pukara de Khonkho itself (Figure 9).

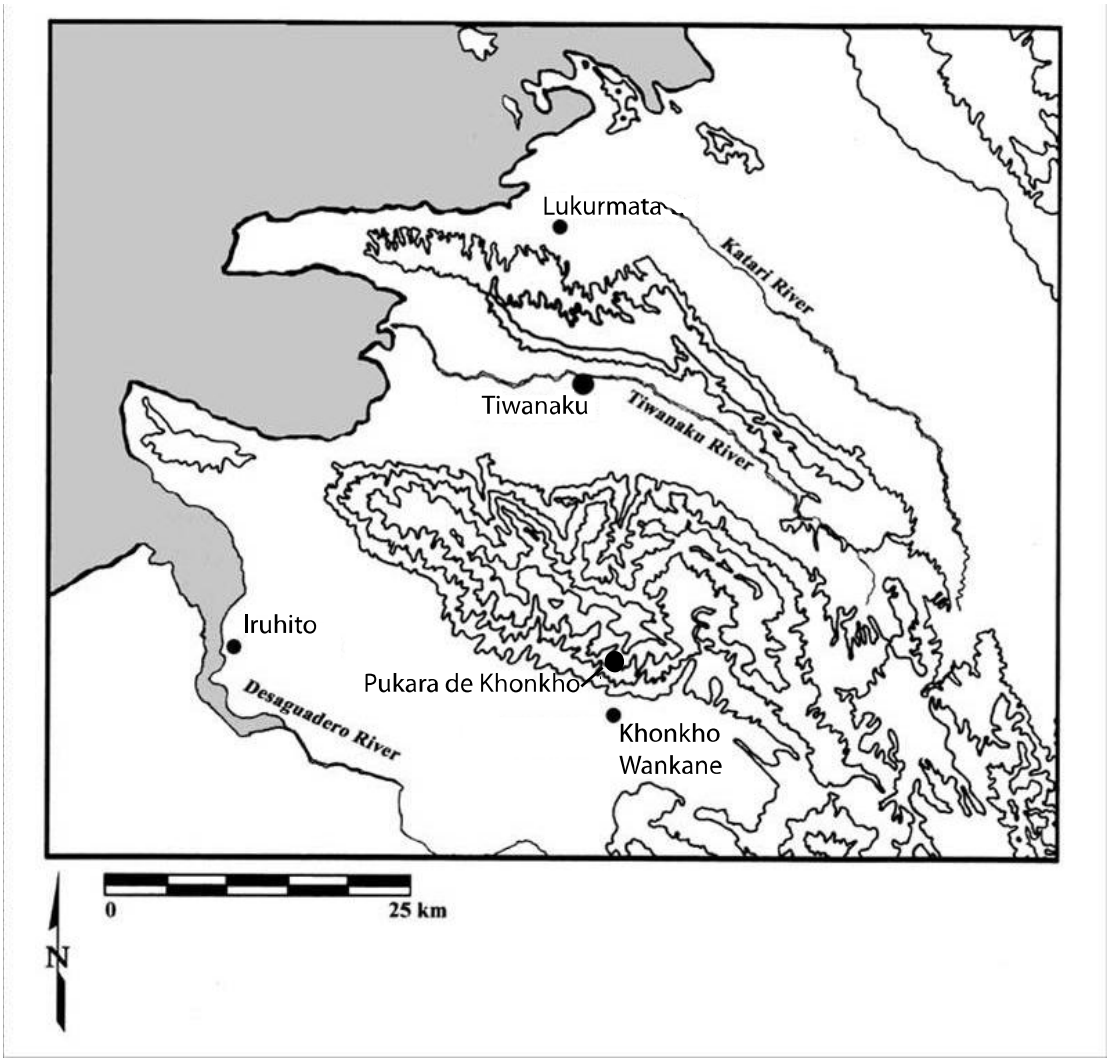

Figure 9: Map showing the location of Pukara de Khonkho in relation to nearby sites

Migration

One primary objective was to address the way that the settlement of Pukara de Khonkho fit into broader patterns of Late Intermediate Period population movement. Was Pukara de Khonkho, in whole or in part, a community of migrants, and if so, where did they come from and why did they choose to settle where they did? I test three basic models: 1) Pukara de Khonkho was established as a community of migrants who shared an original homeland; 2) Pukara de Khonkho was settled by long-term inhabitants of the Desaguadero Valley who moved into the mountains following Tiwanaku collapse; 3) Pukara de Khonkho was a multi-ethnic community, settled by families, groups, or individuals who came to the site from different areas.

Ceramic attribute analysis is key to addressing these hypotheses. In my research, I compared ceramics from Pukara de Khonkho with those from other Late Intermediate Period sites in the Pacajes region. I personally analyzed LIP ceramics from Khonkho Wankane, but also considered published data from the Tiwanaku (Albarracin-Jordan 1992, 1996; Albarracin-Jordan and Matthews 1990; Matthews 1992) and Katari (Janusek and Kolata 2003) valleys and from the Taraco Peninsula (Bandy 2001), as well as the site of Pukarpata, further south (Pärssinen 2005). If Pukara de Khonkho was settled by migrants, I expected to see a uniform ceramic style at that site which was clearly distinct from styles at other settlements in the region. If, however, Pukara de Khonkho was settled by long-term local inhabitants, there should be significant overlap between ceramic styles from this and surrounding coeval sites. Finally, if Pukara de Khonkho was a multiethnic community, there should be a mixture of ceramic styles made from local clays. It was also hoped that comparisons of ceramics from other areas around the basin

(e.g. Arkush 2005; Frye 1997; Hyslop 1976; Nielsen 2002a) could help to establish where the inhabitants of Pukara de Khonkho may have moved from, if they were, in fact, migrants.

The stylistic analysis of ceramics was complemented by strontium isotope analysis of human bone and teeth from burials at Pukara de Khonkho. The results of these tests were compared to modern faunal samples from Pukara de Khonkho as well as previously tested modern and archaeological faunal samples and archaeological human remains from Khonkho Wankane (see Knudson 2006, 2007) in order to provide an independent test of the hypothesis that the inhabitants of Pukara de Khonkho were recent immigrants into the region.

Trade, Warfare, and Other External Relationships

An additional set of research questions sought to evaluate relationships between Pukara de Khonkho and neighboring settlements: What interactions did inhabitants of Pukara de Khonkho have with other communities (conflict, ritual, trade, etc.) and how were those interactions mediated through specific subsistence practices (pastoralism, agriculture, etc.)? What relationships were important in the initial founding of the settlement and did these priorities change over time? My dissertation evaluates the defensive and/or ritual characteristics of the site (see Arkush 2005, 2008; Arkush and Stanish 2005; Topic and Topic 1987) and looks for the presence of traded ceramics or other artifacts (Browman 1981; Dillehay and Nuñez 1988; Neff et al. 2006; Nichols et al. 2002; Schortman 1989; Sharer et al. 2006; Smith 1999) in order to test the hypothesis that Pukara de Khonkho was a center for trade.

An evaluation of the defensive and ritual characteristics of the site was based primarily on site location, organization, and architecture. I assess defensive characteristics including site location, defensive walls, and possible weapons following Arkush and Stanish (2005) and also consider the presence or absence of skeletal pathologies on the few burials excavated from the site. An assessment of ritual use is necessarily more complicated, but here I try to draw primarily on a landscape approach, looking at how different areas of the site were used (mortuary contexts and the presence or absence of domestic and/or other structures, for example), while also considering the site's role in larger regional context.

Since trade can be identified archaeologically through the presence of non-local ceramics or other goods, stylistic ceramic analysis plays an important part in considering the role of trade. Analyses of form, decoration, and paste composition were used to identify possible trade ceramics (Sinopoli 1991:103-104). Comparisons of ceramics found in different household contexts were also considered to evaluate whether different households could have had individualized trade relationships or if all households had the same access to trade goods (Smith 2007; Schortman 1989). Finally a sample of 100 ceramic sherds (60 from Pukara de Khonkho, 20 from LIP contexts at Khonkho Wankane and 20 from the Inca/Colonial site of Chaucha de Khula Marka) were tested through Inductively Coupled Plasma Mass Spectrometry (ICP-MS) to distinguish whether the pottery from Pukara de Khonkho was produced locally or remotely and whether or not there were significant differences in chemical characterizations between ceramics from Pukara de Khonkho and LIP ceramics from Khonkho Wankane. Ceramics made from local clays in non-local styles could reflect the presence of migrants maintaining a sense

of identity with their homeland, while ceramics made of non-local clays are more likely to represent trade with other regions.

Internal Solidarity and Identification with Community

My third research question addressed the extent to which distinct community identities formed during periods of social instability like the Late Intermediate Period. While I consider the formation of sub-local, local, and supra-local communities, my primary interest is the level of within-group solidarity among the inhabitants at the Pukara de Khonkho. Many pukaras are interpreted as centers of refuge, rather than places of permanent habitation, and it may be expected that such centers would not exhibit the same archaeological signatures as a well-integrated community with which individuals self-identify. My research asks: Are there signs of a clear community identity at the Pukara de Khonkho represented through spatial organization, household structure, artifact assemblages, and/or mortuary patterns (e.g. Kolb and Snead 1997; Yaeger and Canuto 2000), or do patterns appear more haphazard? Were community structures integrated into the local landscape (e.g. Abercrombie 1998; Knapp and Ashmore 1999; Tilley 1994; VanDommelen 1999)? Do artifacts demonstrate close inter-community ties and/or linkages with other, non-local communities? I also consider the social organization of production, looking specifically at levels of specialization of ceramic production and centralization of food storage.

Both spatial and ceramic analyses are key in addressing these questions. I first consider the construction of the site itself, looking at whether the construction style and spatial organization of the site reflects centralized planning or a shared conception of the

landscape or if it appears more haphazard. I also compare domestic architecture styles and analyze the maps for evidence of internal divisions within the site, including possible household groups. Finally, I look at mortuary patterns and locations of burials, as well as ethnic markers like cranial deformation, to see if there are differences in different parts of the site.

Stylistic ceramic analysis also plays a major role in the assessment of how these households did or did not represent themselves as community members. The style of attribute analysis that I conducted allows for a more detailed examination of differences and similarities within the ceramic assemblage than a traditional typological analysis (see also Steadman 1995:48-49), permitting a more nuanced analysis of group affiliation. I test the hypothesis that inhabitants of Pukara de Khonkho shared a common community identity by considering the level of homogeneity between household contexts. A high level of similarity between household assemblages could reflect similarities in social status and social identity, while a lower level of similarity may reflect divisions within the community.

Very high levels of standardization could also indicate ceramic production by specialists rather than at the household level; in general, specialists produce more standardized wares, and a higher level of standardization for a given ceramic form can often be correlated with specialization in the production of that form (Benco 1988; Costin and Hagstrom 1995; Hagstrom 1985; Rice 1991). Although Arnold (1991) has demonstrated that standardization within a community can be achieved without specialization, a common standard for ceramic production is still necessary. Therefore, if ceramic forms at the Pukara de Khonkho are found to be highly standardized, it would

imply either specialization of ceramic production or a high degree of community agreement regarding production standards. Less standardized forms would be more typical of household level production, but a level of similarity would still be expected in a fully integrated community, while more haphazard patterns could represent refuge habitation by groups who would not otherwise have been in regular contact.

Late Intermediate Period Chronology: Dates of Settlement at the Pukara de Khonkho

The Late Intermediate Period was not stagnant or homogenous, but until recently, little research has explicitly addressed changes within the period, which has tended to instead be passed over as a "Dark Age" between Tiwanaku and Inca fluorescence. Recent work in the north basin, however, has appeared to identify a major shift in settlement patterns in the latter part of the Late Intermediate Period. While it has generally been assumed that construction of *pukaras* reflected an increase in conflict due to Tiwanaku collapse, Arkush (2005:285, 2008) found that most Colla pukaras date to after 1275 AD. Arkush (2008, 2011) suggests that the famous LIP increase in conflict was not due to Tiwanaku collapse, but to other, regional scale, probably environmental factors. Similar patterns appear to be reflected in the Lupaqa area (Stanish 2003; Stanish et al. 1997) and south of the Pacajes (Nielsen 2008), suggesting that it may be possible to identify at least two different phases within the Late Intermediate Period within the Titicaca Basin. While more data is still necessary, my research links the Pacajes area into a regional chronology, helping clarify the nature of the local and regional level changes

taking place during the Late Intermediate Period and addressing the pattern of (and perhaps the reasons behind) widespread *pukara* construction.

I also address the matter of the abandonment of the site of Pukara de Khonkho, using this as a specific example of the Pacajes-Inca transition. My research tests the hypothesis that the abandonment of the site was linked to Inca conquest. Both the chronicles and oral histories suggest that most hilltop settlements were abandoned at the time of Inca conquest (e.g. Bouyesse-Cassagne 1986; Mercado de Peñalosa 1965[1583]). Around the site of Pukara de Khonkho, it was said that the site was fortified to resist Inca attack, but that after fierce battles the Inca destroyed the town and forced survivors to resettle nearby (Paredes 1955:154-155). The small settlement of Chaucha de Khula Marka may represent one of those resettled communities, and my preliminary investigations at that site are aimed at addressing changes and continuities into the Inca/Colonial Period.

Specific research questions include: What factors influenced the roles of the site from its initial occupation to its eventual abandonment? Key to clarifying the chronology is dating the original settlement. I test three competing hypotheses: 1) Pukara de Khonkho was settled shortly after Tiwanaku collapse, possibly due to a need for defense and a shift to a pastoral economy after the breakdown of Tiwanaku authority and agricultural systems (Janusek 2005a; Kolata and Ortloff 1996); 2) Pukara de Khonkho was settled later in the Late Intermediate Period like the Colla and Lupaqa pukaras, perhaps in response to a larger, regional level increase in conflict (Arkush 2005, 2008; Stanish 2003); 3) Pukara de Khonkho was settled just prior to Inca expansion, possibly to defend against Inca growth. I also evaluate how the settlement may have changed over

the course of its occupation: Were certain areas of the site occupied before others? Did the primary role of the site change over time? Finally, I address the time and manner of the site's abandonment, testing the hypothesis that the site was abandoned rather rapidly at the time of Inca conquest. Changes and continuities into the Inca/Colonial Period are discussed through comparison with Ch'aucha de Khula Marka.

The radiocarbon dating of various samples from Pukara de Khonkho is key to answering the above questions. I chose samples from mortuary and residential contexts from all different parts of the site, in the hope of creating a more nuanced chronology for the Late Intermediate Period in the Pacajes region. I also submitted samples from Ch'aucha de Khula Marka and a presumed Late Intermediate Period context at Khonkho Wankane. Ceramic attribute analysis was also designed to create a workable ceramic chronology that could help to identify different phases of the Pacajes Late Intermediate Period.

Mapping, Architectural, and Spatial Analyses

Mapping at the Pukara de Khonkho was conducted with a TopCon Total Station during the seasons of 2005,[24] 2006, and 2008, and was tied into UTM coordinates with a Garmin GPS. While major architectural features were all mapped with the Total Station, the GPS was also used to map smaller additional or off-site features during seasons that the Total Station was not available. A general topographic map of the site was created by using the Total Station to take topographic points at locations where the terrain changed. In addition, points were taken along the terrace walls, as well as along smaller retaining

[24] Mapping in 2005 was conducted with the assistance of Scott Smith (University of California, Riverside).

walls, and particular attention was paid to openings or entrances into the terrace walls. A point was taken in the center of each structure or possible structure, which was assigned an individual structure number at the time of mapping. Finally, points were taken of every excavation unit (usually at the northeast corner unless otherwise noted) and of the datum for excavated units. Points were notated as: T: Topographic Point, E: Structure, P: Possible Structure, Z: Terrace, M: Wall, S: Terrace Entrance, U: Unit, UD: Unit Datum and O: Other Specific Point of Interest.

In addition, each structure was separately evaluated. Since it was not always possible to distinguish actual structures from non-intentional rock piles in the rocky soil, all possible structures were recorded, but clear structures and possible structures were distinguished in the notes. In order to err on the side of safety, only very clear structures were marked as (E), while structures were marked (P) for "possible structure" if there was any doubt. Records were also taken regarding the architectural type of the circular structures. Type 1 structures were recognized as circles of standing flat stones, which would have served as the bases for adobe brick walls, while Type 2 structures had fully stone walls, composed of flat rocks stacked on their sides. Structures were registered as Type 1, Type 2, Type 3 (a combination of the two types), or Type 4 (unclear, usually due to high levels of wall fall). In addition, the internal diameter of each structure was measured along both the North-South and the East-West axis, and measurements were taken of the height and width of the structure wall at its highest or widest point. Finally, the direction of the doorway, when present, was noted (N, NE, E, SE, S, SW, W, NW) as well as the presence or absence of niches in the wall or of other noticeable above ground features.

A less detailed map was also created for the site of Ch'aucha de Khula Marka in 2005, following similar mapping techniques and notation styles. Although there were no structures visible above ground at this site other than the colonial church, Rydén's excavations of seven structures were still clearly discernible as depressions in the ground and were noted on the map using Rydén's numbering system.

Once the mapping was complete, all data was entered into an Arc GIS map database, and a variety of maps were created to highlight various architectural and topographic elements. Spatial analysis was designed to address artifactual and architectural differences within the site itself. The maps were analyzed in an attempt to identify particular clusters of structures that could represent household groups and to address how these household groups were organized within the site itself. It was posited that differences and similarities between household level artifactual assemblages and organization within the site could distinguish different patterns of identification that may represent the material manifestation of different social or ethnic groups that inhabited the site.

Excavation

Since the primary goal of the investigation was to better understand the everyday life of the inhabitants of the Pukara de Khonkho, excavation focused primarily on domestic habitation sites. Because of the large size of the site and the dramatic topography of the terrain, it was not possible to set up an excavation grid over the whole area. Instead large units (either 6 X 6 m or 4 X 4 m, depending on topographic or other

considerations) were situated around the circular structure. A total of 18 circular structures were excavated by Proyecto Jach'a Machaca between 2005 – 2007 (about 4% of all recorded structures).[25] The structures were chosen through stratified random sampling in an effort to assure that both types of structures and all areas of the site were represented, in order to address possible differences within the site.

The structures excavated by Proyecto Jach'a Machaca are shown in Table 1 below. Units were labeled based on the terrace where they were located and the order in which they were excavated. For example, Unit 2.1 is the first unit excavated on the second terrace (counting from the top). In addition, the two structures excavated by Rydén (1947) are considered in the analysis. While they have not been specifically identified, they are definitely Type 1 structures located on the main face of the Pukara de Khonkho. Including Rydén's excavations, there are 9 Type 1 structures, 9 Type 2 structures, and 2 Type 3 structures. In terms of structure location, there are 14 structures on the main face, 4 structures on the east face, and 2 structures on the west face. In addition to the two structures excavated by Rydén (whose terrace locations are not known) one structure was excavated on Terrace 2, three structures were excavated on Terrace 3, six structures were excavated on Terrace 4, two structures were excavated on Terrace 5, four structures were excavated on Terrace 6, and two structures were located below the main terraces. This layout follows the representation patterns of structures at the site. It was hoped that this breakdown would allow me to address possible differences in use between different architectural types of structures, between structures at higher and lower elevations, and between different faces of the site.

[25] This is in addition to the 2 structures excavated by Rydén (1947) in 1938. Artifacts from those structures are also included in the analysis.

Table 1: Excavated Units at Pukara de Khonkho

Unit	Structure Number	Structure Type	Terrace	Occupation Face
2.1	19	2	2	Main
3.1	120	2	3	Main
3.2	534	2	3	East
3.3	535	3	3	East
4.1	199	1	4	Main
4.2	550	2	4	East
4.3	490	2	4	Main
4.4	337	2	4	Main
4.5	320	1	4	Main
4.6	605	3	4	West
5.1	577	1	5	East
5.2	741	2	5	West
6.1	470	2	6	Main
6.2	439	1	6	Main
6.3	658	1	6	Main
6.6	672	1	6	Main
7.1	819	2	7	Main
7.2	811	1	7	Main
Rydén 1	--	1	--	Main
Rydén 2	--	1	--	Main

The large units that were opened around individual structures at the Pukara de Khonkho were subdivided and excavated by specific sections. Section A corresponded to the west half inside the circular structure, while Section B was the east half. Outside of the structure, Section C corresponded to the northwest quadrant, D to the northeast, E to the southwest, and F to the southeast (Figure 10). The complete interior of all structures was excavated down to the "floor" or habitation level, and at least half of the structure was taken down to sterile soil or bedrock. In addition, at least two quadrants were excavated outside of the structures down to either sterile soil or bedrock, usually including the quadrant by the door. In general, excavation levels followed the natural soil

strata, although levels could be artificially changed at the discretion of the archaeologist if the natural strata appeared too thick. (The general guideline was to change levels at least every 20 cm, every 10 cm in cases of a high density of artifacts.)

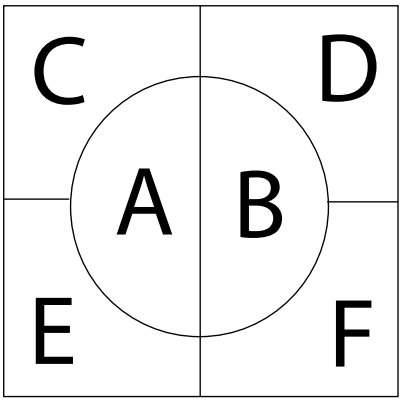

Figure 10: Excavation plan for structures excavated at Pukara de Khonkho

In addition to excavating structures, three test units (1.1, 1.2, and 1.3) were opened in random locations above the highest terrace in order to see if there was any stratified archaeological material in that area, since no structures appeared above the highest terrace and no artifacts were found on the surface. Finally, excavations were set up around some burials in the cemetery areas of the site (6.4, 6.5, 6.7, 6.8, 6.9, and 6.10). These areas were initially identified as places where human bones were found eroded out of the ground, and subsequent extensions of the excavations identified more burials. A final burial (Unit 8.1) was located off-site because it was eroding out of the surface. It was excavated and discussed as part of this dissertation because it seemed to follow the same pattern as burials on the Pukara de Khonkho. All burial units were dug following natural levels down to sterile soil or bedrock, and the burials themselves were excavated

as separate features. They were first cleaned, photographed, and analyzed *in situ*, and then carefully removed for closer laboratory analysis. All excavated units from the Pukara de Khonkho are discussed in Chapter 5 and described in detail in Appendix B.

In addition to the excavations at Pukara de Khonkho, a short season of excavation was also conducted at Ch'aucha de Khula Marka in 2006. Eight excavation units were established around the Inca village site originally excavated by Rydén (1947), and an additional three units were opened in and around the Colonial church. Excavations at Ch'aucha de Khula Marka were intended to help trace changes and continuities over the period of two conquests. The results of the excavations are discussed in Chapter 6, and the individual units are described in detail in Appendix C.

Ceramic Analysis

Ceramic analysis was the major analytical component of this dissertation research. Analysis was multifaceted to address a variety of issues, including interaction patterns, production organization, identity, and change over time (see Rice 1987). Drawing on form and function analysis, stylistic analysis, and characterization studies, I compared ceramics from Pukara de Khonkho and Ch'aucha de Khula Marka to those already collected from other late prehispanic sites in the region, specifically focusing on Late Intermediate Period Khonkho Wankane and also considering published reports of ceramics from other parts of the Pacajes region. My comparative analyses of ceramics from these different contexts informed my understanding of the community's boundaries and its relationships with neighboring settlements.

Attribute Analysis

A ceramic attribute analysis, as outlined by Steadman (1995), is ideal for addressing variation at the detail necessary to study community formation at a variety of different scales. The goal of my analysis was threefold: First, I hoped to be able to establish a typology of the vessel forms and decorative motifs found on the Pukara de Khonkho itself and to evaluate the extent to which ceramic production at the site appeared relatively homogenous or diverse. Second, I hoped to compare that typology with what was found in Early Pacajes ceramics at Khonkho Wankane (analyzed as a part of this dissertation) and other Early Pacajes ceramics recorded by Albarracin Jordan and Matthews (1990; Albarracin Jordan 1992, 1996; Matthews 1992), Bandy (2001), Janusek (2003), Janusek and Kolata (2003) and Pärssinen (2005) in order to identify similarities and differences that may help evaluate whether or not the inhabitants of the Pukara de Khonkho were migrants, or (alternatively) if there was a temporal differentiation between the occupation of Pukara de Khonkho and Khonkho Wankane. Finally, I hoped to compare the Pukara de Khonkho typology with Inca-Pacajes ceramics from Ch'aucha de Khula Marka and other Inca/Colonial sites in order to better evaluate the nature of the LIP – Inca period transition.

Attributes (or features) are particular characteristics (shape, paste, decoration, etc.) that can be isolated (Rowe 1959), and each can be analyzed separately to better understand variation and change over space and time. In her analysis Steadman (1995:48-95) first classified sherds by shape (bowl, jar, olla, neckless olla) and then

individually analyzed each sherd, separately considering paste, finish, surface treatment, firing, and decoration when present. Such analysis:

> "…permits the independent study of individual ceramic features, some of which may change more rapidly than others… Attribute analysis also allows for a more detailed geographical comparison, as the variability or similarity of specific attributes can be compared between sites, independent of their associations with other attributes or in different associations… Finally, attention to individual attributes allows for a more comprehensive study of ceramic change. Variation and change in the cluster of attributes used to define a type can be caused by different social, economic, or political factors. In analyzing each attribute separately, the different attributes which may be related to the cultural process under investigation can be isolated" (Steadman 1995:49).

All provenienced ceramics from the Pukara de Khonkho were considered in my research. This includes the total of 137 kg of ceramic material from 184 archaeological contexts excavated under Proyecto Jach'a Machaca as well as ~12 kg of ceramic material from the 2 archaeological contexts excavated by Rydén (1947), currently housed at the Världskulturmuseet in Göteborg, Sweden. In addition to the material from Pukara de Khonkho, a sample of Late Intermediate contexts from the nearby site of Khonkho Wankane (10.3 kg of material from 47 archaeological contexts) and Inca/Colonial contexts from the site of Ch'aucha de Khula Marka (6 kg of material from 13 archaeological contexts) were also analyzed for comparison.

Because of the high quantity of ceramic material, I conducted a somewhat modified form of individual attribute analysis. While individual attributes were still recorded separately, the object of analysis was not the individual sherd, but groups of sherds from the same context that shared all of the same attributes. Sherds were first divided into groups based on vessel type (jar, olla, jar/olla, small jar, bowl, unknown, other). Following Steadman (1995:49) this classification adheres more closely to the original understanding of the community who used them than classifications based on

paste or decoration. Furthermore, differences within shape classes can directly address social change or differentiation: "New shapes in a ceramic assemblage suggest new uses for these vessels and, as vessels operate in different social and economic spheres, innovations found on serving vessels may be caused by different factors than changes in cooking pots" (Steadman 1995:50). Within these categories, sherds were then divided into diagnostic (rim, base, handle, and/or painted decoration) and undiagnostic piles. Except for a sample of one habitation-level context from each circular structure, the undiagnostic groups were simply weighed and counted. Diagnostic sherds, on the other hand, were refit if possible and then drawn, photographed, and subject to more intensive analysis. They were further divided into smaller groups based on paste (color, temper, and firing environment), thickness, and surface treatment. In most cases, it appeared as if these "groups" could have come from the same vessel. A full analysis sheet was filled out for each group (Figure 11).[26] In order to ensure that no important data was being lost by focusing only on diagnostic pieces in the majority of the contexts, a selected occupation-layer context from each excavated structure on the Pukara de Khonkho was more intensively analyzed, with notes recorded for all sherds, including non-diagnostic body sherds.

Following data collection, the information was recorded in an Access data base, which allowed for comparisons and statistical analyses of collected data. Typologies (which are explained in detail in Chapter 7) were developed indicating the possible forms for every vessel type. Additional typologies categorized decorative motifs, and paste composition was also recorded. The representation of these forms, decorative motifs and

[26] This analysis was completed with the assistance of Luis Viviani and Carla Flores, both of the Universidad Mayor de San Andres, La Paz, Bolivia.

paste groups were compared between the Pukara de Khonkho, Khonkho Wankane, and Ch'aucha de Khula Marka, and to a lesser extent between other published reports from other sites describing LIP and Inca-Pacajes ceramic material.

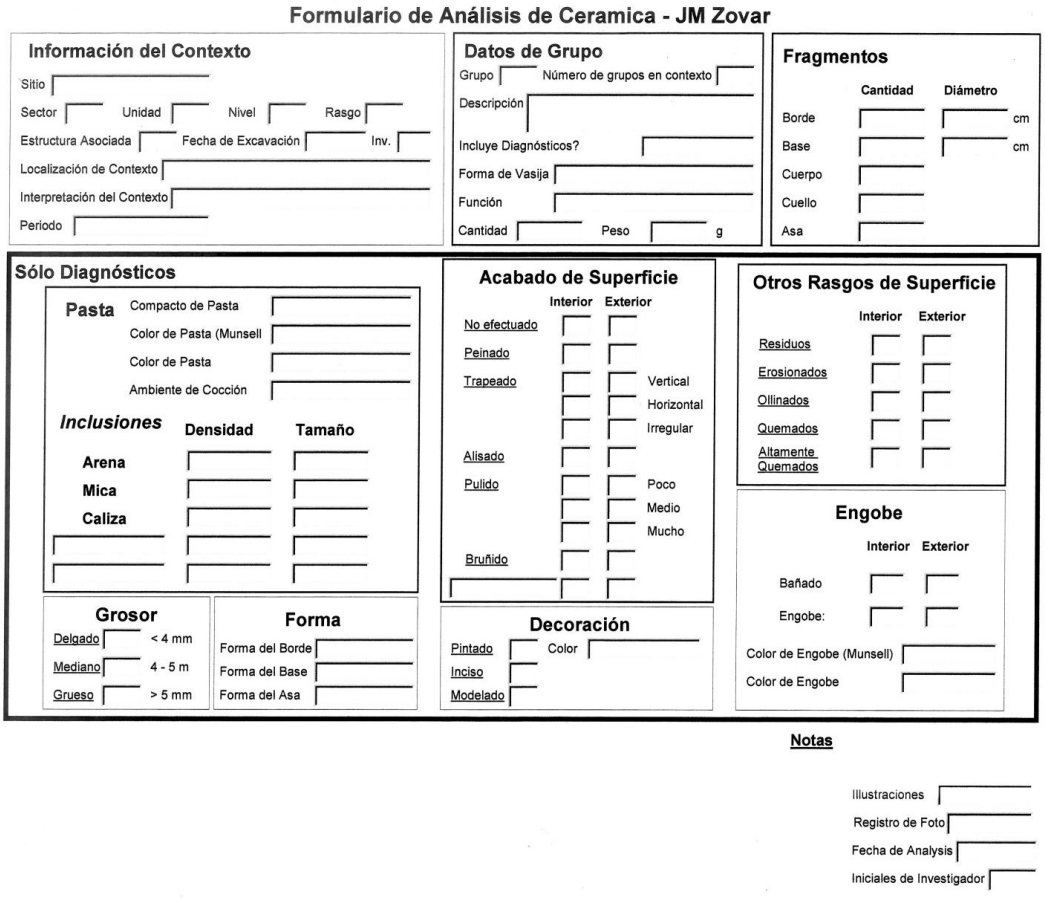

Figure 11: Ceramic analysis form

ICP-MS Analysis

In addition to the manual attribute analysis, I also analyzed 100 ceramic samples in collaboration with Laure Dussubieux and Mark Golitko at the Elemental Analysis

Facility at the Field Museum in Chicago, IL: 60 from the site of Pukara de Khonkho, 20 from the site of Khonkho Wankane, and 20 from the site of Ch'aucha de Khula Marka. In order to sample as broad a range of ceramic materials as possible, sherds were chosen to represent a variety of forms (ollas, decorated and undecorated jars, decorated and undecorated bowls, etc.) and also different parts of the site. All samples came from primary occupation layers (e.g. floors, hearths, etc.) Samples were between .5 – 3 cm in diameter, with most closer to 1 cm. The thickness of the ceramic vessels varied between 3 – 6 mm.

The archaeological applications of ICP-MS are relatively new, but have been successfully implemented in addressing similar issues in other parts of the world (e.g. Cochrane and Neff 2006; Kennett et al. 2002; Mallory Greenough et al. 1998; Neff 2003). Like other compositional studies (e.g. Instrumental Neutron Activation Analysis – INAA), ICP-MS identifies chemical composition groups that can be matched to a specific geological provenience, although these correlations can be masked by chemical signatures from the surrounding environment (Neff et al. 2006; Pollard et al. 2007; Sharer et al. 2006). While INAA is still more widely used, ICP-MS was chosen for this study for a number of reasons. First, it is significantly less costly than INAA, which enables analysis of a larger sample. Further, it has more target analyses, lower detection limits, and is less destructive than most other techniques (Kennett et al. 2002:444).

The goal of this analysis was to see if the ceramics at Pukara de Khonkho all demonstrate similar characterizations, indicating that they all came from similar, probably local sources, or if there is significant variation within the characterizations present at the site, indicating a variety of different provenances. Patterned differences in

characterizations between different ceramic forms could be due to practical decisions regarding which sources are better for which functions, while patterned differences between different areas of the site could suggest that different members of the community engaged in different production strategies. I was especially interested to see if the characterizations of painted bowls and small jars, which appear most markedly distinct from other Early Pacajes wares, match the characterizations of the more utilitarian vessels at the Pukara de Khonkho. ICP-MS analysis was chosen to help clarify whether or not these pieces were made locally, suggesting that the inhabitants of the Pukara de Khonkho may have been locally reproducing styles from an original homeland, or remotely, in which case the ceramics could either have been brought by first generation migrants or traded with contacts in other regions. Late Intermediate Period ceramics from Khonkho Wankane, which were hypothesized to be primarily of local origin, served as a comparison to the Late Intermediate Period ceramics from Pukara de Khonkho. Tests of ceramics from the Inca/Colonial site of Chaucha de Khula Marka, in contrast, were used to trace changes in ceramic production and distribution from the Late Intermediate Period into the subsequent Inca/Colonial period.

Osteological Analysis

A total of five individuals from four graves were excavated from the Pukara de Khonkho, and one additional individual was excavated just off-site. Another burial was discovered under the colonial church at Ch'aucha de Khula Marka and at least 11 intrusive LIP burials and a Colonial burial were excavated by the Proyecto Jach'a

Machaca from Khonkho Wankane.[27] While this sample size is quite small, analysis of these individuals was able to provide data about the lifeways of the inhabitants of the Pukara de Khonkho through a consideration of burial patterns, in addition to demographic and paleopathological data. Because of differences in modern community attitudes toward the different sites, burials from each location were treated differently. Burials from Khonkho Wankane were analyzed *in situ*, and then fully excavated and taken to the field lab for more intense analysis, and are currently stored in the *depósito* of Proyecto Jach'a Machaca at Qhunqhu Liquiliqui. Burials from Pukara de Khonkho were also analyzed *in situ* and then again in the lab, but because the Pukara de Khonkho is considered to be an important *apu*, it was necessary for the individuals to be reburied in their original locations after only a few days. Finally, because the burial from Ch'aucha de Khula Marka was considered a Christian burial,[28] it was never fully removed, but was only considered *in situ.* It was possible, however, to take tooth and bone samples for further testing from that burial and from the six others at the Pukara de Khonkho.

Skeletal and Mortuary Analysis

Osteological analysis was conducted to estimate the age and sex of each individual and to document cranial modification and skeletal pathologies. Age was estimated based on tooth eruption and epiphyseal unions (for juveniles) and on pubic symphysis markings (Brooks and Suchey 1990) and cranial suture closure in adults (Bass 1995). Age-at-death based on the pubic symphysis was prioritized over cranial suture

[27] LIP burials were also excavated at Khonkho Wankane by Rydén (1947), but were not separately analyzed as a part of this dissertation, although his descriptions were considered.
[28] As Abercrombie (1998) has demonstrated, many Andean myths do not recognize the pre-Christian inhabitants of the region as truly human or as the ancestors of the modern indigenous population.

closure since artificial cranial modification can affect the timing of cranial sutures (Gerszten 1993). Sex identification was based primarily on pelvic morphologies, although cranial markers were also considered (Bass 1995). Cranial modification types were identified following Blom (1999). Finally pathologies were noted, which most often included signs of porotic hyperostosis, dental carries, or skeletal injuries. I personally conducted the osteological analysis of the samples from Pukara de Khonkho, but also draw on analyses by Deborah Blom (2006) and Cullen Black (pers. comm.) for the samples from Khonkho Wankane and by Danielle Kurin (pers. comm.) for the individual from Ch'aucha de Khula Marka.

A comparison of burial patterns between the Pukara de Khonkho and LIP burials at Khonkho Wankane (in comparison with published descriptions of other LIP burials in the region) was done to answer the question of whether or not the inhabitants of Pukara de Khonkho were migrants who followed a different mortuary style than their neighbors. Comparisons with later Colonial burials at Khonkho Wankane and Ch'aucha de Khula Marka could also help address temporal changes.

Strontium Isotope Analysis

The skeletons are also useful in the information that they can provide through isotopic ratios. Samples have already been tested from LIP skeletons from Khonkho Wankane (Berryman et al. 2007; Berryman 2007; Knudson 2007, in press), and as a part of this dissertation, four tooth and two longbone samples from humans and four bone samples from fauna at the Pukara de Khonkho were sent to the Archaeological Chemistry Lab at Arizona State University for strontium, oxygen, and carbon isotope analysis.

Strontium isotope ratios can be compared to those from previously tested modern and archaeological faunal bones to assess whether or not the individuals buried on the Pukara were non-local, and thus possible migrants, while oxygen isotopes provide additional information. Carbon and nitrogen[29] isotopes can assess the impact of diet in the specimens.

Strontium isotope signatures reflect the geographic origin of an individual's diet at the time of enamel and bone formation, meaning that the signatures in tooth enamel reflect childhood residence and the signatures in bone reflect the region where that individual spent the last few years of life (Ericson 1985; Price et al. 2002). Recent research in the Andes has demonstrated that strontium isotope signatures for the southern Lake Titicaca Basin and the western coastal valleys are distinct and non-overlapping and that strontium isotope analysis can identify interregional movement (Knudson et al. 2004; Knudson et al. 2005). Carbon isotope signatures can distinguish between plants that use different photosynthetic pathways and are specifically useful in the Andes for identifying the amount of maize in the diet. Nitrogen, on the other hand, can indicate the proportion of meat in the diet and can also distinguish between the uses of marine/lacustrine and terrestrial resources (Berryman et al. 2007; Schwarcz and Schoeninger 1991).

These studies are of particular interest to this dissertation because they provide an independent line of evidence as to whether or not the inhabitants of the Pukara de Khonkho were recent immigrants into the region. If the strontium isotope signatures from the Pukara skeletons do not match those of the surrounding area (previously tested by Knudson 2007), it would be compelling evidence that these individuals were from a

[29] Nitrogen isotope análisis was performed on samples from Khonkho Wankane (Berryman et al. 2007) but not on samples from Pukara de Khonkho.

different geological location. In addition, a comparison of carbon isotopes could also show if these individuals were following a different diet than their neighbors in Khonkho Wankane, which could be an indication of ethnic difference.

Other Artifact Analyses

Other material collected from excavations at the Pukara de Khonkho included faunal, lithic, and metal artifacts. It was decided not to focus on this material for the dissertation research because of time constraints and because ceramic artifacts were much more numerous and more likely to effectively address the major research questions. Nevertheless, since this was the first major excavation of the Pukara de Khonkho (and really of any LIP site in the Pacajes region) it is necessary to at least report the basic information of the other artifact types. For this reason a complete inventory of all collected artifacts was completed, and all diagnostic pieces (stone and bone tools and metal tools and adornments) were photographed. These inventories were considered in basic comparisons between structures at the Pukara de Khonkho in order to address differences in use of different kinds of structures and different parts of the site as well as to consider commonalities between households which could reflect the level of social solidarity within the site.

Radiocarbon Dating

The final component of investigation was radiocarbon dating. Ten samples were submitted to the University of Arizona's AMS lab from the Pukara de Khonkho, two from burial contexts and eight from structure floors or features, representing both types of structures and all areas of the site. The goal was to be able to more accurately date the settlement and abandonment of the site and to see if certain parts of the site were occupied before others. In addition, one sample was submitted from a hypothesized LIP use area of Khonkho Wankane, in order to see to what extent the occupation of the two sites may have overlapped. Finally, two samples were submitted from Ch'aucha de Khula Marka, with the aim of being able to better discuss the LIP to Inca/Colonial transition. These dates are key to clarifying the chronology of local occupation and to try to better situate the Pukara de Khonkho within regional and temporal context. It was hoped that they could help to clarify whether the Pukara de Khonkho was originally settled immediately after the collapse of Tiwanaku, in the middle of the LIP (around the time other Titicaca Basin pukaras were occupied), or just before Inca conquest, and how this settlement fit into the known chronology of other LIP sites in the Pacajes region. They should also demonstrate whether or not the site was abandoned after Inca conquest.

Conclusions

It is the goal of this dissertation to be able to both provide a clear and complete presentation of a particular archaeological community in the southern Titicaca Basin

(Pukara de Khonkho) and also to be able to contribute to the study of the Andean Late Intermediate Period and to the study of post-collapse periods in general. The methodology is designed to situate the settlement of Pukara de Khonkho in regional and temporal context and to evaluate the process of community formation in a new location during a complex period. The site provides a unique opportunity to analyze community reconstruction in the wake of state collapse. My dissertation's additional foci on population movement and subsequently changing relationships of warfare, ritual, and trade highlight the unstable nature of post-collapse time periods, but also provide a more nuanced understanding of possible responses to post-collapse turmoil as reflected through the processes of community formation at the Pukara de Khonkho.

CHAPTER V

COMMUNITY ORGANIZATION AND THE SITE OF PUKARA DE KHONKHO

The Pukara de Khonkho is located in the foothills of the Quimsachata mountains at the northern edge of the Desaguadero valley, about 25 km south of Tiwanaku and 4 km north of Khonkho Wankane. The site stretches across the south face of a steep rocky slope and is bounded on the north, east, and west by a series of steep cliffs and drop-offs. The landscape is naturally rocky, and bedrock is close to the surface, with outcrops jutting out in various locations across the site. Anyone standing on the Pukara de Khonkho has a commanding view of the altiplano to the south, easily overlooking several modern villages and the site of Khonkho Wankane (Figure 12). The Pukara de Khonkho is also visible from the altiplano due to the six long terraces that stretch across the site from east to the west (Figure 13). While some scattered structures are found below the lowest terrace, the terraces unmistakably delimit a community space that is distinct from the surrounding landscape, and the site includes clearly demarcated areas for domestic, mortuary, and other activities.

In this chapter, I present the results of four seasons of mapping and excavation at the site of Pukara de Khonkho (July – August 2005, June – August 2006, June – August 2007, July 2008), as well as an assessment of the outcomes of subsequent spatial, artifactual, and laboratory analyses, conducted primarily in 2008 and 2009. After a brief review of previous research, I present the results of radiocarbon dating of carbon samples from Pukara de Khonkho and use them to create a chronology of site occupation. I then

provide a detailed description of the spatial organization of the site, a discussion of the excavated burials, and an assessment of the 20 excavated circular structures. While a complete discussion of the results of a detailed ceramic analysis is reserved for Chapter 7, I also include a basic description of the excavated artifacts and a general assessment of their distribution. Finally, I discuss the implications of this data for our understanding of community organization at Pukara de Khonkho.

Figure 12: View of the altiplano from Pukara de Khonkho, overlooking Qhunqhu Liquiliqui and Khonkho Wankane

This chapter provides the first detailed description of the site in 65 years (since Rydén 1947) and serves primarily to add to a somewhat limited data set for the Late

Intermediate Period in the Pacajes region. However, I also address larger theoretical issues regarding community organization and community identity in a post-collapse context. Specifically, I consider the recursive processes through which the built environment at Pukara de Khonkho both reflected and helped to shape and maintain a community identity (or identities) at the site (e.g. Cosgrove 1984; deCerteau 1984; Gieryn 2002; Lefebve 1991; Moore 1996, 2005; Smith 2003; Yaeger 2000). I am also interested in discussing the way the built environment articulates with the dramatic natural landscape of the Quimsachata mountains, overlooking the Desaguadero valley and the site of Khonkho Wankane. The chapter concludes with a discussion the intersections this relationship suggests between place-making, memory, and local history (e.g. Basso 1996; Tilley 1994; VanDyke 2003). The data and interpretations presented in this chapter all focus around three basic questions:

1) Are there spatial or architectural divisions within the site that may represent social divisions within the community?
2) What is the architectural and artifactual evidence which suggests that the site of Pukara de Khonkho would have been experienced/understood as a community by those who lived there? (Are there specific architectural elements that define the site's boundaries and/or tie the site together? Are there repeated elements across the site suggesting the inhabitants lived a similar lifestyle?)
3) How does the built environment interact with the natural environment and does this interaction reflect particular claims regarding heritage, property rights, and/or shared history?

I address these questions using primarily qualitative methodologies and through reference to social theory and relevant comparative data.

Figure 13: Pukara de Khonkho from Khonkho Wankane (photo by John Janusek)

I conclude that Pukara de Khonkho does demonstrate a unique community identity, one which is distinct from nearby coeval settlements, but also free from influence by a remembered Tiwanaku ideology or an encroaching Inca influence. In contrast, its location overlooking the primarily Formative site of Khonkho Wankane, does suggest a concern with local heritage and landscape. This interpretation challenges the assertion that Pukara de Khonkho was merely a refuge *pukara* where the population retreated during times of war (see Lémuz 2006; Rydén 1947). Although it may not have

seen multi-generation permanent habitation, the data presented here suggest intensive use for at least 100 years. Moreover, the population appears to have engaged in distinct patterns of behavior and "practices of affiliation" (Yaeger 2000) that marked themselves as similar to each other and different from surrounding communities. Subsequent chapters will expand this argument and discuss the data presented here in regional and temporal context, in order to more fully assess the processes of community formation, maintenance, and renegotiation in the period of sociopolitical instability between Tiwanaku collapse and Inca conquest.

Previous Research at the Pukara de Khonkho

The Pukara de Khonkho was first described by Maks Portugal (1941) in an article entitled "*Las Ruinas de Jesus de Machaca*," but there is no evidence that he ever conducted excavations there. Portugal describes the site as a typical *pukara* or hillfort and hypothesized that it was situated in that location in order to protect Khonkho Wankane, which it overlooks.[30] His description of Pukara de Khonkho emphasizes the commanding view accorded by the site location, and he also notes the presence of numerous circular constructions. In addition, Portugal (1941) commented that the site was located along a path connecting Khonkho Wankane with Tiwanaku, suggesting that

[30] "En el caso de Khonkho, su pucara tenía el objeto de proteger el Tesoro de Huancané, donde se encuentran los monumentos que ya hemos descripto" (Portugal 1941:298).

the Pukara de Khonkho could have had some role in regulating trade or other interactions between the two other sites.[31]

Stig Rydén, a Swedish archaeologist, came to Bolivia in 1938 – 1939, during which time he explored a number of archaeological sites including the Pukara de Khonkho. Results are published in his book *Archaeological Researches in the Highlands of Bolivia* (1947). At the Pukara de Khonkho, Rydén described terraces constructed along a steep slope as well as a number of stone circles (although he only mentions seven) that he judged to be house foundations. He collected some ceramics from the surface and also excavated the interiors of two of the circular structures. Both of these excavations were described in detail. The first structure measured two meters in diameter, with its doorway to the west. Artifacts included a copper knife, a gold spangle, four knapping stones, and numerous ceramic sherds, including fragments of cooking vessels, "aryballus-like" jars that may have served to carry water, larger vessels that could have been used for fermentation, small bowls (at least one of which was painted), and a single bulbous vessel. The second structure was similar, but with its door to the southeast. Similar ceramics were noted, along with two perforated stones and two knapping stones.

Rydén's remarkably detailed and methodical analysis focused primarily on the ceramics, which he recorded as brown, thin wares, usually either wet-polished or slip-coated. Decoration, when present, is described as simple black painted designs consisting of dots, lines, circles, and other geometric figures. Only a limited variety of forms were present, including cooking vessels, jars and bowls. He specifically noted the

[31] "Un camino parte de Huancané y pasa por el pucara de Khonkho para llegar a Tihuanacu, lo que hace suponer que estaba perfectamente controlada la actividad de ambos pueblos, por un lado Tihuanacu y por otro los Khonkhos" (Portugal 1941:298).

presence of large water vessels, which would have been necessary due to the lack of a year-round water source on the Pukara itself. Of the artifacts collected by Rydén from the circular structures, he classified 96% as either cooking vessels, fermentation jars, or water storage vessels (Rydén 1947:327).

Rydén (1947:325-327) compared the artifacts from Pukara de Khonkho with those from the nearby Inca/Colonial villages of Palli Marka and Ch'aucha de Khula Marka.[32] He concluded that marked differences between the sites showed that they were inhabited by different ethnic groups, and suggested that Palli Marka and Ch'aucha de Khula Marka were inhabited by Inca *mitimaes*, while Pukara de Khonkho was inhabited by the local "Colla" population during the time period following the collapse of Tiwanaku, but likely prior to Inca conquest. Despite the lack of a permanent water source or large defensive walls, Rydén was impressed by the defensive capabilities of the site, noting that "it is protected by perpendicular precipices, long stretches of which are abolutely *(sic)* unclimbable" (Rydén 1947:327). He even suggested that the domestic/agricultural terraces constructed at Pukara de Khonkho may serve better as defensive platforms than would walls with parapets, which can interfere with the effective use of a sling. Based in part on its defensive location, as well as a lack of faunal material in the two structures he excavated, Rydén suggested that "Pukara de Khonkho probably did not possess any permanent population, but more likely served as a place of refuge in times of war, to which one retreated from the villages proper on the plain" (Rydén 1947:327). While this interpretation is common for many of the smaller *pukaras* in the area, however, it is not supported by the present investigation at the Pukara de Khonkho.

[32] Rydén uses the spelling "Cchaucha del Kjula Marca"

Following Rydén's investigations in 1938, no additional excavations were conducted at Pukara de Khonkho until 2005, when the research for the present project was initiated under the auspices of Proyecto Jach'a Machaca.[33] Nevertheless, Rydén's work at Pukara de Khonkho has been frequently referenced in discussions of the Late Intermediate Period in the Pacajes region. Bennett (1950) in particular suggested that Late Intermediate Period pottery in the southern basin be called "Khonkho," primarily based on Rydén's (1947) description of the ceramics from Pukara de Khonkho.[34] While this label never really caught on, Rydén's work was instrumental in defining the Early Pacajes phase ceramics in the early years of archaeological investigation in the Titicaca Basin. The work is generally also referenced in any current assessment of Late Intermediate Period ceramics in the area (see for example Albarracin-Jordan and Matthews 1990:139;[35] Albarracin-Jordan 1992:272; Bandy 2001:229-230; Matthews 1992:186-187). Despite lack of work at the site, Pukara de Khonkho has been extremely important in shaping our knowledge of the Late Intermediate Period in the southern basin. Research conducted under the auspices of Proyecto Jach'a Machaca extends our understanding of this important site, adding detail to our conception of life in a large Pacajes community and to our knowledge about regional social organization in general.

[33] It may be more accurate to say we do not know of any additional work done at Pukara de Khonkho during that time period. Janusek (2005:25) reports that some excavations in the 60's at Khonkho Wankane were never published and notes are not available, for example, and it is possible that something similar may have happened at the Pukara de Khonkho. Local inhabitants do remember some burial excavations in the surrounding hillsides, but do not mention any additional excavations conducted on the Pukara itself.

[34] Bennett had previously referred to post-Tiwanaku/pre-Inca forms as "Chullpa" (Bennett 1934:458-459). He had also used the term "Collao" (Bennett 1948).

[35] This reference specifically says that Rydén identified a local style for the Desaguadero area, although the authors do not provide any details as to what, specifically, differentiated these ceramics from the broader Pacajes style that they describe.

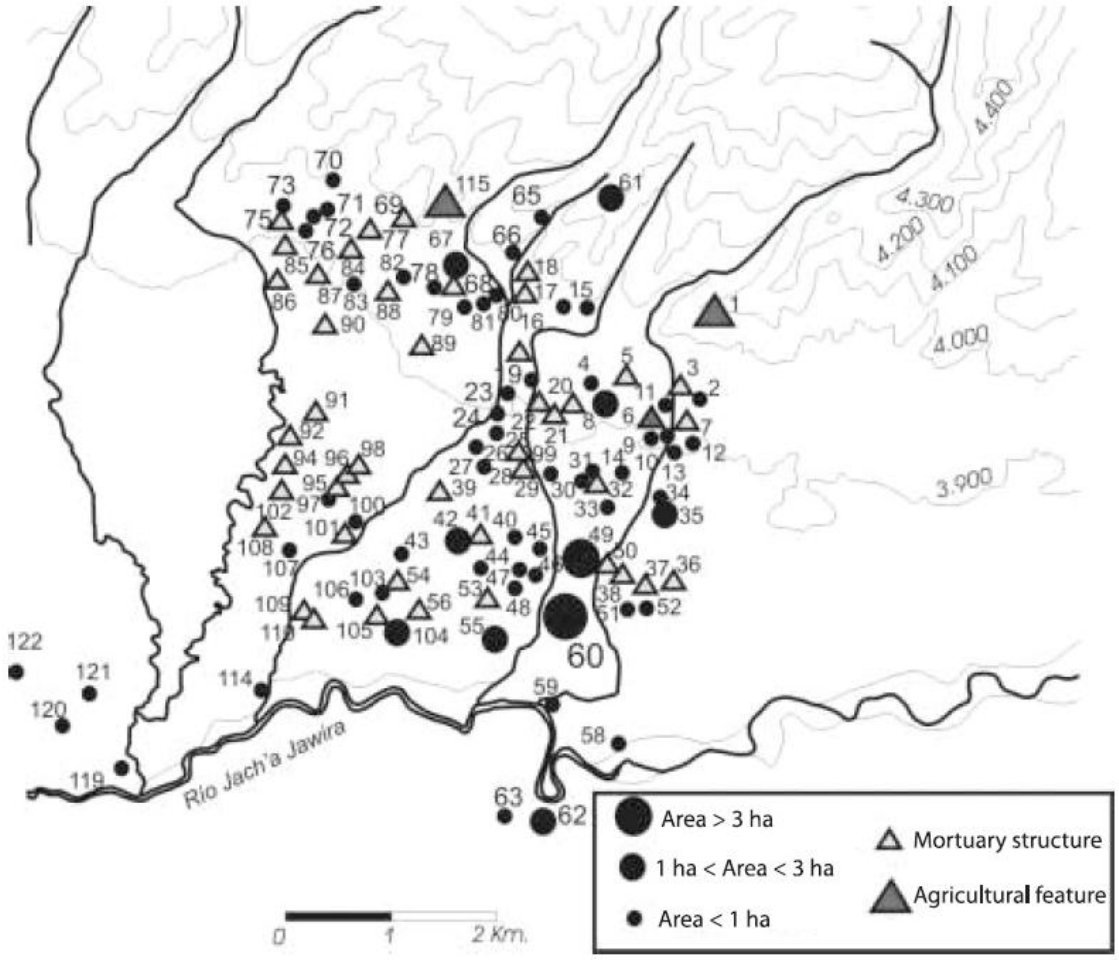

Figure 14: Settlement pattern around Khonkho Wankane in the Late Intermediate Period. Map is adapted from Lémuz 2006:40. Number 60 is Khonkho Wankane and number 61 is Pukara de Khonkho.

The Pukara de Khonkho was first revisited during the initial pedestrian surveys conducted by Carlos Lémuz in the early years of Proyecto Jach'a Machaca (2001-2004). In a survey of 44 square kilometers around the site of Khonkho Wankane, Lémuz (2005, 2006) recorded 66 Early Pacajes settlement sites, as well as an additional 53 sites that appeared to be used solely for agricultural or funerary purposes, reflecting a highly mobile, pastoral orientation during this time period (Figure 14). The Pukara de Khonkho

and Khonkho Wankane are the two largest LIP sites within Lémuz's survey region, but, as will be discussed in subsequent chapters, are vastly different in character. While Lémuz did not conduct a thorough site reconnaissance at Pukara de Khonkho, he did estimate the presence of around 300 circular structures on a series of terraces. Like Rydén (1947), he suggested that the site served as a defensive refuge that was utilized towards the end of the Late Intermediate Period or the beginning of the Inca Period (Lémuz 2006:24-25). Investigations beginning in 2005 as a part of this dissertation research were designed in part to test this interpretation, to evaluate the intensity of occupation at the site as well as the level of community integration, and to assess identity formation processes in this post-collapse community.

Addressing Chronologies

A major question in the investigation of Pukara de Khonkho is figuring out how it fits into the regional chronology. As discussed in Chapter 7, almost all ceramics stylistically date to the Early Pacajes phase (local Late Intermediate Period), although there are a very few Inca-Pacajes (Inca Period) and Late Pacajes (Early Colonial Period) sherds scattered across the site. While this clearly dates the major occupation of the site to the Late Intermediate Period (AD 1150-1450), there are not as yet clear ceramic distinctions that can define sub-phases within this 300-year period.[36] In addition, there was no clear stratigraphic variation at Pukara de Khonkho, suggesting that the site was

[36] As I suggest in Chapter 7, however, the research conducted for this dissertation may be able to identify some ceramic correlates for early and late Early Pacajes sub-phases.

occupied for a comparatively short period of time and making it impossible to utilize superposition to provide relative dates for these artifacts.

In order to provide more precise dating for site occupation, ten carbon samples were submitted to the AMS Facility at the University of Arizona for carbon dating. These samples represented all faces and all terraces of Pukara de Khonkho, including samples from burials and from different types of structures (Table 2). Two of the samples came from burials – one from a burial on the western side of the settlement and the other from the burial on the east. The remaining eight samples came from the floor level of a sample of circular structures. Four of the samples were from the main face, two were from the east face, and two were from the west face. One came from Terrace 2, one from Terrace 3, three from Terrace 4, two from Terrace 5 and one from below the main terrace. In addition, three samples came from Type 1 structures, four from Type 2 structures, and one from a Type 3 structure.

Table 2: Radiocarbon Dates from Pukara de Khonkho

Sample Number	Year Tested	Context	Description	Radiocarbon Age BP	Median Probability	68% (1 sigma)	95% (2 sigma)
Puk-01	2006	U4.1 R1	Str. 199	484 +/- 37	AD 1428	1410-1445	1320-1470
PK-01	2009	U6.4 R2	Burial (east)	604 +/- 41	AD 1348	1304-1398	1292-1411
PK-02	2009	U6.7 R1	Burial (west)	656 +/- 41	AD 1340	1284-1388	1275-1397
PK-03	2009	U2.1B N3	Str. 19	525 +/- 40	AD 1409	1330-1437	1314-1446
PK-04	2009	U3.2B R1	Str. 534	444 +/- 41	AD 1448	1423-1470	1408-1619
PK-05	2009	U7.2A N4	Str. 811	494 +/- 40	AD 1424	1411-1442	1323-1460
PK-06	2009	U4.6B N3	Str. 605	587 +/- 41	AD 1349	1310-1407	1296-1417
PK-07	2009	U5.2A N3	Str. 741	349 +/- 40	AD 1551	1479-1631	1456-1638
PK-08	2009	U4.3B R1	Str. 490	495 +/- 39	AD 1424	1412-1442	1323-1456
PK-09	2009	U5.1A R1	Str. 577	477 +/- 40	AD 1431	1416-1446	1329-1481

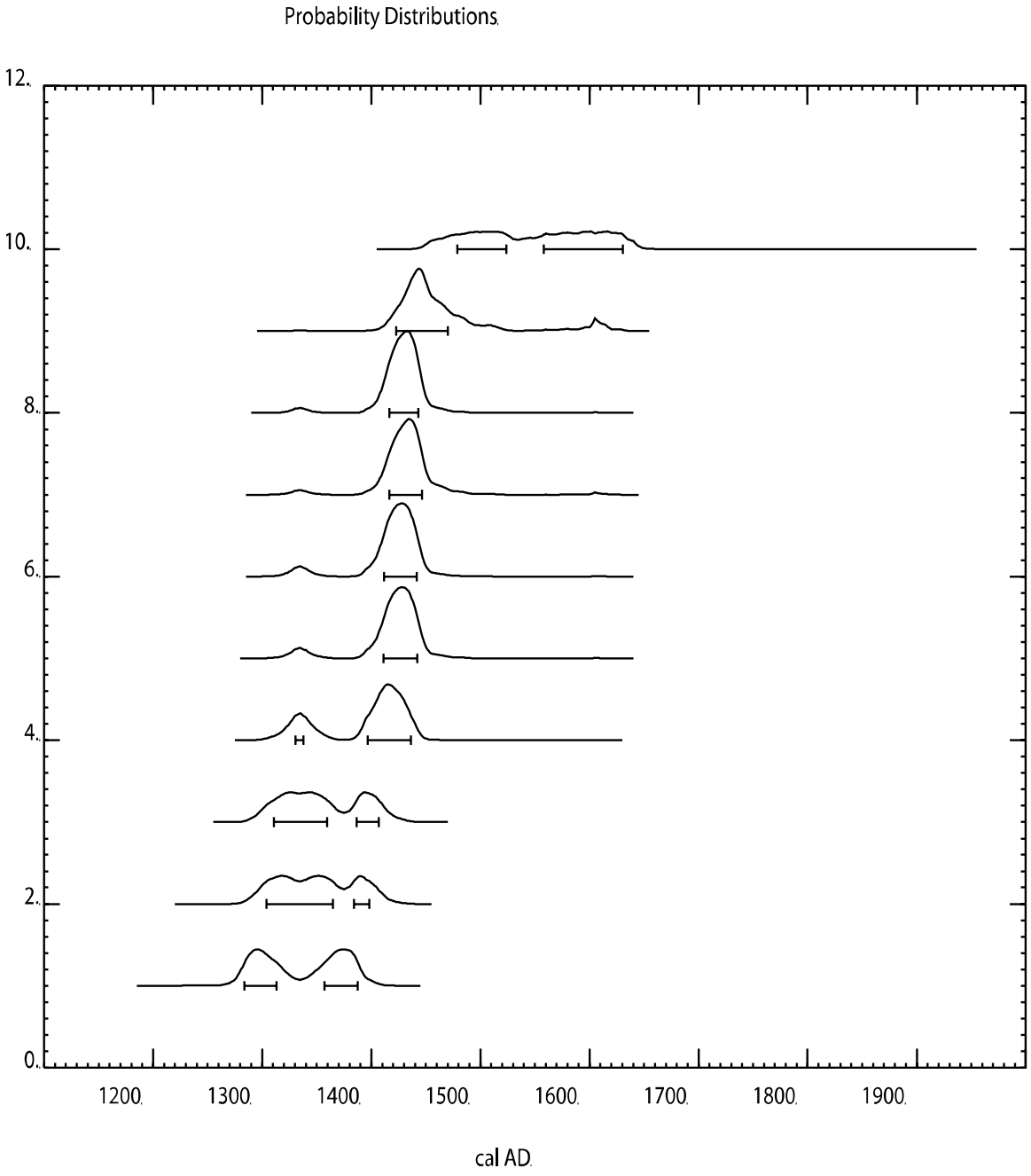

Figure 15: Probability distributions for radiocarbon dates from Pukara de Khonkho

In terms of dates, the ten samples suggested three basic phases of occupation (Figure 15). The first phase, which roughly encompasses the fourteenth century, was

defined by three dates from the two burials and from Structure 605 (a Type 3 structure defined as a "storage/cooking" structure on the west face of Terrace 4). The second phase, defined by six dates from circular structures, concentrated on the time period during the first half of the fifteenth century, just before Inca conquest. This appears to represent the period of greatest occupation at the site and is defined by samples from Type 1 and Type 2 structures on the main and the eastern faces (Structures 19, 199, 490, 534, 577, and 811). The final phase, represented by a single date proceeding from Structure 741 (a Type 2 structure on the west face), reflects Inca – Colonial use of at least this area of the site.

It is interesting to note that the earliest carbon dates from Pukara de Khonkho come from the two burial sites. In contrast, the most densely occupied circular structures all date to the second phase of occupation (from 1400-1450). This suggests that one of the first activities conducted at the site was to create a connection with the land through entrusting the ancestors to it and likely through developing a ritual relation with the site. Site planning and place-making activities, in other words, appeared to have taken place before the major occupation of the site, suggesting an initial desire to create community space or to lay a claim to the land.

In summary, it appears that the Pukara de Khonkho was occupied briefly and intensely (for a period of 100-200 years) during the fourteenth and the first half of the fifteenth century, with at least partial reuse of the agricultural sector of the site in the sixteenth century, following Inca and/or Colonial conquest. This timing is in line with Arkush's (2005; Arkush and Stanish 2005) assertions that *pukaras* in the north basin were not built until the latter part of the Late Intermediate Period, as well as Nielsen's

(2008) observations in far southern Bolivia that the latter part of the Late Intermediate Period was marked by a tendency toward population aggregation. Nevertheless, as shown below (Table 3), these very late dates are quite distinct from what has been published for other Pacajes LIP sites.

Table 3: Comparative radiocarbon dates from Late Intermediate Period sites in the Pacajes region

Sample Number	Original Publication	Description	Radiocarbon Age BP	Median Probability	68% (1 sigma)	95% (2 sigma)
OS-2558	Janusek 2003a:39	CK-33 Pampa Koani, Katari Valley	875 +/-35	AD 1166	1054-1216	1040-1251
B-55489	Janusek 2003a:39	Misiton Lukurmata (midden)	840 +/-90	AD 1175	1050-1269	1018-1295
Ua-2324	Pärssinen 2005:194	Casa de Tiquischullpa	840 +/-70	AD 1182	1055-1265	1039-1277
SMU-2559	Albarracin-Jordan 1996:273	LV-23 Cerro Pukara, Tiwanaku Valley	Unknown	AD 1189	Unknown	1061-1317
M-1049	Ponce 1981: Table 14	Kheri Kala, Tiwanaku (U10, Str. 2)	780 +/-150	AD 1212	1046-1386	907-1439
P-533	Ponce 1981: Table 1	Kalasasaya, Tiwanaku (UF-8 Floor)	778 +/-133	AD 1218	1048-1385	999-1420
OS-2540	Binford et al. 1997: 245	Katari Valley Site 7 (Raised field)	820 +/-30	AD 1223	1208-1260	1167-1266
Ua-2009	Pärssinen 2005:118	Pukarpata (Casa redonda 3)	760 +/-110	AD 1238	1156-1388	1039-1401
Ua-2008	Pärssinen 2005:118	Pukarpata (Casa redonda 1)	770 +/-70	AD 1239	1186-1289	1047-1390
OS-2565	Binford et al. 1997: 245	Katari Valley Site 13 (Raised field)	690 +/-30	AD 1291	1276-1379	1266-1387
OS-2544	Binford et al. 1997: 245	Katari Valley Site 14 (Raised field)	680 +/- 30	AD 1299	1279-1382	1270-1389
Ua-2900	Pärssinen 2005:194	Casa de Tiquischullpa	680 +/- 60	AD 1313	1271-1389	1228-1405
Ua-2899	Pärssinen 2005:194	Casa de Tiquischullpa	660 +/-70	AD 1331	1277-1393	1228-1418
SMU-2470	Janusek 2003a:37	Akapana East, Tiwanaku (F1 shallow pit)	632 +/-183	AD 1335	1168-1465	1016-1661
PK-02	**Zovar 2012**	**Pukara de Khonkho (Burial)**	**656 +/- 41**	**AD 1340**	**1284-1388**	**1275-1397**

Ua-2898	Pärssinen 2005:194	Casa de Tiquischullpa	640 +/-55	AD 1344	1287-1392	1276-1409
PK-01	**Zovar 2012**	**Pukara de Khonkho (Burial)**	**604 +/- 41**	**AD 1348**	**1304-1398**	**1292-1411**
PK-06	**Zovar 2012**	**Pukara de Khonkho (E605)**	**587 +/- 41**	**AD 1349**	**1310-1407**	**1296-1417**
Ua-2007	Pärssinen 2005:118	Pukarpata Casa cuadrangular	610 +/-80	AD 1349	1297-1401	1267-1440
Ua-2321	Pärssinen 2005:144	Mayachullpa Torre funeraria 10	600 +/-70	AD 1351	1300-1406	1280-1432
PK-03	**Zovar 2012**	**Pukara de Khonkho (E19)**	**525 +/- 40**	**AD 1409**	**1330-1437**	**1314-1446**
Ua-2897	Pärssinen 2005:194	Casa de Tiquischullpa	505 +/-70	AD 1414	1318-1453	1292-1618
PK-05	**Zovar 2012**	**Pukara de Khonkho (E811)**	**494 +/- 40**	**AD 1424**	**1411-1442**	**1323-1460**
PK-08	**Zovar 2012**	**Pukara de Khonkho (E490)**	**495 +/- 39**	**AD 1424**	**1412-1442**	**1323-1456**
Puk-01	**Zovar 2012**	**Pukara de Khonkho (E199)**	**484 +/- 37**	**AD 1428**	**1410-1445**	**1320-1470**
PK-09	**Zovar 2012**	**Pukara de Khonkho (E577)**	**477 +/- 40**	**AD 1431**	**1416-1446**	**1329-1481**
PK-04	**Zovar 2012**	**Pukara de Khonkho (E534)**	**444 +/- 41**	**AD 1448**	**1423-1470**	**1408-1619**

As the above table demonstrates, the small ephemeral settlements in the altiplano as well as the unoccupied small *pukara* in the Tiwanaku Valley all return dates relatively early in the Late Intermediate Period. For example, Site CK-33, in the Katari valley (a small mound site composed of isolated hearths and midden features) returned a median date of AD 1166 (Janusek 2003a:39; Janusek and Kolata 2003:155). In the lower Tiwanaku Valley, the site of Cerro Pukara, a small refuge *pukara* without any permanent structures, returned a median date of AD 1189 (Albarracin-Jordan 1996:273). Finally, the site of Pukarpata, another hilltop settlement further south in the Desaguadero Valley, returned median dates ranging from AD 1238-1349. As shown above, other dates from raised fields have also returned earlier dates, as have small sites around Pukarpata in the southern Desaguadero Valley.

In contrast, all of the dates from the Pukara de Khonkho cluster towards the end of this period, along with some of the dates collected from around the hilltop settlement of Pukarpata, further south. This may allow us to identify two separate phases in the Early Pacajes. In one phase (before Pukara de Khonkho was built) population was dispersed and people lived in small ephemeral camps across the landscape. By the end of the Late Intermediate Period, however, people began to come together to the large, central place of Pukara de Khonkho. Subsequent chapters will begin to answer how and why this transition may have occurred and will attempt to identify material correlates that accompany these social changes.

Spatial Organization

The settlement of Pukara de Khonkho covers more than 20 hectares and contains over 500 circular structures and at least 200 small retaining walls, making it easily larger than any other Late Intermediate Period site recorded in the Pacajes region with the possible exception of Pukarpata (Pärssinen 2005).[37] Moving east to west, structures at the Pukara de Khonkho are roughly grouped into three general areas, separated by major bedrock outcrops, but houses and artifacts are similar all across the site. The majority of the structures are found on the fourth terrace, and habitation is also dense on the third and fifth terraces. There are only a few structures visible on the second terrace and nothing visible above the surface on the highest terrace (Figure 16). The lowest (sixth) terrace wraps around two large rock outcrops that frame the main face of the Pukara de Khonkho

[37] Ceramic artifacts were found over an area of approximately 20 hectares at Pukarpata, although the site was never clearly defined (Pärssinen 2005:104).

and appear to mark separate cemetery areas. Today the site is covered with tall grasses and low bushes, which provide excellent pasturage for local farmers, but despite this use the structures and terraces are generally well-preserved and easily identifiable above the surface. The only notable impact on site preservation is the occasional use of stones from the site in modern constructions of property walls, corrals, and/or short-term windbreaks.

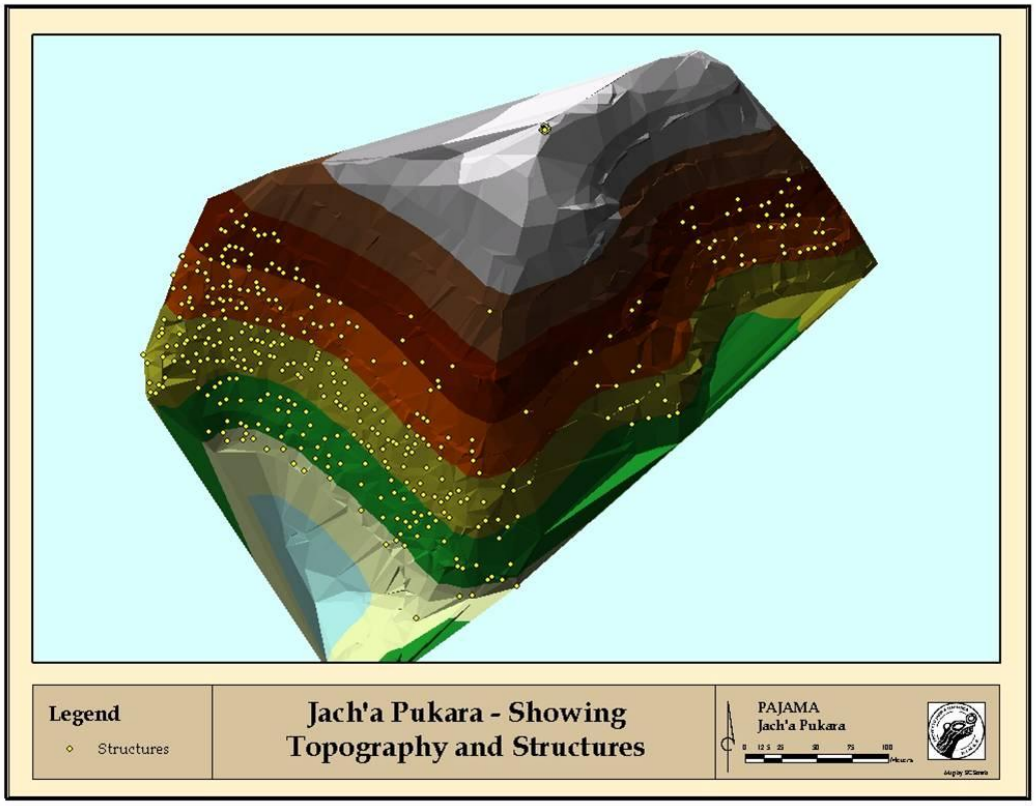

Figure 16: Topographic map of structures at the Pukara de Khonkho (west face not shown). Map by Scott Smith.

At its peak, the hill, locally known as the "Jach'a Pukara," (big *pukara*) reaches 4293 meters above sea level, and major habitation continues down the slope to about 4150 meters above sea level. (For comparative purposes, the site of Khonkho Wankane,

located on the altiplano below, is approximately 3880 meters above sea level.) The main face of the Pukara de Khonkho is oriented due south and is the site of the majority of the circular structures. It is framed on the east by a smaller peak, locally known as the "Jisk'a Pukara" (small *pukara*), which reaches 4182 meters above sea level, and on the west by another prominent rocky outcrop of 4166 meters above sea level, both of which are incorporated into the site by the sixth terrace wrapping around them. These smaller peaks also mark the location of the site's cemetery areas. East of the Jisk'a Pukara, a long expanse of uninhabitable rocky land is punctuated by a small group of structures, and another major habitation face is slightly further to the east. West of the main face is another fairly densely populated habitation face. On this slope, which faces slightly to the southwest and receives the evening sun, agricultural terraces extend well below the sixth residential terrace and were probably the location of fields for many of the local residents.

In the following section, I discuss the spatial organization of the site of Pukara de Khonkho. I first describe specific activity areas in the site as a whole, focusing particularly on the construction, layout, and character of the residential terraces, the circular structures, the empty upper terrace, the cemetery areas, and the lower agricultural spaces. I conclude with a brief discussion of the way the built environment and the natural landscape appear to have been integrated through architectural constructions and through the lived experience of the community living at Pukara de Khonkho.

Residential Terraces

The residential terraces are the most prominent of the constructed features at Pukara de Khonkho, making the site easily visible at long distances across the altiplano. The terraces are also clearly visible on satellite photos and on Google Earth (Figure 17). While there are numerous small retaining walls, these six residential terraces are significantly more substantial and connect the three major faces of site occupation. In total, the six terraces encompass approximately 22 ha, the majority of which was used for domestic habitation.

Figure 17: Google Earth image of Pukara de Khonkho, showing terrace walls

The wall of the upper-most terrace is approximately 400 m long, while the lowest, sixth terrace wall, which wraps around the Jisk'a Pukara and the other large rocky

outcrop to incorporate the cemetery areas of the site, measures nearly 1400 m in length, with an average length of 770 m for the six terrace walls themselves. While the terrace walls appear to cover the entire site without breaks, they are actually interrupted in places by massive bedrock outcrops, over which terraces cannot be built. However, even when there is a break in the wall, it continues, following the same trajectory, on the other side of the outcrops, giving the impression of uninterrupted walls. The average height of these terrace walls is approximately 1 m, and in general, the walls are better preserved at the top of the pukara, although it is not clear if this is due to variable post-depositional degradation or because they were initially of better quality construction.

Above the terrace walls, the flat portions of the earthen terraces themselves are currently approximately 10-15 m wide, although they were likely significantly larger at the time of occupation. Erosion and collapse of the earth, accompanied by the stones that made up walls and structures from higher elevations and appear to have fallen from above, create considerable impact on the present appearance of the site. The majority of the structures are built on the terraced soil just above the terrace walls, but some structures are higher up on the slopes, although there they are generally less well preserved. The largest terrace by far is Terrace 4, which encompasses approximately 3.6 ha across the three habitation faces and contains the majority of the circular structures. The average size of the terraces is 2.7 ha.

The walls of the terraces each have constructed entrances, some more obvious than the others. Access to the Pukara de Khonkho from below is granted through at least four grand entrances – one on the west face, one by each of the two promontories framing the main face, and one on the east face. The entrances on the east (S593) and west

(S611) faces are simple openings in the terrace walls, constructed with large unshaped or roughly shaped stones stacked flush on either side of the entryway. The walls are well preserved in both cases, up to 1.3 m in height. The eastern entrance measures 1.35 m in width and the western entrance measures 2.55 m. In contrast, the entrances below the two rocky promontories (S1058 and S1102) are offset entrances, which require the individual to zigzag when going into the site (Figure 18). In addition there are three possible entrances (S462, S463, and S464) in the sixth terrace on the main face itself, but these were not as clear; gaps in the wall at these locations may be more recent wall fall rather than originally constructed entrances.

Internal entrances from one terrace to the next are also less obvious and may have initially been less well constructed. In many cases it is difficult to differentiate constructed entrances from natural wall fall. Possible entrances to Terrace 5 included two unclear entrances on the west (S610) and main (S465) faces, as well as a grand entrance on the east face (S592),[38] which lines up with the grand entrance to Terrace 6 (S593) below. Only one possible entrance was noted on Terrace 4 (S631), located on the west face, but it is likely that other entrances were just not visible due to the degradation of the terrace walls.

[38] This entrance was well preserved, with the wall measuring 1.51 m in height.

Figure 18: Open entrance S593 and offset entrance S1102. (Top photo by Rebecca Bria)

Entrances to the upper-most terraces, however, are more clearly constructed and appear to line up with one another. On the east face two offset entrances provide access to Terrace 1 (S599) and Terrace 2 (S591), and both line up with an entrance to Terrace 3 (S590).[39] On the main face two sets of entrances provide access to the upper terraces. On the west side of the main face, S27 cuts through Terrace 2 and lines up with S9, which provides access to Terrace 1. On the east side of the main face S144 cuts through Terrace 3 and lines up with S34 on Terrace 2 and S3 on Terrace 1.[40] These entrances are simple open gateways, on either side of which stones were laid flush, clearly marking the openings, which average 1.78 m in width.[41] Excavation in and near entrance S9 on the uppermost terrace (Units 1.2 and 1.3) uncovered large amounts of wall fall, suggesting that the walls may have once extended higher or that there may have originally been a stone stairway leading through the entrance. Excavations, however, were not able to delimit a clearly constructed staircase. Either entrance was by means of a simple dirt trail, or a constructed stairway entrance had been significantly disturbed. Another possibility, given the amount of rock in the area, is that there was once a sort of haphazard pavement here, although if so, it was impossible to define.

Although there are no paved or walled streets, as noted in some of the larger Colla pukaras (Arkush 2005:243-244), the coordination of the terrace entrances (especially at higher elevations) suggests that there were likely planned set pathways. Today it is possible to recognize some dirt paths that connect different parts of the site. However, it is difficult to judge the antiquity of these paths, given the current use of the area for pasturage. As noted by Portugal (1941) one path, which may well date to site occupation,

[39] An additional entrance to Terrace 3 on the east face is S598.
[40] S1011 is an additional possible entrance to Terrace 1 on the main face, although it could also be wallfall.
[41] The height of the walls at these entrances averages 85 cm and the width averages 84 cm.

extends from the east side of the second terrace and connects with a trail to Tiwanaku that is still in use. If this is an ancient path, it provides an interesting link between the Desaguadero and Tiwanaku valleys that may well extend at least as far back as the LIP. This possible connection raises questions about the potential for trading relations that are further explored in Chapters 7 and 8.

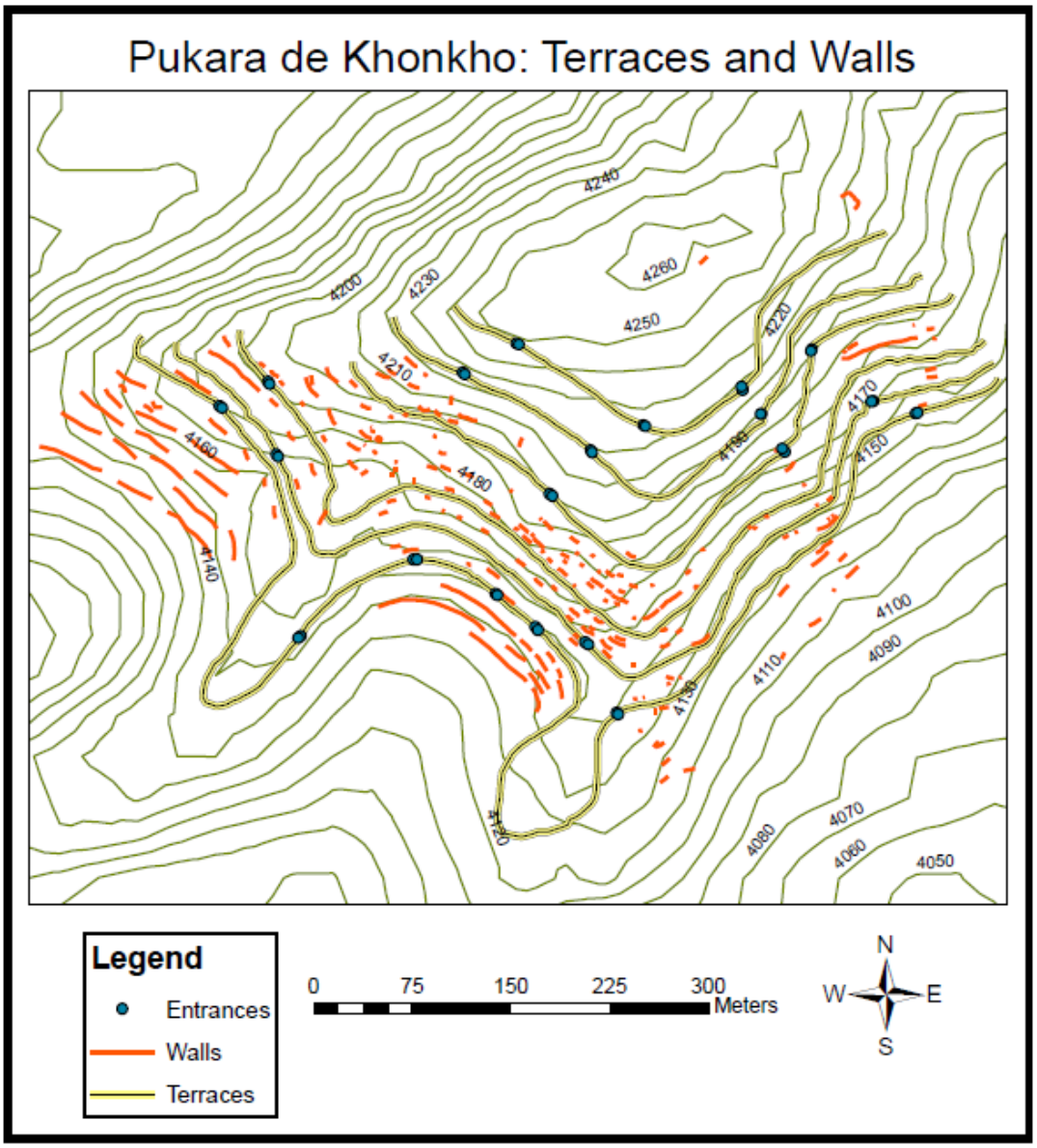

Figure 19: Map showing terraces, entrances, and smaller retaining walls

In addition to the terrace walls, which extend throughout the site, there are also smaller retention walls that are associated with the circular structures (Figure 19). These walls are constructed in the same way as the larger terrace walls, but extend over much shorter lengths. Because of the high quantity of retention walls over the entire site (and because some small walls were impossible to differentiate from wall-fall) not all walls appear on the map. Those that do are a representative sample of the larger walls. The recorded retention walls averaged 8.08 m in length, 1.03 m in height, and 0.46 m in width. Like the terrace walls, the majority of the retention walls run roughly east to west, parallel with the slope of the hill. In most cases they appear to have been built as additional support for particular structures, creating small flat terraces upon which the structures were built. These small walls and their accompanying terraces would have been a necessary facet of construction on this extremely sloped surface.

It is important to clarify that neither the residential terraces nor the smaller retention walls at Pukara de Khonkho should be confused with the defensive walls that most often define major and minor pukaras around the Titicaca Basin during the Late Intermediate Period (see for comparison Arkush 2005, 2011; Stanish 2003; Stanish et al. 1997). The walls on the Pukara de Khonkho are not double faced, stand-alone walls, but merely stone supports for the earthen terraces. In some places more than a meter of wall construction is preserved, but the terrace wall never extends above ground level. Excavations conducted along the terrace walls themselves (U1.1, U1.2, U1.3, U2.1, U5.1) demonstrated that a loose fill made up of medium to large rocks lay behind the roughly constructed terrace walls, also made of medium to large (usually unshaped) stones which were prepared without any obvious mortar, but only rough earth or clay fill (see profile

from U1.2, Figure 20). In addition to the lack of defensive walls, there are no parapets or other defensive characteristics, suggesting that, in spite of its defensive location, the Pukara de Khonkho was more than just a defensive settlement.

Figure 20: Profile of entrance S9, showing terrace wall construction (Unit 1.2)

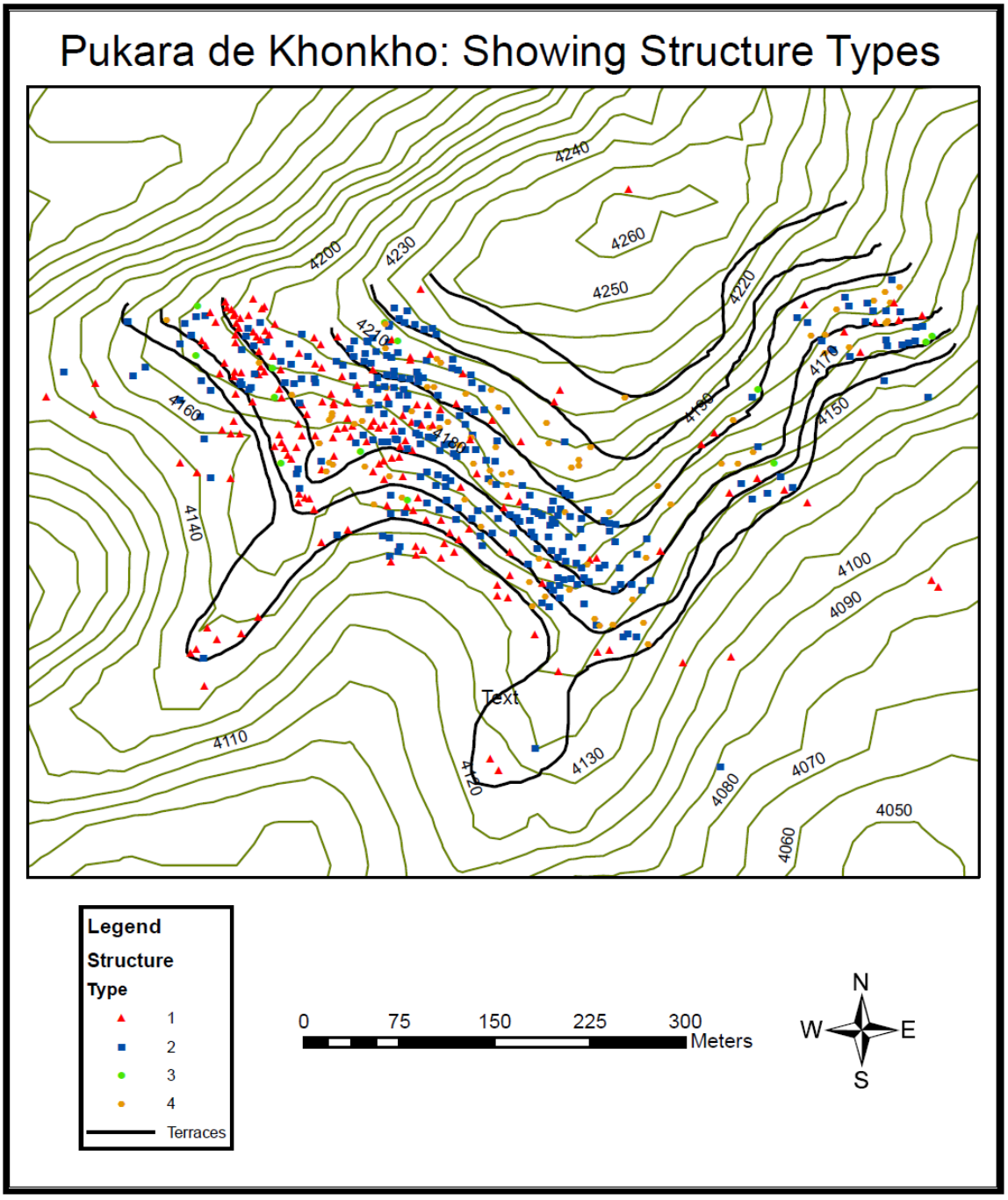

Figure 21: Map of the Pukara de Khonkho, showing distribution of different structure types

Circular Structures

After the residential terraces, the next most striking feature about the Pukara de Khonkho is the large quantity of circular structures (Figure 21). A total of 475 clear structures were mapped across the three faces and major terraces of Pukara de Khonkho in addition to 88 possible structures, for a total of 563 possible structures[42] across approximately 14 ha.[43]

Structures at the Pukara de Khonkho follow one of two different patterns of construction, which are differentially represented across the site. In one type (Type 1) large flat stones stand upright, representing the foundations of adobe brick walls. These structures represent 32% (n=154) of all definite structures found at the Pukara de Khonkho. The other type (Type 2) is more finely made, with the same kinds of stones carefully stacked flat on their sides to form a stone wall, representing 55% (n=260) of definite structures on the Pukara de Khonkho (Figure 22). In addition to the two major types, a few examples (3%; n=13) were built following a combination of the Type 1 and Type 2 patterns. These structures were denominated "Type 3." Other structures were too destroyed to be able to clearly identify construction type, and these structures were denominated Type 4 (10%; n=48).

[42] It was necessary to differentiate between definite structures and possible structures due to the large amounts of stones scattered across the site. In some cases it was difficult to tell whether a roughly circular pile of rocks was a collapsed structure *in situ* or simply an accumulation of wall fall from higher elevations. While only definite structures are considered for spatial and other analyses, however, it is thought that the higher number (including possible structures) is a more accurate representation of the number of structures actually present at the time the Pukara de Khonkho was inhabited. Indubitably, some structures were not located or identified, either due to collapse, the fact that they were covered by earth slides, or the use of ancient stones for modern constructions.

[43] The area covered by residential occupation is somewhat different than the area encompassed by the six terraces because structures were not found above the highest terrace, although a few scattered structures were found below Terrace 6. The number given here includes those lower structures and excludes the highest terrace.

Figure 22: Type 1 structure (top) and Type 2 structure (bottom)

All structures at the Pukara de Khonkho are roughly the same size, with internal diameters between 1 – 4 m, averaging around 2.44 m (Table 4). The size variation is smoothly continuous, with no clear clusters between smaller or larger structures, making it difficult to differentiate between "storage" or "residential" structures based on size alone. There is also almost no difference in size between Type 1 and Type 2 structures, which respectively average 2.45 m (SD = .43) and 2.42 m (SD = .45) in internal diameter. The maximum height of the foundation slabs in Type 1 structures ranged from 10 – 105 cm with an average of 43 cm (SD = 17). The maximum width of the Type 1 foundation slabs ranged from 10 – 96 cm with an average of 32 cm (SD = 15). In Type 1 structures, however, many of the individual foundation stones were actually much smaller, with the largest slabs usually marking the doorways. For Type 2 structures the maximum height of the stone walls ranged from 20 – 140 cm, averaging 65 cm (SD = 24) across the site. The width of the stone walls ranged from 13 – 114 cm and averaged 52 cm (SD = 17).

Table 4: Structure size by type

Str. Type	Number	Diameter Range	Average Diameter	Height Range	Average Height	Width Range	Average Width	Eastern Doors	Western Doors
1	154	1.29-3.67 m	2.45 m	0.1-1.05 m	0.43 m	0.1-0.96 m	0.32 m	28	59
2	260	1.26-4.00 m	2.42 m	0.2-1.4 m	0.65 m	0.13-1.14 m	0.52 m	52	120
3	13	2.00-3.49 m	2.57 m	0.35-0.76 m	0.51 m	0.2-0.55 m	0.40 m	3	3
4	48	1.34-3.24 m	2.41 m	0.2-0.86 m	0.46 m	0.13-0.54 m	0.33 m	4	13

Doorways are usually found in the east or the west of the structures, with western-facing doors being more than twice as common, but eastern-facing doors appearing in

somewhat greater quantities towards the eastern side of the site. Where doorways were clear enough to record, 66% (n=195) were found in the west, northwest, or southwest and 29% (n=87) were found in the east, northeast, or southeast.[44] There was almost no difference in doorway orientation between Type 1 and Type 2 structures. In Type 1 structures, 66% (n=59) face in a westerly direction, while 31% (n=28) face an easterly direction. Likewise, in Type 2 structures, 66% (n=120) face roughly towards the west, while 29% (n=52) face more towards the east. In both cases doorways were generally recognized as simple gaps in the foundation stones and/or stone walls. These entrances were usually quite thin and very likely low. Only one Type 2 structure on Terrace 3 (E114) contains the possible remains of a lintel on its west-facing door, which is low enough that an individual would have had to duck to enter (Figure 23). The small size of the doors is probably a result of the need to retain heat within the structures during the cold altiplano nights, which probably also helps to explain the small size of the structures.

The walls of the Type 1 structures were likely made of adobe and built over unshaped stone slab foundations. In contrast, the walls of Type 2 structures appear to have been built completely of stone. The high levels of wall fall suggest that the walls were once significantly taller. They were built following more or less the same construction style as the terrace walls, made up of unshaped or roughly shaped stones, which appear to have been stacked without any obvious mortar, but merely using earth and smaller rocks as wall fill. Some of the Type 2 walls appear to be very thick double-faced walls, with the stones flush on either side. However, the exterior face does not appear flush on the majority of the structures, either due to wall collapse or the initial construction style. Roofs are not preserved on any of the structures, although it is

[44] 20% were found facing more directly east while 52% were found facing more directly west.

assumed that the Type 1 structures would have utilized thatch roofs. The Type 2 structures could have had either corbelled stone roofs or thatch roofs similar to the Type 1 structures. The high quantity of wall fall within many of the Type 2 structures, however, suggests that at least some of them were entirely built of stone (Figure 24).

Figure 23: Structure E114, showing low lintel

Within the structures, the habitation floors were approximately 10 – 20 cm below the exterior habitation surfaces, which would also have helped to insulate the structures. There were very few interior features visible on the unexcavated structures, due primarily to the presence of wall fall and thick brush. However, 1-2 niches were noted in the

northern walls of many of the Type 2 structures (Figure 25). Niches were recorded in 29 structures across all terraces and faces of the site (5% of all possible structures and 11% of all possible Type 2 structures). It is likely, however, that niches present in other structures were simply not recorded or were hidden under brush or wall fall. It was very common to find ceramics, groundstone, and other domestic artifacts on the surface both in and around the structures.

Figure 24: Reconstruction of Type 1 structures (above) and a Type 2 structure (below). Drawing by Joel Zovar

Figure 25: A typical niche in the north wall of structure E120 (U3.1)

Although the structures are numerous and architecturally similar, there are some apparent patterns in their distribution at the site. The majority of the structures (68%, n=321) are located on the main face of the Pukara de Khonkho, which has a density of approximately 62 structures/ha. The smaller west face also showed signs of fairly dense habitation, with 100 structures (21% of the total) and a density of approximately 48 structures/ha. However, there was a much lower density of structures on the eastern faces, which only held 11% of the total (n=53), for a density of only about 28 structures/ha. Inhabitation of the east face may have been less because it lies in the

shadow of the Jach'a Pukara, receiving no sun after about 3:00 PM, which would have made regular habitation very cold.

Interestingly, there was some difference in distribution of structure types between the western face and the main and eastern faces (Table 5). On the main face, the majority of the structures (60%, n=191) were constructed following the Type 2 pattern, and Type 1 structures only made up approximately 27% (n=88) of the total. Likewise on the eastern faces 53% (n=28) of the structures were Type 2 and only 22% (n=12) were Type 1. However, on the western face of the Pukara de Khonkho Type 1 structures made up the majority (53%, n=53), with Type 2 structures representing only 41% (n=41) of the total. A Chi-squared test of independence was performed to examine the relationship between occupation face and structure type (Type 1, Type 2, or mixed/unclear). The relationship between these variables was significant, X^2 (4, N = 474) = 31.26, p <.0001, with a higher proportion of Type 1 structures being found on the west face than on the other two faces.

There were also significant differences recorded in the internal diameter of structures when considered by occupation face, F (2, 440) = 6.81, p = .001. Post-hoc analyses using the Tukey post-hoc criterion for significance indicated that the diameter of structures on the west face (M = 2.3 m, SD = .40) was significantly smaller than structures on the main face (M = 2.54 m, SD = .53) and on the east faces (M = 2.47 m, SD = .44). However, there was no statistically significant difference between the diameters of the structures on the main and the eastern faces. Taken together, these tests suggest that structures on the western face were more likely to be smaller and built following the Type 1 pattern of construction than structures on either of the two other

faces. These patterned differences likely represent variation in use between the major faces, which will be explored in more detail in the sections that follow.

Table 5: Structure type by settlement face

Structure Type	Main Face	West Face	Eastern Faces
1	93 (26%)	84 (57%)	15 (23%)
2	197 (56%)	48 (32%)	29 (45%)
3	4 (1%)	6 (4%)	4 (6%)
4	57 (16%)	9 (6%)	16 (25%)

Even more striking are the patterned differences in structure types from the upper terraces to the lower terraces, which also suggest variation in use across the site (Table 6). In general, the majority of the structures are on the middle terraces, with little to no habitation on the highest terraces. Moving from higher to lower elevation, Type 2 structures are more prevalent on the upper terraces while Type 1 structures become more prevalent on the lower terraces.[45] There are no clear structures located on the highest terrace and only 8 (2% of the total) on Terrace 2, 7 of which are Type 2. Terrace 3 holds 13% (n=64) of the overall structures, nearly three quarters of which (73%; n=47) are Type 2. On Terrace 4, which has 45% of the site's structures (n=215), over half (55%; n=119) are still Type 2. On Terrace 5, with 20% of the total structures (n=96), the proportions are similar, but by Terrace 6, with 11% (n=51) of the total structures, there are actually slightly more Type 1 structures than Type 2. Finally, below Terrace 6, where

[45] The two possible Type 1 structures on the highest terrace are the only exceptions to this. However one of the two structures (P764) was very unclear and may have actually been wall fall, while the other (P659) was not actually observed by the author but only reported by the landowner. If these structures were real, however, it is interesting to note that they were both located along the edge of the dropoff on the western side, the only part of the Pukara where there is a good view to the north.

9% of the structures (n=41) are located, Type 1 structures are in the majority, making up 63% (n=27) of the lowest elevation structures.

A Chi-squared test of independence was performed to examine the relationship between terrace location and structure type (Type 1, Type 2, or mixed/unclear). The relationship between these variables was found to be statistically significant, X^2 (10, N = 474) = 33.31, p <.0001. Specifically, Terrace 3 was found to have more Type 2 structures and fewer Type 1 structures than would be expected if these patterns were due to random chance, while the higher proportion of Type 1 structures beneath the lowest terrace was also found to be statistically significant.

Table 6: Structure type by terrace

Structure Type	Terrace 2	Terrace 3	Terrace 4	Terrace 5	Terrace 6	Below Terraces
1	1 (12%)	10 (16%)	64 (30%)	33 (34%)	23 (45%)	23 (56%)
2	7 (88%)	47 (73%)	119 (55%)	50 (52%)	19 (37%)	18 (44%)
3	---	3 (5%)	2 (1%)	4 (4%)	4 (8%)	---
4	---	4 (6%)	30 (14%)	9 (9%)	5 (10%)	---

Despite the broad patterns across the Pukara de Khonkho, however, there does not appear to be a coherent plan for the exact location of the structures. Individual structures are in close proximity to each other, and there is little internal differentiation or evidence of social hierarchy evident in the domestic habitations. They do not seem to cluster together in clear groups, but rather appear to be scattered haphazardly across the terraces. Nevertheless, there do appear to be shared ideas about what activities were appropriate

for different parts of the site, and (as discussed below) excavations and artifact associations suggest that different structures were used for different functions.

The Upper Terrace

The upper terrace of the Pukara de Khonkho appears completely empty of structures, artifacts, or indeed any signs of occupation, with the possible exception of two recorded but very poorly defined structures at the back of the Pukara (discussed below). The only interesting feature on the upper terrace is an open area near large stones at the very highest point of the Pukara, where offerings have been made in recent years.[46] Looking south from this location, there is a good view of the altiplano, overlooking the modern village of Qhunqhu Liquiliqui and the site of Khonkho Wankane (Figure 26). However, there is no evidence suggesting use of the area during the time of site occupation, and, because of the importance of the peak to the local community, I was unable to conduct excavations in that location. No artifacts of any sort were observed during surface reconnaissance of the upper-most terrace, however, which is especially remarkable given the high density of ceramics found on the surface on the lower terraces.

Three test units (Units 1.1, 1.2, and 1.3) were opened on the highest terrace to test for subsurface structures, features or artifacts. Unit 1.1 was located on the flat part of the terrace just above the wall on the main face, where occupation would be most likely. Units 1.2 and 1.3 were opened just above and within one of the primary entrances (S9) to the terrace on the main face. Although, as previously discussed, the excavation of these units helped to clarify the construction techniques of the terraces, no additional structures

[46] The Pukara de Khonkho is considered to be an important *apu* (a sacred peak) by the modern inhabitants of the village of Qhunqhu Liquiliqui.

or features were found, and the units were almost completely sterile. The only object that was uncovered was a small metal pin or nail fragment (probably of modern origin) in the first level (0 – 10 cm) of Unit 1.1.

Figure 26: View from the cleared space at the top of the Pukara, looking south

In addition to the lack of artifacts, no clearly prehispanic structures of any kind were visible on the highest terrace, although this may not always have been the case. Damaso Murillo, one of the landowners, recalled seeing a small structure (P659) on the upper terrace on the back face of the hill, looking towards the north. Nevertheless, this could not be relocated, and it is possible that the stones that comprised it may have been

reused in modern construction.[47] If that structure did exist, it would have faced in a different direction than the other structures on the Pukara, looking down the drainage of one of the tributaries to the Jach'a Jawira river, towards the modern village of Qhunqhu Milluni. The structure could have possibly served as a guard house or look-out point, from which it would be possible to survey the drainage and the hills to the north. The only other possible structure (P764) on the uppermost terrace faces in the same direction, but is not clearly defined and very likely does not represent an actual structure.

While it is possible that there were once more structures above the upper terrace that have since eroded, this interpretation is not likely. The walls of the terrace itself are very well preserved, with clear entrances still visible. Furthermore, the few structures that were recorded on Terrace 2 are the best preserved at the site, so it would be very strange if structures on the upper terrace were so eroded as to not be visible at all. Finally, there was no ceramic or other archaeological material found above the first terrace. Whatever this part of the site was used for, it appears to have not left a strong archaeological signature.

Cemetery Areas

Another part of the site that appears to be set apart from everyday life are the two cemetery areas identified near the large rock outcrops on Terrace 6 that flank the main face of the Pukara de Khonkho. The burials are located at the base of the Jisk'a Pukara (the peak on the eastern side of the main face) and at the base of the unnamed rocky peak on the western side of the main face. These specialized locations are incorporated into

[47] This is a problem throughout the site, as stones from the walls and structures have been used to demarcate modern property boundaries and to construct corrals or windbreaks.

the site by their inclusion within the boundaries of the walls of Terrace 6, but they are separated from the major zones of habitation, although some circular structures are found nearby (Figure 27). Both burial locations are situated near major entrances in the terrace walls.

Figure 27: Burial locations are found beneath the two peaks that frame the main face of Pukara de Khonkho.

While the burials themselves will be discussed in more detail in a subsequent section of this chapter, it is important to note here the possible significance of their location. First, it is interesting that the burials were placed in a communal location, rather than being associated with individual residences or specific portions of the site. The use

of a communal burial ground, especially at a new site, suggests a level of importance was placed on group identity in life and death. Second, the association of the burials with prominent features on the landscape suggests an integration of the natural landscape and the built environment that may have been important in establishing a community identity in this particular location.

Agricultural Terraces

The final component associated with the settlement of Pukara de Khonkho is the expanse of apparently agricultural terraces located just downslope from the major areas of occupation. These terraces extend below the sixth major residential terrace, especially on the west face, down to approximately 4085 m.a.s.l. (Figure 28). There are also some agricultural terraces below the main face of occupation, down to approximately 4140 m.a.s.l., although nothing on the east face extends below the sixth terrace. This is likely due to the fact that this side of the hill does not receive the sun after about 3:00 PM, and as a result, the soil is often frozen and unsuitable for agriculture. These lower terraces are interpreted as agricultural terraces instead of domestic terraces because they are smaller, both in width and length, and do not create long, unbroken terrace lines, like the six major terraces. They contain very few structures and a low density of surface ceramics. Their location just outside the walls, however, suggests a close association with the individuals who lived within them.

In total, approximately 5 ha of land was covered by these agricultural terraces (4.6 ha on the west face and 0.4 ha on the main face.) In general, the agricultural terrace walls are roughly constructed of the same type of uncut or roughly shaped stone that is used for

the domestic terraces within the major portion of the site, and they follow the same construction style. On the west face, where most of the agricultural terraces are located, the terraces averaged 25.06 m in length. The walls averaged 81 cm in height and 47 cm in width. The earthen portions of the terraces themselves tend to not be as wide as the terraces from within the community walls, likely in an attempt to utilize as much land as possible for crops.

Figure 28: Terraces on the western face of the Pukara de Khonkho.

There are some scattered circular structures built on these agricultural terraces, the majority of which are located just below the sixth major terrace and appear similar in

character to other structures at the site. These structures, however, appear at an extremely low density – less than 8 structures per ha. With an average diameter of 2.2 m, these structures are also somewhat smaller than structures at higher elevations (although similar in size to the structures constructed on the west face), and (as previously noted) are more likely to be constructed in the Type 1 style. They may have served as agricultural storage huts or short-term shelters. Excavation of two structures just below the sixth terrace on the main face did not demonstrate major differences in artifact assemblage or architectural style from similar structures at higher elevations. No excavations were conducted on the lowest agricultural terraces, but non-systematic pedestrian surveys undertaken during the course of mapping found significantly fewer ceramics on the surface, just as would be expected in agricultural areas.

Spatial and Landscape Analysis

To summarize the spatial organization of the site of Pukara de Khonkho, it seems to be characterized by both vertical and horizontal differentiation combined with significant repeated elements that appear across the site. The six major terraces connect the site together, as do the appearance of numerous circular structures across the site, which are similar in both size and construction style. However, there appears to be a gradual differentiation in use at different altitudes, from the apparently empty highest terrace, to the more domestic use of the middle and lower terraces, to the agricultural use of the land below the lowest major terrace. In addition, despite repeated elements across the three major faces of occupation, smaller Type 1 structures are more common on the densely occupied west face, while Type 2 structures are more common on the densely

occupied main face as well as on the lower density eastern faces. It is likely also important that the major face of occupation directly overlooks Khonkho Wankane, an important Formative site that also saw ritual and quotidian use during the Late Intermediate Period (discussed in Chapter 6). Overall, the Pukara de Khonkho is organized in such a way that the built environment is well integrated into the natural landscape, a relationship which would have been emphasized through the practice of everyday and ritual (especially mortuary) activities.

Its large size, architectural patterns, and spatial organization differentiate the site of Pukara de Khonkho from similar Late Intermediate Period hilltop settlements in the Titicaca basin, suggesting that the site was more than just a defensive refuge. *Pukaras* of this size are relatively rare across the Titicaca Basin, and, where they do appear, are otherwise always associated with massive defensive walls. Of the 45 *pukaras* ground-checked by Arkush in her survey of 6800 km2 in the Colla area of the northern basin, 35 pukaras have a habitation area of less than 5 ha, and only one covers more than 13 ha. The ten large or very large pukaras each have 250 or more circular structures (Arkush 2005:271-272). Pukaras in the Lupaqa region appear to fall within the same size range, and larger pukaras are also characterized by the presence of circular structures within or just below the terrace walls (Frye 1997; Stanish 2003:209; Stanish et al. 1997).

The circular structures found at Pukara de Khonkho are roughly similar to those found at other hilltop settlements in the Titicaca Basin. Arkush (2005:231-238) describes circular house foundations at most sites. In the north basin, the structures are currently recognized as a single row of stones, which would have served as the foundation for adobe brick walls, much like the Type 1 structures at Pukara de Khonkho, but slightly

larger. They have an external diameter that measures between 2 – 6 m, with most structures measuring between 3 – 3.5 m. Due to their small size, each structure is not considered to represent a household unit, and they tend to appear in clusters. Arkush also notes smaller structures (measuring about 1.5 m across) which she interprets as storage spaces. Similar circular structures appear at the major Lupaqa pukaras. However, Frye (1997:132-136) also records the presence of different architectural types at some of the major *pukaras*, including some with nearly complete stone walls and corbelled roofs, much like the Type 2 structures at Pukara de Khonkho. The major Lupaqa pukaras also seemed to have greater variability in structure size, and included some larger, possibly elite structures, often located at the highest part of the site.

Large, defensive walls are a defining quality of major hilltop settlements in the Colla region, often accompanied by parapets or walled streets (Arkush 2005:271-272). Likewise, among the Lupaqa "major" pukaras (in the size range of Pukara de Khonkho) are defined by Stanish (2003; Stanish et al. 1997) as having at least three large defensive walls. Even the other (significantly smaller) hilltop settlements in the Pacajes region are all characterized by at least one clearly defensive wall (Albarracin-Jordan 1992:279-281; Albarracin-Jordan and Matthews 1990:142-146; Bandy 2001:233-235; Janusek and Kolata 2003:155; Matthews 1992:190). In contrast, there were no defensive walls at the Pukara de Khonkho at all, only simple domestic terraces.

While the Pukara de Khonkho stands out from other *pukaras* around the Titicaca basin, it would seem to have more in common with Late Intermediate Period settlements further south, especially the site of Pukarpata, located near Caquiaviri (Pärssinen 2005). Like Pukara de Khonkho, this is a large site located along a hillside without major

defensive walls. A number of circular structures were mapped across the site, although limited excavations suggested that they were not intensively occupied. However, Pärssinen (2005:109-114) only excavated structures at the higher elevations, and if the occupation of the site was similar to that of Pukara de Khonkho, not much would be expected on the upper terraces. Even further to the south, in the province of Lípez, Nielsen (2002a, 2008) has noted that populations tend to aggregate into larger settlements marked by *chullpa* burial towers towards the end of Late Intermediate Period, a pattern which would fit with the relatively late occupation of Pukara de Khonkho.[48]

The settlement of Pukara de Khonkho is linked together by the six long terraces that stretch across the site, by a consistent pattern of domestic habitation, and by an apparent shared understanding about what parts of the site were appropriate for different activities. For example, major domestic habitation was on the lower terraces, while burials were located near the two rocky peaks flanking the main face of the site. In looking at site organization, it is interesting to note an apparent structural duality and/or tripartite division (e.g. Parsons et al. 1997). The main face of settlement is framed by two peaks, each marking separate cemetery areas, and by two secondary faces of occupation, which seem to be somewhat distinct in style. One possible interpretation of these differences, which will be pursued in the sections that follow, is that there may have been a dichotomous structural relationship between the occupation of the eastern and the western faces whereby the western face was more closely associated with agriculture (as demonstrated by its proximity to the agricultural terraces, and the prevalence of smaller, Type 1, possibly storage structures) while the eastern face was more closely associated

[48] Note, however, that the Pukara de Khonkho lacks the *chullpas* that are characteristic of the Late Intermediate Period in other parts of the Titicaca basin.

with pastoralism and trade (as demonstrated by its lower density of structures and its proximity to the trail connecting the site with Tiwanaku.) Parsons et al. (1997) make a similar argument for Late Intermediate Period settlements in the central Andes. If this were the case, the main face of the Pukara de Khonkho would have served as a sort of *taypi* (e.g. Kolata and Ponce Sangines 1992), a central place that connected these two important elements of the society and brought them together, guarded on either side by the ancestors (represented by the rocky outcrops that mark the cemetery areas).

While more emphasis is usually put on the importance of pastoralism during the Late Intermediate Period, agriculture continued to play a role in subsistence. Graffam (1992) argues that by the time of Tiwanaku collapse, pastoralism and agriculture had become almost completely interdependent and interconnected in the Andean region (see also Parsons et al. 1997). Camelids were extremely important for food, wool, leather, transport and trade as well as for ceremonial reasons. However, despite the overall economic importance, in terms of subsistence alone, a herder represented a net caloric loss to his/her family, so it was necessary for herding to be supported by agriculture (Graffam 1992:890). Terraced fields like those that surrounded the Pukara de Khonkho would thus have been essential for the survival of the community as a whole.[49] Camelids may have been pastured elsewhere on the site, perhaps on the "empty" upper terrace.

The importance of pastoralism in the Pacajes region during the Late Intermediate Period has been well documented (Albarracin-Jordan 1996; Albarracin-Jordan and Matthews 1990; Bandy 2001; Janusek 2005a; Kolata 1993; Matthews 1992), and it is

[49] It is also important to note the role that *qochas*, man-made basins used to water camelids and/or irrigate fields, played in subsistence during the Late Intermediate Period. These features were constructed across the Desaguadero river valley in the centuries following Tiwanaku collapse (Lémuz 2007), including at the site of Khonkho Wankane, and are discussed in more detail in the next chapter.

likely that camelid herds would have been considered the major wealth of the community and would have likely been closely guarded and protected. Similar patterns have been noted in other archaeological and ethnohistorical pastoral economies in Europe, Africa, and the Americas (e.g. Cunliffe 1999; James 1993; Nielsen 2002b; Patterson 1994), and would not come as a surprise here. Above the highest terrace of the Pukara de Khonkho, surrounded by community residences, is probably as safe a location as one could imagine for a camelid corral. If the upper terrace was dedicated to this purpose, you would not expect to find the signs of dense occupation that are common in the more domestic areas of the site, since pastoral uses are often difficult to identify archaeologically (Chang 1992; Nielsen 1997, 2002b).

Nevertheless, the area does seem to be almost unnaturally clean, even for pastoral use. Even today, local inhabitants guarding their flocks at the Pukara de Khonkho often build ad hoc shelters as windbreaks, and it would seem unlikely that the shepherds of the past would not engage in similar activity. Another possibility (which by no means excludes the first interpretation) is that the area may have been ritual space, the cleanliness the result of being a location that was special or set apart from everyday life. This pattern has been noted on LIP *pukaras* throughout the Titicaca basin. Arkush (2005:241-242) observes that tombs, chullpas, ritual structures, and even petroglyphs are often found at the peaks of *pukaras* in the Colla region. Frye (1997) also finds signs of ceremonial use at the highest parts of Huichajaja and other Lupaqa *pukaras*, and Nielsen (2007) notes a connection between ceremonial and/or mortuary use and the highest spaces on *pukaras* in the altiplano further south.

The interpretation of the upper terrace as ritual space at the Pukara de Khonkho would also seem to be supported by the higher quality construction of the wall of the first terrace and of the entranceways, as opposed to the other walls and terraces throughout the site. In addition, it is interesting to note that use of the second highest terrace also seems similarly restricted. Although there are a few structures on the second terrace, and ceramics are found on the surface, the density of ceramics is much less than on lower terraces. Furthermore, the few structures on Terrace 2 are larger, Type 2 structures, and, as discussed below, they appear to be of a different character than the structures at lower elevations. All of this suggests a pattern of increasingly restricted access and/or attention to ritual and cleanliness in the higher levels of the site.

This interpretation could also be supported by comparative analysis, as peaks are often considered sacred in the Andes and associated with the ancestors and the *achachilas* (e.g. Abercrombie 1998; Allen 2002; Bastien 1978). In contemporary Aymara communities, the mountain is seen as a living body that oversees and protects community life (Bastien 1978). A *ch'alla*, or ritual drink, is regularly offered to individual peaks on the local landscape, each of which has its own name and character (Abercrombie 1998:348). This association is known to predate Spanish colonialism. The well-known pattern of child sacrifice by the Incas at mountain peaks points to the historical depth of the associations of mountains with the sacred (Ceruti 2003, 2004). It is interesting to note that the Pukara de Khonkho is today considered an important *apu*, to which *ch'allas* are often offered by members of the local community of Qhunqhu Liquiliqui. There are local tales of a golden bell hidden in a cave at the peak and of mythical creatures that are said to guard the major peak as well as the two rock outcrops

where burials were found. In fact, it was due to the current sacred associations with the peak of Pukara de Khonkho that I was not able to conduct any excavations in that area.

As noted, it is possible (and even likely) that the upper terraces of the Pukara de Khonkho could have served both as a spot to pasture camelids and as ritual space. The distinction between ritual and profane space is not necessary dichotomized in the Andes, and camelids are important animals in both quotidian and ritual life (e.g. Abercrombie 1998; Bastien 1978). Other interpretations for the empty upper terrace are also possible. For example, it is interesting to consider that if people were traveling to Pukara de Khonkho from Tiwanaku, they would have entered through the uppermost terraces rather than from below. If this were the primary entrance to the site, the peak may have simply been considered to be outside of the community space or possibly even utilized as a place for trade. Nevertheless, given the broader cultural context, I find the ritual explanation to be the most likely.

Part of the reason that a ritual interpretation for the larger peak makes sense is that the Jisk'a Pukara and the other small peak framing the main face of occupation are clearly associated with evidence of ritual, specifically mortuary, use. These rocky peaks are prominent features on the landscape, possibly functioning as natural *chullpas*, marking the location of the communal burial grounds. As Nielsen (2007) notes, it was common for pukaras in the Lípez region further south to incorporate *chullpas* (burial towers) in locations that suggested they served as protection for the site.[50] At the Pukara de Khonkho, the connection of the ancestors with the prominent rocky peaks could have functioned as a powerful statement of land ownership to surrounding communities and

[50] "…para 'proteger' los flancos más vulnerables de los pukaras, distribuyéndose al exterior de las murallas o a veces insertas en ellas, como si fueron parte de la ingeniería defensiva de los sitios" (Nielsen 2007:12).

lineages. As previously discussed, peaks are conceptually tied to the ancestors, and the use of these particular locations as burial grounds would have explicitly tied the community of the Pukara de Khonkho to the land through the bodies of the ancestors, also in the process creating a new social memory and creating a new sacred space.

Mortuary Contexts

Burials were found in two locations on the Pukara de Khonkho itself – around the Jisk'a Pukara east of the main face, and around the other large outcrop west of the main face (Table 7). The sixth and lowest terrace wraps around both rock outcrops, symbolically incorporating the burials into the site. An additional burial following similar patterns (located under a smaller rock outcrop) was found just off-site, along the path leading from the modern village of Qhunqhu Liquiliqui to the site of Pukara de Khonkho.

Table 7: List of burials found on or near the Pukara de Khonkho

ID	Context	Description
U6.4R1	Under western rock outcrop	Adult female (30-50 years)
U6.4R2	Under western rock outcrop	Probable male (16-21 years); Annular cranial modification
U6.4R3	Under western rock outcrop	Infant (1-1.5 years)
U6.7R1	Under Jisk'a Pukara (east)	At least two adult individuals, including one 40+ female
U6.9R1	Under Jisk'a Pukara (east)	Empty cist tomb
U8.1R1	Kapukapuni (off-site burial)	Adult male (40+ years); Dental caries, and healed trauma to left knee.

The five burials (containing a total of six individuals) do not fit well into the regional pattern of burials, as there is no constructed above-ground component, as is common at other Late Intermediate Period settlements (e.g. Arkush 2005; Frye 1997; Nielsen 2002a, 2008). Instead, the burials are dug partially into the bedrock beneath large rock outcrops. Of the four observed crania, all exhibited cranial modification. Only one of the burials contained burial goods of any kind. Although the sample size is small, both sexes and various age groups (infant, young adult, older adult) are represented.

In this section of the chapter, I first describe the burials themselves, focusing both on the mortuary style and the skeletal elements. Since the patterns are somewhat different for the western, eastern, and off-site burials, these locations are discussed separately. I then present the results of stable isotope analyses conducted on the remains. I conclude with a discussion of the implications of these results for an understanding of community formation at the Pukara de Khonkho and provide a brief comparative analysis with mortuary practices in other parts of the Titicaca Basin during the Late Intermediate Period.

Western Burials

The burials were identified in the 2007 field season when landowner Damaso Murillo informed me that he had noticed human bone eroding out of the ground just below a rocky outcrop to the west of the Pukara's primary face. In order to try to more clearly identify the burial cut, a 2 m X 2 m unit (Unit 6.4) was set up around the eroding burial, and two additional interments were found within this unit. In total the three

burials included an older female, a young adult male, and an infant. All of these burials faced towards the east, and were lined by two upright stones, which in some cases were partially visible on the eroded surface (Figure 29).

Figure 29: This large rock outcrop marks the location of three of the burials found at the site of Pukara de Khonkho

The first identified burial (U6.4R1) was seated cross-legged with arms folded across the chest between two upright stones, which lined the original burial cut (Figure 30). The cranium was completely missing (although its removal was apparently quite recent)[51] and the mandible and some of the hand and foot bones had been displaced. Although preservation was not ideal and it was obvious that the burial had been somewhat disturbed, the original position of the body was still clear, and would have

[51] Local excavators said the skull had previously been visible above the surface, but that it must have been stolen.

been facing east. From the mandible and pelvis fragments, the burial was identified as an adult female, 30-50 years of age – old enough to have significant wear on her mandibular teeth, which were all still present.

Figure 30: Burial U6.4R1

The second burial (U6.4R2) was located just one meter to the east, within the same 2 m X 2 m unit (Figure 31). It was also situated between two upright stones and the original cist was dug into the crumbling bedrock. The cranium was oriented facing east, and the long bones appeared to have been tightly bundled, with elbows and knees together and also pointing east. While many of the bones were articulated, the vertebrae and some other bones were scattered around the bottom of the cist in a way that suggested secondary burial. Despite the good preservation of the cranium and the long

bones, the pelvis was only partially preserved and in poor condition. Judging primarily from cranial markers, the burial was identified as a probable male between the ages of 16 and 21. The mandibular third molars had fully erupted, but the maxillary third molars were still erupting. The humeral head and the distal ends of the radius, ulna, and femur had still not fused, nor had the iliac crest or the proximal fibula, although the proximal tibia had begun to fuse. The cranium was complete and showed significant annular modification.

Figure 31: Burial U6.4R2

Figure 32: Burial U 6.4R3. Note metal bead by left eye.

The third burial found within Unit 6.4 (U6.4R3) was less than a meter south, and was of an infant buried in the fetal position with the cranium facing east (Figure 32). This burial was the only to contain any burial goods, consisting of a single bronze bead located near the left eye, which is likely all that remains of the child's necklace. Based on tooth eruption and bone formation, the child was estimated to have been about 1 – 1.5 year old at the time of death. Although the cranium was fragmentary, it did appear to demonstrate some modification.

Some protruding rocks were noted nearby that could mark additional unexcavated burials. Unfortunately lack of time prohibited further investigation in that area. In the future, additional excavations may be useful to test the hypothesis that this was a community burial location.

Eastern Burials

Because of the location of the western burials under a large rock outcrop, I elected to open a test excavation under the rock outcrop capping the Jisk'a Pukara to the east of the main face, in order to see whether it signaled the location of additional burials (Figure 33). This rock outcrop is quite dramatic, with a large, clean rock face jutting some 8 m straight up. A 2 X 2 m unit (Unit 6.7) was opened just below the rock face. Almost immediately, human bones were located at the south edge of the unit, up against the rock.

Figure 33: Additional burials were found under the rock outcrop known as the Jisk'a Pukara

Figure 34: Burial U6.7R1

However, this burial (U6.7R1) was quite different. Although the burial appeared to be partially lined by upright rocks, the bones were scattered, and only small sections were articulated (Figure 34). For example, three cervical vertebrae were articulated with each other, but otherwise completely out of place. Likewise, the distal end of the right ulna (which had been broken post-mortem) was correctly articulated with all of the carpals. In addition, some severely burned bones were scattered throughout the burial, and it quickly became obvious that more than one person was represented in this

assemblage. Unfortunately, only one pelvis and one cranium were included among the bones, making it difficult to sex and age both individuals. The pelvis is clearly that of a female, and an assessment of the pubic symphysis suggests she was approximately 40+ years old. However, the skull, which exhibits annular cranial modification, seems to belong to a younger individual. While there is significant wear on most of the teeth, and the second mandibular premolars were lost during the individual's life, there is little wear on the upper or lower third molars, suggesting that the individual died not too long after they erupted. In addition, limited cranial suture closure suggests the individual was a young adult.

Duplicate bones include: two axis bones plus another additional cervical vertebrae, two left femurs, two right tibias, and one extra molar. Where bones are duplicated, one is visibly larger than the other. Burnt bones include the proximal end of one of the right tibias and a distal right femur as well as the left radius head, a humeral head, a scapular spine, two phalanges, two metacarpals, one vertebra, fourteen ribs, and various long bone fragments. It is not clear if burnt bones belong to only one or both of the individuals represented in this burial or when the burning occurred, although three ash lenses were noted nearby. A carbon sample from the burial itself was submitted for carbon dating, returning one of the earliest dates from the site (see Table 2).

Interestingly, a second unit opened just to the west of the double burial (Unit 6.9) uncovered a single circular cist tomb capped with a large rock that had been previously used as a grinding stone (Figure 35). The stone covered a partially stone-lined cist 90 cm deep, which was loosely filled with small rocks and a sandy soil distinct from the surrounding matrix. Although the tomb was excavated down to a stone floor, it was not

found to contain any bones or cultural materials. It is possible that the tomb may have originally held one or both of the individuals excavated from the secondary burial just two meters away. If so, however, it is not clear when or why these individuals would have been moved.

Figure 35: Empty cist tomb near burial U6.7R1

Off-site Burial

The final burial (U8.1R1) excavated under Proyecto Jach'a Machaca in the area of the Pukara de Khonkho is actually located somewhat off-site, and was found eroding out of the ground on another hill (known as Kapukapuni), located approximately 0.5 km

southeast of Pukara de Khonkho, along the path that connects the site with the modern village of Qhunqhu Liquiliqui (Figure 36). A 1 m X 1 m unit was set up around the eroding skeleton. Although not within the site boundaries, this burial is discussed here because it seems to follow the same pattern, as it was also dug into the bedrock beneath a rock outcrop, although this outcrop was somewhat smaller than those found on the Pukara. It was also located near a circular structure similar to the Type 1 structures found on the Pukara de Khonkho itself.[52]

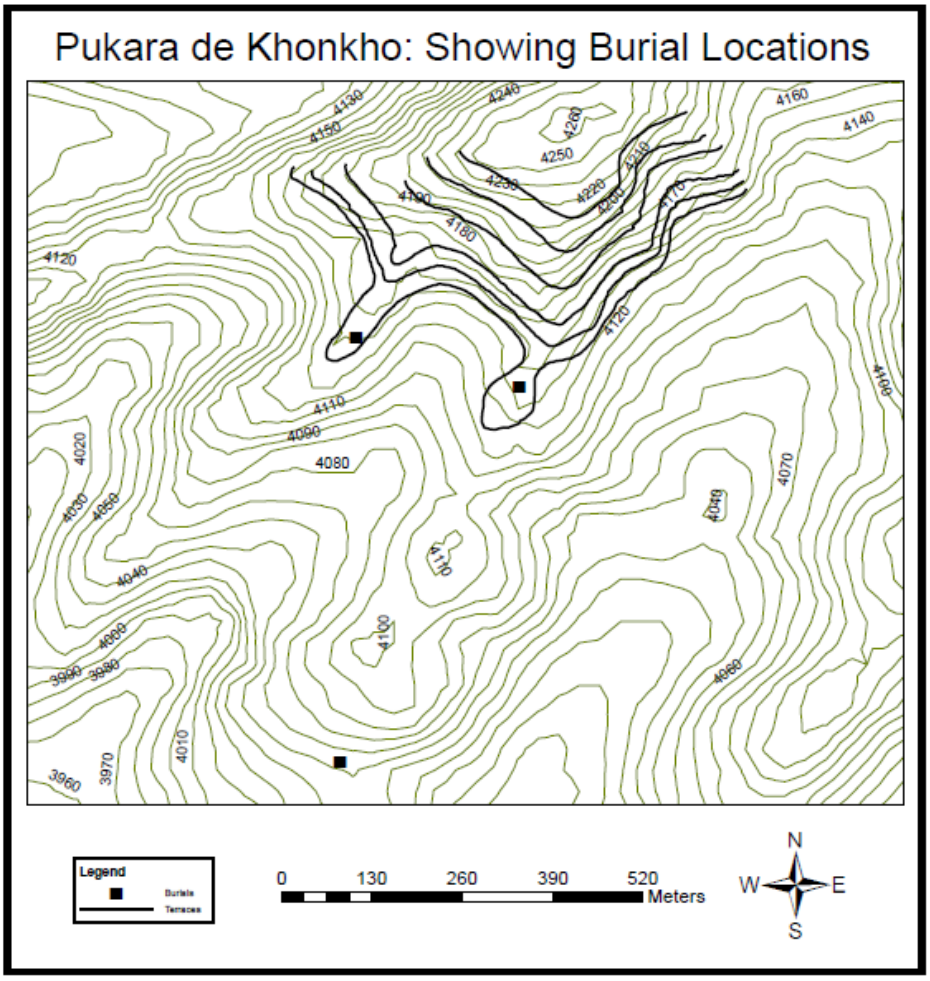

Figure 36: Map showing location of the off-site burial

[52] The structure was small and somewhat poorly defined, but had a clear doorway to the east.

While many skeletal elements had already eroded out of the burial and were scattered loosely on the surface, after excavation it was possible to identify some intact, articulated elements (Figure 37). The body was in a flexed position originally placed between two upright stones, and probably faced towards the east. The individual was an older adult male, approximately 40+ years old at time of death, with significant wear on his teeth. At least three dental abscesses were noted, at the right and left mandibular first molar sockets and at the maxillary left first molar socket. The individual's left proximal tibia and fibula had also fused together, probably as a result of a healed fracture or healed dislocation. This is the only example of trauma present on any of the excavated skeletal elements found on or near the Pukara de Khonkho.

Figure 37: Burial U8.1R1, mid-excavation

Stable Isotope Analyses

Six samples of teeth and bone were submitted to Dr. Kelly Knudson at the Center for Bioarchaeological Research at Arizona State University for stable isotope analysis in order to address paleodiet and residential mobility. Samples included teeth from burials U6.4R1, U6.4R2, U6.7R1, and U8.1R1 and bone from U6.7R1 and U8.1R1. In addition, three archaeological fragments of viscacha from the site of Pukara de Khonkho were sampled in order to help clarify a local baseline.[53] Strontium, carbon, and oxygen isotopes were obtained as a secondary line of evidence that could speak to population movement, diet, and the relative homogeneity within the population in the Late Intermediate Period Pacajes region (Table 8).

Table 8: Isotope tests on tooth and bone samples from the Pukara de Khonkho. Chart adapted from Kelly Knudson.

Burial No.	Description	$^{87}Sr/^{86}Sr$	$\delta^{13}C$	$\delta^{18}O$
ACL-1996	Viscacha metapodial	0.70882	---	---
ACL-1997	Viscacha metapodial	0.70908	---	---
ACL-1998	Viscacha metapodial	0.70910	---	---
U6.4R1	Tooth (Adult female)	0.70951	-11.79 SD=0.86	-6.46 SD=0.93
U6.4R2	Tooth (Young adult male)	0.70881	-11.85 SD=0.28	-10.09 SD=0.47
U6.7R1	Tooth (Mixed burial)	0.71016	-12.84 SD=0.23	-11.18 SD=0.28
U6.7R1	Bone (Mixed burial)	0.70912	-14.29 SD=0.38	-10.02 SD=0.52
U8.1R1	Tooth (Off-site burial)	0.70901	-12.20 SD=1.12	-3.33 SD=1.61
U8.1R1	Bone (Off-site burial)	0.70932	-12.71 SD=0.51	-6.71 SD=0.34

Strontium, which is present in rock, soil, and groundwater, is made up of varying proportions of $^{87}Sr/^{86}Sr$, which differ depending on the local geology. These isotopic

[53] Dr. Knudson tested for diagenetic contamination by looking at trace element concentration, and while the Ca/P values were "slightly elevated," the U/Ca values were low, "suggesting little diagenetic contamination."

signatures are passed on to plants, animals, and humans as a result of their diet (Knudson et al. 2005). Recent research in the Andes has demonstrated that strontium isotope signatures for the southern Lake Titicaca Basin and the western coastal valleys are distinct and non-overlapping and that strontium isotope analysis can identify interregional movement (Knudson et al. 2004; Knudson et al. 2005).

Knudson (2009) found that the samples tested from the Pukara de Khonkho fell within the local range for the southeastern Titicaca Basin ($^{87}Sr/^{86}Sr$ = 0.7091-0.7102), and that they were also consistent for the local range for Khonkho Wankane ($^{87}Sr/^{86}Sr$ = 0.7083-0.7099) and Pukara de Khonkho ($^{87}Sr/^{86}Sr$ = 0.7087-0.7093).[54] Although she noted that the tooth from one individual (collected from U6.7R1) had an isotopic signature that was higher than the expected local range for Pukara de Khonkho, it still fell within the range for the southeastern Titicaca region. This suggests that the individuals buried in and near Pukara de Khonkho were born and lived the last few years of their life in the local area, and that they could not have been migrants from an area with a different geological signature.

Carbon isotopes were also tested in order to provide insight into the diet of the inhabitants at Pukara de Khonkho. Plants contain different proportions of carbon isotopes depending on the photosynthetic pathway that they utilize, and this ratio is incorporated into the bone and enamel of individual consumers of these plants, depending on their diet (Ambrose and Norr 1993; Berryman et al. 2007; Knudson 2009; Lee-Thorp et al. 1989). In this part of the prehispanic Andes, maize was the only comestible plant that followed the C_4 photosynthetic pathway, while all other important edible plants

[54] The local range for the Pukara de Khonkho was defined as the mean of the viscacha samples plus and minus two standard deviations.

utilized the C_3 pathway (Berryman et. al 2007; DeNiro and Hastorf 1985). As a result, testing carbon isotope ratios is a good way to measure the amount of maize in the diet.

At the Pukara de Khonkho, the tested individuals all showed carbon ratios which suggested that the plants they consumed were primarily those that followed a C_3 pathway, although C_4 sources may have played a minor role in their diet. There was very little variability in the carbon ratios within or between individuals, suggesting that all followed a similar dietary pattern (Knudson 2009). The apparent lack of emphasis on maize in the diet of the inhabitants at Pukara de Khonkho is in line with patterns already noted by Berryman (2010; Berryman et al. 2007) for the Late Intermediate Period Pacajes region. While maize appeared to play an important role in the diet during the Tiwanaku period (probably as a result of the widespread use of maize beer during feasting and other occasions), after Tiwanaku collapse, maize consumption diminished (Berryman 2010).

The final isotopic test conducted on the samples from Pukara de Khonkho examined oxygen isotope ratios. Like strontium isotopes, oxygen isotope signatures vary according to geographic region, but while strontium isotope ratios are determined by geological factors, the oxygen isotope signatures in water sources are determined by "environmental factors including altitude, precipitation patterns, latitude, and temperature" (Knudson 2009:3). As a result, oxygen isotopes provide an interesting comparison when considered together with strontium isotope ratios. However, because the Andes demonstrate such high levels of environmental variability, oxygen isotope ratios in this region can vary according to both geography and seasonality, and cannot by themselves be taken as evidence of residential mobility.

There was significant variability in the oxygen isotope ratios in the individuals from Pukara de Khonkho. Tooth and bone samples from burials U6.4R2 (the young adult male under the western outcrop) and U6.7R1 (the mixed burial under the eastern outcrop) showed similar oxygen isotope signatures while tooth and bone samples from U6.4R1 (the adult female under the western outcrop) and U8.1R1 (the adult male located off-site) showed different signatures. However, while this does indicate that some individuals buried at or near Pukara de Khonkho consumed water with different oxygen isotope signatures, it is not clear whether this indicates migration by these individuals, shifts in water sources, or "annual variation in Titicaca Basin climate and hydrology" (Knudson 2009:3).

Overall, the biogeochemical analysis of the archaeological human remains from Pukara de Khonkho provides an interesting and separate line of evidence to address population movement and habitual diet of those who were buried at the site. First, it appears that all ate a diet that was similar, at least in terms of its carbon isotope signatures, with little consumption of maize, a result that is in line with other tests conducted on Late Intermediate Period samples in the Pacajes region (Berryman 2010; Berryman et al. 2007). More importantly when it comes to the issue of migration, the strontium and oxygen isotope signatures do not support the hypothesis that Pukara de Khonkho was occupied by a migrant population. Although it is still possible that migrants could have come from a region with a similar strontium signature, or that the variation in oxygen isotopes does represent migration by some members of the community, further questions regarding population movement in the Pacajes Late Intermediate Period would need to be addressed utilizing another set of data.

Death and the Ancestors at Pukara de Khonkho

After excavation of these five burials and one tomb, it was easy to note other possible burial sites on the Pukara de Khonkho itself, marked by one or two upright stones beneath a large rock outcrop. Unfortunately, it was impossible to excavate any additional burials due to a lack of time. Nevertheless, this small sample does permit us to formulate certain conjectures about burial practices at the Pukara de Khonkho and how they fit into the regional system.

First, it is interesting that the skeletons themselves, while composing a very small sample, represent a diverse demographic, including young and older adult men, adult women, and an infant. While a greater number of samples would be useful, the diversity within this small group suggests that the inhabitants of Pukara de Khonkho represented a complete population, not just young fighting men using the site as a combat outpost or non-combatants (women, children, and older men) using the spot as a refuge. Furthermore, none of the three adult crania that were observed showed signs of cranial trauma, as might be expected in a war zone. In fact, the only trauma of any sort that was recorded was the healed wound to the knee on the older adult male that was buried off-site. Finally, it is interesting that the strontium and carbon isotope signatures reflect a generally homogenous population, proceeding from the same local area and consuming the same sort of diet.[55] This general homogeneity, together with the demographic diversity of the sample, supports an interpretation of the site as a local community composed of family groups with a shared history and lifestyle, not merely a group of only loosely affiliated refugees from different areas.

[55] While the oxygen isotope signatures are more variable, as previously discussed, that can also be explained by seasonal or temporal fluctuation.

This interpretation is further supported by the burial pattern itself, which is consistent, locally situated, and somewhat distinct from the regional pattern. A major development in Late Intermediate mortuary practices across most of the southern Titicaca Basin was the development of above-ground tombs. The most dramatic examples of these are the *chullpas*, or burial towers, which could house numerous individuals and generally stood on prominent features of the landscape. It is hypothesized that these obvious burial markers may have served political purposes, being used as land markers for particular kin groups or lineages, who drew on their connections with the ancestors to claim legitimate use rights over a certain area (e.g. Isbell 1997; Nielsen 2002a, 2008). Other recognized burial types in the Titicaca basin included slab-cist tombs, in which a ring of upright stones marked the below-ground burial of multiple individuals; below-ground cist tombs, which usually lacked an obvious above-ground component and contained a single individual; and cave burials (de la Vega et al. 2005; Hyslop 1977; Stanish 2003). Variation in burial practices could have reflected temporal differences or differences in status, and/or ethnic and regional identity (Janusek 2003a:85; Stanish 2003:234).

However, the burials on the Pukara de Khonkho are not *chullpas*, slab-cist tombs, or cave burials, and do not truly have any sort of constructed above-ground component, as the stones that line the pits would probably not have been visible above the surface before more recent erosion. While an empty stone-lined tomb was excavated, all excavated skeletal material was found in smaller simple pit tombs, following a pattern that appears unique in the local area.[56] The burials are dug partially into the bedrock

[56] The pattern appears most similar to the *machays* of the Andahuaylas region in the central Andes (e.g. Kurin and Gomez 2012).

beneath large rock outcrops. All burials face east, except for the jumble of bones in U6.7R1, and only the infant burial has grave goods of any kind.

Nevertheless, these burials are well integrated into the landscape, actually taking advantage of prominent rock outcrops to mark their location, much as a constructed *chullpa* would do. As previously discussed, this connects the ancestors with the natural landscape, and, in addition may serve to "guard" the site. Death is a time of community crisis, especially in small scale societies, and events surrounding the death of an individual are often based around reaffirming a sense of community in the face of the loss of one of its members (Hertz 1960[1907]; Metcalf and Huntington). In the Andes, funerary ritual often seems to stress a connection between the ancestors in the land. The Inca, for example, referred to the dead mummies as *malki*, which also means tree sapling, and directly related the dried up mummies with dried seeds that gave new life. Today the "vegetative metaphor" of the human body is still in use, and the soul is identified as a seed that escapes from a dying body or desiccating plant. The dead become incorporated into the living community as an ancestor and a source of power (Salomon 1995). Throughout contemporary mortuary rituals, metaphors continually link the ancestors, the *ayllu* or village, and the land (Bastien 1995).

Particular features on the landscape, like the rocky outcrops that mark the burial locations, can also be directly associated with place-making behavior and the creation and maintenance of social memory and local histories (Abercrombie 1998; Basso 1996; Tilley 1994). As Solomon (1995) suggests, these links with the land were difficult to erase even through subsequent Inca and Spanish colonization. In the case of Pukara de

Khonkho, it is especially interesting that these peaks are currently remembered as sacred spaces and associated with mythic creatures.

Furthermore, as is common in the Andes, there is evidence that the bones of the individuals buried at Pukara de Khonkho were manipulated after their death, possibly as part of rituals involving an ancestor cult. The idea that the ancestors continued a "life" of sorts even after death seems to have a long history in the Andes (Hyslop 1977; Janusek and Kolata 2003; Rowe 1995; Sillar 1996). Mummies were offered food and drink, and the dry bones of the ancestors, like seeds that could give new life, were directly related to fertility (Isbell 1997; Janusek 2005a). The deposition of the bones at Pukara de Khonkho suggests that at least some of the interments were secondary burials, and although it is possible that the bones were moved or disturbed post-habitation, it is significant that their final resting places still largely conform to the same local pattern.

In addition, in the context of postulated differences between the habitation of the east and west faces of the Pukara de Khonkho, there may also be some relevance to differences in burial patterns beneath the eastern and western outcrop. While the three burials excavated from the west were all placed in individual unelaborated burial pits, on the eastern side we find an empty stone-lined burial pit near a shallow grave where the partially burnt remains of parts of at least two individuals were deposited. While it is difficult to come to any definite conclusions without more data, if we interpret differences between the eastern and western habitation faces of the site through the lens of Andean duality, differences between the eastern and western burials play into this theme as well.

In conclusion, the burials at Pukara de Khonkho demonstrate a pattern that is distinct from neighboring settlements and one that is situated in locality and landscape. The association of the ancestors with important natural features on the landscape that are also incorporated with the built environment symbolically links the ancestors, the land, and the community. In addition, the skeletal remains themselves demonstrate demographic diversity but similar isotopic characteristics. Taken together, the mortuary remains suggest a cohesive community with few external signs of social hierarchy.

Excavated Circular Structures

While survey and subsequent spatial analysis provide a useful overview of the site, excavation was necessary in order to provide a more detailed understanding of the day to day life of the inhabitants of Pukara de Khonkho and to clarify the suggested patterns of differentiation within the site. Excavation focused primarily on the (presumed) domestic habitation structures, because the primary goal was to investigate the day to day life and habitus of the members of the community. In addition, the majority of the surface remains appeared to be associated with the circular structures, and the few test units that were not associated with domestic structures or mortuary contexts (U1.1, U1.2, U1.3, and U6.8) were all entirely or almost completely sterile. Therefore, excavation focused on the structures proved the best way to address the day to day life of the inhabitants by providing a broad array of quotidian artifacts and primarily domestic features.

A stratified random sample of 18 structures, representing different construction types, different sizes, different terraces, and different faces of the site were chosen for excavation (see Table 1). Both the inside and areas directly outside the structures were excavated down to sterile soil or bedrock, when possible. In most cases a 6 X 6 m unit[57] was set up around the individual structure and was then excavated by quadrants, separating material from inside and outside of the structure (Figure 10). In most cases only two of the external quadrants were fully excavated since all of the external quadrants appeared to produce the same types of features and cultural materials. Within the structure, only half of the interior was excavated below the primary habitation floor, in order to maintain a partial surface.

Structures excavated as a part of this project included seven Type 1 structures, nine Type 2 structures, and two Type 3 structures, ranging in size from very small (1.9 m in internal diameter) to very large (4.05 m in internal diameter.) In terms of terrace location, one came from Terrace 2, three from Terrace 3, six from Terrace 4, two from Terrace 5, four from Terrace 6, and two from below the major terraces. Two of these structures were from the west face, two were from the primary eastern face (furthest east), and two were from the small group of structures on the rocky land between the main face and the primary eastern face. The remaining twelve structures were from the main face. Also considered in this analysis are the two structures excavated by Rydén (1947) both of which are Type 1 structures thought to be from Terrace 4 on the main face. In total, 20 structures were sampled, approximately 4% of all mapped structures on the Pukara de Khonkho (Figure 38).

[57] In some cases the unit was only 4 X 4 m, generally when excavating a 6 X 6 unit would not have been feasible due to the location of the structure on an incredibly steep incline and/or lack of time.

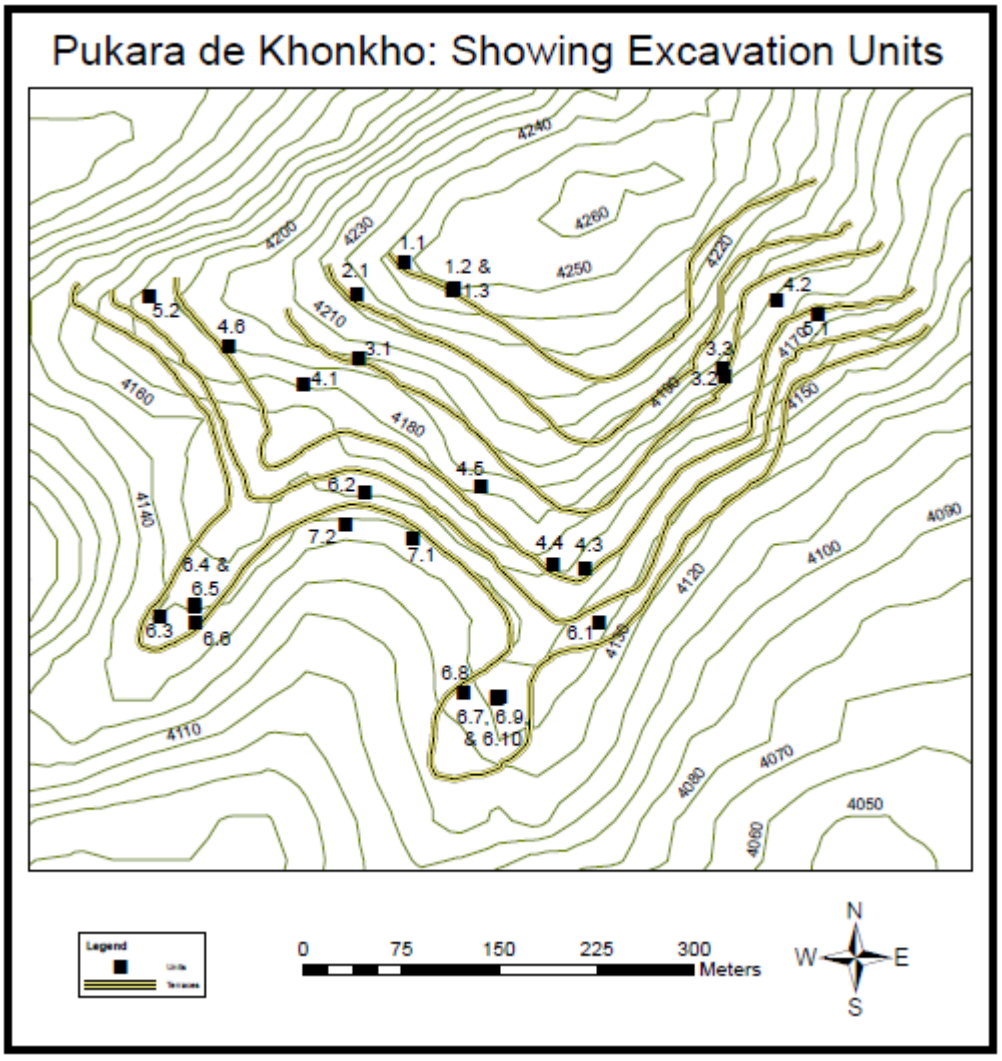

Figure 38: Map showing the location of excavated structures. (Note: Unit squares are not to scale).

Surprisingly, given their architectural similarities, there was significant diversity in the quantity and types of artifacts found in and around each structure, and it seems that different structures may have been used for different functions or by different groups of people. For example, while undecorated utilitarian ceramics were the most common type of artifact in all excavated structures, Type 2 structures were more likely to contain more

decorated ceramics than Type 1 structures. A Chi-squared test of independence with Yates correction found this relationship to be statistically significant: X^2 (1, N=15696) = 140.29, p<.0001.

However, there were differences in artifact association even within the basic architectural structure types. Larger than average Type 2 stone wall structures on Terraces 2 and 3 contained almost no ceramic artifacts, although they did contain a few metal tools or adornments. These structures had a good view of the altiplano and of the rest of the site itself, and may have been used for ritual purposes or as defensive watchtowers, rather than for regular domestic habitations. Other Type 2 structures located on lower terraces, however, had clearly been used much more intensively. Assemblages included jars, ollas, and painted bowls as well as camelid, small mammal, and fish bones. Metal tools or adornments were found in most but not all of these structures. Some structures also contained specialized stone and bone tools, including possible musical instruments, both within the structures and in possible outdoor workspaces. Finally, the Type 1 structures may represent separate cooking or storage facilities, as they were found to contain a larger quantity of storage jars and cooking ollas and only a small percentage of decorated ceramics or other artifacts.

The individual excavated units are described in detail in Appendix B, but are here discussed in proposed functional groups, which appear to correlate closely with the two basic architectural types that have already been described (Table 9). I here describe each functional grouping, considering the construction style and location as well as a brief assessment of the artifacts that were found associated with them.

Table 9: Excavated structures by functional group

Functional Group	Structure #	Unit #	Structure Type	Occupation Face	Ceramic Density
High Density	E199	U4.1	1	Main	8738.9 g
High Density	E577	U5.1	1	East	15875.4 g
High Density	E658	U6.3	1	Main	9407.5 g
Storage/Cooking	E320	U4.5	1	Main	2069.4 g
Storage/Cooking	E439	U6.2	1	Main	1423.3 g
Storage/Cooking	E605	U4.6	3	West	1601.7 g
Storage/Cooking	E672	U6.6	1	Main	2246.3 g
Storage/Cooking	E811	U7.2	1	Main	6035.6 g
Workshop	E337	U4.4	2	Main	16495.6 g
Workshop	E470	U6.1	2	Main	7258.2 g
Workshop	E490	U4.3	2	Main	7121.4 g
Domestic	E120	U3.1	2	Main	3629.9 g
Domestic	E550	U4.2	2	East	373.9 g
Domestic	E741	U5.2	2	West	788.4 g
Domestic	E819	U7.1	2	Main	2550.9 g
Empty	E19	U2.1	2	Main	6.2 g
Empty	E534	U3.2	2	East	348.1 g
Empty	E535	U3.3	3	East	16.6 g

(Note: Ceramic Density is the weight of ceramic material found *within* each structure.)

Type 1 Structures

In general, Type 1 structures are interpreted as storage/cooking structures, due to their association with utilitarian ceramics and groundstone. This group is further subdivided into High Density Storage structures and Regular Storage/Cooking structures, based primarily on the quantity of ceramic and other material. High Density Storage structures (E199, E577, and E658)[58] each contain more than 8 kg of ceramic material within the structures themselves, while Regular Storage/Cooking structures (E320, E439, E605, E672, E811)[59] contain 6 kg or less of ceramic material.

[58] Which correspond to U4.1, U5.1, and U6.3, respectively.
[59] Which correspond to U4.5, U6.2, U4.6, U6.6, and U7.2, respectively.

High Density Storage Structures

The three excavated High Density Storage structures are located on the lower terraces (Terrace 4, Terrace 5, and Terrace 6) of both the main and the eastern face. One (E658) is uniquely situated on the peak of the rocky outcrop to the west of the main face that marks the location of the cemetery area. However, while its location is unusual, the associated artifacts are not substantially different than those found on other parts of the Pukara de Khonkho.[60] The three structures average 2.72 m in internal diameter, somewhat above the average of 2.45 m. Like all Type 1 structures, they were recognized as roughly circular features composed of stone slabs set vertically into the ground. There was great variation in the size of these stones; some were more than a meter in height, while others barely pierced the ground surface. Doorways, recognized as gaps in the foundation stones (usually between two especially large stones), were noted in the northwest (E199), west (E658), and east (E577).

Excavation within these structures generally recognized an initial stratum (0-26 cm) of rocky fill or wall-fall overlaying a thin (2-15 cm) habitation layer above a simple packed earth floor. Beneath the habitation floor was a sterile rocky fill, likely associated with the construction of the terraces, or else bedrock. Outside the structures, the pattern was similar, although there was more variation in the depth of the initial strata, which could range between 2 – 40 cm.

Within the structures, hearths are recognized as burnt strata within the habitation zone. E577 (U5.1) had an especially large hearth in the along the north wall which was full of large ceramic sherds. Other than that, there were no obvious features identified

[60] However, it does have a higher proportion of painted bowls than most Type 1 structures. In addition, the majority of the ceramic sherds collected from the structure are very small and do not articulate with each other, suggesting that many different vessels were broken in this location over time.

within the structures. The structures were characterized by large quantities of utilitarian ceramics, including large storage jars and burnt cooking ollas (Figure 39). In addition, camelid bones (some of which were burned) were found within the habitation levels together with some utilitarian groundstone batanes. E658, the structure located on the top of the rocky peak marking the cemetery area, was the only to contain a metal artifact, a twisted piece of bronze. It also contained a chunky fragment of obsidian debitage. In all three cases, significantly fewer artifacts were found immediately outside the structure, which supports the interpretation of these spaces as storage structures, with interiors full, but little utilization of the area immediately outside.

Figure 39: High density structure E577 (U5.1) during excavation

Storage/Cooking Structures

The Regular Cooking/Storage structures differed primarily in the quantity of artifacts that was found within them. They are also all Type 1 structures, with the exception of E605 (on the west face), a Type 3 structure that is also somewhat unique in terms of its artifact associations and stratigraphy. The Regular Cooking/Storage structures are located on the lower terraces (Terrace 4, Terrace 6, and below Terrace 6) on the main and western faces. The two structures excavated by Rydén were both Type 1 structures with utilitarian ceramics, and also likely fit into this group. The five structures excavated for this project have an internal diameter averaging 2.51 m, only slightly more than average. Like the larger Type 1 structures (those that had a denser concentration of artifacts) these usually had small interior hearths. Doorways were to the northwest, southwest, and to the west (Figure 40).

Stratigraphy was similar to the High Density structures. Within the structures the first strata was a layer of wall-fall, occasionally subdivided, which measured 5-40 cm in thickness. This overlay a habitation zone filled with artifacts (measuring 5-25 cm in thickness) over a packed earth floor (measuring 4-21 cm). Below the earth floor was the same rough fill as in the previously described structures, composed of large rocks and loose soil, which was likely associated with the construction of the terraces. Outside the structures the pattern was similar, but with a thinner zone of habitation. In addition, at least one of the structures (E605) had two clear habitation surfaces outside of the structure, suggesting that this particular area may have been used in two separate time periods.[61]

[61] Interestingly, this was the structure that produced the later (Inca/Colonial period) carbon date.

Figure 40: Storage/cooking structure E320 (U4.5) before excavation

Although artifacts generally appeared in less dense concentrations, the same kinds of artifacts are represented as in the High Density structures, with artifact density being much greater inside the structures than outside. Ceramic artifacts are predominately utilitarian large storage jars and burnt cooking ollas. Faunal remains include fragments of camelid and fish bones, as well as the remains of a medium-sized mammal. In addition, some worked bone was noted in E320. The majority of the lithic artifacts were fragments of grinding stones or other groundstone objects, but obsidian flakes were also noted in three of the structures (E320, E605 and E811).[62] Interestingly, almost all of these structures had at least one copper or bronze tool or adornment associated with them,

[62] E605 (on the west face) also had a "doughnut" stone and a unique stone bowl with a grinder.

but apart from that, the assemblage was almost entirely utilitarian, suggesting use for everyday storage or cooking.

Type 2 Structures

The majority of the Type 2 structures were interpreted as either Domestic or Workshop Structures, as they tended to have a more complete array of ceramic (and other) material and were also often associated with outdoor work areas. Like the Cooking/Storage structures, the Domestic/Workshop structures are subdivided based on artifact density. Higher density structures, with more than 7.5 kg of ceramic material collected from the interior are labeled Workshop Structures, and include E337, E470, and E490.[63] Lower density structures, with less than 3 kg of ceramic material, are labeled Domestic Structures, and include E120, E550, E741, and E819.[64] It should be stressed that I intend these labels primarily as shorthand heuristic devices, and do not mean to suggest that the workshop structures may not have also been domestic or associated with domestic households. There is no evidence of specialized craft production at the Pukara de Khonkho (as discussed in Chapter 7) and it appears that the majority of the artifacts found at the site were crafted at the household level. However, there does appear to be a clear distinction in use between these kinds of Type 2 structures, based strictly on the quantity of artifacts associated with them. In addition, the structures here labeled "Workshop" structures were associated with outside work areas and a number of specialized tools that do not appear in the "Domestic Structures."

[63] Corresponding respectively to U 4.4, U6.1, and U4.3.
[64] Corresponding respectively to U3.1, U4.2, U5.2 and U7.1

Nevertheless, there is little difference architecturally between the Domestic and Workshop structures. Domestic/Workshop structures were located on all but the upper two terraces, and on all three faces of the Pukara de Khonkho. All of these structures are Type 2 structures with thick walls, measuring approximately 70 cm in width (range = 50 – 80 cm), with walls preserved up to 1 m in height. Large levels of wallfall within the structures demonstrate that the walls would have originally extended much higher, and suggest the possibility that the roofs were also initially constructed with stone slabs. The walls themselves are neatly faced towards the interior of the structure, and one example (E550) also demonstrated a very clear external face. Doors were clearly visible as smoothly faced gaps in the structure wall, and could face east/southeast (E470, E550, and E741) or west/southwest (E120, E337, E490, E819).[65] Niches were also found in the north wall of four of the seven Domestic/Workshop structures (E120, E337, E741, and E819).[66]

The final category of Type 2 structures are the "empty" structures, associated with little to no artifactual material. Three of these structures were excavated (E19, E534, and E535),[67] all of which were located on Terrace 2 and Terrace 3. However, a lack of surface ceramics leads me to suggest that the majority of the structures on Terrace 2 would have followed this same pattern. The empty structures on Terrace 3 were on the secondary eastern face (where Terrace 3 was the highest that contained structures), and located in a position that provided them with a good view of the altiplano as well as of the main and eastern faces of the Pukara de Khonkho itself. Based on this data, I here

[65] All but one of the excavated Type 2 structures on the main face have doorways facing towards the west.
[66] E819, below the lowest terrace on the main face, demonstrated a particularly fine double niche.
[67] Corresponding respectively to U2.1, U3.2, and U3.3

identify a pattern where the highest structures at the site appear to either have been less intensively used or intentionally kept clean for ritual or other purposes.

Workshop Structures

Interestingly, all three of the structures identified as "Workshops" were located on the eastern side of the main face (on Terraces 4 and 6). Excavation strata were similar to those found in Type 1 Storage/Cooking structures, except with significantly thicker layers of wallfall, due, of course, to the fact that the walls of these structures are made of stone. Within the Workshop structures, there were usually two distinct levels of wall fall, which together measured 36-54 cm in depth. As in the Type 1 structures, this overlay a habitation zone measuring 5-20 cm on top of a packed earth floor. Below the floor was a sterile sandy clay fill with large rock inclusions, which appeared to be related to the construction of the terraces (Figure 41).

Each of the three Workshop structures contained a hearth or burnt feature of some type, but with some important differentiations. E337 had only a thin ash lens near the wall in the south, while E470 had an equally poorly defined ash lens along the north wall. In contrast, E490 had a large, clearly defined hearth feature 10-20 cm in depth along the wall in the southeast. This feature was located right near a small hole in the wall (with smoke stains on the stones) that may have served as a sort of "chimney" for venting smoke.[68] Like the majority of the structures at the Pukara de Khonkho E470 and E490 only demonstrated one habitation zone, but E337 contained two possible use surfaces superimposed within the structure, suggesting that it may have been reused at a later date.

[68] The "chimney" feature was unique among all excavated structures.

Figure 41: Workshop structure E490 (U4.3), showing a scatter of artifacts on the structure floor.

Artifacts associated with the interior of these structures included high quantities of ceramics. While storage jars and cooking ollas still dominated the assemblage, there were significantly more painted bowls and jars than in the Type 1 structures, as well as unique forms including carinated bowls. These structures were also associated with specialized stone and bone tools, especially E470 and E490, both of which contained batanes, obsidian flakes, and bone weaving tools as well as other unique bone tools which may represent musical instruments. Especially interesting was a large concentration of pottery quality clay lying just above the floor in E470. E490 also contained a stone "doughnut," some stone weights, and a finished spindle whorl, as well as antlers with use

wear on the tips. Non-modified bone in all three structures included fragments from camelids and some small-medium size mammals (mostly viscacha) as well as fish. All of these structures also contained metal artifacts, including flat adornments, tupus, and unidentified pieces.

Clear outside work spaces could be identified around the structures and near the door of the Workshop structures, although the density of artifacts was still not as dense as within the structures. Outside of E490 small ash lenses, possibly representing single episode fires, were also noted. Artifacts found outside the structure included lithic groundstone (manos, matates, hammerstone, weights, and pre-form spindle whorls), bone tools (weaving tools and the possible instruments), as well as some additional metal found outside E337. These were essentially the same kinds of artifacts found inside the structures, but in an outside workspace.

The artifacts associated with the Workshop structures suggest household-level craft production rather than specialized craft production, however. Artifacts representing ceramic production (the high quality potters' clay), weaving (bone weaving tools and stone spindle whorls), and agriculture (batanes, manos, and other groundstone tools like the "doughnuts" as well as the deer antlers) are all represented. This supports an interpretation of the site as one with little social hierarchy or specialization.

Domestic Structures

The four structures labeled "Domestic" were more spread out, being located on Terraces 3 and 7 on the main face, on Terrace 5 on the west face, and on Terrace 4 on the East face. Stratigraphic layers in the domestic structures were similar to the workshop structures, but with slightly thinner strata. The uppermost strata of wallfall measured 3-

40 cm and overlay a habitation zone measuring 9-16 cm above a packed earth floor. Workshop and Domestic structures were most clearly differentiated, however, by the artifacts and features associated with them (Figure 42).

Figure 42: Domestic structure 819 (Unit 7.1) during excavation

The artifacts and features associated with the Domestic structures were similar to those associated with the Workshop structures, but artifacts appeared at a much lower density, and the specialized tools noted in the Workshop structures were not present. Possible hearths were identified within some (E550 and E741) but not all of the Domestic structures. Associated artifacts from within the structures included storage jars, cooking ollas, and serving bowls (painted and unpainted), but a surprisingly low proportion of

diagnostic bone, stone, or metal artifacts. E819 was the only Domestic structure to contain a batan, E120 was the only to contain a bone weaving tool, and E550 was the only to contain any metal (a circular piece of silver). Non-worked bone included camelids, viscacha, and fragments of a medium-sized mammal.

Occupation layers outside the Domestic structures were somewhat undifferentiated, except for just outside E550, which had a clear working area just outside, below the main entrance of the structure to the south. Artifacts found associated with the work area included utilitarian ceramics, grinding stones (manos), and a copper adornment. While clear work areas were not defined outside of the other structures, there did appear to be utilized use surfaces with artifacts that were more or less the same as those from the interior.

Empty Structures

Structures belonging to the third Type 2 functional group are not architecturally significantly different from the Domestic or Workshop structures. The "Empty" structures are also typical Type 2 structures, measuring an average of 3.24 m in internal diameter, making them larger than the overall average of 2.42 m, but still not outside of the normal range (Figure 43). While the walls of E535 are not especially well preserved,[69] those of E19 and E534 extend to about a meter in height and 60 cm in width. Of the three structures, E534, which, with an average diameter of 4.05 m, is also the largest structure found at the site, is the only to contain a niche, located in the NE wall.

[69] U535 was actually initially identified as a Type 1 structure, but excavation uncovered previously buried Type 2 walls. For analysis purposes, it is considered as a Type 3 (mixed) structure.

There is no pattern to the location of the doors, which are variously found in the northwest (E19), the southeast (E534), and possibly the northeast (E535).[70]

Figure 43: Empty structure E19 (U2.1)

Excavation of the three structures identified soil strata following the same pattern as in other Type 2 structures, except that there was no clear habitation layer. Instead a 20-35 cm layer of wall fall overlay a very thin (5-8 cm) possible occupation zone over a packed earth floor that was in many parts of the units in E534 and E535 immediately above bedrock. E535 was unique in that the layer of wall fall was capped with a hard predominately clay layer with no artifacts (measuring 10-15 cm) that may have been the

[70] The doorway of E535 is unclear.

remains of adobe walls. Outside the structures, the stratigraphy was similar; 5-25 cm of wallfall overlay a thin occupation zone that overlay a rocky layer of fill.

There were few notable features within any of these structures, although the possible remains of a hearth or burning episode were noted along the north walls of E19 and E534. Thin ash lenses that may represent single episode fires were also noted outside of E534 and E535.

In addition to the lack of features, there was almost a complete lack of artifacts both within and immediately outside of these three structures. Only a few broken sherds of ceramics were recovered from E19 and E535. While E534 had more ceramic sherds (341.28 g of material), this is still significantly less than any of the other Type 2 structures. In addition, neither E19 nor E535 contained any stone or bone tools, and E534 only produced a single spindle whorl, a batan, and two pieces of possibly modified bone. Some camelid bone was found within and immediately outside of the structures, but the majority of the faunal material was viscacha, which might relate to use of the site by wild animals after abandonment. However, it is interesting that both E19 and E535 produced metal objects from just above the floor level. A copper tupu was recovered from E19, and a unique bronze pendant spoon in the shape of an Andean footplow was found in E535.

Artifact Assemblage

Despite the strange "empty" structures, the overall artifact assemblage from the Pukara de Khonkho supports an interpretation of essentially domestic habitation at the site. Artifacts are primarily utilitarian and appear to be made of mostly local materials

for the purpose of agriculture, weaving, food storage, or food preparation. There are no artifacts that are obviously related to warfare (e.g. caches of sling stones), or any clearly sacred, elaborate, or otherwise non-utilitarian artifacts. Collected material included ceramic, bone, lithic, and metal artifacts. While ceramics are discussed in more detail in Chapter 7, the other artifact types are briefly presented here in order to provide a more complete understanding of site occupation.

Ceramics

The majority of the artifacts proceeding from the Pukara de Khonkho (66% by weight) are ceramics. A total of 137 kg of ceramic material from 184 archaeological contexts was recovered from this project in addition to the material collected by Rydén and analyzed by the author in Sweden. As a result of their quantity and usefulness for analysis, an entire chapter of the dissertation (Chapter 7) is devoted to an assessment of the ceramics from Pukara de Khonkho. Here I only present a brief summary for the purpose of comparison with other artifact groups found at the site.

Ceramic artifacts were found in all portions of the site except for above the highest terrace. However, ceramic density was greatest on the fourth and fifth terraces, while far fewer artifacts of any kind were found on the second and third terraces. For example, the ratio of the average weight of ceramics per structure for Terraces 2 and 3 as compared to Terraces 4 and 5 is 1:11 (Figure 44). This disparity suggests that structures on the upper terraces were not primarily used for regular domestic habitation.

Like other Pacajes ceramics, those found on Pukara de Khonkho are primarily utilitarian (c.f. Albarracin-Jordan 1996; Bandy 2001; Janusek 2003a; Matthews 1992). While analysis was able to articulate specific types and varieties within these classes

(discussed in Chapter 7), sherds could be roughly separated into storage jars (38%; n=6622), cooking ollas (33%; n=5681), bowls (7%; n=1280), and small jars or other serving vessels (2%; n=284).[71]

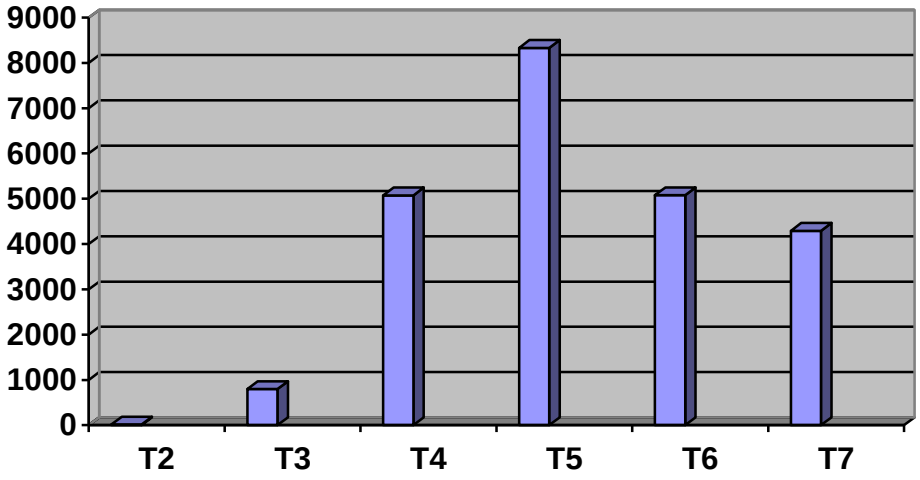

Figure 44: Average weight of ceramics per structure interior by terrace

Only 5% (n=943) of the sherds were decorated, mostly bowls and small jars. Decorative motifs consisted of simple black lines painted on the red-orange vessels, following a variety of mostly geometric designs, the most common of which were parallel dotted lines (usually in threes), triangular figures filled in with parallel lines, and "fern" designs, with parallel lines emanating from one side of a main branch.

While similar in many ways to other Pacajes period ceramics, those found at Pukara de Khonkho were also somewhat distinct. One notable distinction is the lack of a "disk base" (a distinguishing attribute on most Pacajes bowls) on the majority of the

[71] Identification of form was not possible for nearly 20% of the sherds found at the site, usually due to their small size.

bowls from Pukara de Khonkho. In fact, only 10% (n=23) of bowls from Pukara de Khonkho have a disk base as compared to 95% (n=37) of bowls analyzed from Late Intermediate Period Khonkho Wankane. Together with differences in other attributes (discussed in Chapter 7), this difference suggests a possible chronological distinction between the occupations of both sites.

Fauna

Animal bone made up another important category of material culture at Pukara de Khonkho. Artifacts included bone tools as well as unmodified faunal remains (mostly camelid, but medium-sized mammals, fish, and microfauna were also present). Although a formal analysis was not undertaken, a brief inventory of collected material does add to our understanding of site occupation.

Worked bone was found in 7 of the 20 excavated structures, including structures from Terraces 3, 4, and 6 on both the main face and the west face, as well as on the secondary eastern face. A total of 23 samples of worked bone were noted from the collection of faunal material, weighing a total of 386.73 g. Although this sample is relatively small, there are some interesting patterns. First, the distribution is not at all even. In fact, 70% (n=16) of all worked bone at Pukara de Khonkho came from in or around two structures – E470 and E490, both of which were identified as Type 2 "Workshop" structures.[72] In fact, almost all of the worked bone was associated with Type 2 structures,[73] a pattern which appears to confirm the difference in structure types discussed in the previous section. Worked bone was also most common on Terrace 4, where the majority of the structures were located.

[72] Corresponding with U4.3 and U6.1

[73] Only 3 pieces were associated with a single Type 1 structure, and 1 was associated with a Type 3 structure.

Most of the bone tools appeared to relate in one way or another to weaving, although the function of others could not be determined. Possible weaving tools were recognized as camelid longbones (often metatarsals) with one end worked into a point or rounded. These items were the most common and were found in E120, E320, E470, and E490. Camelid ribs with worked points (found in E470, E490, and E605) may have had a similar function. In other tools found in E320 and E470 camelid longbones (femur, humerus, etc.) were cut on both ends to make bone tubes. In some cases the cuts occurred near the distal end where the bone flared out. The purpose for these tubes is unknown, although it has been suggested that they could be musical instruments, snuff tubes, or bellows. Other unidentified worked camelid bone was found in E320, E470, E490, and E534. Finally, a single example of deer antlers with wear on the ends was found just above the floor in E470. This type of artifact was commonly used as an agricultural tool in earlier periods, but this is the only example from Pukara de Khonkho (Figure 45).

Like the worked bone, unworked bone from Pukara de Khonkho is also primarily camelid, although some medium-sized mammal remains (e.g. dog, deer) are noted as well. Although one of the reasons Rydén (1947:327) cited for interpreting Pukara de Khonkho as a refuge site rather than a permanent settlement was a lack of bone in the two structures he excavated, bone (often burnt) is quite common in the units excavated as a part of this project.[74] However, it should be noted that camelid bone seems to occur primarily at the lower terraces, which (by all other indicators) appear to have been

[74] It is not clear why Rydén would not have found bone in his structures, as he was an incredibly careful excavator, especially for his time period. However, it is possible that since he was excavating Type 1 structures and may have been at higher elevations, he may not actually have found much. Furthermore, if he was only interested in collecting camelid bones, he may have overlooked some of the smaller species.

devoted to domestic activity, and is not found in large proportion on the upper two terraces. In addition, while faunal bone of some sort was common throughout the site, there was a profound difference in patterning between Type 1 and Type 2 structures. While excavated Type 2 structures contained an average of 500 g of faunal material, Type 1 structures contained an average of only 178 g (Table 10). The prevalence of camelid bone in the more "domestic" structures and areas of the site points to the importance of the animal for subsistence purposes.

Figure 45: Examples of bone tools found at Pukara de Khonkho

However, camelid was not the only faunal material collected from Pukara de Khonkho. Mammalian microfauna were also quite common, especially on the upper terraces. Microfauna was found in almost all contexts at the Pukara de Khonkho, but was

most commonly associated with structures on Terraces 2 and 3. James Pokines (pers. comm.) conducted an analysis on a sample of microfauna from the Pukara. The sample consisted of 165 fragments collected from 15 contexts in and around E120, E470, E490, E534, E535, and E550). Pokines identified five species of mammalian microfauna at Pukara de Khonkho. The most common by far (75% of identified samples, n=98) was *Lagidium viscacia* (the mountain vizcacha), which live in large colonies in upland habitats, and are usually associated with rocky outcrops. *Galea musteloides* (common yellow-toothed cavy), which is similar to the cuy, but smaller, was the next most common species present at the site, representing 19% of the identified samples (n=25). Also represented was *Ctenomys leucodon* (white-toothed tuco-tuco), a small denning rodent (4% of identified samples, n=5), and two species of Andean mouse – *Auliscomis sublimis* (n=1) and *Andinomys edax* (n=2). All of these species are present in the local area today, and their pattern of representation at the site suggests that the majority of these remains are the result of post-habitation use of the site by rodents. Although it is likely that vizcacha may have supplemented the diet at Pukara de Khonkho,[75] there is no direct evidence of human action on any of the bones (cut marks, burning, etc.), and their overall pattern of representation suggests primarily natural mortality in or near their nests.[76]

Fish bone was also collected from certain structures at Pukara de Khonkho, and indubitably represents some level of fish consumption at the site. Fish was collected from structures on Terraces 4, 6 and below the main terrace. Most examples came from the main face, but fish was also found on the western face. Structures where fish bone

[75] They are hunted today, and since they are present in such high quantities it would have been odd if the inhabitants did not take advantage of them.
[76] They were usually found relatively intact, without much weathering or chatter-marks.

was found include E337, E470, E490, E605, and E811, including both Type 2 "Workshop" structures and Type 1 "Storage/Cooking" structures. However, due to the small size of fish remains (and the use of ¼ inch mesh for screening), it is likely that this does not represent the full range of fish present at the site. Future testing of collected flotation samples may help to clarify the extent of the use of fish at the site.

Table 10: Faunal bone distribution (camelid and microfauna) by functional group

Functional Group	Structure #	Unit #	Structure Type	Faunal Bone Density
High Density Storage	E199	U4.1	1	165 g
High Density Storage	E577	U5.1	1	298 g
High Density Storage	E658	U6.3	1	67 g
Storage/Cooking	E320	U4.5	1	192 g
Storage/Cooking	E439	U6.2	1	18 g
Storage/Cooking	E605	U4.6	3	327 g
Storage/Cooking	E672	U6.6	1	40 g
Storage/Cooking	E811	U7.2	1	489 g
Workshop	E337	U4.4	2	946 g
Workshop	E470	U6.1	2	1559 g
Workshop	E490	U4.3	2	890 g
Domestic	E120	U3.1	2	386 g
Domestic	E550	U4.2	2	75 g
Domestic	E741	U5.2	2	24 g
Domestic	E819	U7.1	2	82 g
Empty	E19	U2.1	2	467 g
Empty	E534	U3.2	2	321 g
Empty	E535	U3.3	3	108 g

Bone density is measured as the amount of faunal bone found *within* a given structure.

Lithics

After ceramics, lithic artifacts were the next most common at the site. The assemblage was predominately composed of groundstone; while some flaked stone was present (including cherts and obsidian) no flaked stone tools were recovered from the

site. Lithics were found in all parts of the site, but (as would be expected from their domestic connotations) were most common on the main face and on the lower terraces, occurring in particularly high quantities on Terrace 6. In addition, twice as many lithic artifacts (by weight) were found in Type 2 structures as compared to Type 1 structures, although this distribution was not consistent among all Type 2 structures (Table 11).

Table 11: Distribution of lithic artifacts

Functional Group	Structure #	Unit #	Structure Type	Lithic Artifact Density
High Density Storage	E199	U4.1	1	262 g
High Density Storage	E577	U5.1	1	155 g
High Density Storage	E658	U6.3	1	333 g
Storage/Cooking	E320	U4.5	1	3239 g
Storage/Cooking	E439	U6.2	1	5647 g
Storage/Cooking	E605	U4.6	3	584 g
Storage/Cooking	E672	U6.6	1	303 g
Storage/Cooking	E811	U7.2	1	1136 g
Workshop	E337	U4.4	2	1440 g
Workshop	E470	U6.1	2	20382 g
Workshop	E490	U4.3	2	5013 g
Domestic	E120	U3.1	2	80 g
Domestic	E550	U4.2	2	0 g
Domestic	E741	U5.2	2	99 g
Domestic	E819	U7.1	2	2271 g
Empty	E19	U2.1	2	26 g
Empty	E534	U3.2	2	52 g
Empty	E535	U3.3	3	114 g

Groundstone tools at Pukara de Khonkho can be roughly divided into four categories: batanes and other grinding stones; doughnut stones; bolas/weights; and ruecas/rueca preforms. The majority of these tools are grinding stones of some sort used for the preparation of grains and other foodstuff. Large batanes were found associated

with (within or immediately outside) a number of structures, including both Type 1 and Type 2 structures on the main and secondary eastern face of the site (E439, E470, E490, E534, and E819).[77] In many cases more than one batan was associated with a single structure, and their reuse as building materials was also common. In fact one used batan was used to construct the stone-lined cist tomb just below the Jisk'a Pukara. In addition to these large batanes, manos and other smaller grinding stones were collected from almost every structure on Terraces 4, 5, and 6 (E320, E337, E439, E470, E490, E550, E577, E605, E658, and E672). Finally, a very unique and well-crafted mortar and pestle was found in E605, the Type 3 structure on the western face of the settlement. The preponderance of grinding stones in so many parts of the site points to the domestic nature of site occupation as well as the non-hierarchical method of food preparation, which appeared to have been conducted at the level of the household.

Smaller round or ovular groundstone artifacts included pieces interpreted as weights, bolas, or slingstones, which often had use marks (from rope or cord) in the shape of groves that circled the artifact. A few pieces were in a more triangular shape, almost like plumbobs. However, it is likely that most of these stones had a similar purpose. These tools were also found in and/or near almost every structure on Terraces 4 or below (E199, E439, E470, E490, E577, E605, E741, E811, and E819). Additional groundstone artifacts included "doughnut" stones, found in E490 and E605. These tools are found in other Late Intermediate Period contexts as well and are variously interpreted as mace heads or "clod-breakers" (for breaking up dirt clods when planting fields) depending on the interpreter's perspective. The final groundstone tools are the ruecas (spindle whorls)

[77] Some batanes were also found with other structures, but not collected due to weight. There were likely once many more at the site than were observed at the time of excavation. A local landowner related that as a child he collected batanes from the site for the purpose of sale and reuse.

which can be made of either stone or clay. Stone ruecas are found in E199, E490, E534, and E672, while four stone disks that may be rueca performs are found on the work patio area just outside E490 (Figure 46).

Figure 46: Examples of groundstone tools found at Pukara de Khonkho

Although there are numerous granite, chert, and even a few obsidian stone flakes, no flaked tools (points, scrapers, etc.) were recovered from Pukara de Khonkho. In fact the only non-groundstone manufactured article is a stone bead from the floor layer of E470.

Despite the lack of obsidian tools, it was still possible to source the obsidian flakes from Pukara de Khonkho in order to get a better idea of the trade patterns in which inhabitants of the site were involved. In August 2008 Dr. Ryan Williams (University of

Illinois at Chicago) visited Proyecto Jach'a Machaca in the field to test these and other artifacts with a portable XRF machine. A total of ten obsidian flakes were found in six of the twenty excavated houses at Pukara de Khonkho (E320, E470, E490, E605, E658, and E811) – Type 1, 2, and 3 houses on the main and western faces. Of these samples, six were tested with the portable XRF and five returned useful data (Table 12).[78] Three of the five samples (two from E470 and one from E811) were found to come from the Chivay source. Chivay is from the Colca valley in Peru and is the source of the majority of the obsidian found in the Titicaca Basin. Two of the samples (from E605 and E658), however, came from a source that Williams calls "Unknown 4," a source that also produced some of the obsidian found at Khonkho Wankane. While it is interesting that obsidian from two separate sources were found at Pukara de Khonkho, the overall lack of obsidian at the site suggests that there was not a direct trade in obsidian or obsidian artifacts, but that people living at Pukara de Khonkho likely got this material second hand.

Table 12: XRF results for obsidian flakes

Context	Description	Source
U4.3B N2	Type 2 Workshop structure; above interior floor	too small?
U4.6C N4	Type 3 Storage/Cooking structure; above work surface outside door	UNKNOWN4
U6.1A N3	Type 2 Workshop structure; interior habitation layer	Chivay
U6.1B N3	Type 2 Workshop structure; interior habitation layer	Chivay
U6.3B N2	Type 1 High Density Storage structure; interior floor	UNKNOWN4
U7.2B N4	Type 1 Storage/Cooking structure; interior habitation layer	Chivay

[78] The sample from E490 (U4.3B,N2) was too small and did not return any results.

Metal

Metal is the final major artifact category at the Pukara de Khonkho, specifically artifacts made of bronze or another copper alloy. Metal artifacts are widespread across the site, but are not very common. A total of 24 metal artifacts were collected from the site (approximately 1.1 for each circular structure, plus one piece from a burial and one from a test unit). Metal artifacts were found in 12 of the 20 excavated structures (E19, E320, E337, E439, E470, E490, E534, E550, E605, E658, E811, and Rydén1). While they appear most often in Type 2 structures, they are also present in Type 1 and Type 3 structures. They also appear on all faces and terraces of the settlement.

Metal artifacts were almost all decorative in nature, including decorative metal spangles (n=6), various styles of tupu (n=7), knives (n=3), unidentified flat pieces (n=5), a pendant spoon, a bead, and a probably modern pin. The metal spangles were all thin, flat circular pieces with a hole in the top, likely used for decoration. The only decorative metallic bead was found in the infant burial (U6.4R3). Tupus took a variety of forms including tupus that resembled plain thin pins, some that resembled large T's and some that were thin with a triangle shape at the top. Another interesting metal artifact was a small pendant spoon from E534, which took the form of a *chakitaclla* (Andean footplow.) Even the three pieces interpreted as knives are small and somewhat decorative, with central drilled holes suggesting they could have been strung on a string and hung around one's neck (Figure 47).

Figure 47: Examples of metal artifacts from the Pukara de Khonkho. (The footplow pendant spoon is on the lower right.)

Discussion

Overall, the artifacts collected from the Pukara de Khonkho were domestic in nature, associated with regular subsistence activities rather than warfare, ritual, or status hierarchies. Instead, the majority of ceramic, lithic, and bone tools related to agriculture, food preparation, food storage, weaving, or other quotidian activities. No obviously elite or exotic artifacts were noted.

The spatial organization of the artifacts also confirms some of the suggestions made through spatial analysis. Although there are no significant differences in artifact distribution between the eastern and western faces, in general structures on the main face contain more artifacts (of all types) than structures on either the eastern or the western faces. In addition all artifact types except for metal are much more likely to be found at

lower elevations (fourth terrace or below), confirming proposed differentiation in use of different areas of the site.[79]

Daily Life at Pukara de Khonkho

In general, evidence from the excavation of the circular structures at Pukara de Khonkho supports the interpretation of the site as a local community, with its own unique identity and practices of affiliation. It appears to have been intensively occupied, albeit for a relatively short period of time, and evidence from the excavations supports the conclusions suggested by spatial analysis. That is, variation in usage of the circular structures suggests shared ideas about the appropriate usage of different kinds of structures and different parts of the site, while repeated patterns within the structures suggest strong "practices of affiliation" that would serve to unite the community.

The high density of primarily domestic artifacts excavated across the site (except on the uppermost terraces) suggests an intense occupation, much more than would be expected from periodic use of the site as a refuge. However, excavation also demonstrated, in most cases, no more than a single stratum of habitation. Superimposed occupation layers were identified in only two excavation units (U4.4 and U4.6).[80] This suggests intense and constant use over a relatively short period of time.

However, within that time, as suggested by the spatial analysis, there appear to have been concerted efforts made to create a distinct community identity that articulated with the local landscape. This pattern was clarified through excavation of the different

[79] Faunal bones are also common on the upper terraces, but are primarily composed of vizcacha that (as discussed) probably date to post-occupation habitation.
[80] Interestingly, U4.4 (E337) was one of the few structures where Inca/Colonial pottery was identified, and U4.6 (E605) provided the late (Inca/Colonial period) carbon date.

structures, which identified clear patterns in use of different types of structures on different parts of the landscape. Type 1 structures were uniformly associated with large quantities of utilitarian ceramics (large storage jars and cooking ollas) as well as batanes and other utilitarian groundstone, representing cooking or storage structures, and were most common at lower elevations. In contrast, Type 2 structures appear to have served as domestic/workshop or ritual spaces, depending on their location on the landscape. As suggested by the spatial analysis, the results from excavation appear to confirm a pattern whereby the upper terraces were kept clean from domestic refuse, while the majority of domestic habitation and high density use clustered on the mid-lower terraces (Terraces 4, 5, and 6).

While it is easy to identify a pattern of larger empty structures at the upper levels of the Pukara de Khonkho, it is more difficult to provide an interpretation for this phenomenon. However, there are a couple of possibilities. One is that these structures may have dated to later in the occupation of the site, and were never fully utilized. However, that does not correspond with data from radiocarbon dating (see Table 2). More likely is that the structures had a particular purpose that did not leave a strong archaeological signature. These purposes could include: use as a watchtower or guard house; use as domestic structures for individuals (like traders) who did not reside at the Pukara de Khonkho on a full-time basis; or use for some sort of ritual purpose. Each of these interpretations privileges an overall interpretation for the main reason of the occupation of the site itself, but they are not mutually exclusive.

If the site was interpreted primarily as a defensive center, the most logical assumption is that these structures be interpreted as watch towers or guard posts. They

are all located at high elevations with a good view of the altiplano below (as well as of the other major faces of the pukara). If an attacking force was expected to approach from anywhere in the Desaguadero valley (south of Pukara de Khonkho), people posted in these locations would have been able to provide substantial warning to the entire community. Some smaller unoccupied pukaras have been interpreted as watch-posts built for guards to look out against surprise attack (Arkush and Stanish 2005:9), and such use would not necessarily leave any archaeological correlates. In a larger community like Pukara de Khonkho, sentries on duty may have been provided with the shelter of these larger structures, but did not use them as their regular domestic habitation. Nevertheless, it should not be assumed that Pukara de Khonkho was solely or even primarily a defensive settlement; as already discussed, it does not possess the defensive walls, weapons caches, or other attributes associated with warfare. As a result, it is important to also consider other interpretations.

If, for example, the site was interpreted primarily as a center for trade, it would be possible to make the argument that these structures could have served as way stations for traders[81] coming to the site from the Tiwanaku Valley. The trail that connects to Tiwanaku leads off from the eastern side of Terrace 2, so this could actually be the primary entrance to the community for visitors from the north. Perhaps it was for this reason that the terraces were not inhabited as densely as the terraces at lower elevations. These spaces could have been used as temporary habitations for important travelers or traders passing through the region, who may not have used the space intensively enough to leave behind any major archaeological correlates. However, if this were the case, it

[81] Or others who for whatever reason did not live at the site full-time.

might be expected that the (few) artifacts associated with these structures would be of non-local origin, but this is not reflected in the artifact assemblage.

Finally, a ritual interpretation of these spaces would suggest that they were not empty through lack of use, but through a concern for cleanliness in sacred spaces. Unfortunately, "ritual" is often used as a gloss for anything that cannot be explained in archaeology, but in this case there is significant supporting evidence to support some sort of ritual usage of this part of the site. First, as previously discussed, there is the widespread association in the Andes linking the high peaks with the ancestors and/or sacred spirits. Both Arkush (2005:241) and Frye (1997:133) have previously noted a tendency for the highest spaces on Colla and Lupaqa *pukaras* to be utilized for ritual purposes. Sacred space would be expected to be kept cleaner than profane space, which would explain the lack of artifacts in this portion of the site.[82] Furthermore, the larger size of these structures and the more impressive construction of the upper terrace walls suggest that a general importance was placed on this part of the site. Finally, the inclusion of unique artifacts like the copper tupu and the miniature bronze *chaki taqlla* among the very scarce archaeological material recovered from these structures suggests more than quotidian usage.

While I lean more towards the ritual interpretation in my assessment, it is important to note that none of these understandings are mutually exclusive. As Arkush and Stanish (2005:11) point out, sites often have both defensive and ceremonial purposes, and the primary use of a site can change dramatically over time. Furthermore, it is not unusual for conflict to be associated with trade and population movement (e.g. Keeley 1996; Nielsen 2005; Topic and Topic 1987). While these upper empty structures may

[82] See Jerry Moore's (2005:52) discussion of sacred space

have had primarily ritual significance to those who lived here, it is also true that they could have marked the entry point to the site for people coming across the Quimsachata mountains from the Tiwanaku valley and points north. In addition, from a purely practical standpoint, they would have served as good lookout positions if the Pukara de Khonkho ever came under attack, even if this were not their primary function.

Unfortunately, the results of excavation do not provide much insight into speculated differences in the use of the eastern and western faces of Pukara de Khonkho. Although spatial analysis seems to suggest that the western habitation may have been more associated with agriculture while the eastern structures may have been associated with trade or other activities, it is difficult to prove or disprove this hypothesis from the excavations. However, only two structures were excavated from the western face and two from the primary eastern face,[83] and these structures appear to be just as different from each other as from structures in the rest of the site.[84] The excavated eastern structures include a high density Type 1 structure, containing more ceramics than any other structure at the site (E577) and a Domestic structure with a low quantity of associated artifacts and an outside work area (E550). The western structures were significantly smaller, with a medium amount of associated material, including utilitarian ceramics, lithics, and faunal material. Although E605 produced a unique mortar and pestle as well as numerous other groundstone tools, the overall assemblage does not appear significantly different from what is found on other parts of the site.

[83] An additional two "empty" Type 2 structures were also excavated on the secondary eastern face.

[84] Table 9 does suggest that there are significantly fewer ceramics on the west face than on the eastern face (which has the same proportion as the main face), but this is primarily because of overrepresentation from one of the structures on the east (E577), which contains more ceramics than any other structure at the site.

Nevertheless, repeated elements across the site do suggest the presence of a shared "habitus" that would have served to tie the community members together through the "natural" acts of production and consumption. Artifact assemblages are similar in all areas; although some structures have a greater proportion of artifacts than others, all generally include utilitarian ceramics (storage jars and cooking ollas) and groundstone batanes for grinding comestibles. Spindle whorls and "doughnut" stones are common as well. As Yaeger (2000:129) argues for the Late Classic Maya village of San Lorenzo,

> "These similarities in material culture indicate that the families … engaged in similar productive pursuits and thus shared the experience of the daily and seasonal temporal rhythms that those pursuits imposed on their lives. Despite the existence of individual differences, these shared quotidian experiences and socialization would have fostered among the … residents very similar understandings of the world and how to act within it."

The basic picture of domestic life at Pukara de Khonkho is quiet and uniform, with production taking place primarily at the household level. The only possible exceptions are the three structures interpreted as "Workshop" structures, all of which are located on the eastern side of the main face, and which contain artifacts (bone tools, specialized ceramics, etc.) that are unique from other structures at the Pukara de Khonkho. The presence of half-completed artifacts in those structures shows that production is taking place in those locations. However, they do not appear to be specialized production units focusing on a particular product, but rather more generalized spaces for craft production that included work with ceramics, bone, and groundstone. Moreover, these structures are not separated from other structures at Pukara de Khonkho, but rather are surrounded by scattered domestic and storage structures.

To conclude, at the Pukara de Khonkho, the excavations support the interpretation of the site suggested by the spatial analysis. The community is united in part through

living a similar lifestyle. There is no evidence for social hierarchies or social differentiation as judged by artifact associations or domestic features. No structures are significantly bigger and no households appear to have access to exotic or higher quality goods.

Defining Community at the Pukara de Khonkho

Taken together, the settlement organization, architecture, burial patterns and artifact assemblage (especially ceramics) are all distinct from nearby Late Intermediate Period sites and from other pukaras in the Titicaca Basin. The Pukara de Khonkho is larger and more densely populated than anything else in the region, but despite its defensive location, is not fortified by defensive walls or lookout towers. In addition, certain elements of the ceramic style are unique to the area (see Chapter 7), as is the burial pattern, which uses natural rock outcrops to mark burial locations, rather than constructed chullpas or slab cist tombs. People living on the Pukara de Khonkho shared certain patterns of behavior and practices of affiliation (cf Yaeger 2000) that tied them together as members of the same community. Furthermore, there appears to have been a significant investment in place-making behavior, designed to both tie together members of the community and to link the human community to the local landscape where the site of Pukara de Khonkho was situated.

The primary use of the Pukara de Khonkho, based on architectural patterns and the artifact assemblage, seems to have been domestic habitation. The majority of the artifacts are purely utilitarian, and appear to have been used for the purpose of subsistence (food storage, cooking, weaving, etc.) In addition, the structures are also

small, simple constructions, and there are no elaborate or communal large structures. Even the hypothesized ritual structures on the upper terraces are similar in style to the more domestic structures below, and (although they tend to be somewhat larger on average) fall within the same size range.

There are no obvious architectural or artifactual signs of social hierarchy at the site. While this does not mean that Pukara de Khonkho was a purely egalitarian community, it is important that hierarchical differences were not celebrated or manifested through material culture (as they were in Tiwanaku or Inca society). Although the small structures are not arranged in clear clusters, it is likely that structures did group together in household clusters, but that these households were constructed so close to their neighbors that they now appear to overlap. A generic household cluster might include storage, cooking, workshop, and sleeping quarters (for example).[85] The "workshop" structures that were excavated show signs that they were used for the creation of different kinds of materials (ceramics, bone, and stone tools) suggesting that craft production was conducted at the household level rather than being specialized. In other words, it is likely that most of the inhabitants of Pukara de Khonkho lived a similar lifestyle, manifesting what Durkheim would have called mechanical (rather than organic) group solidarity.

Furthermore, the sheer quantity and range of artifacts found at the site (enough to fulfill all basic needs), suggest it served as a permanent habitation site (or at least a home base) rather than a refuge site as Rydén (1947) and others have previously suggested. The site incorporated agricultural, mortuary, domestic, and (depending on how the upper terraces are interpreted) ritual spaces, providing a complete complement of experiences

[85] Although "workshop" structures were only excavated at the eastern side of the main face, I'm inclined to think that that is merely a facet of representation within the sample rather than a true reflection of spatial organization at the site.

for community members. However, this habitation was relatively short-term, as carbon dates show the site was only occupied over a period of 100-200 years in the fourteenth and fifteenth centuries.

Even over this short period of time, however, there was an intentional effort to create a sense of community at the site and a connection to the local landscape. I have shown in this chapter how the shared understanding of space created a shared habitus that would have tied the members of the community together. The location of the settlement of Pukara de Khonkho at this particular place in the Quimsachata mountains, for example, leads to a clear interconnection between the constructed and natural landscape. The site directly overlooks the Formative ritual center of Khonkho Wankane, which was also used for ritual and quotidian purposes during the Late Intermediate Period. The main face of the Pukara de Khonkho is naturally framed by two rocky outcrops and two inhabitable faces, both of which end in rocky drop-offs. Differences between the habitation of the three faces are not clear, although occupation of the Western face appears to be related to agricultural concerns. Major habitation appears to have focused on the main face, which could have acted (following traditional interpretations of Andean duality) as a mediating force between different segments of the population (in the west and the east). These faces are tied together by long terraces and shared architectural landscapes, and linked to the ancestors by the inclusion within the sixth (lowest) terrace of the two rocky outcrops that mark the location of burials.

Following Yaeger (2000:129), a local community identity is formed in part through a set of shared everyday practices "that reflected and helped reproduce the habitus that was an important foundation of a local sense of sameness." The built

environment in which a community interacts both reflects and helps to shape those practices. Giddens (1984:118) argues that: "Locales provide for a good deal of the 'fixity' underlying institutions, although there is no clear sense in which they 'determine' such 'fixity'." In other words, while an individual's actions are shaped by the landscape in which she interacts, that does not mean she lacks agency. Drawing on both Giddens and Bourdieu, Gieryn (2002:41) argues that, "Analysis must respect the double reality of buildings, as structures structuring agency but never beyond the potential restructuring by human agents." It is also important to recognize that it is not only the elite structuring of ritual spaces that has the power to shape human experience. Indeed the way that non-elites interact with profane environments may be just as influential to the overall group experience. As Moore (2005:4) articulates in his discussion of "the constitutive and reflective relationships between the built environment and social interactions… These relationships are necessarily complex, reflecting symmetrical and asymmetrical social relationships, sustained and relative brief interactions, durable or ephemeral constructions, and so on…"

In order to make this argument, I now return to the three questions articulated at the beginning of this chapter. First, are there architectural differences within the site that might correspond with social differences within the settlement? I find that the majority of the differences within the site seem to correspond with activity areas rather than social divisions. That is, there seems to be a shared understanding about appropriate spaces for ritual, domestic, mortuary and agricultural activities, but there do not appear to be areas of especially restricted access or clear divisions separating different groups of people. The only possible architectural distinctions at the site that might be due to social

differentiation are the differences between the western and the eastern faces, with occupation of the western face being more closely related to agricultural pursuits.

This level of conceptual organization in the site organization supports the argument that the Pukara de Khonkho was the site of a well-integrated community, with specific architectural elements that define the site's boundaries and tie the site together. The six major terraces both connect the three major faces of habitation and demarcate the settlement's boundaries. It is especially significant that the sixth terrace bows out to incorporate the two rocky outcrops that mark the site's burials. Terrace entranceways, at least in part of the site, line up, suggesting a level of planning in construction. In addition, specially demarcated areas for ritual, domestic habitation, mortuary contexts, and agriculture suggest shared conceptions of space, which might not be expected at a less well integrated settlement like a refugee camp or a tent city.

Yaeger (2000:129) argues that local community identities are shaped both by "practices shared by everybody … that reflected and helped reproduce the habitus that was an important foundation of a local sense of sameness [and] practices of affiliation, often interactive in nature, that more discursively created and reinforced perceived similarities within the settlement and thus fostered a local community identity." At Pukara de Khonkho that "sameness" reflecting a shared habitus is demonstrated architecturally in the repeated construction of the circular structures, each so similar in terms of size and construction style. It may also be significant that despite the overall large-scale organization of the site, the structures themselves were scattered without obvious planning, suggesting a certain lack of social hierarchy; likely individuals and

families were responsible for the construction and organization of own their residential structures.

The more obvious "patterns of affiliation" are more difficult to identify, since there is no evidence for ritual events in the usual sense. However, the construction of the terraces (among other large group activities) would have likely called for a community level work party that would have served to tie the members of the community together. Moreover, the use of shared community cemetery locations, especially locations that were so well integrated into the natural and constructed landscape, would have served to connect the living and the dead members of the community.

This ties in directly to the third question that I chose to address – the way the built environment interacts with the natural environment, and how this interaction may reflect particular claims regarding heritage, property rights, and/or shared history. Numerous authors have discussed the general connections between place-making, community formation, and the creation of local histories. Basso (1996:7) argues, "If place-making is a way of constructing the past, a venerable means of *doing* human history, it is also a way of constructing social traditions and, in the process, personal and social identities. We *are*, in a sense, the place-worlds we imagine." Place making at the Pukara de Khonkho may have involved "planting" the ancestors by the large rock outcrops, thus providing "roots" for the community, creating a link between the past and locally situating the community. Van de Guchte (1999) recognizes alterity (or difference) as important in identifying sacred places in the Andes (specifically among the Inca), and the rock outcrops clearly stood out as something different on the landscape, that would remind the inhabitants of their past and their heritage. As Abercrombie (1998:322) notes, in the

Andes “[T]he past may be seen lying open like a book in the landscape and social space of the living.” The site of Pukara de Khonkho was chosen among other similar hillsides for the location of the settlement (overlooking the earlier site of Khonkho Wankane), and the built environment articulates very well and clearly with the natural environment.

CHAPTER VI

COMPARATIVE COMMUNITY ORGANIZATION AND THE L ATE PREHISPANIC PERIOD: KHONKHO WANKANE AND CH'AUCHA DE KHULA MARKA

No community exists in isolation, and members of the community centered at Pukara de Khonkho would likely have interacted regularly with other communities and individuals in the local area. Since the Pukara de Khonkho was so unique, it is also necessary to consider how other groups and individuals were living during the Late Intermediate Period in the Desaguadero River Valley, and what this suggests about the development of post-collapse communities in general and the growth and maintenance of Pukara de Khonkho in particular. While Pukara de Khonkho appears to have been the center of a large, cohesive, locally situated community (as discussed in the previous chapter), this does not seem to have been the norm for most of the Late Intermediate Period in the Desaguadero Valley. Instead, other local Late Intermediate Period settlements are small and ephemeral, suggesting a pattern of migrating pastoralism rather than permanent occupation, and raising the question of how community would be defined in this context.

This issue may be addressed through an assessment of Late Intermediate Period use of the Late Formative site of Khonkho Wankane (located just 4 km south of Pukara de Khonkho) for agropastoral, ritual, and mortuary purposes in the years following Tiwanaku collapse. Khonkho Wankane and the Pukara de Khonkho are by far the largest LIP sites within the local area, and a comparison is essential for understanding the LIP in

general. The Late Intermediate Period occupation of Khonkho Wankane, however, appears completely distinct from that described in the last chapter for Pukara de Khonkho, and may, in fact, be temporally distinct. An investigation of this use and occupation will lead to a better understanding of two different processes for "making community" in post-collapse periods.

Late Intermediate Period communities across the Titicaca Basin were strongly impacted by the Inca conquest, which likely took place around A.D. 1450 (Rowe 1945). Evidence suggests that the Pukara de Khonkho was all but abandoned around that time, and it appears that Khonkho Wankane may have also been utilized with less regularity. While the original local inhabitants may have been resettled, the new settlement of Ch'aucha de Khula Marka was constructed nearby, approximately 2 km southeast of Pukara de Khonkho and 2 km northwest of Khonkho Wankane. Ch'aucha de Khula Marka is a small site that may have been used as a local administrative center during the Inca period. Habitation continued at the site following Spanish conquest, and it is also the location of one of the earliest churches in the region. Investigations at Ch'aucha de Khula Marka permit an assessment of change and continuity in the local region over two waves of conquest and colonization and allow a more complete understanding of the way that Pukara de Khonkho was abandoned and came to an end as a significant community.

In this chapter I present the results of research into the Late Intermediate Period occupation of Khonkho Wankane and the Inca/Early Colonial occupations of Ch'aucha de Khula Marka in order to provide a more complete local and temporal context for the occupation of Pukara de Khonkho. I discuss each site separately, for each presenting a brief review of previous research, an assessment of how it fits into the local chronology, a

discussion of the spatial organization of the site, and a description of the excavation of domestic, agropastoral, ritual, and/or mortuary contexts. The results of ceramic analysis from the two sites will be presented in Chapter 7. Following the data presentation, I discuss the implications of this research for our understanding of the overall character of late prehispanic occupations in the Pacajes region.

Khonkho Wankane

The site of Khonkho Wankane is located approximately 5 km south of Pukara de Khonkho and has been the primarily focus of investigation for the Proyecto Jach'a Machaca since 2001 (Gladwell 2007a, 2007b; Janusek 2008; Janusek and Plaza eds. 2005, 2006, 2007, 2008; Janusek et al. 2003; Pérez 2007; Plaza 2007; Zovar 2009). The major occupation of the site dates to the Late Formative Period (200 BC – AD 500), and evidence suggests that it was an important ritual and ceremonial center during that time. The Late Formative occupation is the focus of four recent or upcoming dissertations (Gladwell in prep; Marsh 2012; Ohnstad in prep; Smith 2009), so I here only provide a brief summary of early site construction and use.

Smith (2009) provides an excellent chronology of site occupation. During Late Formative 1 the sunken temple was constructed, which seems to have been associated with elite residences in Compound K1. Domestic occupation grew up through Late Formative 2 across the site (see also Marsh 2012). At the same time there appeared to be a growth in ritual feasting (Zovar 2009; in press). New ritual structures, including the Dual Court complex, were constructed during Late Formative 2, as the use of the site

continued to expand. The site is best known for its monoliths (Ohnstad in press), which likely also date to this time period (Figure 48).

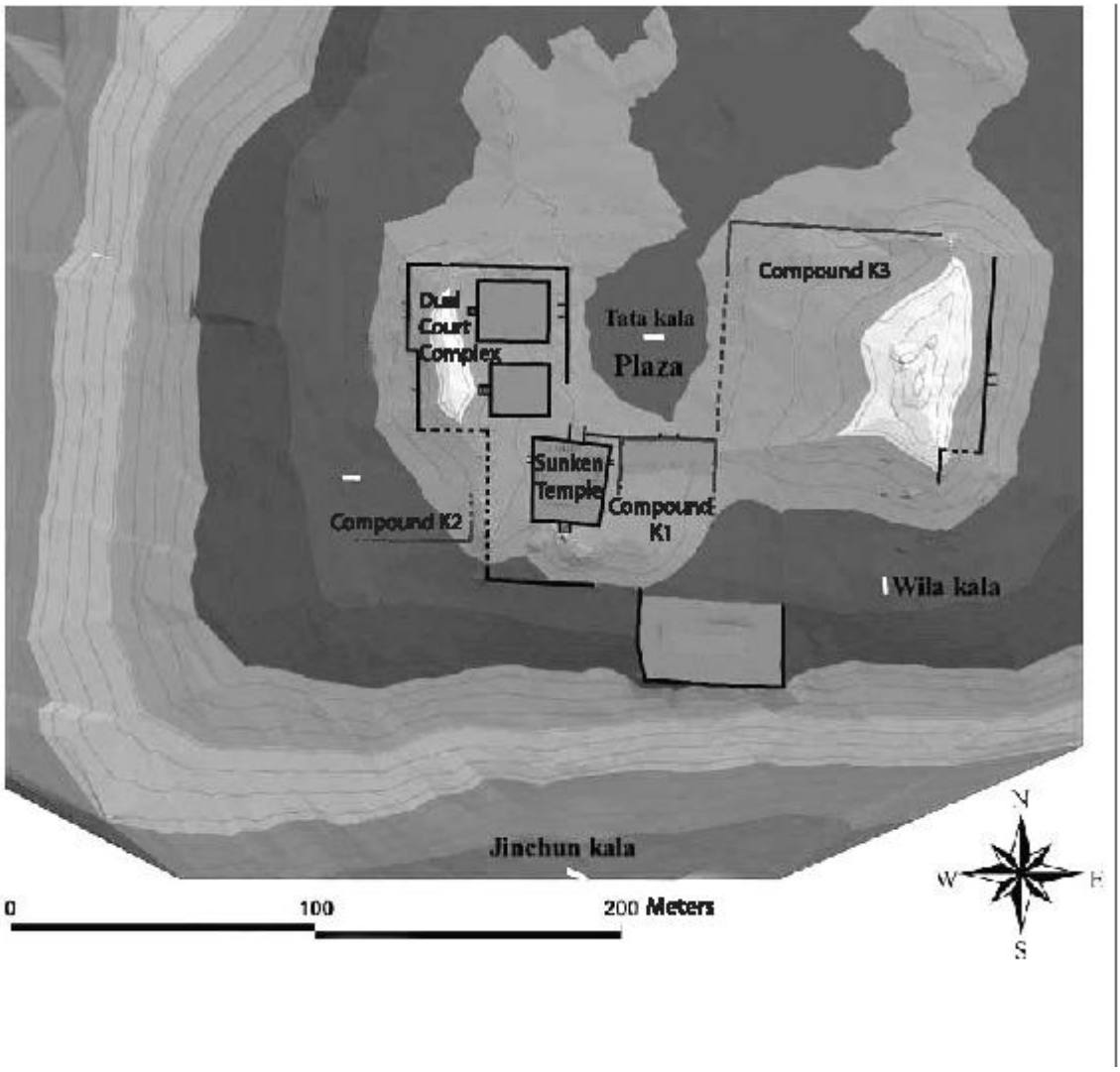

Figure 48: Map of Khonkho Wankane, showing major Formative Period architecture

Although there is evidence of site occupation into the Tiwanaku period, Khonkho Wankane does not seem to have served as important a ritual and political role after

Tiwanaku expansion as it did in the centuries leading up to it. In fact, the northern of the Dual Courts is the only ritual structure that shows any use during the Tiwanaku period, and domestic occupation appears to have moved away from the center of the site, outside of the old ceremonial context (Ohnstad, in press). The most notable Tiwanaku feature is the presence of Tiwanaku burials on the Putuni mound and elsewhere in the northern part of the site (Fox 2005; Janusek 2005b; Rodas et al. 2005).

The use of Khonkho Wankane for domestic, agropastoral, ritual, and mortuary purposes continued long after Tiwanaku collapse, but occupation appears to have been sporadic and somewhat ephemeral. Early Pacajes ceramics (the regional manifestation of the Late Intermediate Period) and, to a lesser extent Inca-Pacajes and Late Pacajes (Colonial) forms, are scattered throughout the site. These late prehispanic inhabitants were living and working within the old ceremonial center, even as the ceremonial structures themselves began to collapse. Early Pacajes groups likely constructed and used the small *qochas* (manmade reservoirs) on and near the site and buried their dead around the site's boundaries. While the remains of some possible Pacajes walls and a possible Pacajes structure are noted in the northeastern portion of the site, there are no clear, long-term residential or other structures (like those found on the Pukara de Khonkho). Instead, the Late Intermediate Period occupation of Khonkho Wankane resembles the sort of ephemeral settlement patterns that are typical of the southern Titicaca basin during the Late Intermediate Period, likely reflecting patterns of migrating pastoralism. It is unclear exactly how this pattern of use may have shifted with Inca and Early Colonial conquests, but scattered ceramics as well as later period mortuary contexts show that the site was not forgotten.

In this section, after a brief review of previous research into the post-Tiwanaku components of Khonkho Wankane, I discuss what is currently understood about the chronology of post-collapse occupations at the site. I then present an assessment of the spatial organization of the post-Tiwanaku occupation, based specifically on the distribution across the site of Early Pacajes ceramics, as well as an assessment of constructed Late Intermediate Period agricultural features. Since there were no clearly post-Tiwanaku domestic structures or features, mortuary excavations provided the only closed LIP contexts at the site. A discussion of LIP burials and ritual offerings is provided to give an assessment of the character of LIP occupation. I also provide a brief assessment of collected LIP artifacts. Finally, I discuss the implications of this data for our understanding of late prehispanic occupations at the site and the formations of Late Intermediate Period community around this ancient ritual and political center.

Previous Research

While recent research has primarily focused on the Formative and Tiwanaku period use of the site (e.g. Gladwell 2007a, 2007b; Janusek, ed. 2005; Janusek and Plaza 2006, 2007, 2008; Janusek et al. 2003; Marsh 2012; Smith 2009; Zovar 2009), the presence of late prehispanic ceramics at Khonkho Wankane has been noted for some time. Following surface collection, limited excavation, and intensive analysis of ceramic and other archaeological material collected from Khonkho Wankane, Rydén (1947) actually concluded that the site was primarily a "Decadent Tiwanaku" center with "Post-Decadent Tiwanaku" components. While subsequent investigations have proven that assessment to be incorrect, it is true that Post-Tiwanaku ceramics are common across the

site, especially on the surface, and Rydén's mistake may be due, at least in part, to the fact that he was only able to conduct very limited excavations, many of which were in areas of significant later reuse. In fact, a review of the ceramics from Khonkho Wankane that were sketched by Rydén (1947) confirms that a high percentage of the diagnostic ceramics he collected were either Early Pacajes or Inca Pacajes.

In addition to his analysis of ceramics, Rydén (1947) also excavated a number of "stone fence graves" (or slab-cist tombs) at Khonkho Wankane, the majority of which he (correctly) determined to date to the periods following Tiwanaku collapse. In fact, while I posit that the majority of the burials excavated by Rydén date to the Late Intermediate Period, he initially hypothesized that they dated to even later, perhaps as late as the early Colonial period. Thus, from a very early date it was recognized that Khonkho Wankane was reused as a mortuary site in the years following its major use as a ritual and ceremonial center. However, this fact, which I return to in my discussion of mortuary contexts at the site, did not receive much attention in the years that followed Rydén's investigations.

Although little to no work was conducted at the site between Rydén's excavations and the initiation of the Proyecto Jach'a Machaca, there was an untested assumption that Khonkho Wankane was primarily a Tiwanaku site, and that it had served as a sort of "second city" for the Tiwanaku state (Kolata 1993:103, 131, 174; Ponce 1980). It was only after the Proyecto Jach'a Machaca initiated excavations at the site in 2001 that it became clear that Khonkho Wankane was primarily a Late Formative center with some Tiwanaku and post-Tiwanaku reuse (Janusek et al. 2003). It is the goal of this chapter to clarify the nature of the post-Tiwanaku occupation and use of the site.

Chronology

It is difficult to talk definitively about the chronology of the late prehispanic occupation of Khonkho Wankane, since there are not any carbon dates from that time period, a result of the lack of clear late prehispanic contexts. One carbon sample was submitted from what was thought to be a closed Late Intermediate Period pit feature (U12.29R1) near a possible Late Intermediate Period wall in the northeastern sector of the site. Unfortunately, however, the feature must have been contaminated because it returned a Late Formative date,[86] suggesting that the feature may have been expediently reused by the Late Intermediate Period occupants of the site.

As a result of the lack of carbon dates, it is necessary to depend on relative dating techniques in discussions of chronology, a feat which is made nearly impossible due to extremely reduced soils and a subsequent lack of clear stratigraphy at the site. Because of high levels of erosion, there are few obvious late prehispanic or early colonial use surfaces, and later period ceramic sherds tend to be found mixed together in the uppermost soil strata. The intrusive burials are likewise difficult to date precisely because very few of them are accompanied by burial goods, and they have not yet been carbon dated. Until it is possible to date by other means, we must utilize comparative ceramic analysis to help date associated use.

Unfortunately, there has not been a way to differentiate between Early Pacajes ceramics from the beginning of the Late Intermediate Period and Early Pacajes ceramics from the end of the Late Intermediate Period. This means that without radiocarbon dates, sites with Early Pacajes ceramics could date to anywhere in a 300 – 400 year period. To make things more difficult, there is also a level of uncertainty regarding the extent to

[86] 1,555 +/- 41 BP

which Early Pacajes, Inca Pacajes, and Late Pacajes ceramic forms correlate with Late Intermediate, Inca, and Early Colonial cultural periods. Specifically, there is some disagreement as to whether or not the Early Pacajes – Inca Pacajes – Late Pacajes ceramic sequence is sequential, and given the relatively brief period of Inca control in the region, a certain amount of overlap between the three styles might be expected.[87]

Early Pacajes ceramics are present in much denser quantities at the site of Khonkho Wankane than either Inca Pacajes or Late Pacajes ceramics. While it is difficult to definitively assess the reasons behind this pattern of representation, there are a number of possible interpretations. First, there is the simple fact that the Late Intermediate Period lasted nearly three times as long as either the Inca or Early Colonial periods in the Pacajes region, and before the present study was completed, there was no clear way to differentiate ceramics within the Late Intermediate Period. Even if the Early Pacajes – Inca Pacajes – Late Pacajes sequence does more or less accurately represent the Late Intermediate – Inca – Early Colonial periods, more Early Pacajes ceramics would be expected simply because the time period they represent lasted so much longer. However, the representation of Early Pacajes sherds as compared to Inca Pacajes and Late Pacajes samples at Khonkho Wankane appears to be greater than can be explained by this distribution ratio. It is possible that, as Albarracin-Jordan and Matthews (1990:139; Matthews 1992:194) suggest, use of Early Pacajes ceramics may have continued after Inca conquest, and, indeed, further work is still needed to better understand the chronology of late prehispanic ceramics in the Pacajes region.

[87] This will be discussed in more detail in Chapter 7, where I will also discuss possible mechanisms for distinguishing an early and a late sub-phase within Early Pacajes ceramics.

Another possibility, however, is that the intensive use of the site may have diminished over time as agropastoral patterns changed. During the period immediately following collapse, characterized primarily by mobile pastoralism, Khonkho Wankane may have been a site for regular encampments but as time progressed, the site could have been used primarily as an agropastoral, ritual, and/or mortuary space. Unfortunately, there is not currently any data available that can more accurately attest to timing of Late Intermediate Period occupation, which would seem to make it difficult to discern if differences between Khonkho Wankane and Pukara de Khonkho in the Late Intermediate Period are temporal or cultural in nature. As noted in Chapter 3, however, dated Early Pacajes sites in the Tiwanaku and Katari valleys (which appear more similar to Khonkho Wankane than to Pukara de Khonkho) uniformly date to the beginning of the Late Intermediate Period, while all of the dates from Pukara de Khonkho suggest that occupation only began in the mid-fourteenth century. This suggests that Khonkho Wankane and other similar settlements across the southern basin may represent an earlier pattern of site occupation than that represented by Pukara de Khonkho. I return to this issue in Chapter 8.

Late Prehispanic Spatial Organization at Khonkho Wankane

The major architectural features that are visible at Khonkho Wankane today (the Sunken Temple, Central Plaza, Dual Court Complex, and the four stone monoliths) date to the Late Formative. In the time immediately following the collapse of the Tiwanaku state, these signs of prior occupation would have likely been even more obvious and could have influenced the patterns of use by later peoples (e.g. Barrett 1999; Bradley

2003; Hingley 1996; Nelson 2000). Nevertheless, the use patterns suggested by late prehispanic cultural remains are quite distinct from the earlier Late Formative use patterns, and suggest a complicated relationship with the landscape of the past. Although some previously ritual locations were used for quotidian purposes, the use of specific areas of the site for mortuary rituals and associated offerings suggests that Khonkho Wankane also carried certain ritual/sacred connotations for the late prehispanic occupations that reused the site (Figure 49).

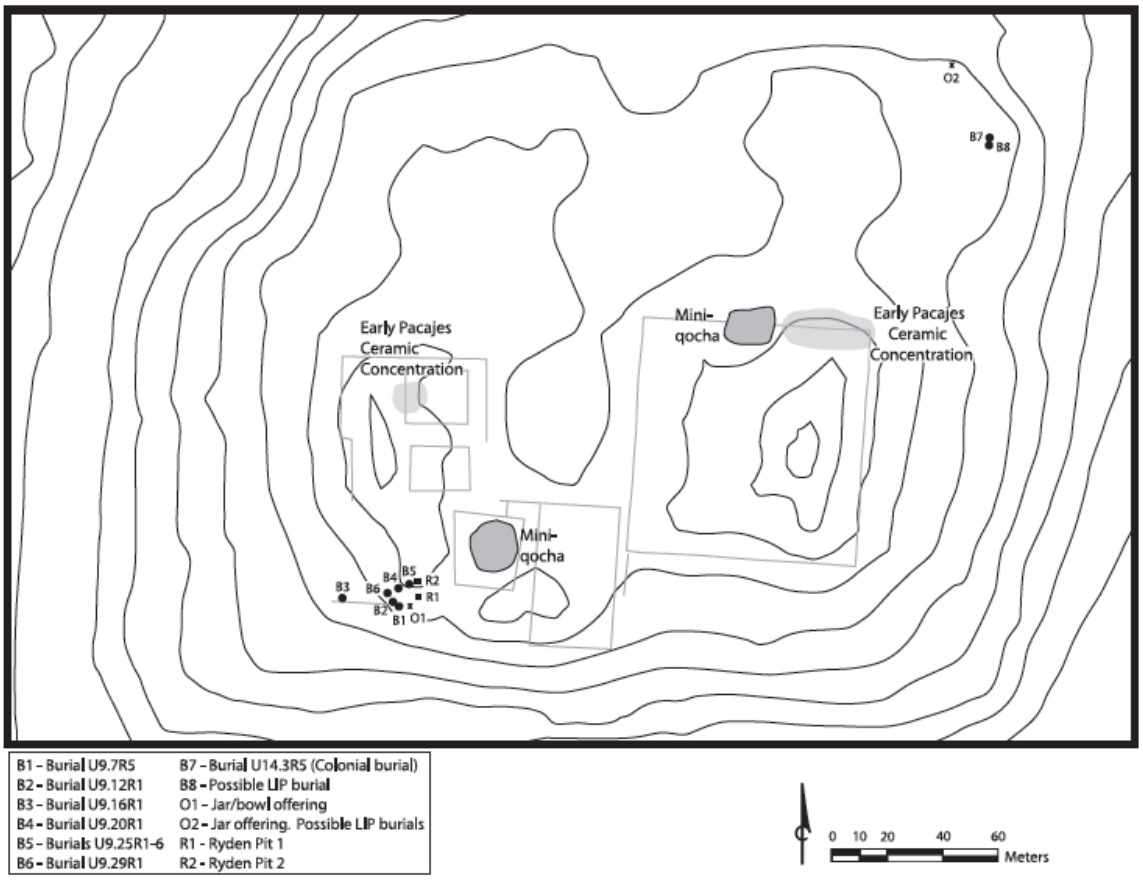

Figure 49: Map of Khonkho Wankane during the Late Intermediate Period including areas of major ceramic concentration, mini-qochas, and burial locations. Major Late Formative compounds and structures are shown in grey for reference.

In my discussion of spatial organization of late prehispanic Khonkho Wankane, I begin with an assessment of the late prehispanic use areas of the site, which is primarily measured by late prehispanic (Early Pacajes, Inca Pacajes, Late Pacajes) ceramic scatter. I then present a description of the agricultural features known as *qochas*, which are thought to have been constructed at the site in the Late Intermediate Period over the remains of the major levels of habitation. I conclude with an interpretation of the implications of the sort of reuse that was going on at the site, suggesting that LIP use of Khonkho Wankane reflected periodic ritual, agricultural, and mortuary use by a population subsisting primarily on nomadic pastoralism.

Late Prehispanic Ceramic Distribution

In a recent unpublished analysis of ceramics excavated from Khonkho Wankane, Janusek (personal communication) found Early Pacajes ceramics in the upper levels of occupation across the site. Sherds were especially dense above the north wall near the northwest corner of Compound K3 and just above the entrance to the northern court in the Dual Court Complex. In both cases the location appeared to not be related to previous Late Formative Period use, and in the Dual Court Complex the Early Pacajes sherds were situated above a layer of eroded adobe bricks, suggesting that the court was abandoned long before Late Intermediate Period reoccupation (Janusek and M. Pérez 2005). A few walls and a structure which may possibly date to the Late Intermediate period were noted in the northeast section of the site (just north of Compound K3), but high levels of erosion make it impossible to securely date these architectural remains (Gladwell, excavation notes 2005). Nevertheless, these remains are associated with Early Pacajes ceramics, composed of a somewhat higher representation of cooking ollas than in

other parts of the site, suggesting a more domestic predilection in the Late Intermediate Period occupation of this particular area.[88]

It is probable that areas where Early Pacajes artifacts are most dense represent sites of relatively long term intensive use, perhaps by a particular household or family group that utilized the same specific location as a residence or a specialized work area for some time. The lack of obvious architectural features may indicate that the majority of Late Intermediate Period structures at Khonkho Wankane were more ephemeral, built out of fully biodegradable materials, without the stone foundations typical of domestic and other structures during other time periods at Khonkho Wankane and at the Pukara de Khonkho in the Late Intermediate Period.[89] Even if some stone foundations were originally present however, it is possible that they could have been disturbed by subsequent use of the site for farming, due to their close proximity to the surface. Nevertheless, the high level of Early Pacajes sherds scattered across the entire site, together with a lack of clear domestic architecture or other archaeological features, suggests that permanent, fixed households may not have been the norm. Instead, Late Intermediate Period populations utilizing Khonkho Wankane could have been more mobile, living in non-permanent, ephemeral structures and settlements, periodically making intensive use of the site for agropastoral, mortuary, and/or ritual purposes. As this is obviously quite different from the interpretation proposed for the occupation of Pukara de Khonkho, it is important to address possible reasons for differences in community formation and also to interrogate the relationship between the two sites.

[88] In this area of the site, cooking ollas composed 20% of the Late Intermediate Period ceramics (n=104). Within the ceramics sampled from Late Intermediate Period Khonkho Wankane overall, ollas only composed 13% of the ceramics (n=131).

[89] Stone foundations make adobe walls last longer, but would not be necessary on structures that were only intended for short term use.

The presence of Inca and Early Colonial period ceramics at Khonkho Wankane also suggests that use of the site was not interrupted by Inca conquest, as was the case for the occupation of Pukara de Khonkho. Nevertheless, although analysis specifically focusing on Inca-Pacajes and Late Pacajes phase ceramics has not yet been conducted at Khonkho Wankane, an initial review of collected material from the site suggests that these styles are far less common than Early Pacajes ceramics. While ceramics from both phases have been noted across the surface during informal walkovers of the site, the analyses that have been conducted of excavated ceramics have recorded a smaller number of clearly Inca-Pacajes or Late Pacajes forms. A few Inca-Pacajes ceramics were noted in the concentration of early Pacajes ceramics above the north wall of Compound K3 as well as in the area near the reservoir that was built into the Late Formative Sunken Temple. The reservoir also produced some Late Pacajes ceramics. In addition, scattered late Pacajes ceramics were found associated with the dense concentration of Early Pacajes ceramics overlaying the Dual Court Complex as well as near the northwest corner of Compound K3. Late Pacajes ceramics were also located near the Tatakala and close by some of the intrusive burials in Compound K2 and on the Putuni.

It is interesting to note, however, that while fewer Inca Pacajes and Late Pacajes forms are present at Khonkho Wankane, they do tend to appear in the same parts of the site that show intensive Early Pacajes use, suggesting that even if use of the site diminished in frequency over time, use patterns remained relatively similar. In particular, late prehispanic and early colonial use appeared to center around a few small depressions that were likely used for water collection.

Agricultural Features and the Constructed Late Prehispanic Landscape

Intentional modification of the site of Khonkho Wankane for agropastoral purposes appears to have begun at some point in the Late Intermediate Period, when at least three small reservoirs (or *qochas*) were dug into the Late Formative monumental center. A *qocha*, or *qotaña* in Aymara, is a relatively shallow manmade basin designed to collect and store rainwater in order to mitigate against drought in the dry altiplano (Erickson 2000; Flores Ochoa 1987; Lémuz 2006, 2007). Their utility for the environment of the high plains is evidenced by the fact that many continue to be used today. *Qochas* are often constructed in clusters and connected by canals, which can link larger basins to smaller features. Collected water can be used for agriculture (cultivation of potatoes and other crops in and around the depression), to provide better pasturage for livestock, and/or simply as reservoirs to supply readily available water to animals and humans. Flores Ochoa (1987), in his pioneering discussion of *qocha* construction and use, describes circular, oblong, and irregular rectangular *qochas*, all built with flat bases and sloping sides and furrows constructed throughout in order to regulate water distribution. They can range between 0.1 – 4 ha in area and between 1.5 – 6 m in depth (Erickson 2000:338). The antiquity of *qocha* use in the Andes is not clear, as the features are difficult to date directly, but in the Desaguadero Basin the constructed reservoirs are most often associated with ceramics dating to the Early Pacajes or later phases, suggesting that their use in this area may have been connected to a generalized shift in agropastoral practices following Tiwanaku collapse (Lémuz 2007). In a survey of 6 square km west of Khonkho Wankane and north of the Jach'a Jawira River, Lémuz

(2007) recorded over 100 *qochas* of various sizes, most associated primarily with Early and/or Late Pacajes ceramics, and some of which were still functioning.

The three *qochas* at Khonkho Wankane itself are located within the Sunken Temple, near the large concentration of Early Pacajes ceramics along the north wall of Compound K3, and on the Putuni mound. There is also a sunken feature just north of the Main Plaza, but it is not clear if that is natural or manmade (Janusek, personal communication). The Putuni *qocha* was recorded by Rydén (1947:141) who noted: "[O]n the flat top of the rise, there is a depression which at the time of my visit was in parts filled with water." However, the depression itself was not further explored by Rydén nor by subsequent investigations. Likewise the *qocha* in the north of Compound K3 was recorded by Proyecto Jach'a Machaca (Janusek and A. Pérez 2005), but not intensively investigated. It is noteworthy, however, that it is located just west of the large concentration of Early Pacajes ceramics (which also included some Inca-Pacajes pieces) and just east of a small Late Pacajes concentration, suggesting that the feature was utilized for some time.

The *qocha* constructed within the Sunken Court is the best documented (Figure 50). It appears to have been excavated into the center of the temple some time after it was abandoned, following the collapse of the adobe walls and the accumulation of soil deposits along the stone foundations. The individuals who created the feature took advantage of the already existing depression and deepened it, in the process destroying much of the original temple floor. At the time of investigation, the depression measured 18 m in diameter on the surface, but subsequent excavation showed that the *qocha* would have been much larger when originally constructed. Excavation did not continue to the

base of the feature, so the original depth is unknown. It is associated primarily with Early Pacajes ceramics, so it is reasonable to assume that the construction of this and the other *qochas* at the site dates to the Late Intermediate Period (Janusek and A. Pérez 2005).

Figure 50: The "mini-qocha" in the Sunken Temple is here visible as a slight depression in the unexcavated section. Photo from Janusek and A. Pérez 2005.

All of the depressions at Khonkho Wankane are very small in comparison to the *qochas* recorded in Peru's north basin by Flores Ochoa (1987) and in comparison to the local system of *qochas* along the Jach'a Jawira river (Lémuz 2007). They each cover less than 500 square meters, falling into the category that Lémuz (2007) terms "qochita" or mini-*qocha*. In addition, they are not connected into a larger system of *qochas* via canals

and appear to lack any agricultural features (furrows or raised beds), although this could be a result of abandonment and surface erosion. More formal excavation aimed specifically at an understanding of these features is necessary in order to better evaluate their function during the Late Intermediate and subsequent periods. Nevertheless, it is most likely that reservoirs of this size would have been excavated and used by a single household. The construction was expedient, taking advantage of an already existing depression in the Sunken Temple, for example, and would not have required significant long-term maintenance. This type of feature supports an interpretation of a Late Intermediate Period Khonkho Wankane populated regularly by small groups of individuals, likely following a subsistence pattern of migrating pastoralism. The mini-*qochas* may have been used for small-scale agriculture, but would have been even more important in that environment to provide drinking water and pasturage for camelid herds. Their construction would have helped to create an environment more hospitable for the establishment of both short-term camps and longer-term homesteads, and judging from the prevalence of Early Pacajes ceramics, these features were regularly utilized over the Late Intermediate Period.

Mortuary Contexts

Another manifestation of the importance of Khonkho Wankane during the late prehispanic period is the presence of at least 15 intrusive burial contexts within the Late Formative monumental center (Table 13). These burials are found clustered together in two major areas of the site – one at the southwest of the center and the other at the northeast. While most were not associated with burial goods, the pattern of burial,

together with the fact that they were clearly intrusive and in areas with high concentrations of Early Pacajes ceramics, strongly suggests that they date to the Late Intermediate Period or later. The use of the site for burials is not entirely surprising, given the relatively strong evidence for LIP reoccupation. Nevertheless, the ephemeral nature of late prehispanic settlement means that the individuals in these burials may well have been the only "permanent" residents of the site during some periods, in a sense, marking the site for particular lineages and linking the ancestors with the landscape within an already ancient monumental center.

Previous Research

As discussed in the previous chapter, there was a recognized shift in burial practices across the Andes in the Late Intermediate Period, characterized primarily by the appearance of above-ground tombs and the physical manipulation of the remains after initial interment (de la Vega et al. 2005; Isbell 1997; Hyslop 1977; Janusek 2005a; Nielsen 2008; Stanish 2003). While there are no *chullpas* (above ground burial towers) at Khonkho Wankane, other partially above ground intrusive graves have been noted for some time. In 1938 Rydén (1947) excavated three "stone-fence graves," (also known as slab cist tombs), at the site: two located in the southwest of the Wankane mound and one on the Putuni mound. The graves on the Wankane mound are located in close proximity, with "Pit 1" slightly to the south of "Pit 2" (Rydén 1947:114-120). Both graves are constructed of large stone slabs arranged in a rectangle, each side measuring about 1.5 m, and with openings that may represent entrances to the east.

Table 13: Late prehispanic burials at Khonkho Wankane

ID	Context	Description
Rydén 1	Slab-cist tomb in Sector 9 (LIP)	3-4 adults and 1 child
Rydén 2	Slab-cist tomb in Sector 9 (LIP)	At least 8 adults and 5 children
Rydén 12	Slab-cist tomb on Putuni (LIP)	At least 2 adults and 1 child
U9.7R5	Simple burial cut above Late Formative compound wall (LIP)	Adult male (50-56 years); Annular cranial modification and slight arthritis
U9.12R1	Simple burial cut above Late Formative feast preparation structure (LIP)	Child (3-5 years); Annular cranial modification and slight anemia.
U9.16R1	Simple burial cut near Late Formative compound wall (LIP)	Adult male (45+ years); Arthritis, dental caries, and strong muscle attachments.
U9.20R1	Simple burial cut above Late Formative feast preparation structure (LIP)	Adolescent male (15-18 years); Annular cranial modification, perimortem wound on frontal bone
U9.25R1	Simple burial near Rydén's pits (LIP)	Child (1.5-2.8 years)
U9.25R2	Simple burial near Rydén's pits (LIP)	Child (3-9 months)
U9.25R3	Simple burial near Rydén's pits (LIP)	Child (4-6 years)
U9.25R4	Simple burial near Rydén's pits (LIP)	Child (6 months – 1 year); Poorly preserved
U9.25R5	Simple burial near Rydén's pits (LIP)	Child (3-8.4 months); Poorly preserved
U9.25R6	Simple burial near Rydén's pits (LIP)	Child (6 months – 2 years), Poorly preserved
U9.29R1	Simple burial cut west of Late Formative feast preparation structure (LIP)	Juvenile (10-12 years); Very poorly preserved
U14.3R1	Extended burial cut in Sector 14 (Colonial)	Juvenile (5-7 years); Burial included two *tupus* at chest

Rydén's excavation within "Pit 1" uncovered the skeletal remains of three or four adults and one child, in addition to a single shell spangle and splintered horse[90] and llama bones, including at least two bone tools. In the excavation of "Pit 2" the remains of at

[90] While the horse bone clearly dates to at least the Colonial period, I suggest that it was probably intrusive, as discussed below.

least thirteen people, including five children, were recovered, as well as faunal bones that included one fragmented horse tibia. Rydén (1947:119) described the skeletal material as "badly jumbled up," but noted that the position of some articulated vertebrae suggested the individuals had originally been buried in a seated position. He also mentions an ash layer in the upper soil stratum, but records that there was no burning on any of the bones, suggesting a fire was made in that location subsequent to interment.

The stone fence grave on the Putuni mound ("Pit 12") was somewhat smaller, with its sides measuring about 1 m each, and was constructed of smaller rocks (Rydén 1947:150-152). It contained the scattered remains of at least three individuals, including one child, and a single pottery sherd, which Rydén noted may have been of modern manufacture. An additional burial excavated by Rydén (1947:148) at the Putuni was of a single, poorly preserved individual in a simple earthen grave without any grave goods. Subsequent investigations by Proyecto Jach'a Machaca identified additional burials at the Putuni, including one located within a stone lined cist grave (Fox 2005), but ceramic associations date these burials to the Tiwanaku period.

Sector 9 Burials

While Proyecto Jach'a Machaca did not record any post-Tiwanaku burials on the Putuni mound, a large number of Late Intermediate Period burials were identified in Sector 9, near Rydén's Pit 1 and Pit 2. In addition to two probable Late Formative interments (Zovar 2009, in press), at least 11 intrusive graves were excavated, many of which directly cut through use surfaces associated with the Late Formative feast preparation area (Blom 2006; Cable and Beebe 2006; Zovar 2006, 2007, in press). The individuals included three adult or young adult men and at least eight infants or very

young children, all of whom were buried in simple pits, without grave markers or burial goods of any kind.

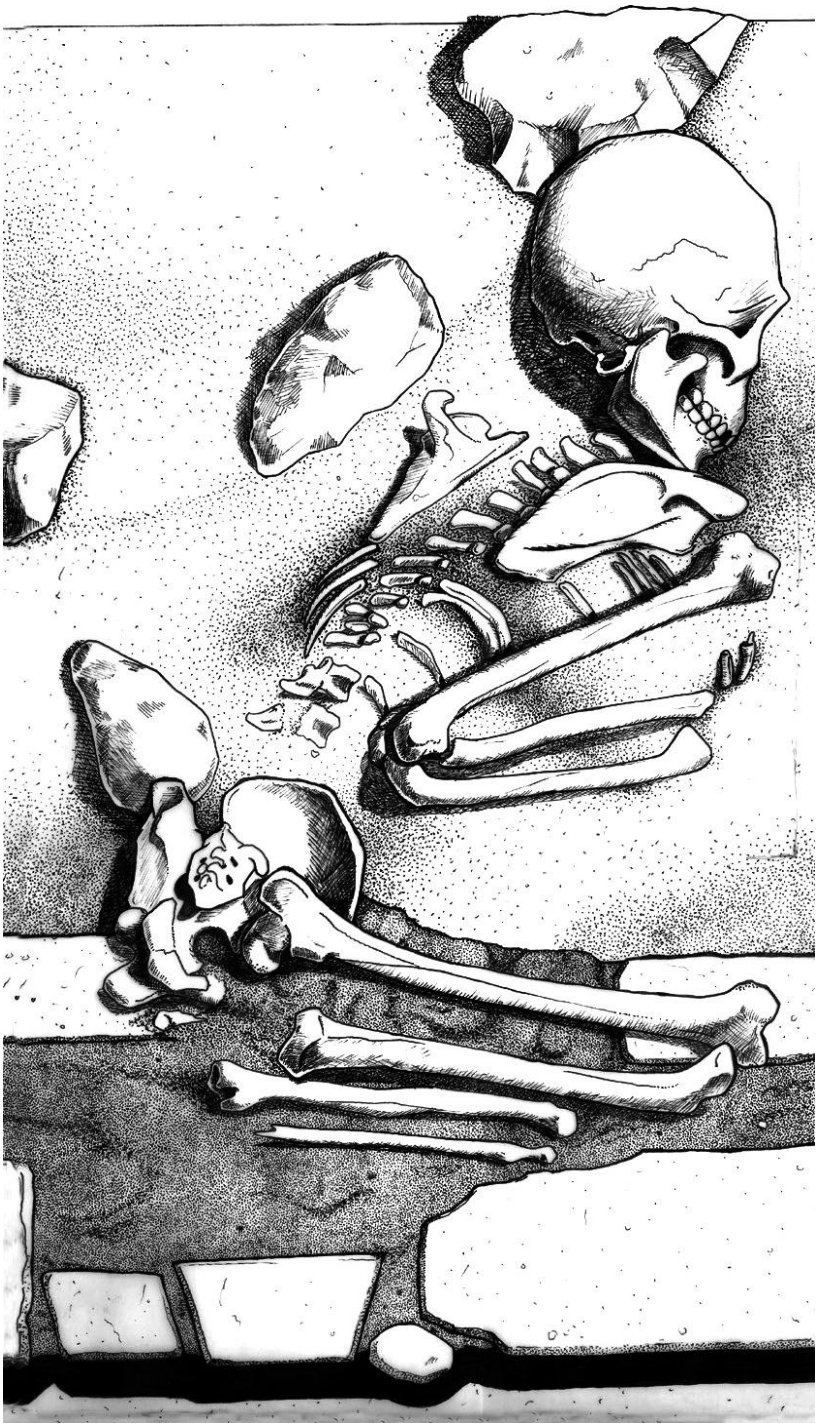

Figure 51: Burial U9.7R5. Drawing by Joel Zovar.

The adult burials were all loosely flexed and lying on their sides in simple burial pits that intruded into Late Formative use surfaces (Table 13). Burial U9.7R5 was situated just south of a large Late Formative circular structure, and the burial cut partially disturbed the Late Formative compound wall (Figure 51). The grave contained an adult male, lying on his left side in a loosely flexed position facing east. He was 50-56 years old at the time of death, and he had annular cranial modification and light to moderate signs of arthritis, Burial U9.16R1 was another adult male, 45 or older at the time of death, with moderate to severe arthritis, several dental caries, and notably strong muscle attachments on the arms and hands. This burial was also located near the compound wall, lying on his left in flexed position, and facing west. Finally, an adolescent, 15-18 years old at the time of death (Burial 9.20R1) was located in a simple earth grave which cut through the occupation layers of the large circular structure. This individual was loosely flexed, lying on his back or his right side. Although all the bones were present and in good condition, the cranium and part of the upper body had been disturbed, so it was difficult to tell in which direction the burial was originally facing. However, it is notable that the skull demonstrated annular cranial modification and a peri-mortem wound on the left side of the frontal bone, which could have been the mechanism of death (Blom 2006; Zovar 2006).

Infant burials were generally more tightly flexed and tended to be buried in sitting positions. Except in two instances when it was impossible to determine orientation, the burials all faced towards the east. In some cases the graves appeared to have been bordered with small rocks, but the simple pits did not contain any burial goods. Burial U9.12R1, a child with annular cranial modification and signs of anemia, who was

between 3-5 years old at the time of death, was located in the soil strata just above the large Late Formative circular structure (Blom 2006; Zovar 2006). The very poorly preserved burial of a child under six years of age (Burial U9.29R1) was located just to the west. East of both of these burials was a group of at least two infants (under a year old) and four young children all under the age of five (Burials U9.25R1, U9.25R2, U9.25R3, U9.25R4, U9.25R5, and U9.25R6). Each of these burials were located in their own individual graves, but tightly clustered within the same 2 X 2 meter unit (Figure 52). Preservation was variable, but annular cranial modification was noted on at least two of the better preserved skulls (Black 2006; Blom 2006). In addition to the excavated graves, the presence of a few fragmentary, decontextualized remains in the upper layers suggests that additional burials might be located in this area as well (Cable and Beebe 2006; Zovar 2006).[91]

None of the hypothesized LIP burials were accompanied by grave goods, but offerings may have been made separately. For example, a large but fragmented Early Pacajes jar (rim diameter = 18.5 cm; base diameter = 8.5 cm) with two side handles, a constricted neck and a flared rim was capped with a large bowl (rim diameter = 16 cm; base diameter = 6 cm) that had a disk base and painted decoration on the interior lip and was buried in the area just south of the clustered child/infant burials and east of Burial U9.7R5 (Figure 53). While not directly associated with any of the burials, it is most likely that these vessels were buried as some sort of offering either during a funeral ceremony or in a ritual of remembrance (Zovar 2006).

[91] Two additional infant burials in this sector (U9.15R1 and U9.28R2) have been interpreted as Late Formative contexts, based on their associations with Late Formative artifacts.

Figure 52: Burial U9.25R1

Figure 53: Jar and bowl (upper right) offerings found near burials in Sector 9

The offering and the burials excavated by Proyecto Jach'a Machaca are located in close association with Rydén's "stone fence graves," but are very different in form, as they are all in individual graves without any above ground component, raising the question as to whether or not the burials are temporally or culturally related. Based in part on the presence of horse bone in the pits, Rydén (1947:118,518) suggested that the stone fence graves actually dated to the post-colonial era. Nevertheless, his excavation did not note the location of the horse bones within the unit, and it is possible that they were intrusive elements in the upper strata (similar to the "modern" ceramic sherd he noted in "Pit 12"). Furthermore, given that the skeletal elements within the graves had been highly disturbed, it is equally likely that the horse bone could have been introduced at a later date. It was common throughout the Andes for the living to leave offerings or perform ceremonies for the ancestors, and the visible stone fence graves would have marked a location where ceremonies could have taken place long after the initial interment. Rydén (1947:529-530) took osteological measurements of only one skull, a young female (about 20 at the time of death) who demonstrated slight cranial modification of what he termed the "inion" type. Based on the high association with Early Pacajes ceramics, the fact that the stone fence graves are a known LIP burial type, and the presence of cranial modification on at least one of the individuals, I suggest that Rydén's stone fence graves actually date to the Late Intermediate Period, and that the horse bone is the result of later activity in the area. If that is in fact the case, those individuals buried within the highly visible stone fence graves may represent elites or members of a leading lineage, while the simple single burials excavated by Proyecto

Jach'a Machaca may have been individuals who were buried in the area due to a desire to associate themselves with the ancestors who were placed in the stone fence graves.

Sector 14 Burials

The second major area of late prehispanic mortuary activity is in the northeast portion of the site (Ohnstad 2007, 2008). Burials in this area have been identified dating to the Tiwanaku, Pacajes, and Colonial periods. Nevertheless, while at least three burials were recorded that likely date to the Late Intermediate Period (based on burial form, location, and ceramic association) none of them were fully excavated, so an analysis of LIP mortuary practice in this part of the site is as yet impossible. A large, globular Early Pacajes jar with two side handles (measuring 8 cm in diameter at the base and ~25 cm in diameter at its widest point) was found in an intrusive pit near one of the graves (Figure 54), but it is not clear if the offering was directly associated with an interment (Ohnstad 2008).

Figure 54: Late Intermediate Period "offering" found near burials in Sector 14

It is possible, however to give a more complete description of an excavated Colonial period burial from this area. Burial U14.3R1 contained a five – seven year old child[92] in an extended position lying on his/her back, oriented roughly east-west, with the head to the east (Figure 55). The grave appeared to have been partially lined with worked stone, with one stone placed directly beneath the head of the child. Two Colonial period copper *tupus* (pins), one of which was decorated with a six-pointed star, were found resting just below the child's neck, suggesting that he/she was likely wrapped in a shawl or cloak for burial. Very small fragments of thread were also identified near the *tupus*. While this was the only Colonial burial excavated at Khonkho Wankane, locals report that similar *tupus* are frequently found in the area, suggesting the possibility that there are additional, as yet unexcavated Colonial burials (Ohnstad 2007). The continuation of mortuary practices at Khonkho Wankane after Spanish conquest is especially interesting given the presence of a very early Colonial church at the site of Ch'aucha de Khula Marka (less than two kilometers to the north), where at least one man (likely of European descent) was buried beneath the church floor (Zovar 2007). This is discussed in more detail in the subsequent section.

[92] Aging is based on tooth eruption. The first adult molars had erupted, but the deciduous incisors had not yet been shed.

Figure 55: Burial U14.3R1; Colonial period child burial

Stable Isotope Analysis

Isotopic analyses have been previously performed on samples from two of the burials in Sector 9 (Burial U9.7R5 and Burial U9.20R1), and provide some interesting insight (Table 14; see Berryman et al. 2007; Knudson 2007). Strontium isotope analysis conducted on tooth enamel demonstrates that these individuals, like all of the complete burials from the site and from Pukara de Khonkho, had strontium isotope signatures that were consistent with strontium isotope ratios in the southeastern Titicaca Basin. Moreover, all of the samples from Khonkho Wankane (including those from early time periods) were similar enough as to suggest that the individuals were all local to the area

and that they lived near the site during the early years of their lives (Knudson 2007, no date).

Table 14: Strontium isotope tests on tooth samples from Khonkho Wankane. Chart adapted from Knudson (2007).

Burial No.	Description	$^{87}Sr/^{86}Sr$
U9.7R5	Tooth (Adult male)	0.709058
U9.7R5	Tooth (Adult male)	0.709065
U9.20R1	Tooth (Adolescent)	0.708660
U9.20R1	Tooth (Adolescent)	0.708478

The analysis of carbon and nitrogen isotopes further helps to elucidate the lifeways of the individuals under study. In her dissertation research, Berryman (2010) found that carbon isotope ratios, which can identify the amount of maize in the diet, show low levels of maize consumption for the two individuals tested from Sector 9, especially when compared to individuals known to date to the Tiwanaku period, when maize consumption was much higher. Moreover, nitrogen isotopes, which can indicate levels of meat consumption, suggested that significantly more meat was eaten by these individuals than by those dating to the Tiwanaku or Late Formative periods (Berryman et al. 2007; Berryman 2010). Taken together, the isotopic research shows that the intrusive burials found in the southwest sector were local individuals who had diets that were low in maize and high in meat, just as would be expected in a Late Intermediate Period pastoral economy.

Artifact Assemblage

Since there were no securely dated Late Intermediate Period contexts except for the burials, and since it is difficult to stylistically date faunal and lithic remains, the

ceramics are the only artifact class that can be clearly assigned to late prehispanic periods. While the ceramics are discussed in more detail in the subsequent chapter, I here simply provide a brief assessment of the kinds of ceramics that were present and what this might mean for the kind of community that situated itself around the site of Khonkho Wankane in the years following Tiwanaku collapse.

A sample of Early Pacajes ceramics from 47 distinct archaeological contexts across the site of Khonkho Wankane were chosen for an intensive analysis.[93] The sample was made up of 1014 sherds (a total of 8950 g of ceramic material) including jars, ollas, and bowls. Analysis was able to articulate specific varieties within these categories, discussed in Chapter 7. Even in a more general sense, however, the breakdown was quite different from what was seen at the Pukara de Khonkho.

Within the sample, jars were the most prevalent form, making up 52% of the sherds (n=533; 81% by weight), followed by ollas at 13% (n=131; 7% by weight), and bowls as 12% (n=118; 8% by weight). Other identifiable forms, including small jars, made up 1% (n=10) of the overall sherd sample (less than 1% by weight), while identification of form was not possible for 22% of the sherds (n=220; only 4% by weight). The apparent overrepresentation of jars within this sample may be due in part to the inclusion of one very large, almost complete, jar in the analysis, but even after it is removed from analysis, jars still make up 45% of the sherds (n=396; 51% by weight). This is unusual for a regular domestic context, where cooking vessels would be expected to predominate (Rice 1987:238). While it is also possible that the low presence of ollas in the sample is due to an error of representation (since Early Pacajes ollas are difficult to

[93] This was primarily aimed at understanding how material from this site compared with Early Pacajes material from other LIP settlements, and the results will be discussed in much more detail in the next chapter.

distinguish from those of other phases), on balance it suggests that Late Intermediate Period occupation at Khonkho Wankane was not primarily domestic and that other activities may have played a greater role.

Like the sample from Pukara de Khonkho, however, few of the Early Pacajes ceramics at Khonkho Wankane were decorated, only 8% of the sherds (n=77; 6% by weight). However, this included 40% of the bowl sherds (n=47; 67% by weight) as well as a very few jar and small jar fragments. Bowls tended to have internal decoration, while the few decorated jars were usually painted with simple lines on the exterior or on the interior lip. Like the samples from Pukara de Khonkho, decorative motifs were primarily made up of geometric designs (rows of parallel lines, triangles, cross-hatching, circles, etc.), but the "llamita" motif was much more common at Khonkho Wankane than at Pukara de Khonkho. I will return to what these differences and similarities in the ceramics between the two sites may mean in Chapter 7.

Khonkho Wankane: Summary and Discussion

The Post-Tiwanaku period was characterized by both vernacular and ritual/mortuary use of the previous ceremonial center of Khonkho Wankane. The widespread scatter of early Pacajes ceramics across the site together with a lack of evidence for permanent habitations or other structures suggests ephemeral but regular domestic use, supplemented by agropastoral enhancement in the form of mini-*qochas*, which would have helped to store water for humans, animals, and possibly for crops. Use of the site for mortuary purposes appears even more intensive based both on patterns of ceramic distribution and the number of burials that have been identified at the site. It is

suggested that the burial of ancestors in certain parts of the site may have claimed the area for particular groups or lineages and served as locations for other ceremonies. While there may or may not have consistently been living "full-time" residents of Khonkho Wankane during relatively long periods following Tiwanaku collapse, use was consistent enough to leave signs of more intensive occupation in at least two distinct areas, in the southwest and in the northeast, although consideration of ceramic representation suggest that domestic use was more intensive in the northeast sector. Both locations were also associated with a mini-*qocha* and a separate mortuary sector. A similar pattern may be noted at the Putuni mound, but more investigations are still needed in that area.

Overall, the pattern of late prehispanic and early colonial mortuary practices at the Late Formative ceremonial site of Khonkho Wankane, suggests a desire to connect their dead relatives with ancestral landscapes, even in times of rapid sociopolitical change and instability. There is a long-standing and deeply rooted connection in the Andes between landscape, the ancestors, and memory, which was recognized early in the colonial era. Indeed, the colonial *reducciones* (described in Chapter 3) were aimed at getting the natives "to leave the places and sites connected with their idolatries and the burial places of their dead" (Sarabia Viejo 1986, quoted in Abercrombie 1998:240) in an effort to promote Christianity and Spanish social organization.

In the context of sociopolitical instability, widespread outmigration, and shifts in subsistence strategies that followed Tiwanaku collapse, the decision to utilize an (already) ancient ceremonial center with still-visible Formative monoliths to conduct burial rituals would have both linked living groups to the ancestors and provided them with the opportunity to reformulate and re-experience their connection with the past. If,

as the evidence suggests, Late Intermediate Period habitation on the mound was somewhat ephemeral, the placement of burials also would have helped to link individuals and lineages to the land, even if they were not actually living there permanently. Continuing ceremonies at the site, perhaps evidenced by the offering of *chicha* or other products in the large jars found in close association with the burials, would have served to create new social memories, linking the living to the dead and to the landscape. In this context, it should not be surprising that such rituals continued into the colonial period, although the position of the colonial burial (extended) and the inclusion of copper *tupus* do show signs of Spanish influence. The location of the burial at Khonkho Wankane, however, rather than near the colonial church at Ch'aucha de Khula Marka, might be read as a form of resistance to the Spanish colonial church.

Through the habitus of everyday life and the commemorative ceremonies attached to mortuary ritual, people living at Khonkho Wankane in the late prehispanic period were constructing a connection to the past, but it was a past that was appropriate to the reality of the present. Obvious connections to the Tiwanaku state were severed. There was no use of ceremonial serving vessels associated with Tiwanaku-style feasting, and no reference to Tiwanaku imagery. The ceremonial structures at Khonkho Wankane were left to slowly decompose, and a mini-*qocha* was dug into the Sunken Temple. Over time, the carved stone monoliths toppled, and were allowed to fall.[94] These features do not appear to have treated reverently by LIP populations (although there is also little evidence of explicit mutilation), and this neglect could be part of the process of "cultural amnesia," transforming what was once sacred into something mundane.

[94] Note, however, that the current location of the Tatakala suggests that it may have stood until much more recently, and the presence of metal fragments in the fill suggests the possibility that offerings may have been made to the monolith after major site abandonment.

Nevertheless, it is notable that aside from Pukara de Khonkho, Khonkho Wankane was the largest Late Intermediate Period site in the area, which was surely not an accident. Simply by occupying the ancient site, the Late Intermediate Period inhabitants were stating a claim to the past, and mortuary ceremonies held in that location linked the recently dead to the more ancient ancestors. As time changed following Inca and Spanish conquest, so did the relationship of local inhabitants with the site.

Over time, burial/ritual use may have become more intensive than regular domestic use, an interpretation which is suggested by the diminished representation of Inca Pacajes and Late Pacajes (Colonial) ceramics. The location of an Inca/Colonial center (Ch'aucha de Khula Marka) not 2 km from Khonkho Wankane also implies that the focus of settlement may have shifted in later years. Nevertheless, the presence of at least one Colonial period burial at Khonkho Wankane suggests that the site was never fully forgotten. Indeed, this burial could represent the fact that despite Spanish hegemony and the construction of the new church, the connection to the ancestors and to Khonkho Wankane remained strong.

Ch'aucha de Khula Marka

Ch'aucha de Khula Marka was investigated by Proyecto Jach'a Machaca in August 2006.[95] The site, which is located roughly between Khonkho Wankane and Pukara de Khonkho, has two basic components: the village site, consisting of a cluster of circular and rectangular structures, and the colonial church, located just to the southeast.

[95] Investigations were directed by the author, with assistance from Rebecca Bria and Danielle Kurin (excavation) and Scott Smith, Ulli Green, and Joel Zovar (mapping).

A medium-sized *qocha* is situated northwest of the church, and agricultural fields extend to the south. Like Pukara de Khonkho and Khonkho Wankane, the early excavations at Ch'aucha de Khula Marka were conducted by Stig Rydén in 1938, and no additional research was conducted until Proyecto Jach'a Machaca began investigations of the site in 2005, when a map was initiated. A short season of excavations was conducted in 2006. These investigations were intended to track changes and continuities in local settlements over the course of two conquests, following the abandonment of Pukara de Khonkho.

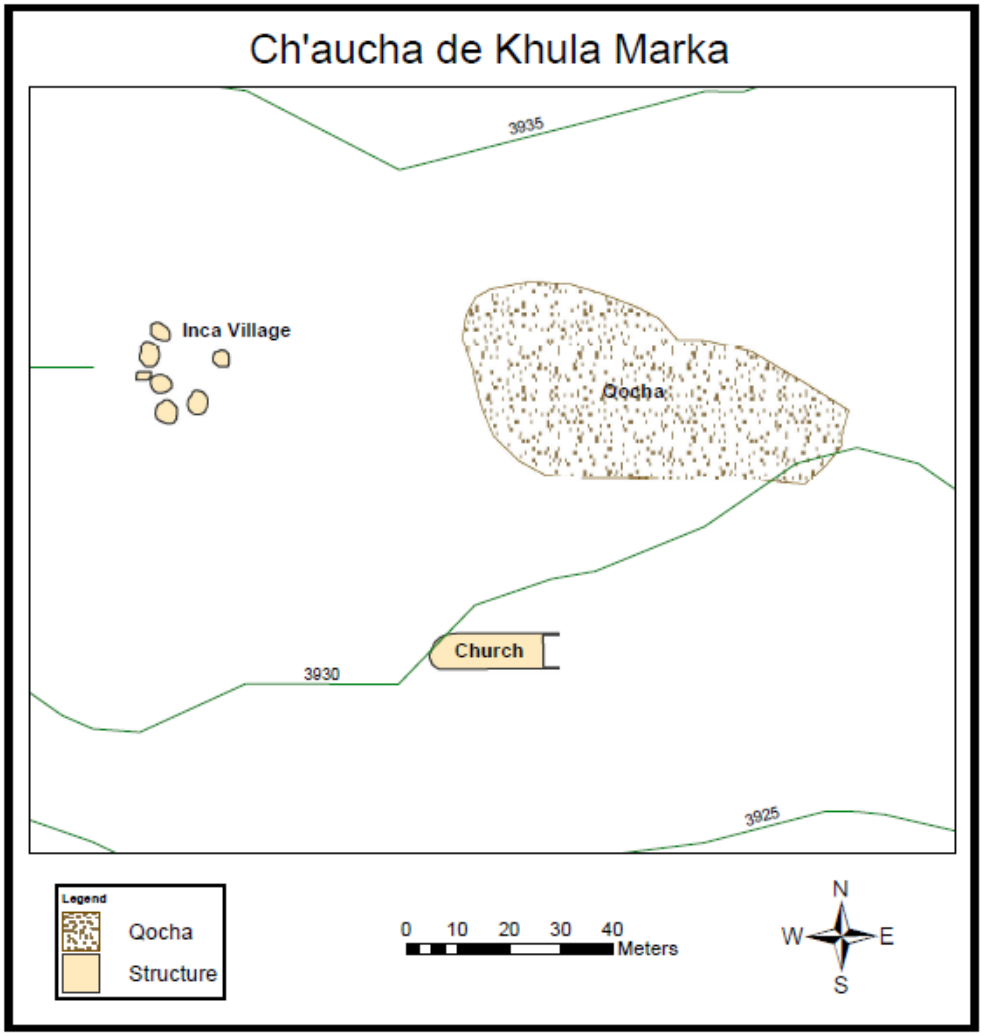

Figure 56: Map of Ch'aucha de Khula Marka, showing village, church, and qocha

In this section of the dissertation I present the results of the excavations conducted at Ch'aucha de Khula Marka, following more or less the same presentation pattern as was used for Pukara de Khonkho and Khonkho Wankane. After a brief review of previous research, I introduce a chronology of site occupation. I then provide an assessment of the spatial organization of the site and describe the excavation of the domestic structures, as well as excavation of the church, together with its associated burial. This is followed by an assessment of the overall artifact assemblage. I conclude with a discussion of the type of community represented at this site over two conquests, specifically considering whether or not the inhabitants of Ch'aucha de Khula Marka shared an ethnic, cultural, or historical association with the inhabitants of Pukara de Khonkho or Late Intermediate Period Khonkho Wankane.

Previous Research

Like the Pukara de Khonkho, Ch'aucha de Khula Marka was first described by Stig Rydén, who excavated five circular structures and two rectangular structures in 1938. Rydén's work at Ch'aucha de Khula Marka was much more intensive than his work at Pukara de Khonkho. In addition to an excavation of the interiors of the seven structures, he also roughly mapped the site area and conducted a surface collection of ceramics. Based on an analysis of the ceramics from surface collections as well as well as from excavations, he concluded that the site was occupied by Inca *mitimaes* and that it was inhabited primarily in the Early Colonial Period (Rydén 1947:235, 322-323).

Rydén (1947:233) describes the area around Ch'aucha de Khula Marka as a plateau beneath the foothills of the Quimsachata mountains. According to Rydén, the

name “Kjula Marca” means adobe village. His investigations found a village site to the west, where he conducted excavations of still visible domestic structures, but he also recorded an “effaced dwelling site” to the east of a modern farmstead. In between the two dwelling sites, he mapped a depression filled with water, a subterranean stone chamber, and a ruined adobe church. The stone chamber was not investigated,[96] but all other features of the site were well recorded. Rydén (1947:235) noted that the depression was probably where “the ancient inhabitants of the place fetched their water, seeing that it has the appearance of having been dug by human hand,” suggesting that it was a *qocha* of the type described above at Khonkho Wankane. Although he does not discuss the adobe church in detail, he does note that according to the local villagers, it was an early church that was abandoned when the cathedral at Jesús de Machaca was built (Rydén 1947:233).[97]

Rydén’s surface collections from both the “effaced dwelling site” and the “investigated village site” (Rydén 1947:235-250) were dominated by reddish-brown half-spherical bowl fragments, many of which were decorated in black with thin “llamitas” and/or with X’s painted along the interior lip. Also common were molded bird’s head handles, painted in both black and white paint. In one case, a single molded lizard figure was also noted. When bird’s heads were not present, simple nubs often took their place as handles. Additional designs were primarily geometric, including criss-crosses, triangles, wavy lines, spirals, and stars, as well as a few painted figures of birds. In

[96] And was not relocated by my excavations in 2006. Lémuz (2006:18) interprets it as a possible canal.
[97] Jesús de Machaca is today the regional center, and is located approximately 20 km to the east. According to Rydén (1947:318) the church moved to Jesús de Machaca because “the failing water supply necessitated a move.” Although he notes a date on the church tower of 1754, he finds that the paintings within the main building date to 1620, giving a fairly early date for the construction of that church. As a result, he argued that the church at Ch’aucha de Khula Marka likely dates to the later half of the sixteenth century.

addition, Rydén collected jar fragments, which he characterized as aryballi, some of which had cord lugs.[98] Ceramic and stone spindle whorls were also collected. Other non-ceramic artifacts included a blue glass bead, copper knives or adornments, and an iron hoe-blade. He characterized all artifacts collected from the surface as Inca or Inca-inspired.

Rydén conducted excavations only in the village area to the west. There, he excavated five circular structures,[99] each measuring approximately 2.8-3.5 m in internal diameter and arranged in a semi-circle. These structures took the form of the Type 1 structures on the Pukara de Khonkho, with foundations constructed of a single line of stone slabs. Rydén completely excavated the interior of each of these structures as a single context to the base of the foundation stones, finding material very much in line with that which had been collected from the surface, including painted bowls with llama, bird, and geometric designs, modeled bird's head handles, jars, decorated ariballi, and spindle whorls. Non-ceramic artifacts included bone weaving tools, groundstone, and metal tupus, tweezers, knives, and adornments, including a bronze bird-shaped figure. A few artifacts, including a metal horse shoe and some pig bone from structure "Rydén 5" (Rydén 1947:277) show evidence of post-conquest habitation.

Other excavated structures included a large rectangular structure (Rydén 2), which appears to have been a domestic habitation, and a small rectangular structure (Rydén 7), which may have been used for storage.[100] While the majority of the artifacts found from these structures were similar to those found in the circular structures, "Rydén 2" produced two fragments of "European inspired" ceramics and one fragment with white

[98] One was in the shape of a puma.
[99] Rydén house foundations 1, 3, 4, 5, and 6. (Rydén 1947:250-256, 265-269, 269-274, 275-277, 278-280.
[100] See Rydén 1947:256-264, 280-282

glaze, which was probably of European manufacture. The structure also contained an odd hearth, represented as a feature of burned clay with a grid marked over it, as well as a possible "sleeping platform" against the wall (see Rydén 1947:257,259). Following Mercado de Peñalosa 1965[1583], by the time of the colonial *visita*, regular houses were small and circular, constructed of stone and adobe walls, while the homes of the *caciques* were larger, rectangular, and made of wood.

Rydén dates the occupation of Ch'aucha de Khula Marka to the time period immediately following Spanish conquest, based primarily on the presence of Spanish and Spanish inspired artifacts as well as pig and sheep bone within the excavated structures. However, he suggests that the inhabitants were likely Inca *mitimaes* rather than local "Colla" Indians or Spanish colonists (Rydén 1947:320-324). He considers the rectangular domestic structure (Rydén 2), as similar to those constructed by the Incas, and notes that the ceramics are almost entirely Inca in nature.[101] He also records a high proportion of groundstone implements at the site, suggesting that perhaps the natives who lived here were required to prepare food for the Spanish settlers (Rydén 1947:316), and suggests that the lack of faunal remains could indicate a higher dependence on agriculture than on meat.[102]

Overall, Rydén (1947:321) argues "The pronouncedly Inca character of these finds would seem to preclude any theory as to a pure Colla culture, although the

[101] Rydén (1947:304-314) provides a *very* explicit analysis of the ceramics from Ch'aucha de Khula Marka. He finds that 25% of the sherds are from cooking vessels, 54% are from fermentation vessels, and 21% are from "artistic pottery." He then describes in detail the aryballus (Inca water storage vessel), cooking vessels, artistic pottery, half-spherical bowls, two-handled flat bowls, two-handled tall bowls, one-footed bowls, one-handled bottles, double-bottom cups, and the European inspired pottery. He also goes into detail about the decorative motifs and discusses the details of their distribution. I will return to this information in the ceramics chapter (Chapter 7).

[102] See also Rydén's (1947:316) discussion of stone rings. He seems to suggest that they were initially mace heads that were reused as clod-breakers.

possibility of a strongly Incaized one cannot be altogether excluded." Following his argument, Inca *mitimaes* were settled at Ch'aucha de Khula Marka to help maintain Inca sovereignty over the local population. He notes, however, that the Inca must have already been very well established at the time of settlement, because there were no signs of fortifications at the site (Rydén 1947:324), as one might expect if there was local resistance against Inca conquest. Rydén continues to suggest that the presence of Spanish colonizing influence within in the Inca village was not surprising, since the Spanish would have already been used to dealing with the Inca based on their experiences in Cuzco and would have been more familiar with them than with the local Colla population (Rydén 1947:324).

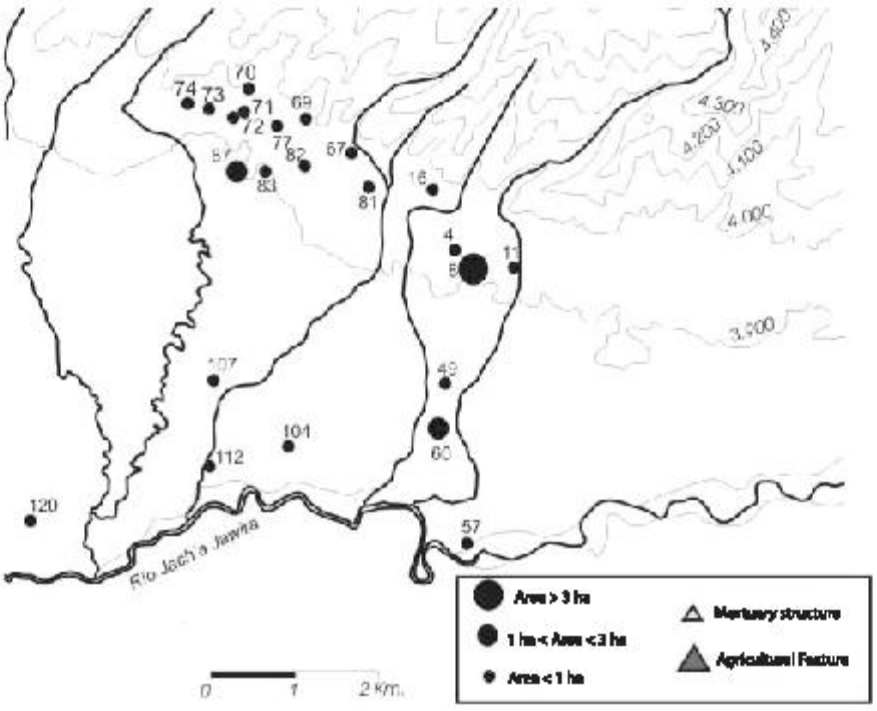

Figure 57: Settlement pattern around Khonkho Wankane in the Inca Period. Map from Lémuz 2006. Number 60 is Khonkho Wankane and number 8 is Ch'aucha de Khula Marka.

As was the case for Pukara de Khonkho and Khonkho Wankane, no archaeological work was conducted at Ch'aucha de Khula Marka following Rydén's investigations until Proyecto Jach'a Machaca began research in 2001. Survey of the site by Carlos Lémuz in the early years of Proyecto Jach'a Machaca (2001-2002) confirmed the basics of Rydén's depiction. Although initial surface reconnaissance recorded ceramics at the site from Late Formative 2 (A.D. 200 – 500) through Late Pacajes (A.D. 1540 – 1650), the vast majority of these artifacts (75%) were found to date to the Inca-Pacajes period (A.D. 1450 – 1540) (Lémuz personal communication). The survey measured the residential portions of the site (including both dwelling spaces and the *qocha*) to approximately 7 ha., with an associated 10-12.5 ha of agricultural land to the north and the south of the residential area (Figure 57).

Lémuz (2006:18-20) suggested that the site served as a local administrative center under the Inca, and that it may have been intentionally situated between the Pukara de Khonkho and Khonkho Wankane in order to better control trade, agriculture, and other important activities in the region. He notes that Ch'aucha de Khula Marka was by far the largest of the Inca settlements in his survey area, and suggests that the Inca had a particular interest in controlling agricultural production in their exploitation of the Desaguadero valley (Lémuz 2006:41). Likewise, historical data suggests that the Inca may have found it necessary to guard the area against uprisings from those who had once lived on the Pukara de Khonkho (Choque Canqui 2003:30-31). Research initiated for the purpose of this dissertation between 2005-2006 was intended to clarify the nature of Inca and Early Colonial period occupation at the site of Ch'aucha de Khula Marka and also to clarify the ethnic/cultural affiliation of its inhabitants in order to better evaluate local

demographic and community level changes and continuities over two successive conquests (Inca and Spanish). In doing so, I was especially interested in possible connections to the Pukara de Khonkho, and in tracing what may have happened to the inhabitants of that community at the time of the Inca conquest.

Chronology

A major step in addressing these issues is a better understanding of the chronology of site occupation. Although surface ceramics included samples dating from the Late Formative through the Early Colonial period, the majority of the ceramics found in excavations were Inca-Pacajes, Inca-Imperial, or very Early Colonial transition, suggesting that site occupation was heaviest in the Inca and very early Colonial periods. Limited radiocarbon testing supports this interpretation.

Two carbon samples from Ch'aucha de Khula Marka were submitted to the AMS Facility at the University of Arizona for carbon dating. One came from a pit feature in the Inca village site (U1.7R3), and the other came from the burial underneath the colonial church floor (U2.1R2). Both returned very similar dates, confirming that the site was occupied over the time of the Inca-Colonial transition.

The two sigma range for the sample from the Inca village site was AD 1447 – 1641,[103] an unfortunately broad range, which covers the entirety of the Inca period as well as the Early Colonial period. The range for the colonial burial was almost identical, with a two sigma range of AD 1432 – 1524, 1558 – 1631.[104] However, it is possible to define this date a little more accurately. Since the burial in question was a European

[103] Radiocarbon date is 362 +/- 53, and the one sigma range is AD 1458-1523, 1560-1561, 1572-1630.
[104] Radiocarbon date is 404 +/- 38, and the one sigma range is AD 1440-1497, 1506-1511, 1601-1616.

male located beneath a colonial church floor, it could not possibly date to before 1538, when the first Spanish colonizers came into the Titicaca Basin. This means the burial itself must date to AD 1558 – 1631, quite early in the Colonial period, as suggested by the oral histories of Qhunqhu Liquiliqui. The large cathedral in Jesús de Machaca was built between 1679 and 1707 (Choque Canqui 2003:125), presumably after the abandonment of the colonial church at Ch'aucha de Khula Marka.[105]

Spatial Organization

The site of Ch'aucha de Khula Marka is located on a small plateau approximately 4 km northeast of Khonkho Wankane and 2 km southeast of Pukara de Khonkho, at roughly 3940 meters above sea level. Today the site area is occupied by a local home/farmstead, and the village site and colonial church serve primarily as grazing space or corrals for livestock. While, as Lémuz (2006) reports, the domestic sector of the site covered approximately 7 ha, the area of densest ceramic scatter is concentrated within 1.5 ha, around the colonial church and the village sites. The vast majority of the surface ceramics date to the Inca-Pacajes phase.

As noted by Rydén (1947) and Lémuz (2006), there are a few distinct components within the site of Ch'aucha de Khula Marka. Today the most visible are the remains of an adobe colonial church located near a modern farmstead. While the level of surface ceramics suggests dense domestic habitation across the site during the Inca period, domestic structures are found only in the area of the village site excavated by Rydén, to

[105] Choque Canqui does note that there was an earlier church in Jesus de Machaca, which the construction of the cathedral replaced, but also cites the construction of the cathedral as essential in consolidating power in the town of Jesús de Machaca itself (Choque 2003:147). Astvaldsson (2000:166) also seems to suggest that Jesús de Machaca may not have been the recognized center of the region until a few decades after Spanish conquest.

the northwest of the church. The *qocha* lies north of the church, and, as Lémuz (2006) notes, agricultural fields to the north and the south were likely associated with the settlement.

The Colonial Church

The church is constructed of adobe over stone foundations. While the adobe is still visible, it is rapidly deteriorating, with adobe being lost from one year to the next.[106] Loss of the adobe walls is especially notable when compared to photographs from Rydén (1947:234). In recent years, stones have been placed above the ancient adobe walls, and the space has been used as a livestock corral. The church takes the form of a long, thin rectangle, with a rounded nave to the west and an entrance to the east. It measures approximately 23 m east-west by 7 m north-south. The area around the church is associated with somewhat fewer surface ceramics than are found in other parts of the site, as might be expected for sacred space (Figure 58).

The church plays an important role in the oral histories of the modern community of Qhunqhu Liquiliqui. According to the stories, this was the first church built in the region of what is today Jesús de Machaca in the early Colonial period. However, the priest assigned to the church was a "bad priest" who took advantage of many of the local women, and the community rose up against him. In one version of the story, the community was said to have killed the priest, quartered his body, and buried it in different locations across the landscape (Pytlak 2007:273-274). While there are many variations regarding exactly how the priest was disposed of, the end result was that the church was abandoned and the regional center was moved to Jesús de Machaca, where it is today. As discussed above, excavations within the church seem to support at least the

[106] The site walls had significantly degraded between 2005, when I first visited the site, and 2009.

broad strokes of this story in terms of dates of occupation, although they cannot attest to the drama of the deposed priest.

Figure 58: Entrance to the colonial church at Ch'aucha de Khula Marka. Original church walls are built from adobe. Stones (current construction) fill the doorway.

The Village Settlement

Approximate 80 m northwest of the church are the foundations of the structures that mark the location of the "village site" excavated by Rydén. His excavations are still visible as very clear depressions in the soil, and the stones making up the foundations of the circular structures are still mostly intact and at least partially visible above the surface. The circular structures, which measure between 2.8-3.5 m in diameter, are on average larger than the Type 1 structures at Pukara de Khonkho, but still fall within the

same range and follow a similar construction style, a style which was quite common around the Titicaca Basin during the Late Intermediate Period (Figure 59).

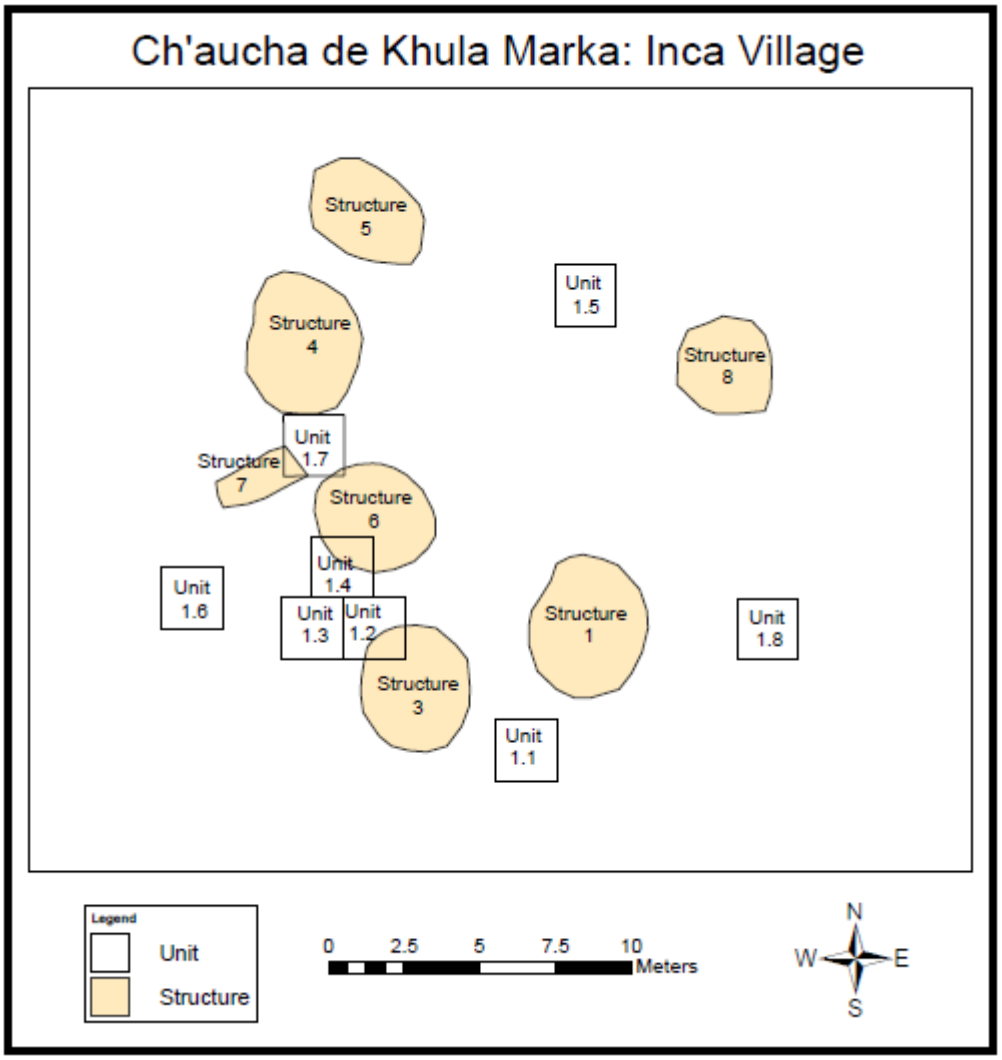

Figure 59: Map of the village settlement at Ch'aucha de Khula Marka

Rydén 2, the large rectangular structure (measuring 5.4 m north-south by 4.0 m east-west), is quite different. Unfortunately, it is not as obvious on the surface today, and could not be accurately mapped during the Jach'a Machaca investigations. The rectangular shape, however, may suggest that it was the home of a *cacique* (see Mercado

de Peñalosa 1965-1583), while the round houses of the village would have belonged to commoners. The pattern of circular and rectangular structures appearing together has a long history in the region. Both the Tiwanaku and culturally Inca populations tended to utilize rectangular structures, and at a local level, both rectangular and circular structures appear at Late Formative Khonkho Wankane.

In addition to the five circular structures mapped and excavated by Rydén, my investigations in 2006 identified at least one other possible circular structure of similar size and construction style. Ceramics and a few groundstone artifacts were noted in extremely dense concentrations on the surface in this area of the site, suggesting this was the location of major domestic habitation. The seven structures appeared to have been arranged in a circle around a common area, with the large rectangular structure somewhat set back to the south of the circular structures. Doors, when present, tend to face towards the east, although usually not directly into the common area. This close configuration of a few structures suggests a small tight-knit community, but the further ramifications of this spatial organization will be further discussed below.

The Qocha

The *qocha* is located approximately 50 m east of the village site and 30 m north of the colonial church. It is much larger than the mini-*qochas* noted at Khonkho Wankane, measuring approximately 70 m east-west by 30 m north-south, and is deep enough to still hold water at certain times of the year.[107] According to Lémuz's (2007) terminology, this *qocha* is a *jiskaqota,*[108] the medium size category, and was likely used by an associated group of families, probably initially tended by those whose residences were close by.

[107] Interestingly, in 2008 the community was talking about re-dredging this *qocha* for continued use.
[108] Literally, "small qocha"

Unfortunately there was not sufficient time to conduct excavations within the *qocha* itself, so it is impossible at this time to ascertain the details of its original construction. We do not know how deep it initially was, nor if it was constructed with furrows along the bottom (see Flores Ochoa 1987). However, no associated canals or connected *qochitas* were noted in the area. It is also not clear when this *qocha* was originally constructed. *Qochas* in the area are most commonly associated with Early Pacajes ceramics, and the presence of some Early Pacajes ceramics at Ch'aucha de Khula Marka suggest possible limited occupation in the area before the Inca incursion. However, as noted, the major occupation of the site dates to the Inca/Colonial Periods. Whenever it was constructed, it is most likely that the *jiskaqota* at Ch'aucha de Khula Marka played an important role in the subsistence of the Inca and Early Colonial Period populations.

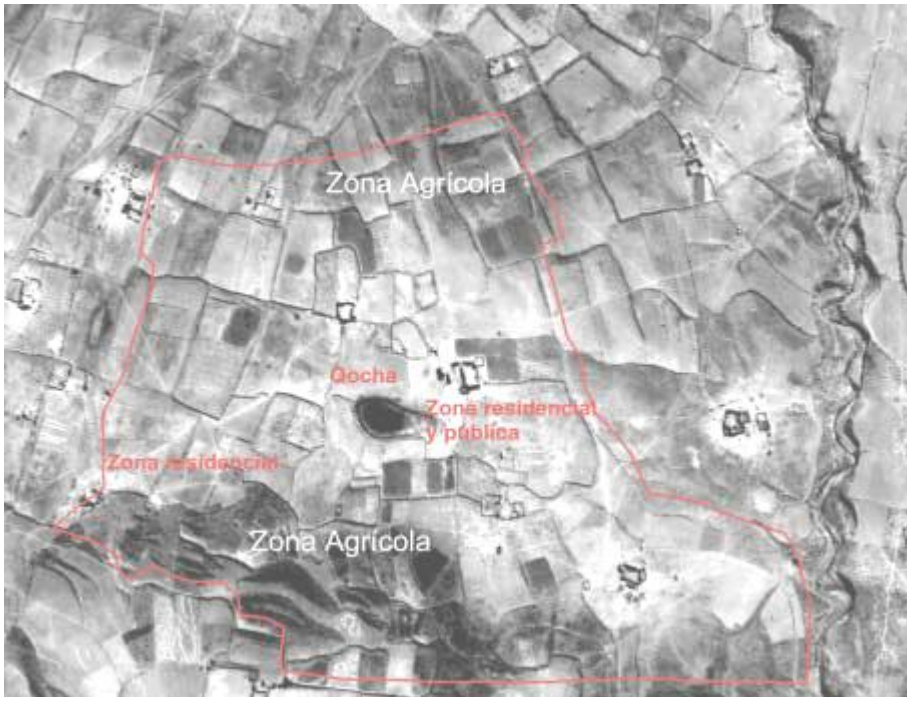

Figure 60: Arial photo of Ch'aucha de Khula Marka from Lémuz 2006:20.

The Agricultural Fields

As noted by Lémuz (2006), the populations living at the village site likely supported themselves through agricultural production in the fields surrounding the village, church, and *qocha.* The southern section of this expanse is shown on the photo (Figure 60), which gradually lowers in elevation down to approximately 3900 meters above sea level. Some possible terracing is noted in this area. The expanse of arable land to the north was likely also agricultural space supporting the village settlement during both the Inca and Colonial occupations.

Excavated Village Settlement

The majority of the excavation conducted in August 2006 focused on the village site previously excavated by Rydén (1947). A total of eight 2 m-X-2 m units were excavated in artificial 10-cm layers down to sterile soil. Excavations were conducted in and around the circular structures in order to identify possible outdoor patio work areas and in the area encircled by the structures, in order to see how that communal space was used. In addition, some of the structures previously excavated by Rydén were cleaned out in order to get a better understanding of the domestic architecture.

Domestic Structures and Storage Units

Four units (U1.2, U1.3, U1.4, and U1.7) were excavated between the circular structures already excavated by Rydén. These excavations helped to clarify outdoor work spaces between the structures as well as an additional small rectangular storage unit (between U1.2, U1.3, and U1.4) similar to that excavated by Rydén as "Rydén 7." The small rectangular structure was paved along the bottom. In addition a possible circular

stone-lined hearth feature was noted in U1.3. An additional small stone-lined feature was identified in U1.7. These small constructions were likely related to domestic storage or other quotidian activities, judging from their association with everyday domestic artifacts including utilitarian ceramics, spindle whorls, grinding stones, and metal artifacts.

Figure 61: Structure 6, previously excavated by Rydén

As would be expected, fewer artifacts were recovered from the areas within the circular structures already excavated by Rydén, but in clearing out parts of Rydén's foundations 2, 3, 4, and 6, it was possible to better able understand the construction style (Figure 61). Despite being larger on average than the structures at Pukara de Khonkho, these structures utilized foundation stones that were somewhat smaller, and slabs that

were somewhat thicker. However, like those structures, the floors within the structures were situated at a somewhat lower level than the external floors.

In addition, excavation of Units 1.6 and 1.8 identified two new possible structures. The structure in U1.8 was located in the northeast corner or the circular ring of structures, suggesting that the settlement may have once consisted of a full (or partially full) circle of structures around a common area. However, the circular structure within U1.6 was located outside the circle, like the rectangular structure Rydén 2. Neither of the structures was as clearly defined as those excavated by Rydén, and in some cases it was difficult to differentiate loose stone rubble and/or wall-fall from actual foundations. Nevertheless, both of the new possible structures produced artifacts that were similar to those produced by all of the other residential structures.

Figure 62: U1.5R1, Central hearth

Central Hearth

Unit 1.5 was opened at an arbitrary location in the middle of the circle of circular structures in order to investigate what was going on in this common area. A hearth was identified in the unit (U1.5R1) suggesting that the common area was used for communal cooking and other functions. It measured approximately 120 cm in diameter and 15 cm in depth. The hearth was associated with highly decorated Inca keros in addition to more utilitarian ceramics as well as large samples of burnt wood (Figure 62).

Figure 63: U1.1R1, Trash pit in the village at Ch'aucha de Khula Marka

Trash Pit

The other major feature found at the site was a large midden pit in U1.1R1, just to the north of the possible wall of the rectangular structure (Rydén 2). The pit was approximately 40 cm deep and 120 cm in diameter, and included a high quantity of faunal bone (primarily llama) as well as utilitarian and decorated ceramics, and a bronze *tupu.* The high quantity of garbage suggests that this might have been a communal midden utilized on a regular basis for some time. Although it was situated along the wall of the rectangular structure, it is not clear whether or not it was associated with that house (Figure 63).

Excavated Church and Mortuary Contexts

Excavations were also conducted within and around the colonial church in order to try to articulate differences in the types of organization of these two different parts of the site. A single 2 m-X-2 m unit was opened within the church at the western end, near the nave and along the northern wall (U 2.1). In addition a 2 m-X-1 m unit (U 2.2) was opened adjacent to the church's entrance and a second 2 m-X-1 m unit (U 2.3) was opened in a possible courtyard area to the south of the church (Figure 64). None of the units was very productive in terms of ceramics or artifacts, and what was found was primarily transitional Inca-Pacajes – Late Pacajes forms, suggesting a fairly early date to the church construction. In addition, an extended Colonial period burial was found just below the church floor (Figure 65).

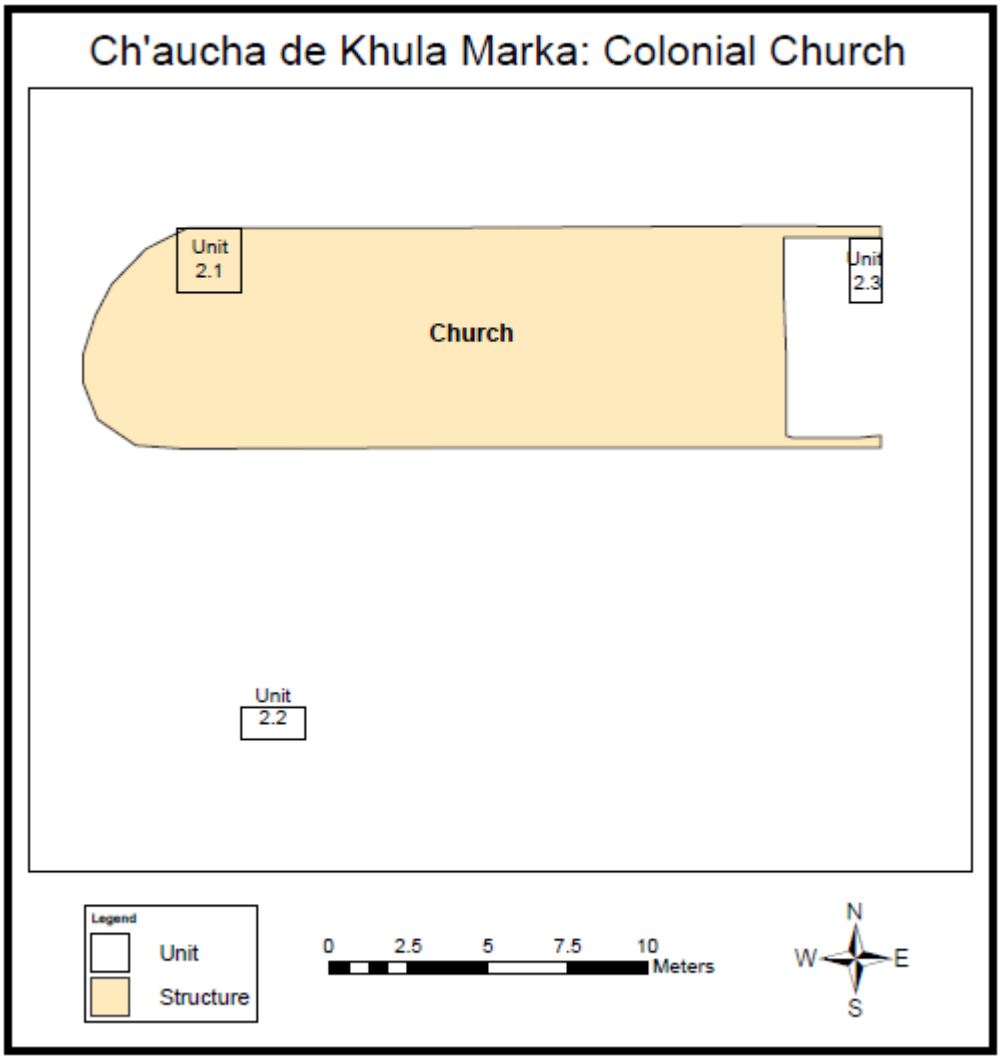

Figure 64: Excavation units around the Colonial church at Ch'aucha de Khula Marka

Church Construction

The church was constructed of adobe walls over stone foundations, of at least a meter in depth. The church floor consisted of hard-packed clay, and a raised clay platform was present at the front of the church building (in the curvilinear nave on the western side).[109] The entrance, located to the east, was framed by a walled entryway, which was also built of adobe above stone foundations. Although no stairs were noted in

[109] The platform cut through U2.1

the excavation of the entryway (U2.2), the floor of the church was higher than the exterior use surface.

Figure 65: Burial under the church floor. Also note the foundation stones of the church in the unit wall.

Burial

The unit excavated within the church itself (U2.1) uncovered a burial cut through the hard clay floor of the church, including part of the raised clay platform by the nave. The individual lay extended, on his back with arms over his chest. The head was to the east and the feet pointed to the west. The individual was analyzed by Danielle Kurin (Vanderbilt University), and identified as an adult male, likely of European descent. There were no burial goods of any sort within the burial, although a few lone ceramics (transitional Inca-Pacajes to Late Pacajes) were found in the burial matrix.

It was very common for individuals to be buried under the church floor in the early years of Spanish conquest, and Europeans would be expected to be buried in positions of honor, near the front of the church. Although no additional units were excavated within the church, it is extremely likely that there are other burials. In fact within U2.1, human foot phalanges were found in the southeast corner of the unit, and likely articulate with a full body southeast of the one that was excavated.

Church Surroundings

The two units excavated outside of the church (U2.2 and U2.3) did not uncover much in the way of artifacts, and it is as yet unclear whether the church would have sat alongside a community plaza, although that would have been the expected pattern for Early Colonial settlements. The artifacts, although sparse, appear to date to the Inca – Early Colonial transition, once again suggesting an early construction date for the colonial church.

Artifact Assemblage

The majority of the artifacts from Ch'aucha de Khula Marka, like those from Pukara de Khonkho and late prehispanic Khonkho Wankane, suggest regular domestic habitation, although there is a somewhat higher proportion of decorated serving ware at Ch'aucha de Khula Marka. I here present a brief summary of the cultural material collected from the site including ceramic, faunal, lithic, and metal artifacts.

Ceramics

A total of 59.2 kg of ceramic material was collected from Proyecto Jach'a Machaca's 2006 excavations of Ch'aucha de Khula Marka, of which a sample was

analyzed for this dissertation. The sample consisted of approximately 11 kg of ceramic material (n=1401) from 24 distinct archaeological contexts, including all of the 11 contexts excavated from in and around the church and 13 of the 44 contexts excavated from the Inca village area. The results of this analysis are discussed in more detail in the following chapter, so I here only provide a brief assessment of the ceramic material.

Ceramic material was dense on the surface across the site of Ch'aucha de Khula Marka, but was noted in highest concentration in the area around the excavated Inca village site. This area also produced a much higher ratio of ceramics in the excavations as compared to the excavated units around the colonial church, as would be expected when comparing living space with sacred space.

The majority of the ceramics, especially those from the Inca village site, were very typical Inca-Pacajes forms, characterized by deep red pastes, and highly burnished surface treatments. Decorative motifs include both geometric and animal figures, of which the most common by far is the thin Inca-Pacajes "*llamita*." Other figures include birds and probably stylized plants, while cross hatching and other geometric designs often appear on the interior lip. In addition, modeled decoration, usually in the form of a bird head or a simple "nub" was often added to the lip of these vessels. A few Inca Imperial polychromes were also noted, especially in the communal areas (the hearth in the center of the Inca village and the midden along the wall of structure Rydén 2).

The presence of a few Late Pacajes ceramics as well as a few samples with glaze, indicating post-colonial manufacture, confirms that the site was occupied into the Early Colonial period. Interestingly, the sherds that come from the area around the colonial

church appear somewhat different from both the typical Inca-Pacajes and the typical Late Pacajes forms, and likely represent transitional forms between the two periods.

Overall, approximately 28% (n=396) of the analyzed ceramics were cooking ollas, 42% (n=593) were jars or aryballi, and 18% (n=257) were bowls or other decorated serving ware. This demonstrates a much higher percentage of decorated serving vessels than either Pukara de Khonkho or late prehispanic Khonkho Wankane, and may reflect the increased importance of feasting and/or ritual food sharing among the Inca, which did not exist in the Late Intermediate Period.

Fauna

A full analysis of faunal material was not completed for the collection excavated from Ch'aucha de Khula Marka. Nevertheless, the brief inventory presented here does add to our understanding of site occupation. Well over 6.5 kg of faunal material was collected from the site, most of which was unworked camelid bone.

The density of faunal material was far greater in the Inca village site (by a ratio of more than 2:1) than in the units excavated in the area surrounding the church, a disparity that might be expected based on different patterns of use in the two areas of the site. Bone was especially dense within the central hearth (where much of it was burnt) and the midden near structure Rydén 2.

Worked bone was noted in only a few contexts, within the large midden (U1.1R1) and on an outside work area near one of the newly uncovered possible structures in U1.6. The tools present were all sharpened camelid longbones, likely used as weaving tools. Camelid bone also made up the majority of the non-worked bone at the settlement,

although there were some fragments of bone from European animals like pigs, pointing to post-colonization habitation.

Lithics

The vast majority of the lithics found at the site were groundstone materials associated with the Inca village settlement. Additional stone artifacts included a few lithic flakes (but no flaked tools) and a stone bead. No complete analysis was conducted of the lithic artifacts; I here just present a brief inventory and assessment.

Within the Inca village settlement, groundstone artifacts were found scattered across the site, especially within the "patio" work spaces between the circular structures. Collected artifacts included five batanes, three manos, ten other groundstone artifacts, and a hammerstone. Groundstone was found even within the units excavated by Rydén suggesting that there was some disturbance of the site since Rydén's excavations. The only stone artifact found in or around the church was a small blue cylindrical bead in the floor level of the church, above the burial cut (U2.1N3).

Metal

Metal artifacts were also found at Ch'aucha de Khula Marka, mostly made of bronze or another copper alloy. They were found almost exclusively in the Inca village area, usually associated with the patio workspace between the circular structures, and were almost all quotidian in nature. Metal artifacts included simple bronze/copper tupus (n=3), flattened pieces of copper (n=2), and a long bronze needle. Two of the tupus were long and slender, and one took the shape of a "T" or a turnkey. The only metal found associated with the colonial church was an ugly, unidentified chunk of iron in the layer of

adobe wallfall (U2.1N2), which might have been somehow related to construction (Figure 66).

Figure 66: Example of metal artifacts found at Ch'aucha de Khula Marka

Ch’aucha de Khula Marka: Summary and Discussion

From spatial layout alone, it can be seen that Ch’aucha de Khula Marka was inhabited by a much different kind of community than either Pukara de Khonkho or the Late Intermediate Period occupation of Khonkho Wankane. The village site at Ch’aucha de Khula Marka suggests a small-scale close-knit group of individuals, living in close proximity and sharing a communal work area. The majority of the ceramics are utilitarian jars, aryballi, and cooking ollas, but decorated bowls are also well represented, and even highly decorated Inca style keros are present. Nevertheless, the style of

domestic structure does not suggest that the inhabitants of this site were especially high status. Almost all of the ceramics coming from this sector of the site were Inca-Pacajes or Imperial Inca phase, with only a few samples in the Late Pacajes style, appearing to date to the Early Colonial period. Overall, the excavations support an interpretation of this portion of the site as being inhabited by a small group of individuals who strongly affiliated with the Inca. The presence of some Late Pacajes ceramics and other items suggests that the village site continued to be inhabited after the Spanish conquest and the construction of the Colonial church.

The presence of the rectangular structure just outside of the circle of circular structures is interesting. Following Mercado de Peñalosa, this building may represent the home of the local *cacique.* However, as this is also the structure where Rydén recorded ceramics of European manufacture, it is also possible that it may date to later than the circular structures and could even represent Spanish incursion and/or control over the population of the village.

In most regards the construction of the colonial church at Ch'aucha de Khula Marka appears to be typical of the Early Colonial Period. It is a small church built in close association with what appears to be an already existing Inca settlement. The church takes a typical form and includes burials underneath the church floor. What is perhaps most unique about this church is that it appears to date to very early in the Colonial Period, and as a result, the site of Ch'aucha de Khula Marka has the potential to provide information about the effects of two conquests in one region over a relatively short period of time. While Rydén dates the entire occupation to just after the Spanish conquest I

think it is more likely that the site was settled under the Inca and that the Spanish built the church in that locale because there was already a settlement there.

Overall, the artifacts collected from the Ch'aucha de Khula Marka were domestic in nature, and appear to have been associated with regular subsistence activities. Nevertheless, it is interesting that there are a higher proportion of serving ceramics at this site than at LIP Khonkho Wankane or Pukara de Khonkho, and it may be possible that their presence suggests a growth in the importance of feasting or communal eating in the Inca period, after a lapse of such practices in the Late Intermediate Period (Bray 2003; Goldstein 2003). Strong differences in ceramic style also illustrate that the inhabitants of Ch'aucha de Khula Marka affiliated with the Inca rather than earlier local inhabitants.

The spatial organization of the artifacts also confirms that the Inca village area of the site was a space of relatively intensive domestic habitation, while the area around the church did not see that sort of use. It was generally much cleaner of all artifact types, even within the burial that lay under the church floor. The close proximity of the Inca village and the colonial church allows us to interrogate the Inca/Colonial relationship, as well as the relationship that both conquerors had with the local inhabitants of the Pacajes region.

Ch'aucha de Khula Marka is not especially unique, as there are a number of other small Inca sites in the region, including Palli Marca, Iktonomi, and Kala Sayani, all near the town of Sulka Titi, just west of Qhunqhu Liquiliqui (Rydén 1947). Additional Inca sites were recorded during the survey conducted under Proyecto Jach'a Machaca (Lémuz 2006), and the site of Iruhito, on the Desaguadero River, also has a large Inca component. Most of these sites appear similar in nature, with related artifacts and comparable size

and organization. However, Ch'aucha de Khula Marka is the only Inca site with an associated colonial church and the only one that has received sustained recent archaeological attention. While the interpretation presented here is based specifically on data from Ch'aucha de Khula Marka, future research should consider its implications for regional organization during the Inca Period.

Although radiocarbon dates suggest that Pukara de Khonkho was inhabited right up to the moment of Inca conquest, the site of Ch'aucha de Khula Marka is dramatically different in terms of both material culture and spatial organization. In addition, the significant difference in size between the two sites prohibits any interpretation which might suggest that the inhabitants of Pukara de Khonkho merely moved down the mountain to resettle on the valley floor at the time of Inca conquest. Indeed, comparative archaeological and ethnohistorical evidence generally support much more radical shifts in settlement patterns at the time of Inca conquest. Writing specifically about Khonkho, the historian and ethnographer Rigoberto Paredes (1955) described how the Inca forcefully conquered a fortified settlement and forced the inhabitants to settle elsewhere, while they also brought in trusted *mitimae* settlers to live in the local area and keep the peace.[110] Although Paredes does not cite his sources, it is likely that he is drawing on a combination of oral histories and ethnohistoric documents, including the Spanish colonial corregidor Pedro Mercado de Peñalosa (1965[1583]), who describes the Inca conquest of the Pacajes region by Inca Topa Yupanqui. According to Mercado de Peñalosa, the Inca

[110] "… se fortificaron en el lugar para resistir a las huestes conquistadores del Inca, contra las que lucharon tenazmente hasta ser vencidos después de rudos combates. Producida la victoria; el Inca mandó destruir el pueblo y a los sobrevivientes los hizo trasladar a otro sitio en el que fundó un nuevo pueblo con el nombre de Machakka, nuevo, que es el que actualmente existe. Desconfiando los Incas de la fidelidad de sus belicosos moradores trasladaron de otros pueblos familias de confianza en calidad de mitmacunas para que convivieran con los naturales" (Paredes 1955:154-155).

forced the Aymara from their hilltop pukaras and resettled them closer to the lake. He specifically mentions the Inca site of Guaqui,[111] near Tiwanaku on Lake Titicaca, as a major Inca settlement and a focus of resettlement.[112]

If the inhabitants of Ch'aucha de Khula Marka were not the same as those who lived at Pukara de Khonkho, as the evidence to suggest, it is most likely that Rydén's (1947) interpretation of the site as a *mitimae* settlement is accurate. The use of Inca-Pacajes and Inca Imperial ceramics suggest that the inhabitants of the site identified strongly with the Inca empire, although it is not clear where their original homeland may have been. However, I suggest that the use of primarily circular structures, following an Aymara pattern common around the Titicaca basin, may suggest that they may have been "Colla" who collaborated with the Inca conquerors.

As suggested by the oral histories at Qhunqhu Liquiliqui, the presence of an apparently very early colonial church may suggest that Ch'aucha de Khula Marka was initially recognized as an important regional center in the colonial period, before focus shifted to Jesús de Machaca. Astvaldsson (2000), drawing on ethnohistoric sources alone, makes a convincing argument that the initial "center" of the Jesús de Machaca region was near the Khonkho/Sullka Titi border until a few decades after Spanish conquest, an interpretation which seems in line with the archaeological data presented in this dissertation. Although the Inca settlement itself at Ch'aucha de Khula Marka does not seem significantly different than any of the other small Inca sites in the region, its

[111] There seems to be a disagreement here as to whether or not Jesús de Machaca was founded as an Inca town or if it only became important in the Early Colonial period (see also Astvaldur 2000). This is relevant here only in as much as it's not clear where the population of Pukara de Khonkho may have been relocated *to.*

[112] See also Albarracin-Jordan and Matthews 1990:163; Matthews 1992: 192, etc. for a discussion of the Inca occupation of this site.

selection as the location for a very early colonial church suggests that the local area was still considered important at the time of conquest.

Ch'aucha de Khula Marka would have been the locus for a kind of community quite different from that represented by either Pukara de Khonkho or LIP Khonkho Wankane. The spatial organization of the excavated structures alone suggests a close-knit group with a shared open space, who would have collaborated on issues of everyday subsistence, and whose practices reflected a shared local habitus. While the sheer quantity of surface ceramics suggests that there were initially domestic structures at different locations across the site, they likely shared similar day-to-day patterns. Nevertheless, the small settlement of Ch'aucha de Khula Marka was tied into larger Inca community through broader practices of affiliation (Yaeger 2000), including use of distinctive Inca-style ceramics, especially Imperial Inca *kerus* and polychrome bowls that were likely utilized in important commensal feasting events (Bray 2003).

Comparative Community Organization: Khonkho Wankane, Pukara de Khonkho, and Ch'aucha de Khula Marka

The three sites investigated as a part of this dissertation research are each distinct and each manifest clearly different forms of community organization. Pukara de Khonkho is a large, permanent settlement where there were apparently intentional efforts to craft community at the site and to situate its inhabitants into the local geography and history. However, the site was also the locus of everyday domestic activity, where daily interactions would have created a shared local habitus. In contrast, LIP Khonkho Wankane appeared to have been utilized as a ritual, mortuary and occasionally domestic space by groups that followed a pattern of nomadic pastoralism, returning to Khonkho

Wankane as a central place. Finally Ch'aucha de Khula Marka may well have been a *mitimae* community of outsiders intended to help pacify the local region. Consideration of all three sites can help lead to a better understanding of the way communities may reform in the centuries following political collapse.

It is commonly accepted that the large Tiwanaku period sites of the altiplano were partially or completely abandoned after the collapse of the Tiwanaku state (see Paredes 1955). However, it is important to remember that "abandonment" of a site is a variable process, which does not proceed evenly over time and more often than not represents a change in use of a particular location rather than a clear disassociation from it. Following Nelson (2000:58), "…residential movement away from a place does not represent discontinuity in the use of the place. People remain attached to places through repeated visitation… and burial of their kin, who continue to reside there after physical death."

In the Andes this attachment to specific features on the landscape and their association with the ancestors is particularly notable. Among contemporary Andean peoples, "the past is located in space… clothed in the architecture of their life-spaces and embodied in the features of the local landscape" (Abercrombie 1998:346). However, these connections are not static reflections of an essentialist and unchanging indigenous belief system; they are flexible enough to adapt to new social realities. Following the collapse of Tiwanaku, the population in the Titicaca Basin had a unique chance to reinvent itself. The Late Intermediate Period was a time when distinctively Andean forms of social, political, religious, and cosmological organization (the *ayllu* bipartite *urqosuyu/umasuyu* divisions, for example) were, if not invented, most clearly articulated (e.g. Bouysse-Cassagne 1986; Isbell 1997). While it has often been overlooked by

archaeologists more interested in the growth of Tiwanaku or Inca empire, a study of the Late Intermediate Period in the southern Titicaca basin allows a glimpse into the creative (re)formulation of local identities, through reinterpretations of the past and shared experiences in the present.

A closer investigation into post-collapse periods provides a unique opportunity to interrogate the creative responses of socially and historically constituted individuals and social groups to the loss of the sociopolitical structure that had been instrumental in constructing their identities. Even further, it allows us to look at the ways that human practice and agency constructed collapse itself. Just as Pauketat (2001) argues regarding state centralization, collapse occurs as a historical process, created, understood, and made real through the practice of individuals. It is necessary for the inhabitants of a post-collapse landscape to deal with the material manifestations of particular pre-collapse identities that occupy the same space (Barrett 1999; Hingley 1996), and they may choose to revere, ignore or deface old structures and monuments, or to build a new settlement in a new location.

Although it is difficult to date precisely,[113] it is most likely that Khonkho Wankane was utilized regularly early in the Late Intermediate Period, during the immediate aftermath of the collapse of the Tiwanaku state. Periodic occupation of the site included both quotidian and ritual/mortuary use. Pukara de Khonkho, on the other hand was not settled until the latter half of the Late Intermediate Period, as the overall socioeconomic climate of the Late Intermediate Period began to change.[114] Generations after Tiwanaku collapse, following a period in which there were no large sites in the

[113] Issues with chronology will be discussed in much greater detail in Chapter 8.
[114] Reasons for this change will be discussed in detail in Chapter 8.

Pacajes area, something began to bring a large population together at Pukara de Khonkho. The site was located in a new, defensible location, overlooking the site of Khonkho Wankane and along a trail connecting the Desaguadero and the Tiwanaku valleys. At this site there appeared to be a clear focus on the creation of a sense of community, based on spatial organization, mortuary patterns, and shared material characteristics. The settlement was carefully situated in the landscape, and the long constructed terraces tied all three faces of the site together. The two rock outcrops which framed the main face also marked the location of burials, providing local roots for the community in this place. In addition, the density of the circular structures suggests that the inhabitants would have been in regular contact with the other inhabitants of the site, reinforcing their identification as community through everyday interaction.

Evidence suggests that the Pukara de Khonkho was forcibly abandoned at the time of the Inca conquest, although it is still not clear where the inhabitants of the site may have been sent. In their place, the Inca settled an apparent *mitimae* community at the site of Ch'aucha de Khula Marka, just below the hill where Pukara de Khonkho was situated. This much smaller site was distinct from earlier Late Intermediate Period occupations in both material cultural and spatial organization, and it appears that the inhabitants identified with the much larger Inca community through practices of affiliation that included the use of ceremonial Inca ceramics. As a common and expressive form of material culture, ceramics are an important avenue for investigation when considering community formation processes, and they are the focus of the next chapter.

CHAPTER VII

PACAJES CERAMICS AND COMMUNITY IDENTITY

Ceramics are an ideal focus for studies of community identity because they are common artifacts, not confined to elite spaces, and they are essentially non-perishable. In addition, pottery-making is a flexible craft that allows for expression in every step of production, giving the final ceramic product great potential to convey meaning (Rice 1987; Rye 1981; Shepard 1961; Sinopoli 1991). The relationship between style and identity is complex, and it is important not to simplify stylistic meaning by assuming a direct correlation between ceramic style and a cultural group. However, studies of material culture show that all objects carry some sort of symbolic meaning, and there is usually some sort of correlation between material culture and social groups at a variety of scales (e.g. DeBoer 1990; Dietler and Herbich 1998; Hegmon 1992; Sackett 1990; Schortman 1989; Shennan 1989; Smith 2007; Stark 1998; Stark et al 2000; Wiessner 1990; Wobst 1977). When addressing community identities, style can be understood as a medium through which identity is negotiated, both as a statement of within-group solidarity and as a marker of boundaries between groups (e.g. Barth 1969). While decorated finewares may provide the most obvious examples, even utilitarian or non-display goods can be important signals of membership in one or more groups and can help to shape identity (Smith 1999, 2007; see also Roddick 2009). Such markers may be especially important during periods of political change and social instability (Smith 1999:109-110).

Ceramics are the major analytical focus of this dissertation, and this chapter is dedicated to presenting the results of my ceramic analysis. I begin with an examination of previous Early Pacajes typologies, considering how and where they were defined and how they differ from ceramics associated with the Lupaqa and other neighboring regions during the same time period. This examination provides a backdrop for my own typology of ceramics collected from the site of Pukara de Khonkho, which is both similar to and different from the already established Early Pacajes typology in important ways. After describing the results of my attribute analysis and establishing the Pukara de Khonkho typology, I then evaluate it against two comparative samples, which I also personally analyzed as a part of this research. The first sample consists of ceramics from selected Late Intermediate Period contexts at Khonkho Wankane, and the comparison seeks to evaluate how ceramics from Pukara de Khonkho may differ from those from a more typical Early Pacajes settlement in terms of form, paste, surface treatment, decoration and/or use ware and what that may suggest about differences in community organization and identity formation as well as change over time within the Late Intermediate Period. The second sample consists of selected Inca-Pacajes and Late Pacajes ceramics from Ch'aucha de Khula Marka, and serves as an example of the radical changes in regional settlement and community identity following the invasion of the Inca and the abandonment of Pukara de Khonkho.

In addition to a ceramic attribute analysis, I also conducted laser ablation inductively coupled plasma mass spectrometry (LA-ICP-MS) analysis on ceramic samples from Pukara de Khonkho, Khonkho Wankane and Ch'aucha de Khula Marka. The results of this research establish chemical characterizations of paste from the 100

tested samples (60 from Pukara de Khonkho, 20 from Khonkho Wankane, and 20 from Ch'aucha de Khula Marka) in an effort to identify different chemical characterization groups that may suggest different patterns of ceramic procurement, production, and/or trade. Patterns of characterization are analyzed to test for differences between different forms and for differences between ceramics from different sites or parts of a site. While the sample is small, results suggest that the majority of ceramics from each of the three sites share similar chemical characterization patterns, implying that ceramic production was primarily local in all cases, with a few possible exceptions.

The chapter ends with a discussion of the significance of the ceramic data and leads into the discussion in Chapter 8, which considers the results of this research in light of the broader survey and excavation data already presented in Chapters 5 and 6. Basing my interpretation in theoretical models of interactionalist community formation, I suggest that the ceramic data points to a sort of a florescence in local identity at the end of the Pacajes Late Intermediate Period. While there do not appear to have been any large population centers in the Pacajes region during the centuries immediately following the collapse of the Tiwanaku state, this does not mean the population was stagnant. As discussed above, small groups, likely following a subsistence pattern of migrating pastoralism, moved across the landscape, never settling permanently, but returning to important places like Khonkho Wankane to bury their dead and perhaps conduct other rituals. For some reason, towards the end of the Late Intermediate Period, larger groups began to come together at sites like Pukara de Khonkho,[115] forming new settlements and larger, local communities. In this context, the Pukara de Khonkho also became a community of practice (Lave and Wenger 1991; Wenger 1998; see also Roddick 2009),

[115] And probably Caquiaviri as well

where everyday interactions between people who had previously acquired a number of different experiences (and production practices) led to innovation and growth in the types of ceramics being used at the site.

As a result, some of the differences enumerated below between ceramics from Pukara de Khonkho and Late Intermediate Period ceramics from Khonkho Wankane and other published reports may represent chronological changes, and it is possible that some of these attributes could be used more broadly to identify two phases within the Early Pacajes ceramics. If so, and if this pattern extends beyond the site of Pukara de Khonkho and throughout the region, it would be an important step forward in identifying and understanding Late Intermediate Period populations in the Pacajes region, since at the moment there is no way to differentiate (without carbon dating) between the entire 300 – 400 year Early Pacajes phase. Recorded differences between Early Pacajes and Inca-Pacajes/Late Pacajes ceramics at Ch'aucha de Khula Marka also help to identify and describe abrupt changes in population and community formation that appeared to accompany the Inca conquest.

Early Pacajes Ceramic Descriptions and Typologies

Large scale ceramic analyses in the Pacajes region (and in the Andes more generally) are most often aimed at articulating a ceramic chronology that can be used to quickly identify different cultural groups over time in the same local or regional area (e.g. Albarracin-Jordan and Matthews 1990; Bandy 2001; Janusek 2003a; Menzel et al. 1964; Rowe 1956; Steadman 1995). The scale of these chronologies is necessarily that of the

longue durée of human history (Braudel 1980), or what Janusek (2003:32) terms "macroevents, the residues of innumerable day-to-day events and human intentions. The focus here is on the long cycles and deep principles of human action…" Such chronologies are useful in establishing broad patterns of local/regional history and for the identification of key attributes that can be used to quickly categorize sites to a specific period during survey. However, they do not necessarily always clearly articulate the full ceramic assemblage of any local or regional period or phase.

The research questions addressed in this dissertation necessarily require a more detailed focus on the ceramic assemblage characteristic of the Early Pacajes phase in the southern Titicaca Basin in order to assess smaller scale differentiations over time and space. I here provide a brief synthesis of previous descriptions of the ceramics from the Late Intermediate Period in the Pacajes area of the southern Titicaca basin, beginning with the influential work of Rydén, and continuing through to the work done in conjunction with the large-scale regional surveys of the 1990's and 2000's. The established Early Pacajes forms are then compared to coeval forms from around the Titicaca basin in an effort to identify and further delineate correlates which may help to materially define (and identify subdivisions within) the ethnohistoric Aymara *señorios*. This establishes a backdrop against which to evaluate the results of my own analysis at a variety of scales.

Ceramic typologies are in some ways very idiosyncratic, depending on the data set being consulted, the research questions of the investigators, and the methodology utilized to answer them. As a result, it can be very difficult to synthesize ceramic data from a number of different projects, especially over a long period of time. Nevertheless,

the diversity of methods that have been followed prior to this point help to underscore a broad consensus as to the definition, character, and spatial boundaries of Early Pacajes ceramics, while at the same time pointing out some clear gaps in our knowledge, as the review below illustrates.

Early Post-Tiwanaku Ceramic Descriptions

Wendell Bennett (1934, 1936, 1950) was the first archaeologist to conduct systematic excavations at the site of Tiwanaku and the first to establish a ceramic chronology, which still provides the basis for much of our work today. Bennett (1934) excavated ten units at Tiwanaku in artificial 50 cm layers. His initial report, which focused almost exclusively on the ceramics, produced a detailed typology of the ceramics excavated at the site organized by decoration style/design and by vessel form. Based on this, Bennett (1934) articulated the first chronology for the southern Titicaca basin, divided into four parts: 1) Early Tiahuanaco, 2) Classic Tiahuanaco, 3) Decadent Tiahuanaco, 4) Post Tiahuanaco and Inca. This chronology was strongly influenced by Bennett's theories of social evolution, and, as may be obvious, centered his entire description around the "life-cycle" of Tiwanaku (see Janusek 2003a:32).

Of course, what interests us most in this dissertation is the identification and description of "Post-Tiwanaku and Inca" ceramics. Bennett (1934:458-459) found both Inca and what he termed "Chullpa" ceramics scattered on the surface and in the first 50 cm layer of excavation, which also contained large numbers of what he termed "Decadent Tiahuanaco" ceramics. While he noted that the Inca ceramics were clearly distinct from local wares, following a "typical Cuzco pattern" (Bennett 1934:458), he was far less

comfortable with both the identification and the label of the so-called 'Chullpa' ware, noting significant stylistic overlap among ceramics that had been identified as Chullpa. In fact, he complained, "'Chullpa' has been applied to almost all plain wares of the Highland, and thus it has lost any specific meaning" (Bennett 1934:458-459). Furthermore, the particular wares he is referring to are described only as "coarse pottery" with both Tiwanaku and Inca decorative influences. Unfortunately, perhaps because of his interest in "Classical and Decadent Tiahuanaco" forms, he does not get much more specific about post-Tiwanaku wares. Thus, at least in terms of post-Tiwanaku forms, Bennett's initial ceramic typology does little more than identify the presence of post-Tiwanaku ceramics without clearly articulating their definition.

Stig Rydén (1947) is somewhat more thorough in his description of what he termed (following Bennett) "Post-Decadent Tiwanaku," a description which is based primarily on his research around Khonkho Wankane and Pukara de Khonkho.[116] Rydén came to Bolivia with an interest in studying the so-called "Chullpa" culture, associated with the *chullpas* or above-ground graves, which primarily date to the Late Intermediate Period. However, he soon found that the *chullpas* themselves had been so looted they did not produce the artifacts necessary for his museum collection or to accurately create a ceramic typology, and so also initiated excavations at Tiwanaku, Khonkho Wankane, Pukara de Khonkho, Chaucha de Khula Marka, and a few other small sites in the southern basin. Nevertheless, as a result of his interest in what we now term the Late Intermediate Period, Rydén was less likely to be as Tiwanaku-centric as many of his

[116] He does not seem to reference any Post-Decadent Tiwanaku pottery from Tiwanaku itself, although he does mention an Inca aryballus (Rydén 1947:76). He also discusses "Chullpa-like pottery," but, reflecting Bennett's concern about the term "Chullpa" notes that there is no evidence that this pottery is actually related to Chullpas themselves, and, in fact, interprets the "Chullpa-like pottery" from Tiwanaku as plainware utilized during the Tiwanaku era (Rydén 1947:76).

contemporaries.[117] Furthermore, unlike Bennett (and the majority of his contemporaries) Rydén included undecorated, utilitarian ceramics in his analysis. For all periods, he differentiated between three main types of ceramic vessels: cooking vessels, water/fermentation jars, and "artistic pottery" (Rydén 1947:65). Nevertheless, the only ceramics recognized by Rydén as clearly diagnostic of "Post-Decadent Tiwanaku" period were the decorated bowls.[118]

These bowls are described from Rydén's excavations at Khonkho Wankane and Pukara de Khonkho. At Khonkho Wankane, Rydén (1947:100-101) noted that such bowls were easily distinguished from Tiwanaku bowls due to their shape and from Inca bowls due to their decoration. The shape of the bowls was described as "semi-spherical and with no definite angle between side and bottom on the inner side. On the outer side… on the Post-Decadent Tiahuanacu bowls there is often a torus at the bottom where the two meet…."[119] The edge of the rim is rounded, pointed, or on the Post-Decadent Tiahuanacu bowls faintly profiled…"[120] (Rydén 1947:100). Rydén describes the paste as brown, occasionally with a "grey heart,"[121] and generally either treated with slip coating or wet polish. While the shape and surface treatment is essentially similar to Inca bowls as defined by Rydén,[122] the decorations, elaborated in black paint, are clearly distinct

[117] Tiwanaku-centrism is still a problem in investigations of the southern Titicaca Basin today.
[118] "No considerable difference between the cooking vessels of the Tiahuanacu period and those which were used contemporaneously with the Post-Decadent pottery seems to have existed, according to the evidence of the relics recovered in the exploration of the house foundations at Pucára de Khonkho…, where the Post-Decadent ceramic was found isolated and fragments of bowls in association with fragments of cooking vessels and water and fermentation containers, and where, notwithstanding the paucity of the recovered material, it is possible to obtain a tolerably clear impression of these later types. Water and fermentation vessels, on the other hand, present some differences" (Rydén 1947:159-160).
[119] This is what Bandy (2001) later calls a "disk base."
[120] By "faintly profiled" he appears to mean everted, judging from illustrations.
[121] Suggesting some sherds were partially reduced.
[122] The only differences he notes in shape between Inca and Post-Decadent Tiahuancu bowls are the occasional torus, and the fact that rim shapes in Inca vessels are thicker and often flat on top (Rydén 1947:101).

from the Inca samples, although Rydén noted that they demonstrated continuity between the Tiwanaku, Post-Tiwanaku, and Inca Periods, leading to a certain ambiguity in dating.[123]

Although the bowls are found on the surface at Khonkho Wankane, mixed in with so-called "Decadent Tiahuanaco" and Inca forms, Rydén was able to date the unique "Post-Decadent Tiahuanaco" bowls to the period between the collapse of the Tiwanaku state and the invasion of the Inca empire based on the fact that they occurred alone at the post-Tiwanaku site of Pukara de Khonkho, where he also conducted excavations. Since Pukara de Khonkho is a single-component site, he was also able to partially define utilitarian ware from this site, although the small sample size[124] somewhat limited his results.

The presence of what he had previously termed "Post-Decadent Tiwanaku" bowls at Pukara de Khonkho confirmed his interpretation of the site as dating to the post-Tiwanaku period. These bowls were decorated primarily with a 3-dotted line, a "llamita," or other geometric designs (Rydén 1947:325-326). Another major vessel form identified was an "aryballus-like" water jar, with a flat, small bottom, two side handles, and a slip-coated surface, with some mica in the paste.[125] Cooking vessels were wide-rimmed thin vessels, with heavy mica admixture and two handles extending from the rim.

[123] Rydén (1947:161-162) argues: "In the foregoing it has been pointed out that the pottery group dealt with here possesses certain stylistic features in common with both the Tiahuanacu pottery and the Inca pottery excavated at the above-mentioned villages. It may well be supposed that this particular group of pottery represents that which was used by the original inhabitants of this region, that is to say the Colla Indians, during a period of time beginning at the end of the Decadent Tiahuanacu period and ending with the Spanish Conquest. It is also possible that the pottery finds that are dealt with here only represent part of that period. It is also possible that they represent the Colla Indian pottery during the Spanish colonial era."

[124] Rydén only excavated the interior of two structures at Pukara de Khonkho, collecting a total of 574 fragments of ceramic material (593 including surface collections), so his assessments are preliminary at best (Rydén 1947:285-297). I also personally reanalyzed these ceramics, and they are included in the much larger sample I utilize to develop my own typology.

[125] The samples collected by Rydén from House Foundation 1 also had mending holes.

A final category of vessel was a small painted carinated jar with handles extending to the rim. In addition to these four categories, Rydén noted a number of other possible jar forms, but did not have sufficient material to fully identify them. Nevertheless, his description of both decorated and utilitarian "Post-Decadent Tiwanaku" vessels provides a good initial starting point for an understanding of Late Intermediate Period ceramic forms in the southern Titicaca basin, which my analysis attempts to complete.

Following Rydén's influential research, few investigators have focused specifically on the post-Tiwanaku periods in the southern Titicaca basin. In his later summary of the chronology for the region, Bennett (1950) refers to the post-Tiwanaku pre-Inca style in the southern basin as "Khonkho," based primarily on Rydén's work at Khonkho Wankane and Pukara de Khonkho.[126] Although this denomination never really caught on, his description of the "Khonkho Black-on-Red" style provides the basis for what we now consider "Early Pacajes." According to Bennett (1950:94): "The Khonkho Black-on-Red style is represented by shallow, open bowls, one-handled pitchers, two-handled small ollas, and tall collar jars with two side handles. The designs are crudely executed rows of dashes, cross hatches, triangles, and other such simple elements."

In this article, Bennett attempts to assess how the cultural sequence for the southern Titicaca Basin fits into that of the entire basin. In terms of the "Khonkho" style, he notes a close affiliation with Tschopik's (1946) Collao Black-on-Red[127] and also with ceramics identified during his own survey of the "Achacache sub-area" to the east of Lake Titicaca, where he identified numerous fortified villages and associated chullpas (Bennett 1933). He concludes: "If the Collao Black-on-Red and the Khonkho Black-on-

[126] Bennett also notes that this style was found by Rydén at Sollkatiti and Taquiri, and that Bennett himself (1936) had found Khonkho sherds at the sites of Chiripa and Pajchiri.
[127] Late Intermediate Period ceramic forms from other parts of the basin are further discussed below.

Red are considered to be manifestations of the same culture, a wide distribution in the Titicaca Basin is implied, but still with the greatest concentration on the eastern side of the lake" (Bennett 1950:95).

The recognition of rough similarities between Late Intermediate Period ceramics around the lake initially led to a certain amount of confusion as to how to label ceramics from this time period and where regional divisions should be recognized, an issue which has still not been fully resolved. In some cases, certain regionally specific forms have been used to stand in for the overall basin,[128] and in many instances it is not entirely clear how ceramic forms may or may not have correlated with regional identities and interactions.

A good example of this is Bolivian archaeologist Carlos Ponce Sangines' treatment of the post-Tiwanaku period. Ponce (1980, 1981) sought to develop a nationalist archaeology, based in part on an interpretation of Tiwanaku as an expansive, essentially Bolivian, empire. However, because of his emphasis on Tiwanaku itself, in his general discussion of Bolivian archaeology, he tacks from a discussion of the evolution of Tiwanaku culture from village to city to empire directly to a description of the so-called Mollo culture, represented by a post-Tiwanaku ceramic style found east of Lake Titicaca, especially around the site of Iskanwaya (Ponce 1980:41-49). While Mollo ceramics are generally described,[129] no other post-Tiwanaku sites, ceramics, or societies

[128] This is especially true in Bolivia, where investigations followed a somewhat distinct track from excavations in neighboring Peru, as discussed below. (Compare, for example, Lumbreras 1974a and 1974b with Kidder 1943 and Tschopik 1946. See also Stanish 2003:227-229.)

[129] "La cerámica no alcanzó el perfeccionamiento de Tiwanaku y en comparación aparece como más tosca. La artística se caracteriza por el engobe rojo, que actúa de fondo, con decoración trazada en negro con reborde blanco, predominando los motivos geométricos, aunque el trazo poco esmerado. Da la idea de la elaboración en gran cantidad, con la idea de amplio consumo. La utilitaria, todavía más modesta, destinada a proveer cacharros de cocina, en especial ollas para la cocción de alimentos, jarras para el transporte de agua y para escanciar chicha. Son muy comunes los vasos para tal bebida y los platos de seguro para las

are mentioned, giving the impression that the Mollo culture was a distinct entity that followed Tiwanaku collapse, rather than one among a more complex system of Late Intermediate Period Titicaca basin polities.

Others, Ibarra Grasso for example, recognize that there were distinct ceramic and cultural groups in the Titicaca basin during the post-Tiwanaku period, and specifically discuss both "Colla" and "Mollo" cultures and ceramics (Ibarra Grasso and Querejazu 1986). For Ibarra Grasso "Colla" ceramics were a general term associated with the Aymara señorios of the Titicaca Basin during the Late Intermediate Period,[130] and he recognized differences within this categorization, although he did not fully define them due to lack of data. In general, he described "Colla" ceramics as somewhat simple and poorly made[131] (Ibarra Grasso and Querejazu 1986:264), recognizing the same basic forms initially identified by Bennett (1950) and Rydén (1947): plates/bowls,[132] medium-sized jars,[133] large water vessels (aryballus),[134] and ollas.[135] Like earlier researchers, he also describes simple black geometric designs on the interior face of the bowls.[136]

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sopas de maíz molido. Una vasija asimétrica con asa quizá se utilizaba para tostar maíz, muy apreciado ahora por los lugareños del norte paceño" (Ponce 1980:46).

[130] For Ibarra Grasso, the Colla region was very broadly defined: "Su extensión compredía el Sur del Perú hasta cerca del Cuzco (creemos que el Cuzco mismo, pues allí existe cerámica colla), Arequipa, el Norte de Chile actual hasta Copiapó, y en Bolivia La Paz, Oruro y Cochabamba en su mitad Oeste, y parte del Norte de Potosí y su lado Oeste, los Lipez. Su frontera Sur era el territorio de los Chichas" (Ibarra Grasso and Querejazu 1986:262).

[131] "…bastante sencilla, y bastante pobre en formas" (Ibarra Grasso and Querejazu 1986:264).

[132] "Existen más que nada platos, bastante playos en general, y otros de mayor altura con sus paredes un poco globulares algo entradas en la boca, o sea *chuas y pucas* en quichua" (Ibarra Grasso and Querejazu 1986:264)

[133] "Luego jarras, de tamaño mediano, con un asa" (Ibarra Grasso and Querejazu 1986:264).

[134] "Cántaros que parecen antecesores de los aríbalos incaicos … con una pequeña base plana y dos asas a sus lados" (Ibarra Grasso and Querejazu 1986:264)

[135] "Ollas de cocina con y sin asas, cantaritos pequeños, que casi siempre aparecen hollinados, con dos asas verticales en la parte del cuello, que aparecen en todas las tumbas, etc." (Ibarra Grasso and Querejazu 1986:264).

[136] "Las más communes son cuadriculados oblícuos, dispuestos en fajas y triángulos, series de puntos o pequeños trazos, cruces, incluso la swástica, llamitas…, líneas ondulads, peines, una especie de estrella de siete, ocho o más puntas, círculos concéntricos y con cuadriculado interno o puntos; triángulos varios con

However, while recognizing specific sub-styles within the "Colla" group, specifically "Colla-Pacajes" (Ibarra Grasso and Querejazu 1986:266), like his contemporaries, he does not clarify how this style is differentiated from its neighbors. The only other specific style noted is the Mollo[137] ceramic style, which is considered apart from Colla ceramics (Ibarra Grasso and Querejazu 1986:269-273). However, Ibarra Grasso appears to have a somewhat different understanding of Mollo culture and ceramics than did Ponce.[138] While the specifics of this difference are not relevant for this discussion, it underscores the difficulty of isolating and defining ceramic styles, due to both a lack of data and a lack of general concordance between different researchers.

In general, it appears that prior to about 1990, archaeologists in the southern Titicaca basin noted a clear distinction between Tiwanaku and post-Tiwanaku ceramics, following a pattern that was similar across the Titicaca basin. However, while regional and chronological variation was noted by all investigators, the details of specific differences are generally left undefined or were defined differently by different researchers. In fact, through the most of the twentieth century, both Bolivian and foreign archaeologists were overwhelmingly inconsistent as to what the post-Tiwanaku ceramic period should be called and how it should be defined. While Rydén's work was incredibly detailed and based on a clearly defined data set, other early archaeologists tended to discuss post-Tiwanaku forms merely as a coda to Tiwanaku occupations, rather than focusing on questions specifically of interest to the reconstitution of societies after

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relleno de líneas oblícuas, medios óvalos con líneas curvas concéntricas, espirales, etc." (Ibarra Grasso and Querejazu 1986:267)

[137] Or Larecaja (Ibarra Grasso and Querejazu 1986:267)

[138] Ibarra Grasso associates Mollo ceramics with the north basin, near Puno, and also in Arequipa (where it is called Churajón) and Jujuy (where it is called Alfarcito). He describes a variety of forms with simple black decorations on a white surface. While it is clearly distinct from what he terms "Colla" ceramics, it does show some overlap with Tiwanaku forms. However, Ibarra Grasso disagrees with Ponce that Mollo ceramics are associated with Iscanhuaya, as he notes only Inca influences at that site.

Tiwanaku collapse. As a result, there was little critical assessment of the connection/correlation between ethnohistorically known cultural groups (like the Pacajes) and ceramic styles, at least in relation to Bolivian ceramics, and there was no consistent label, definition, or description of the post-Tiwanaku/pre-Inca ceramics found within the Pacajes region.

Early Pacajes Ceramics Defined

Beginning around 1990, archaeologists began utilizing full coverage settlement surveys in the Titicaca Basin, necessitating a clearer, more generally agreed upon ceramic typology. While methodologies vary, full coverage surveys involve trained archaeologists covering the landscape at a close enough grid to discover all archaeological sites that are visible on the surface. These sites are then generally categorized based on the ceramics associated with them (see Stanish 2003:85). The goal of such studies is to better understand not only larger centers, but also the broader scale of settlement patterns and artifact distribution in order to better assess the broader context of regional development and interactions. A number of such surveys have been conducted in the area traditionally attributed to the Pacajes *señorio* during the Late Intermediate Period, leading to a better and more consistent definition of the Pacajes ceramic styles. In general, post-Tiwanaku Pacajes ceramics are separated into Early Pacajes (Late Intermediate Period), Inca-Pacajes (Inca Period), and Late Pacajes (Colonial Period) styles, although (as mentioned in Chapter 6) there is some disagreement as to the level of correlation between ceramic styles and chronology (e.g. Albarracin Jordan and Matthews 1990; Bandy 2001; Matthews 1992:194). Furthermore,

because the surveys' boundaries can be sometimes be somewhat arbitrarily defined and may not necessarily correlate with meaningful regions existing at different points in time (Silverman 2002), more work is still necessary to articulate regional differentiation within the Pacajes area and between the Pacajes and neighboring *señorios.* After a brief presentation of the research of some of the major contributors to the definition of Pacajes ceramic forms, I then discuss these remaining issues and how I approach them in my research.

The Bolivian archaeologist Max Portugal Ortiz conducted an initial reconnaissance in the Desaguadero valley[139] in the 1980's. While he does not articulate his methodology, he does not appear to have conducted a full coverage survey, and he reports excavation at some but not all of the recorded sites. In his report, he describes sixteen sites (many of which had been previously recorded)[140] dating from the Tiwanaku to the Inca periods, located within a triangle-shaped survey area between Jesús de Machaca, Achiri, and Corocoro (Portugal Ortiz 1988). Following an unpublished report by Bolivian archaeologist Jorge Arellano, Portugal refers to the Late Intermediate Period pottery (previously known as Colla, Khonkho, Chullpa, and/or Post-Decadent Tiwanaku) as "Pacajes." While the style is never completely defined, in his descriptions of individual sites,[141] Portugal records both decorated and undecorated bowls, recognizing five varieties of surface treatment: black on red, red slip, burnished, combed, and

[139] Pukara de Khonkho borders the Desaguadero valley, where Khonkho Wankane, Chaucha de Khula Marka, and Caquiaviri are located.
[140] Including Khonkho Wankane (spelled Konko Wanakani) but not Ch'aucha de Khula Marka or Pukara de Khonkho.
[141] Sites with Pacajes ceramics included Konko Wanakani, Santo Domingo, Capilla Cristiana, Capilla Otokori, Capilla Otokori-Tumbas, Pirapi, Chojña Jawuta, and Seke Chullpa (using Portugal's spelling).

smoothed (Portugal 1988:114).[142] Decorated bowls had interior (and occasionally exterior) black on red paintings of fat *llamitas* and various geometric shapes (crosses, circular motifs, wavy lines, parallel lines, zig-zags, etc.). The bowls (*pukus*) were generally burnished or partially burnished, occasionally with a slip. Less common than the bowls were closed jars, some of which had external decoration of parallel lines and/or circular motifs. However, while Portugal's research was useful in terms of identifying some good comparative sites, his description of the ceramics was not complete enough to be utilized by other investigators.

Much more comprehensive was the systematic full coverage survey of the Tiwanaku valley by Albarracin-Jordan and Matthews (1990; Albarracin-Jordan 1992, 1996; Matthews 1992), conducted as a part of their dissertation research. Albarracin-Jordan surveyed the lower Tiwanaku valley while Matthews surveyed the Middle Tiwanaku valley, together covering around 400 sq km from between the edge of the lake to some six km east of Tiwanaku and between the Quimsachata and the Katari mountains, identifying 1099 sites ranging from the Preceramic Period to the Late Pacajes (Early Colonial) Period. Their goal was to generally assess changes and continuities regarding regional settlement patterns, land use, and social organization at a large scale. Sites were identified primarily on the basis of surface ceramics and lithics, and as a result Albarracin-Jordan and Matthews offered a thorough assessment and description of ceramics from different periods. Albarracin-Jordan and Matthews (1990) were also the first to recognize and codify the Pacajes ceramic style as unique from other Titicaca basin styles and to note three roughly temporal phases within Pacajes: Early Pacajes, Inca-

[142] Portugal describes the surface treatment as "negro en rojo, engobado rojo, alisado a spatula, alisado a estrías y alisado liso" (Portugal 1988:114).

Pacajes, and Late Pacajes. Here we focus specifically on Early Pacajes, which is interpreted as roughly correlating to the Late Intermediate Period.

Following the initial assessments of Bennett (1934, 1936, 1950) and Rydén (1947), Albarracin Jordan and Matthews (1990:139-148; Albarracin-Jordan 1992, 1996; Matthews 1992:186-191) identify both decorated and domestic ceramic wares associated with Early Pacajes. The decorated ware, as was previously noted, is clearly distinct and diagnostic. In general, bowls were the only decorated forms, although medium and small jars occasionally also demonstrated external decoration. Following Albarracin-Jordan and Matthews, the bowl form is most often characterized by a "disk base" and a slightly everted rim. The paste is generally well-made and dense, orange in color (occasionally brown) with very fine sand and occasionally some mica within the clay matrix. Wares were fired in both oxidized and reduced atmospheres. Surface treatment consisted of orange or brown slip with interior and/or exterior burnishing. The only decoration on Early Pacajes forms was of simple black painting applied over the slip, usually on the interior of the bowls. Albarracin-Jordan and Matthews identified a variety of design motifs including dots, cross-hatched patterns, an undulating line below the rim,[143] and the fat *llamitas* also noted by previous researchers[144] (Albarracin-Jordan and Matthews 1990:140; Albarracin-Jordan 1992, 1996; Matthews 1992:187).

Albarracin-Jordan and Matthews also note Early Pacajes domestic ware, but do not describe it in as much detail, perhaps because it is less useful as a temporally diagnostic tool (and hence less useful for large-scale settlement surveys). They merely

[143] They note that this motif is similar to a decorative motif from Tiwanaku IV and V (Albarracin-Jordan and Matthews 1990:140; Matthews 1992: 187).
[144] They highlight that these are distinct from the Inca-Pacajes *llamitas*, which are much skinnier (Albarracin-Jordan and Matthews 1990:140; Matthews 1992:187)

observe that there are few differences between Early Pacajes and Tiwanaku V domestic plainwares. In their survey region, large jars and long-necked ollas were the most common forms. The paste usually included mica and sand temper and the surface was often burnished (Albarracin-Jordan and Matthews 1990:140).

Following Albarracin-Jordan and Matthews' settlement survey of the Tiwanaku Valley, a number of other large-scale settlement surveys have been conducted in Bolivia's southern Titicaca basin, including Bandy's (2001) survey of Taraco peninsula, west of the Tiwanaku Valley, Janusek's survey of the Katari valley (Janusek and Kolata 2003),[145] Bauer and Stanish's survey of the Island of the Sun (Stanish and Bauer 2004), and Lémuz's survey of the Santiago de Huatta peninsula (Lémuz 2001).[146] Each of these surveys provided additional data helping to clarify the Early Pacajes typology and catalog its geographic extent and possible regional variation.

In his work on the Taraco peninsula Bandy drew primarily on the work of Albarracin-Jordan and Matthews (1990) for his definition of the Early Pacajes ceramic phase, noting that they "documented this ceramic sequence in enough detail for it to be useful to other investigators. I have used their chronology in the present study. I have found it to be completely satisfactory" (Bandy 2001:230). He does not comment on utilitarian ceramics at all, noting only that they are temporally non-diagnostic, but does expand on Albarracin-Jordan and Matthews in his description of Early Pacajes decorated bowls, specifically comparing them to other known styles. Bandy notes that the Early Pacajes bowls he collected on the Taraco peninsula, like those from the Tiwanaku valley were thin and well-made of a compact paste, with a yellow or orange (occasionally red or

[145] This followed an earlier survey by Graffam (1990, 1992)
[146] This is in addition to the numerous surveys conducted in adjacent areas of Peru, discussed below (Stanish 2003; Stanish et al. 1997) and others cited in Bandy (2001:17).

brown) surface color, and high interior and exterior burnish. However, he was unable to confirm (or deny) Matthews' contention that the "disk base" was diagnostic of this phase (Bandy 2001:230). He did, however, note similarities and differences to other regional ceramics, observing that Stanish's Kelluyo ceramics (Stanish et al. 1997), from the Peruvian side of the Desaguadero River, were indistinguishable from Early Pacajes ceramics. He also discusses similarities in decorative motifs between Early Pacajes[147] and other Late Intermediate Period Titicaca Basin styles including Pukarani Black-on-Red and Collao Black-on-Red (Tschopick 1946). He found that while "parallel lines and zoned hachure… were part of a widespread decorative tradition that encompassed the entire Titicaca Basin in the LIP" (Bandy 2001:232), the thick *llamitas* were unique to the Early Pacajes style. Furthermore, Bandy suggests that other Late Intermediate Period ceramics tend to be more crudely manufactured than Early Pacajes styles. These and other comparisons are discussed in more depth below.

Janusek and Kolata conducted a similar full-coverage survey of the Katari valley, covering approximately 102 sq km in the southern portion of the basin and the bordering hillsides (Janusek and Kolata 2003:133). The full coverage survey was undertaken to address different interpretations resulting from earlier partial surveys of the region (see Graffam 1990, 1992; Kolata 1991).[148] Like Bandy, Janusek (2003; Janusek and Kolata 2003) follows Albarracin-Jordan and Matthews' description of Early Pacajes phase ceramics, but offers additional description and clarification. Considering both the Tiwanaku and the Katari valley collections together, Janusek (2003) was able to more

[147] The decorative motifs he recorded for Early Pacajes bowls on the Taraco Peninsula included "dots… ticked or tabbed lines… cross-hatching… and parallel lines" (Bandy 2001: 232) as well as the fat *llamitas*.
[148] While they differ in terms of their assessment of Late Intermediate Period occupations of the Katari Valley, Graffam's 1992:894) description of "Khonko pottery" is essentially the same as what Janusek and Kolata (2003) label "Early Pacajes."

completely describe the utilitarian pottery than other researchers had done. He found that Early Pacajes cooking ollas[149] were generally smaller and squatter than their Tiwanaku V counterparts, and rarely had handles. The paste was usually brown and porous with inclusions of sand and fine mica. The walls were thin and often burnished. Early Pacajes tinajas (storage jars) were also smaller than Tiwanaku tinajas, with a short curved neck and side handles. Pastes were compact and orange or brown in color with inclusions of fine sand and occasionally caliza. Firing conditions produced both oxidized and reduced sherds, and the surfaces were generally smoothed and roughly burnished and only occasionally demonstrated slip coating (Janusek 2003a:83).

Janusek (2003a:83-84) also describes two kinds of serving vessels – "vasijas" (a generic term he seems to apply to small jars of a variety of forms), and the more diagnostic painted Early Pacajes bowls. "Vasijas," which were not described by other investigators, are rare, and tended to be composed of a dense paste with no or minimal fine sand and caliza inclusions. The color was orange, brown, or grey (reduced), and the surface could be washed with orange or brown slip and roughly burnished.

Decorated bowls, however, once again proved to be the most interesting and useful diagnostic specimens in terms of regional differentiation. Janusek (2003:83-84) was able to isolate two different varieties of Early Pacajes bowls, which he termed Urqosuyu and Umasuyu Pacajes,[150] as they appeared to roughly correlate with the *urqosuyu/umasuyu* conceptual and spatial division between the high, dry west and the lower, wetter east (see Bouysse-Cassagne 1986). In general, Urkosuyu Pacajes ceramics

[149] Ollas are also called *p'uk'u*.
[150] Janusek cites Alconini 1993 as referring to "Umasuyus" in the collection of ceramics she analyzed from Tiwanaku, but I think he was the first to specifically clarify the Urkosuyu/Umasuyu distinction in terms of ceramic style.

were more common in the Tiwanaku valley collections and further southwest, while Umasuyu Pacajes ceramics were most common in the Katari valley.[151]

The two styles differ slightly in form and more obviously in terms of decoration. Urkosuyu Pacajes bowls are well made with thin walls of an orange (oxidized) or grey (reduced) paste with minimal sand and mica inclusions and finished with an orange or red-orange slip and high burnish. In terms of shape, most had a short "pedestal base,"[152] although some had a simple flat base. Urkosuyu Pacajes bowls were also more likely to have an everted lip,[153] which Janusek (following Tschopik 1950:208) suggests might have been used for ceremonial purposes.[154] In terms of decoration, Urkosuyu Pacajes motifs seemed to conform most closely to those defined by Albarracin-Jordan and Matthews. Janusek (2003:84) describes "triangular zones containing dots or cross-hatched designs, plump llamas, a 'pukara' motif, or diagonal tracks of dots." Undulating bands, crosses, and stars were found on both Urkosuyu and Umasuyu Pacajes ceramics.

In general, Umasuyu Pacajes bowls were more roughly made, with thicker walls and without the everted rims. Paste tended to be reduced, with coarse caliza temper, and the surface was only occasionally slipped with a dark/gray brown. Umasuyu ceramics were also much less likely to be decorated, and they tended to contain a higher proportion

[151] In the Katari valley Urkosuyu Pacajes forms were only found in the hills, while Umasuyu Pacajes ceramics dominated the pampas (Janusek 2003a:84; Janusek and Kolata 2003:157).
[152] This feature is labeled a "disk base" by Matthews (1992) and a "torus" by Rydén (1947).
[153] Janusek (2003:84) observes that roughly 75% of the Urkosuyu Pacajes ceramics had everted lips.
[154] "Tshopik (1950:208) noted that cuencos with straight lips (*chua*) were ordinary bowls for daily consumption that were occasionally used as lamps, while cuencos with short everted lips (*platillo chua*) were for festive and ceremonial occasions" (Janusek 2003a:84). Neverthess, in this instance the variation appears to correlate with geographical divisions rather than functional ones, and I am not sure if this interpretation is supported.

of circular motifs, including "thick circles or 'corrals' filled with rough dots or hatches, curving bands, 'pukara' motifs, or amorphous designs" (Janusek 2003a:84-85).[155]

Excavations of Late Intermediate Period occupations at the Katari valley site of Lukurmata confirm the regional Urkosuyu-Umasuyu Pacajes distinction noted by Janusek (2003), although Wise (1989) does not use the same terms. Nevertheless, she describes ceramics very similar to those described by Janusek from her excavations at the Punto Norte part of the site, specifically noting the presence of ceramics decorated with pictures of fish, perhaps demonstrating the inhabitants' closer relationship with the lake (Wise 1993:112). Ceramics from Bermann's excavations of Structure 43, another LIP occupation at Lukurmata,[156] also appear distinct (judging from his illustrations) from the Urkosuyu Pacajes style. Interestingly, however, Bermann (1994:232) finds evidence of a number of different post-Tiwanaku ceramic styles, including Mollo, Omasuyu, Lupaqa, and Pacajes. Unfortunately, he does not clearly define these terms, so it is not clear how the ceramics from this site compare with others within the Pacajes *señorio*, or how to interpret this reported variation. Bermann (1994:232) suggests: "The relatively large quantities of Mollo-style pottery in Lukurmata tombs suggest that interactions with populations on the eastern slopes of the Andes continued to be important to Lukurmata residents. The styles of imported decorated pottery at Lukurmata suggest that residents interacted with populations to the south as well." While it is likely that Late Intermediate Period occupations were widely interacting with each other, more detailed comparative

[155] One illustration (Janusek 2003a:85, Figure 3.81) also shows a picture of a bird (possibly a duck) on one of the Umasuyu sherds, which is interesting, because otherwise llamas are the only representative drawings on Early Pacajes ceramics.

[156] Bermann (1994:225) considers this occupation to be older than that excavated by Wise, dating it to around AD 1200-1300.

ceramic research is necessary to see how the ceramics from Lukurmata fit into this pattern.

Up to this point the Early Pacajes ceramics in the Desaguadero valley have not been addressed with as much specificity as the Early Pacajes ceramics from the Tiwanaku and Katari valleys. In fact, until Proyecto Jach'a Machaca started their investigations in and around the sites of Khonkho Wankane and Iruhito in 2001, very little work had been done at all in the Desaguadero Basin, despite its importance in regional history, other than that already discussed by Rydén (1947) and Portugal (1988). Beginning in 2001, Carlos Lémuz (2005, 2006), working under the auspices of Proyecto Jach'a Machaca, conducted a full-coverage survey in the 44 sq km around Khonkho Wankane, in an effort to begin to address this gap in the literature. Nevertheless, his analysis utilized Albarracin-Jordan and Matthews (1990) "Early Pacajes" label without noting any possible distinctions between Early Pacajes ceramics from the Desaguadero and the Tiwanaku/Katari valleys.

The only other investigations conducted in the Desaguadero valley were around the town of Caquiaviri, south of Khonkho, which did include a small scale excavation at the Late Intermediate Period site of Pukarpata (Pärssinen 2005:103-118). However, Pärssinen did not focus overmuch on the ceramics. Where he does, he notes similarities with the Early Pacajes style,[157] describing the samples from Pukarpata as roughly made with sand and feldspar temper and black on red decorations. The decorations correspond with motifs utilized in both Urqosuyu and Umasuyu style Early Pacajes ceramics, including straight lines, fat llamas, lightening/caterpillar motifs, wavy lines, or concentric lines within a circle (Pärssinen 2005:115). While not actually categorizing the ceramics

[157] Although he does not reference it as such, calling it instead "chullpa" (Pärssinen 2005:115).

as Early Pacajes, Pärssinen does note similarities between the Late Intermediate Period ceramics from Caquiaviri and from sites in Carangas (further south) and similarities with Animas II in northern Chile. However, because he does not go into detail, it is not clear how significant these similarities were and what they might suggest.

As should be clear from the above review, there has been significant progress in terms of ceramic description and categorization since the investigations of Rydén and Bennett. Nevertheless, there is also some lingering confusion as to how to define Late Intermediate Period ceramics found within the Pacajes region (e.g. Bermann 1994; Graffam 1992; Pärssinen 2005) and some disagreement as to the extent of the style and the significance of variations within it. I here roughly follow Albarracin-Jordan and Matthews' (1990) initial descriptions of the Early Pacajes style coupled with Janusek's distinction between Urqosuyu and Umasuyu Pacajes styles. However, I also recognize (and try to address) some problems with our understanding of the temporal and regional extent of the style.

As the Early Pacajes style represents a clear break from Tiwanaku styles (almost a repudiation of Tiwanaku ceramic forms and motifs), it is clear that Early Pacajes forms were first produced following the collapse of the Tiwanaku state. However, it is less clear when that style fell out of use, or if there are any temporal correlates subdividing the Late Intermediate Period. As briefly discussed in Chapter 6, there is even disagreement as to the extent to which Early Pacajes, Inca Pacajes, and Late Pacajes ceramic forms correlate with Late Intermediate, Inca, and Early Colonial cultural periods. Because of high levels of erosion across the altiplano and the tendency for sites to be occupied over numerous cultural periods, there are few obvious late prehispanic or early

colonial use surfaces, and later period ceramic sherds tend to be found mixed together in the uppermost soil strata, making it difficult to find clear contexts for carbon dating. This leads to some disagreement as to whether or not the Early Pacajes – Inca Pacajes – Late Pacajes ceramic sequence is sequential. Albarracin-Jordan and Matthews (1990; Matthews 1992: 194) suggest that Inca-Pacajes wares may instead be intrusive forms that were superimposed over a local tradition and available only to certain members of the population, while others continued to follow Early Pacajes ceramic traditions into the Inca Period. While the idea is disputed by Bandy (2001), who argues for three sequential patterns, it is not unreasonable to suggest a certain degree of overlap especially given the relatively brief period of Inca control in the region.

In the analysis that follows, I take the Early Pacajes style to roughly correlate with the Late Intermediate Period, but do not discount the possibility that it could have continued into the Inca Period. I find that Inca-Pacajes ceramics represent an abrupt discontinuity in the region, and do assign them exclusively to the Inca Period. In addition, however, I attempt to utilize radiocarbon dates, together with ceramic attribute analysis, to address changes over time within the Late Intermediate Period to see whether or not it is possible to differentiate subphases within the Early Pacajes ceramic period.

I also note a certain difficulty in terms of regional specificity as pertains to the definition of the Early Pacajes style. The Titicaca Basin styles during the Late Intermediate Period are roughly defined by their location within the ethnohistorically defined *señorios*. Stanish (2003:227) notes: "A number of pottery traditions have been identified in the Titicaca region that generally correspond to the ethnic and political divisions of the Aymara señorios of the late prehistoric periods." However, the types

generally appear to be defined by where they are found, and the stylistic typologies in terms of regional distribution are not especially strict. Therefore it is hard to differentiate where Early Pacajes begins and Lupaca forms like Pukarani or Kelluyo begin, for example. In this next section, I briefly address the typologies of Late Intermediate Period forms across the basin and discuss how Early Pacajes forms may relate to them. I also point out some of the difficulties in regional categorization during this period.

Early Pacajes in the Context of other Late Intermediate Period Forms

While the majority of recent research in Bolivia's southern Titicaca Basin has focused on the three valleys that comprised the Tiwanaku heartland (Tiwanaku, Katari, and Desaguadero) a few surveys of neighboring areas help to define the extent of the Early Pacajes ceramic style, but also point to the need for further research. Lémuz's survey of Santiago de Huatta provides one such example (Lémuz 2001). Another recent project is Bauer and Stanish's survey of the Island of the Sun (Bauer and Stanish 2001; Stanish and Bauer 2004). They determined that the island likely affiliated with the Lupaqa rather than the Pacajes, but do not specifically assign the Late Intermediate Period ceramics from the island to a specific series (Pucarani or Early Pacajes, for example), labeling them more generically as "altiplano." Since there is significant overlap between the stylistic differences between the Late Intermediate Period styles in the Titicaca Basin, more research is necessary to clarify exactly to what extent the ceramic styles correlate with contemporary sociopolitical divisions, and what differences and similarities between Late Intermediate ceramic types around the basin suggest about social identities and social interaction during the Late Intermediate Period.

Tschopik (1946) was the first to begin systematically categorizing Late Intermediate Period ceramics in the northern Titicaca Basin, focusing on the area around Puno.[158] She noted, following Bennett, that "chullpa" ceramics had been essentially undefined while the term remained overused. Instead of utilizing this terminology, she attempted to categorize the post-Tiwanaku ceramics within her survey area with more consistency, utilizing the binomial nomenclature common in North America, which assigns types based on first geographical location and paste and color of decoration rather than form. She identified three specific series (Collao, Sillustani, and Allita Amaya).

Following her analysis, Collao ceramics (including Collao plain and Collao Black-on-Red) predominate in the northern part of the basin in the area generally associated with the Colla *señorio*. They are a rough red ware with crude black painted designs, and occasionally include decorative incisions around the neck of the jars (Tschopik 1946:21-22). Sillustani wares (Sillustani Polychrome, Sillustani Brown on Cream, Sillustani Black on Red, and Sillustani Black and White on Red) are based on a much more limited sample, found primarily at the ceremonial site of Sillustani. These wares appear more finely made, and the design motifs are somewhat more complex (Tschopik 1946:22-27). Finally, Allita Amaya wares (Allita Amaya polychrome and Allita Amaya plain) were only found associated with two slab cist graves, and were defined as orange brown with grit temper, primarily consisting of decorated and undecorated jars (Tschopik 1946:19, 33-34).

Stanish (2003:228) uses Tschopik's analysis as the baseline for his assessment of ceramics found in the Colla region, but notes that there are problems with the Allita

[158] Although her analysis notes that the ceramics she was looking at came from territory occupied by Cana, Colla, Lupaca, and Omasuyu "subtribes."

Amaya designation (which he does not use), and also observes that the Sillustani type defined by Tschopik has both pre-Inca and post-Inca forms. Collao forms appear to predominate in the Colla area, but also extend east of the lake, where a few other distinct forms have also been identified. Amat (1977), for example, identified Quequerana ceramics at a site near Moho, which appear from his descriptions to be very similar to other Late Intermediate Period Titicaca Basin types in that they are painted with geometric motifs, but different in that they are painted on a cream base. Mollo pottery (also discussed above) is another distinct type which Stanish (2003:228) notes may have some stylistic connections with Tiwanaku (unlike any of the other Late Intermediate Period Titicaca Basin styles).

In the Lupaqa area, where Stanish et al. (1997:46) conducted the majority of their research, they identify the majority of the ceramics as Pukarani wares (Pukarani Plain, Pukarani Black-on-Red, Pukarani Black-and-white-on-red, Pucarani Red-on-orange, Pukarani Red-on-Brown, and Pukarani Black-on-orange). Like the Early Pacajes ceramics, Pukarani wares primarily consist of bowls, jars, and olla forms, with decoration occurring primarily on the interior of the bowls. Stanish (2003:228) notes but does not explain "stylistic links" between Pukarani and Early Pacajes wares. Judging from the pictures and illustrations, similarities include the use of dots and parallel lines designs, but other motifs and some of the jar forms appear distinct. However, the other major Lupaqa form recognized by Stanish (2003:228; Stanish et al. 1997:46), the Kelluyo form, appears (based on descriptions, illustrations, and photos) to be basically indistinguishable from the Early Pacajes style.[159] Interestingly, this form is most predominant around the

[159] This was also noted by Bandy (2001).

Desaguadero area, where we might expect to see significant overlap between Lupaqa and Pacajes styles.

Overall, around the Titicaca Basin during the Late Intermediate Period we find broadly similar ceramic forms with fine-grained geographical differentiation that significantly overlaps. What does this suggest about social identities, and interactions during this time period, and how can our understandings of ceramic styles elucidate or obscure our understandings of sociopolitical organization? While it is important not to confuse "pots for people," it is also true that stylistic forms and decorative motifs can (to a certain extent) reflect larger sociopolitical processes. The above review illustrates that while there are broad similarities across the region (reflecting perhaps broad patterns of interaction), there are also gradated (but notable) regional differences in the ceramics. While they roughly correlate with the ethnohistoric *señorios*, there does not appear to be a single centralized style in any area (perhaps reflecting the lack of a centralized government), and ceramic definitions are hence much more fluid. In terms of the research questions addressed in this dissertation, I want to know about the environment in which the Pukara de Khonkho was founded and the extent to which the inhabitants interacted with other communities throughout the region. If this was reflected in ceramics, it becomes necessary to: 1) have a solid typology of the ceramics found at Pukara de Khonkho, and 2) assess similarities and differences between these ceramics and those from the surrounding region. In the section that follows, I present the results of my typology.

Ceramic Attribute Analysis

The primary goal of my analysis was to create a ceramic typology that could be utilized to better understand the day-to-day life at Pukara de Khonkho, including the process of ceramic production (specifically whether or not production appeared specialized); site integration (as indicated by the distribution of different types of ceramics across the site); and patterns of trade and regional interaction (as reflected by the patterns of presence or absence of trade ceramics in the overall assemblage). The typology was designed to provide enough detail to allow the investigator to identify fine-grained differences between the ceramics from the Pukara de Khonkho and other Early Pacajes forms. These comparisons, as well as those between Pukara de Khonkho and Chaucha de Khula Marka, are described in more detail in the sections that follow.

The analysis described below is based in the assignation of each sherd into formal/functional categories. Following Janusek (2003:35) I categorize all sherds hierarchically according to class, type, and variant. Classes are based on broad formal/functional attributes (storage jars, cooking ollas, serving bowls or plates, serving/specialized vessels, other/unknown). While Janusek also considers a "ceremonial" class, this is not included in my analysis as a result of a general lack of ceremonial material in the Late Intermediate Period. There are important caveats to this process. As Janusek (2003:35) notes "these classes must be considered flexible continua rather than fixed categories. In many cases, sherds of cooking and storage vessels were difficult to differentiate, in part because such vessels changed roles throughout their use-

life and because certain variants served both functions…" Nevertheless, it is reasonable to assume that the broad formal/functional categorizations utilized here would have made sense to those utilizing the vessels for different functions, and, indeed, there is some correlation between the classes I identify and Aymara categorizations for different types of ceramic vessels (Bertonio 1993[1612]; Tschopik 1950). While recognizing that the individual assignation of a particular sherd to a specific category could be questioned, the quantities with which we are dealing in this analysis are so large that the overall distribution is most likely representational.

Within each class, specific types are identified primarily based on form as judged from the attributes of diagnostic sherds (rims, bases, handles, etc.). Types correspond to different shapes or sizes within each formal/functional class (e.g. different forms or sizes of jars for different functions). Variants of individual types are defined by differences in paste or surface treatment. When decoration is present, variation in decorative motifs are also noted. For clarity's sake, types are numbered within each class, while variants are lettered (e.g. Jar 1a, Jar 1b, Bowl 2b, etc.). It is important to note that while every sherd was assigned to a particular class, the specific type or variety could not be identified for every specimen. For more information on my research methodology, please see Appendix E or the brief introduction to attribute analysis presented in Chapter 4.

Ceramics at Pukara de Khonkho

The ceramic analysis reported in this dissertation is based on a 100% sample of all ceramic material excavated from Pukara de Khonkho under the auspices of Proyecto

Jach'a Machaca as well as the material excavated by Stig Rydén in 1938.[160] A total of 17,242 sherds (131.68 kg of ceramic material) from 184 distinct archaeological contexts at Pukara de Khonkho were analyzed during the course of this research.[161] Rydén's samples, currently stored in Göteborg, Sweden, were analyzed by the author in May 2008. Samples from Proyecto Jach'a Machaca were analyzed on location in Bolivia between June-Sept 2008 and July-Aug 2009. The analysis of these artifacts was conducted by the author with assistance from Carla Flores and Luis Viviani.[162]

A Typological Analysis

Since previous typologies were drawn up based primarily on surveys and for the purpose of identifying diagnostics to date particular sites, they tend to focus primarily on diagnostic finewares to the exclusion of utilitarian ceramics. In the case of Pukara de Khonkho, however, we are lucky to have a site that is a single component Late Intermediate Period site, allowing us to describe and identify the full component of Early Pacajes ceramics as expressed at a particular site. However, the spatially restricted nature of the collected samples means that this research alone will not be able to address the problem of defining the spatial extent of Early Pacajes forms. Nevertheless, it is hoped that the below descriptions will add depth to our understanding of the range of Early Pacajes forms, contributing to the data set for this under-studied time period and paving the way for additional comparative research.

I here first briefly present descriptions of the five formal/functional classes into which all analyzed ceramics were assigned – jars (for storage or fermentation), ollas (for

[160] This material is currently housed at the Världskulturmuseet in Göteborg, Sweden.
[161] A total of 16641 sherds (123.15 kg) were analyzed from Proyecto Archaeológico Jach'a Machaca as well as 601 sherds (8.53 kg) that were originally collected by Rydén. Analysis does not include 1.3 kg of unprovenienced sherds (some surface collection, some lost context) from Jach'a Machaca.
[162] Both of the Universiday Mayor de San Andrés, La Paz, Bolivia.

cooking), bowls (for serving), small jars (for serving or specialized functions), and unique or unknown forms.[163] I also describe the various decorative motifs present at the site. Finally, I discuss the implications this broad data set may have for our understanding of the occupation of Pukara de Khonkho as well as what it suggests more broadly about the nature of settlement occupation and interaction in the later part of the Late Intermediate Period in the Pacajes region. I specifically consider the role of ceramic production and site integration.

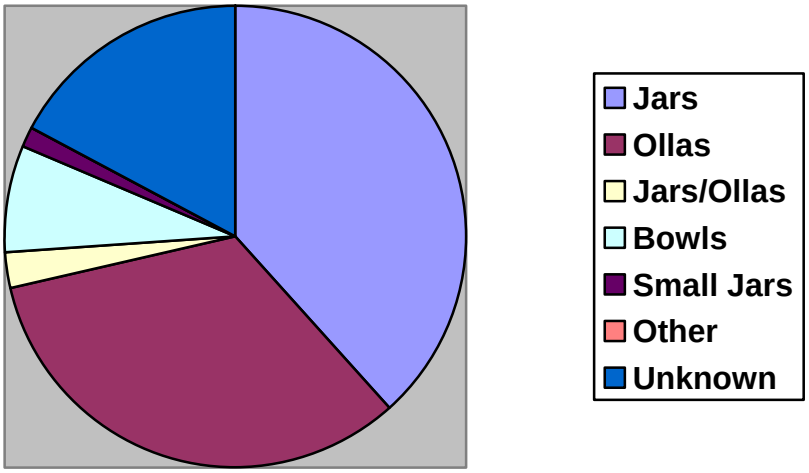

Figure 67: Ceramic form representation at the Pukara de Khonkho (by count)

Overall, results show that jars are the most prevalent form at the Pukara de Khonkho, making up 38.4% of the sherds (n=6622; 55.2% by weight), followed by ollas

[163] More detailed technical descriptions can be found in Appendix F. These descriptions enumerate specific types and variants within the five classes and describe the paste, firing, surface treatment, decoration, and useware patterns associated with each.

at 32.9% (n=431; 21.7% by weight),[164] and bowls at 7.4% (n=1280; 10.8% by weight). Other identifiable forms, generally recorded as small jars, made up only about 1.6% of the sherds (n=284; 2.0% by weight),[165] but were among the most interesting and distinct in comparison with what is known of LIP ceramics from other sites in the region (Figure 67). Unfortunately, identification of form was not possible for 17.1% of the sherds (8.2% by weight), usually due to the very small size of these sherds and the lack of information it was possible to collect for them.[166] The relatively high representation of jars in this environment may be due to the fact that water storage was necessary since the only regular water supply was located downhill from the settlement. Furthermore, there could be a problem of representation, since jar sherds were generally of higher quality and better preserved than olla sherds.

In the sections that follow, I describe the defining characteristics of each of the five formal/functional classes I have identified at the site of Pukara de Khonkho (jars, ollas, bowls, small jars, other), making note of the different types and varieties identified within each class[167] (Figure 68). Utilizing this information, I then discuss the probable function of each form, as well as likely patterns of production and distribution.

[164] A total of 2.5% of the sherds by count (n=431; 2.1% by weight) were identified as either jars or ollas, but it was impossible to specifically categorize them.
[165] These numbers are for small jars and "other" forms combined. Small jars alone make up 1.5% (n=252; 1.7% by weight).
[166] If the unidentified forms are taken out, jars make up 46.3% of the sherds (60.1% by weight), ollas comprise 39.7% (23.6% by weight), bowls comprise 8.9% (11.8% by weight), and small jars make up 1.8% (1.8% by weight).
[167] While the defining characteristics discussed here focus on form, function, and decoration, a discussion of each type in Appendix F pays special attention to the characteristics of the paste and the inclusions.

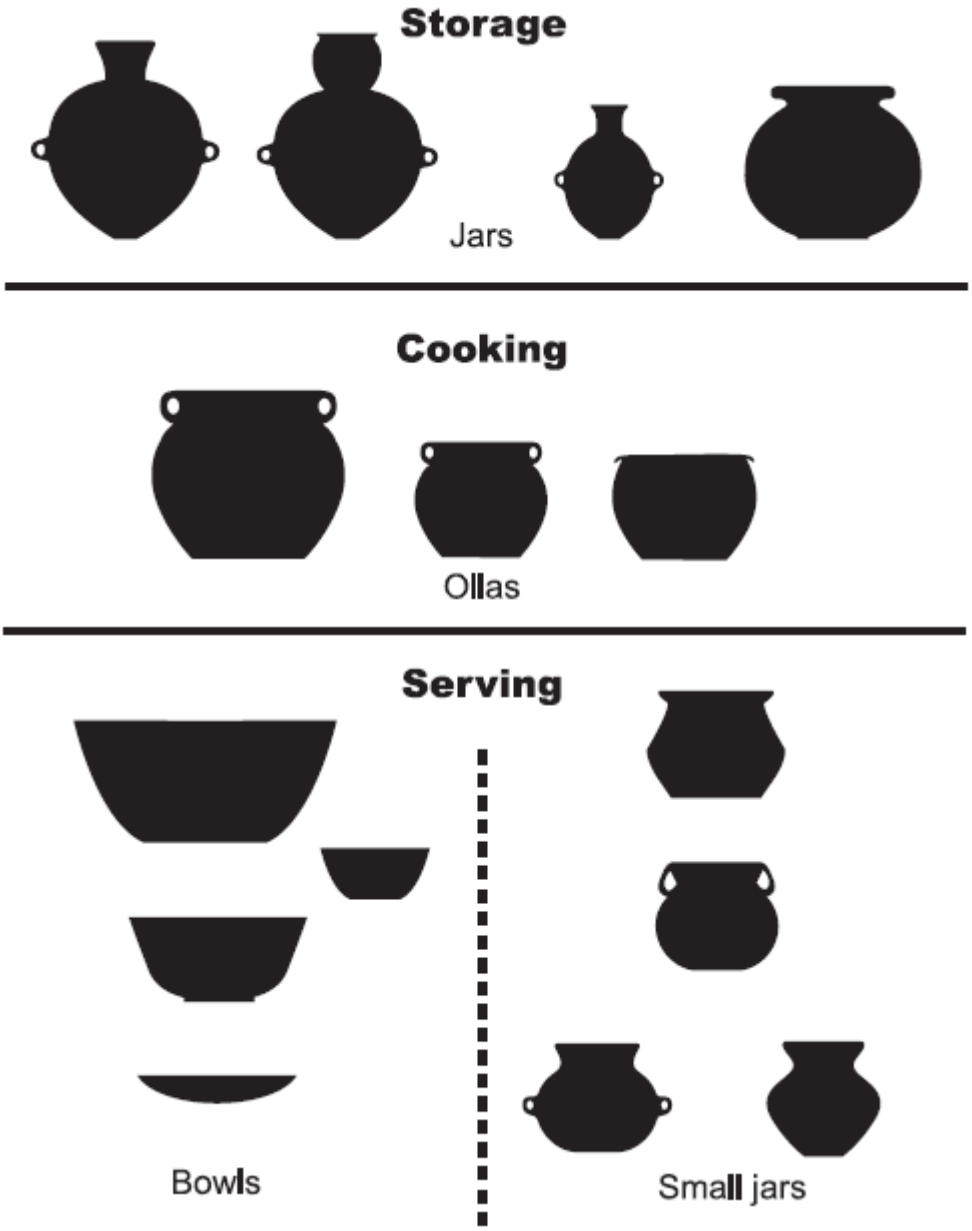

Figure 68: Ceramic types at the Pukara de Khonkho

Jars – Jars are here defined, following Rice (1987:216) as a "necked (and therefore restricted) vessel with its height greater than its maximum diameter." On the Pukara de Khonkho, jars were likely used for food/water storage, transportation, and probably also for fermentation of *chicha* or other alcoholic beverages, comprising approximately 46%

of all identified sherds (n=6622).[168] Jars would have been important because of the lack of a year-round water source within the boundaries of the site itself.[169] Furthermore, in a site as difficult to access as Pukara de Khonkho, food storage would be essential on a year-round basis, even if the inhabitants were traveling (or living part of the year) elsewhere.

Of the jar sherds on the Pukara de Khonkho, 45% (n=2971) were selected for more detailed analysis. In general, the jars from Pukara de Khonkho have an orange or reddish brown paste, although some are darker brown or grey. The majority of the analyzed sherds are fired in an oxidized environment (56%; n=1586) or are only partially reduced (29%; n=826).[170] In many cases the firing environment appears to be uneven, and some parts of the same jar can be fully oxidized, while others are fully reduced, partially reduced, or only partially oxidized. Jar forms tend to be relatively thick,[171] with compact (90%; n=2678) to very compact (7%; n=222) paste. Inclusions are predominantly of scarce to very dense quantities of very fine to fine grained sand and of scarce to dense quantities of fine to medium grained mica. In some cases, medium - coarse caliza is present in scarce to moderate quantities. The interior of the vessels tend to be wiped (47%; n=1373) and/or smoothed (40%; n=1187), while the exterior is usually lightly to heavily burnished (62%; n=1995), smoothed (36%; n=1070), and/or occasionally wiped (27%; n=740). A majority of the diagnostic sherds demonstrate an exterior red or orange slip and/or wash, which was often noted on the interior as well.

[168] 60% by weight
[169] The closest water source comes from a spring, which is located below the lowest terrace on the main face of occupation.
[170] An additional 8% (n=240) were recorded as fully reduced, while 7% (n=200) were recorded as partially oxidized.
[171] 41% (n=1191) are "thick", 54% (n=1590) are "medium", and only 4% (n=95) are "thin."

Only a very few sherds identified as jars (>1%; n=30) are decorated in any way (painted, molded, or incised). While many of the sherds are somewhat eroded, only a small percentage show any obvious usewear, most commonly exterior burning and/or interior and/or exterior sooting (19%; n=579). A number of jar sherds, however, do demonstrate mending holes, suggesting that these forms were valuable and reused even after breaking.

Table 15: Jar Types from Pukara de Khonkho

Type	%	Rim Diameter	Base Diameter	Handles	Firing	Surface Treatment
1	62% (N=582)	10-21 cm M=15.37 SD=2.62	9-11 cm M=9.77 SD=0.82	2 side	Oxidized	Interior = Smoothed, Wiped, Combed Exterior = Smoothed, Burnished
2	21% (N=197)	9-18 cm M=14.70 SD=2.52	7-8 cm M=7.69 SD=0.48	2 side	Oxidized, Partially reduced	Interior = Smoothed, Wiped Exterior = Smoothed, Wiped, Burnished
3	6% (N=56)	20-32 cm M=24.70 SD=3.64	7-8 cm M=7.5 SD=0.71	Sometimes at lip	Oxidized	Interior = Wiped, Combed Exterior = Burnished
4	3% (N=28)	9-10 cm M=8.86 SD=0.38	4-6 cm M=5.05 SD=0.69	2 side	Oxidized	Interior = Smoothed, Combed Exterior = Smoothed, Wiped

I was able to identify four distinct *types* of jars from the Pukara de Khonkho. It was possible to definitively assign jar type to approximately half of the diagnostic jar

sherds in the sample from Pukara de Khonkho (n=938). The type description is not intended to be overly strict, and as will become obvious, there is significant variation within the types described below, implying low levels of standardization, and a decentralized method of production (discussed at the end of this chapter). Furthermore, there are a number of jar sherds that do not seem to fit into any of the *types* as I have defined them, suggesting that there were likely other (less common) jar forms that remain undefined. Nevertheless, the *types* described here clearly represent the majority of forms used at the Pukara de Khonkho. They are numbered and described from most common to least common (Table 15).

Figure 69: Jar Type 1

Jar Type 1 (Figure 69) is tall with a straight, slightly flaring neck and side handles, and is the "aryballus-like" water jar first identified by Rydén (1947). The neck is restricted while the body is somewhat bulbous, with two side handles attached. While the shape is distinctive, the specific measurements can vary greatly. On average the rim diameter measures 15.3 cm (SD=2.6 cm). The base is flat, and measures an average of 9.8 cm (SD=0.8 cm). The walls are generally well made, but somewhat variable in thickness, although they almost always measure more than 4 mm thick. This is the most common jar type, represented by approximately 62% (n=582) of all identified jar sherds (54% by weight), and it is found associated with almost every structure at the Pukara de Khonkho, with the exception of those situated on the upper terraces.[172] The restricted jar neck, together with the size of the vessels, suggests Jar Type 1 was likely used to store water or small grains. There are, however, quite a few samples that demonstrate lines of mending holes drilled through the vessel wall along a crack. Some sort of string or sinew was likely drawn through the holes to reconstruct them after a break. This sort of repair suggests that ceramic vessels like Type 1 jars were likely very valuable, and were used for as long as possible. While the unbroken jars were likely water storage vessels (essential at a settlement without a permanent water source within the site itself), the (non-water tight) mending technique suggests they could have been used to store larger grains as well.

[172] Type 1 jars are associated with U4.1, U4.3, U4.4, U4.5, U4.6, U5.1, U5.2, U6.1, U6.2, U6.3, U6.6, U7.1, and U7.2 as well as Rydén's structures 1 and 2).

Figure 70: Jar Type 2

Jar Type 2 (Figure 70) is nearly identical to Jar Type 1 except for the shape of the neck. It is also a large jar, likely used for storage of water and/or grains, but is somewhat less common than Jar Type 1, accounting for 21% (n=197) of all identified jar sherds (26% by weight). While Jar Type 1 has a straight, slightly flaring neck, Jar Type 2 has a bulbous neck which constricts at the shoulder, and then again just below the lip. Jar Type 2 is only slightly (but not significantly) smaller in terms of lip diameter, measuring an average of 14.7 cm (SD=2.5 cm). The body is almost identical, with two side handles, while the base is also flat and slightly (but not significantly) smaller, measuring an average of 7.7 cm (SD=0.5 cm). Like Type 1 jars, the walls are generally well made, but somewhat variable in thickness, almost always measuring more than 4 mm in thickness. Jar Type 2 was likely used for the same or similar functions as Jar Type 1 (i.e. either

water or grain storage), judging from its size and shape. While it was not as common as Type 1, samples were generally spread across the site, although not present on the upper three terraces.[173] Interestingly, Type 2 jars were most often found associated with structures that also had high quantities of Type 1 jar sherds, suggesting that their distribution was not a result of different families or social groups producing different jars, but possibly linked to slight variation in use.

Figure 71: Jar Type 3

Jar Type 3 (Figure 71) is quite distinct from the first two types, taking the form of a large, slightly restricted basin, which may have been used for fermentation. However, the form is not as nearly as common as either Types 1 or 2, represented by only 6% (n=56) of identified sherds (10% by weight), and it appears to have been more commonly

[173] Type 2 jars were associated with U4.3, U4.4, U4.5, U4.6, U5.1, U6.7, U7.1, and possibly also with U4.1, U6.1, U6.3, U6.6, and U7.2.

associated with structures on the lower terraces.[174] The vessel has a wide rim, with a diameter that averages 24.7 cm (SD=3.6 cm) and is characterized by an extremely bulbous lip, just above a slightly constricted neck. In at least some instances, handles are attached to the lip, occasionally decorated with molded decoration.[175] The body is not significantly wider than the opening, and the walls are thick (occasionally very thick), although they sometimes thin slightly towards the base. The base itself is flat, with a diameter averaging 7.5 cm (SD=0.7 cm). The large size suggests that these vessels may have served as fermentation vessels or for storing larger items. As the jars tended to be associated with Type 2 (Domestic/Workshop) structures on the lower terraces (mostly on the main face), it is likely that they were utilized for specific activities that took place in those types of structures.[176]

Figure 72: Jar Type 4

[174] Type 3 jars were found in U4.4, U4.6, U6.1, U7.1, and U7.2 as well as Rydén's structure 1, and probably also U4.3.
[175] One example appears to have a side handle, but it is unclear.
[176] Type 3 jars were found associated with U4.3, U4.4, U4.5, U4.6, U5.1, U6.3, U6.6, as possibly also with U7.1 and U7.2.

The final jar type, Jar Type 4 (Figure 72), is more similar to Jar Types 1 and 2, but smaller and less common, representing only 3% (n=28) of identified jar sherds (6% by weight). This type is a medium sized jar, with a shorter neck and a more bulbous body than Jar Type 1. Like Types 1 and 2, there are two side handles. The rim diameter averages 8.9 cm (SD=0.4 cm), and the base averages 5.1 cm (SD=0.7). The walls of the vessel are medium to thick. Given its similarities to Type 1 and 2 jars, the use was probably similar, either for storing water or small grains. The type was not found in high quantities or in every structure, mostly coming from the same two structures on the main face.[177] It is not clear whether the reasons behind this distribution are related to differences in use or differences in preference of Type 4 jars over Type 1 or 2 jars.

As previously noted, there were a number of other sherds also identified as jars which could not be assigned to the above four types. While it is likely that other jar forms were present at the site, however, there was not enough material to clearly identify them. Nevertheless, from the descriptions presented above, it becomes clear that jars were an important form on the Pukara de Khonkho, likely used primarily for water and/or small grain storage (Types 1, 2). Jars may have also been used for fermentation (Type 3) and for storage (and possible serving) at a smaller scale (Type 4). Jar types appeared in nearly all structures below Terrace 3, but were noted in the highest quantities in the structures I previously labeled "Workshop" structures and "High Density Storage" structures, which, not surprisingly, held the largest amount of ceramic material in general.

Ollas – Ollas are defined as cooking vessels, and at the Pukara de Khonkho are generally recognized as medium-sized, squat vessels with a short neck. Often handles attach to the

[177] Type 5 structures mostly came from U4.3 and U6.2, but also came from U4.4, U5.2, and possibly also U5.1, U6.2, and U7.2

lip of the vessel. After jars, olla sherds are the most common at the site, representing approximately 40% (n=5681) of all identified sherds. They are found in relatively high quantities associated with all structures except for the empty "ritual" structures on the upper terraces, and some sherds were also identified near or associated with some of the burial contexts. At the Pukara de Khonkho, olla sherds are usually clearly differentiated from jar sherds due to a higher concentration of larger-sized temper materials. Olla sherds are also often thinner and slightly less compact, and are significantly more likely to show signs of exterior burning and/or interior sooting. Nevertheless, there was an area of overlap within which differentiating between jars and ollas was more difficult, which possibly reflects occasional use of jar forms for cooking and/or olla forms for storage or fermentation (Janusek 2003a:83). When it was impossible to clearly differentiate between forms, sherds were marked as jar/olla (3% of identified sherds; n=431), and were not considered in the creation of the jar/olla typology.

Based on a detailed analysis of 2907 sherds, olla sherds could be compact (65%; n=1881) or porous (34%; n=986), with a brown, red, or grayish paste. Like jars, the firing environment of olla sheds is variable, but the majority are oxidized (33%; n=957) or only partially reduced (38%; n=1094).[178] Inclusions consist of dense coarse quartzite sand and/or scarce fine sand, accompanied by scarce to moderate quantities of medium-grained mica and also often medium to very coarse cal. Surface treatment consists primarily of interior smoothing (53%; n=1521) or wiping (31%; n=883),[179] while exterior surface treatment consists of smoothing (47%; n=1347) or some degree of burnishing

[178] 17% (n=487) were partially oxidized and 12% (n=332) were fully reduced.
[179] The next most common interior surface treatments were combing (9%; n=270) and burnishing (8%; n=218)

(38%; n=1082).[180] No olla forms demonstrate painted decoration, although one variant (described below) does show an element of molded decoration along the lip at the handle attachment. As would be expected, the majority of olla sherds (61%; n=1773) show signs of exterior burning or sooting, and many sherds also exhibit interior burning and/or sooting as well.

Table 16: Olla types at Pukara de Khonkho

Type	%	Rim Diameter	Base Diameter	Handles	Firing	Surface Treatment	Decoration
1	31% N=312	9-18 cm M=14.55 SD=3.05	5-8 cm M=7.17 SD=2.48	At lip	Oxidized, Partially reduced	Interior = Wiped Exterior = Smoothed, Wiped	Molded lip on one variation
2	62% N=624	9-19 cm M=13.72 SD=2.70	6-8 cm M=6.42 SD=1.22	Not noted	Reduced, Partially reduced, Oxidized	Interior = Smoothed, Wiped Exterior = Burnished, Wiped	No
3	7% N=70	13-16 cm M=14.5 SD=5.21	N/A	Possibly at side	Oxidized, Reduced	Interior = Wiped, Smoothed Exterior = Burnished, Smoothed	No

Because of certain elements of their construction and use (e.g. thinner walls, thicker temper, more extensive burning, etc.), ollas did not tend to preserve as well as did jar forms in general, and so it was more difficult to specifically identify clear olla types. Nevertheless, I here present the *three* distinct olla forms I was able to identify during the

[180] Approximately 19% (n=549) were wiped. (Sherds occasionally showed more than 1 surface treatment).

course of this analysis (Table 16). It was possible to more or less definitively assign olla type to approximately half of the diagnostic olla sherds identified from Pukara de Khonkho (n=1006). As was the case for the jar identifications, these categorizations are not intended to be especially strict, and it will be noted that there is significant variation within each defined type. Furthermore, there were a few olla sherds noted in the analysis that clearly do not belong to any of the below types, but which lacked the diagnostic characteristics for me to fully identify additional types. Nevertheless, the types recounted below appear to represent the majority of the olla forms at Pukara de Khonkho and present a fairly complete picture of the utilitarian cooking assemblage at the site.

Figure 73: Olla Type 1

Olla Type 1 (Figure 73) is a squat vessel with handles attached to the lip, representing approximately 31% (n=312) of identified olla fragments (47% by weight). The rim diameter averages 14.6 cm (SD=3.0 cm). There are very few clear base

fragments, but the fragments that exist tend to be flat, with a diameter that averages 7.2 cm (SD=2.5 cm). Handles are attached to the lip, passing over a short neck and attaching on the other end to the shoulder. The walls are somewhat variable in thickness, ranging from thin to thick. Type 1 ollas tend to be somewhat eroded, and the majority demonstrate exterior (83%; n=259) and/or interior (44%; n=137) sooting and/or burning, reflecting their likely role as cooking vessels. As would be expected, sooting and/or burning are generally more likely to appear toward the bottom of the vessel Like all ollas, Type 1 ollas appeared in both storage/cooking as well as domestic/workshop structures on all three faces and on Terraces 4, 5, 6, and below.[181] This suggests their widespread importance for activities related to cooking and food preparation. No Type 1 ollas are painted, although a Type 1 variant (Olla Type 1A) does exhibit some molded decoration along the rim near the handle (Figure 74). Type 1A ollas were very spatially restricted, occurring primarily in one large Type 2 structure on the main face (which also had high quantities of other Type 1 ollas).[182] This structure was also one of only a few at the Pukara de Khonkho to contain some Late Pacajes (Colonial) sherds, but the Type 1A vessels tended to come from lower levels, suggesting that they also dated to the major Early Pacajes occupation of the site. The reasons for the spatial restriction of this variation are not yet clear.

[181] Type 1 ollas were found in U4.1, U4.2, U4.3, U4.4, U4.5, U4.6, U5.1, U6.1, U6.6, U7.1, U7.2, URy1, and URy2.
[182] This variety was found almost exclusively in U4.4, but there were also a sherd found in U6.6, near the western cemetery area.

Figure 74: Olla Type 1A (Note decoration at rim)

Figure 75: Olla Type 2

Olla Type 2 (Figure 75) is a very thin to medium walled vessel with a short, only slightly restricted neck, and a dark exterior wash. This is the other major olla form, representing 62% (n=624) of all identified sherds (43% by weight). Like almost all of the

forms at the Pukara de Khonkho, the size of this form was quite variable, but the average rim diameter measured 13.7 cm (SD=2.7 cm). The base is flat and averaged 6.4 cm (SD=1.2 cm) in diameter. No olla sherds that could be clearly labeled as Type 2 ollas have handles, but that does not mean that there were necessarily no handles on this form. Type 2 sherds tend to be highly eroded and broken into smaller sherds than other forms, primarily because of their thin walls and high amounts of inclusions. Type 2 ollas overwhelming show external sooting or burning (96%; n=966), and the majority (64%; n=644) also demonstrate interior sooting and/or burning, reflecting their role as cooking vessels. They were found in almost every structure except for the empty "ritual" structures on the upper terraces, as would be expected for such a useful, utilitarian type.[183]

Figure 76: Olla Type 3

[183] Type 2 ollas were found in U3.1, U4.3, U4.4, U4.5, U5.1, U6.1, U6.3, U6.6, U7.2 and probably also U4.6, U5.2, and Rydén structure 1.

Type 3 ollas (Figure 76) are the least common of the identified types from the Pukara de Khonkho, representing only 7% (n=70) of all identified sherds (9% by weight). They are identified as medium-sized squat vessels with beveled rims and a slight, short neck. The rim diameter averages 14.5 cm (SD=5.2 cm). No clear base sherds were identified from this olla type, but some body sherds suggest the presence of body handles. These ollas have a lower proportion of exterior sooting (22%; n=15) than other ollas, but interior residue is also noted on the interior of some of these sherds, suggesting that they were likely used for cooking. Interesting, Type 3 ollas are very spatially isolated, appearing primarily in the same structure (U4.4) that also contained the majority of the Type 1A ollas.[184] The possible implications of the presence of these relatively rare forms in a single structure are discussed in more detail below. However, it should be noted that despite their relatively restricted distribution, they are no more standardized than any other forms at the site.

Although it is likely that there are also other olla forms present on the Pukara de Khonkho, these three forms appear to encapsulate the majority of the olla sherds at the site. Overall, all of the olla forms here identified appear to have played an important role in everyday domestic life at the Pukara de Khonkho, appearing in fairly large quantities in all structures except for the empty "ritual" structures on the upper terraces. However, like jars, significant variation in vessel shape, inclusions, and surface treatments suggests a lack of standardization reflecting (most likely) household level production rather than centralized production.

Bowls – Bowls are significantly less common than either jars or ollas, representing only 9% (n=1280) of all identified sherds, but (as noted above) are the best known and best

[184] Type 3 ollas were found in U4.4 and U6.1, and may have also been present in U4.6 and U6.3.

documented Early Pacajes form. At the Pukara de Khonkho the bowl is the most common serving vessel, and at least a few bowl sherds appear in or near every structure excavated from the site. The bowl is here defined as a simple, open form with straight, flared walls. Like jar sherds, bowl sherds are recognized as compact with few inclusions. They are easily differentiated from jar sherds, however, due to their shape as well as higher levels of interior surface treatment (often including interior decoration.)

Of the 1054 sherds for which complete notes were taken, bowl forms were found to be compact (79%; n=825) or very compact (20%; n=213), and tend to be fired in an oxidized environment (50%; n=526), although a significant percentage (22%; n=228) were fully reduced.[185] They most often have an orange, gray, or brownish paste. While there is some variation, inclusions are most often comprised of scarce quantities of fine or very fine sand and mica, with occasional traces of caliza. The exterior surface almost always shows some amount of burnishing (84%; n=885), although a few samples (15%; n=154) are merely smoothed. Likewise, interior surface treatment is either burnished (83%; n=865) or smoothed (14%; n=146).[186] Most sherds show a red or brownish interior and exterior slip. Furthermore, bowl forms are the most likely to be decorated, with over half of all bowl sherds (52%; n=667) demonstrating interior and/or exterior painted decoration. While many sherds are somewhat eroded, only a few had signs of any sort of usewear, the most common being interior and/or exterior sooting, possibly attributable to post-depositional processes. Mending holes are also noted on some bowl samples.

[185] In addition 17% (n=178) were partially reduced and 11% (n=113) were partially oxidized
[186] One variant is actually defined by a wiped interior, consisting of approximately 5% (n=55) of the sherds.

It was difficult to specifically identify particular *types* of bowls, as they appear to have come in a range of sizes, with the same general body shapes overall. In general, there only appears to be one *type* of bowl, but a wide range of variation. As a result, rather than describing specific types as I have done for jar and olla forms, in the paragraphs that follow I discuss some of the major variation within the bowl forms, focusing on differences in base and rim shapes. Differences in decoration will be discussed below in a separate section.

The "disk base" has been defined as characteristic of Early Pacajes phase bowls (Matthews 1992), but interestingly, "disk bases" did not appear very often at the Pukara de Khonkho. In fact of all the bowl base sherds found across the entire site (n=228), "disk bases" only comprised 10% (n=23). These sherds were found associated with one burial (U6.7) and four different structures (U4.4, U4.6, U6.1, U7.1). The associated structures are all Type 2 structures[187] located on the lower terraces of the main and west faces of the Pukara de Khonkho. All structures that contained bowls with "disk bases" also contained equal or greater numbers of flat-based bowls, suggesting that this difference did not mark distinct social or ethnic groups, but rather simply a relatively rare form present at the site.

Some other attributes appeared to correlate with the variation in base shape (Table 17). First of all, bowls with disk bases appear to be somewhat smaller than average. The bases of both disk and flat based bowls measure between 3 – 8 cm with an average of 5.2 cm (n=14; SD=1.5) for disk bases and 5.4 cm (n=104; SD=1.29 cm) for flat bases. Nevertheless, disk based bowls have significantly smaller rim diameters on average than bowls with flat bases, $t(37)=2.29$, $p=0.0278$. Bowls with disk bases (n=3) have rim

[187] Except for U4.6, which was a Type 3 structures

diameters ranging between 10 – 16 cm, with an average of 12.3 cm (SD=3.21 cm). Bowls with flat bases (n=36), on the other hand, have rim diameters between 10 – 23 cm, with an average of 16.4 cm (SD=2.95 cm). Disk based bowls uniformly have tapered or rounded lip shapes while flat based bowls also have a small percentage (6%, n=6) with flat topped lips (see below).

Table 17: Bowl base shapes at Pukara de Khonkho

Base Shape	%	Rim Diameter	Base Diameter	Firing	Surface Treatment	Decoration
Disk	10% N=23	10-16 cm M=12.33 SD=3.21	3-8 cm M=5.21 SD=1.05	Oxidized	Interior = Smoothed, Burnished Exterior = Smoothed, Burnished	17% painted (N=4)
Flat	90% N=205	10-23 cm M=16.42 SD=2.95	3-8 cm M=5.38 SD=1.29	Oxidized, Partially reduced	Interior = Burnished, Smoothed Exterior = Burnished, Smoothed	61% painted (N=127)

There is little difference in surface treatment between the two forms, with the majority of each being either burnished and/or smoothed on both the interior and exterior surfaces. Nevertheless, it is interesting that while the "disk based" bowl appears more likely to be smoothed, the "flat-based" bowl is more likely to be burnished.[188] The majority of both disk-based and flat-based bowls have exterior and/or interior reddish

[188] Disk base interior = 43% smoothed (n=10), 39% burnished (n=9), 26% wiped (n=6), Disk base exterior = 52% burnished (n=12), 26% smoothed (n=6), 17% wiped (n=4); Flat base interior = 81% burnished (n=169), 18% smoothed (n=38), 4% wiped (n=8), Flat base exterior = 86% burnished (n=180), 15% smoothed (n=31).

slip, although it is more common on flat-based bowls.[189] The most notable difference is in regards to decoration, as only 17% (n=4) of "disk based" bowl sherds show painted decoration, while 61% (n=127) of "flat based" bowl sherds do. Nevertheless, there is very little difference in usewear, suggesting both flat based and disk based bowls served the same or similar function. It is impossible just from distribution at the Pukara de Khonkho to assess the meaning associated with disk based vs. flat based bowls. While disk based bowls appear less regularly at the site, they are generally found associated with structures that also have flat based bowls, and there do not appear to be major differences in production or use of either shape (Figure 77).

Figure 77: Typical flat-based bowl with rounded lip from Pukara de Khonkho. (Also note mending holes.)

The other major distinction in bowl shape at the Pukara de Khonkho is the variation in rim shape (Table 18). Of all the bowl rim sherds found at the site (n=477),

[189] Slip was noted on 48% (n=11) of disk-based bowls and 86% (n=180) of flat-based bowls.

by far the majority (89%; n=424) are constructed with either a rounded or a tapered lip, while only 5% (n=24) have an everted edge. An additional 6% (n=27) are defined by a flat top lip. These distinctions are not as notable as the difference in base shape, but it is still interesting that everted rims, which Janusek (2003) has associated with formal or ritual activities, appear less often at the Pukara de Khonkho than in other Early Pacajes assemblages. At the Pukara de Khonkho, everted rims are found associated with U3.2, U4.3, U4.4, U4.6, U5.1, U6.1, and U6.3, a selection primarily composed of Domestic/Workshop *and* Storage/Cooking structures as well as an Empty Ritual structure. Flat top rimmed bowls were almost equally broadly scattered, but appeared to be somewhat more common on the lower terraces, being found in U4.3, U4.4, U4.5, U4.6, U5.1, U6.1, U6.2, U6.6, U7.1, U7.2, and Rydén 2. Bowls with rounded/tapered rims were found in much higher quantities, appearing in almost every excavated structure.[190]

Nevertheless, only a few attributes correlated with the overall rim shape.[191] The major difference was in terms of surface treatment. In general, flat top rimmed bowls are more roughly made, and are significantly less likely to be burnished (and more likely to show the markings from wiping) than either everted rimmed bowls or tapered/rounded rimmed bowls.[192] They are also less likely to be fully slipped, with only 45% (n=12) of

[190] The only exceptions were U3.1 and U3.3, which had very few bowl sherds to begin with.
[191] It was difficult to clarify how rim shape correlated with base shape because of the lack of overlapping samples. No bases were associated with everted rimmed bowls, and only a few with flat top rimmed bowls. All disk bases that were recorded were associated with tapered/rounded rimmed bowls, but this may just be a function of representation.
[192] Flat top rimmed bowls – Internal surface treatment = 62% burnished (n=17), 23% wiped (n=6), 15% smoothed (n=4), External surface treatment = 57% burnished (n=15), 29% wiped (n=8), 11% smoothed (n=3); Everted rimmed bowls – Internal surface treatment = 81% burnished (n=19), 15% smoothed (n=4), External surface treatment = 78% burnished (n=19), 15% smoothed (n=4), 4% wiped (n=1); Tapered/Rounded bowls – Internal surface treatment = 86% burnished (n=365), 12% smoothed (n=51), Exterior surface treatment = 86% burnished (n=365), 13% smoothed (n=55).

flat-toped bowl sherds demonstrating any kind of internal slip.[193] In addition, flat top rimmed bowls are significantly less likely to contain any sort of painted decoration. In fact, only 15% (n=4) of flat top rimmed bowls are decorated (compared with 63% [n=15] of everted rimmed bowls and 65% [n=277] of tapered/rounded bowls).

Table 18: Bowl rim shapes at Pukara de Khonkho

Rim Shape	%	Rim Diameter	Base Diameter	Firing	Surface Treatment	Decoration
Tapered/ Rounded	89% N=424	13-18 cm M=15.37 SD=2.84	4-6 cm M=5.21 SD=1.25	Oxidized, Reduced	Interior = Burnished Exterior = Burnished	65% painted (N=277)
Everted	5% N=24	14-19 cm M=16.35 SD=2.76	N/A	Partially reduced, Oxidized, Reduced	Interior = Burnished Exterior = Burnished	63% painted (N=15)
Flat top	6% N=27	13-20 cm M=16.27 SD=3.38	5-6 cm M=5.5 SD=0.71	Partially reduced, Oxidized, Reduced	Interior = Burnished, Wiped Exterior = Burnished, Wiped	15% painted (N=4)

Overall, looking at the Pukara de Khonkho alone, the significance of the three varieties of rim shapes is not entirely clear. If Janusek (2003:84) is correct that everted rimmed bowls are associated with ritual/ceremonial usage, it is interesting that a high percentage of the bowl sherds in "Empty Ritual" structures have everted rims, but an equal number have tapered/rounded rims. While everted rimmed bowls appear less

[193] In contrast, 78% (n=19) of everted rimmed bowls and 72% (n=305) of tapered/rounded bowls demonstrated internal slip. However, there was little to no difference in the presence of external slip among the three varieties. 63% (n=15) of everted rims had external slip, as compared with 83% (n=22) of flat top rims, and 71% (n=301) of tapered/rounded rims.

frequently overall, however, there are not any major other attributes that differentiate them from the more common tapered/rounded rimmed bowls at the Pukara de Khonkho. Bowls with flat tops, however, appear much more distinctive. These bowls are generally thicker and more roughly made, with minimal surface treatment, and a general lack of interior slip and/or painted decoration, often instead characterized by interior wiping. These bowls also appear in higher quantities at the lower levels (including below the main terraces) and may have been used for more utilitarian purposes, perhaps related to agricultural production.[194]

Small Jars – Small jars are the final major class of ceramics found at the Pukara de Khonkho. Although they make up only approximately 2% (n=252) of all identified forms, they are among the most unique forms, and have not been previously described as an Early Pacajes form from other valleys.[195] Like bowls, small jars are generally categorized as serving vessels; they tend to be well made and are decorated following similar geometrical designs.

Of the 225 small jar sherds chosen for more intensive analysis, most were found to be compact (86%; n=194) or very compact (11%; n=25), and to be fired in an oxidized (55%; n=123) or partially reduced (29%; n=66) environment to a red or orange color. Inclusions include variable quantities of very fine sand (scarce to very dense) and scarce to moderate quantities of fine to medium grained mica, with occasional inclusions of medium sized caliza. Interior surface treatment is variable, depending on the part of the vessel recorded. Burnishing is most common near the lip, and is found on the interior

[194] The lack of interior smoothing, burnish, or slip, also suggests that they were more likely used to hold dry goods rather than soups, because the roughly wiped surface would not have held liquids.
[195] While Janusek (2003) does mention the presence of Early Pacajes *vasijas* in the Tiwanaku and Katari valleys, these are not well defined in publication.

27% (n=61) of all small jar sherds, but the interiors are also smoothed (25%; n=57), wiped (24%; n=54) and/or unfinished (15%; n=33). The exterior of the vessels are more uniform, however, with the majority of the sherds being burnished (64%; n=143) and/or smoothed (23%; n=52). Like the other serving class (bowls), slightly over half of all small jar sherds (53%; n=133) show some kind of painted decoration, but in this case the decoration is primarily external or on the internal lip. Most of the sherds show no usewear other than slight erosion, but some (7%; n=16) have interior residue, and a few (6%; n=14) have interior and/or exterior sooting or burning.

Table 19: Small jar types at Pukara de Khonkho

Type	%	Rim Diameter	Base Diameter	Firing	Surface Treatment	Decoration
1	69% N=58	*1A* 6-10 cm M=8.75 SD=1.58 *1B* 13-16 cm M=14.22 SD=1.20	1A= 4 cm 1B= 6 cm	Oxidized, Reduced, Partially reduced	Interior = Smoothed, Burnished, Unfinished Exterior = Burnished	97% painted (N=56)
2	10% N=8	4 cm	2 cm	Oxidized	Interior = Unsmoothed Exterior = Unsmoothed	25% painted (N=2)
3	21% N=18	5-6 cm M=5.67 SD=0.58	5 cm	Partially reduced	Interior = Wiped Exterior = Burnished	78% painted (N=14)

As noted, the small jar class has not been widely recognized within Early Pacajes ceramics, although Rydén (1947:295-296) did briefly describe a particular vessel from

the Pukara de Khonkho that fits within this group.[196] However, although they did not appear in large quantities, at least a couple small jar sherds were found in almost every structure, even most of the nearly empty (ritual) structures on the upper terraces. Because of the small quantity of small jars in comparison with other forms, there was not as much data to work with as in the cases of jars and ollas, and I was only able to definitively assign small jar type to 84 different shereds. Nevertheless, I was able to clearly identify three distinct *types* of small jars, and may have been able to clarify a couple of varieties as well (Table 19).

Figure 78: Small Jar Type 1

Small Jar Type 1 (Figure 78) is by far the most common of the small jar forms at Pukara de Khonkho. This is defined as a short, squat carinated jar, at least one example of which was previously noted by Rydén from the site. This form represents

[196] He categorized it as a bowl form, but it appears to conform to the vessel type that I label Small Jar Type 1. (See Rydén 1947:297, Fig. 135B)

approximately 69% (n=58; 75% by weight) of all identified small jar forms at the site. It has a small squat shape with a short neck and a sharp corner on the body just above a flat base. The exterior surface uniformly shows at least some level of burnishing, while the interior is somewhat less uniform. Almost all of the identified Type 1 small jars are decorated through external painting (97%; n=56), and some also have painting on the interior lip.

The major variation within Type 1 small jars was the presence and/or location of handles. Variants were noted with no handles, side handles, and lip handles. The form also varied widely in size. The rim flares slightly, and has a diameter that can range between 6 – 16 cm, averaging 11.6 cm (SD=3.1 cm). Likewise the base, which is defined as flat or slightly rounded, ranges in diameter between 4 – 6 cm, averaging approximately 4.6 cm (SD=0.9 cm). Considering the diagnostic pieces, there are actually two clear variations in size, the smaller of which ranges from 6 – 10 cm and averages 8.8 cm at the lip (SD=1.6 cm) and 4 cm at the base, and the larger of which ranges from 13 – 16 cm and averaged 14.2 cm at the lip (SD=1.2 cm) and 6 cm at the base. These small jars were not especially common, but were found scattered across the site, on terraces 3, 4, 6, and below and on both the main and the west faces of occupation.[197] They were also associated with all kinds of structures except for the empty "ritual" structures on the upper terraces.[198]

Small Jar Type 2 (Figure 79) is a miniature jar with only a few examples at the site. It represented only 10% (n=8) of all identified small jar forms (3% by weight). It is a small, hand molded form, with relatively thick walls, measuring approximately 4 cm at

[197] Possible sherds were also found on Terrace 5 on the eastern face of occupation.
[198] Type 1 Small jars were found associated with U3.1, U4.1, U4.3, U4.4, U4.6, U6.1, U6.3, U7.1, U7.2, and Ry 2.1. Possible sherds were also associated with U4.5, U5.1, U6.2, and U6.6.

the rim and 2 cm at the base. The Type 2 jar form was extremely rare, and was only found in association with two Domestic/Workshop structures on the third and sixth terraces of the main face.[199] It is not clear what their function could have been, as they appear to be too small to be practically useful, but it is possible that they could have had ritual use or served as a toy.

Figure 79: Small Jar Type 2

Small Jar Type 3 (Figure 80) is a more generic type used to categorize the remaining small jar types at the site. These small jars, which represent 21% (n=18) of all small jars found at the site (21% by weight), are variably defined as small vases or pitchers. This type measures approximately 5.7 cm at the rim (SD= 0.6 cm). The base,

[199] Type 2 small jars were found associated with U3.1 and U6.1.

which is flat, measures approximately 5 cm. Handles are noted on some but not all samples, both attached to the body (on forms that appeared more like a vase) and also attached to the rim, as in a pitcher-form. Like the Type 2 small jars, Type 3 small jars were not common but were somewhat less spatially restricted, being found on all three faces of occupation and on Terraces 4, 5, 6 and below.[200] The forms were also associated with structures categorized as Workshop, Cooking/Storage, and High Density Storage. As these vessels were relatively rare, they were likely used for some specialized purpose. The white substance adhering to the interior of so many of the sherds appears to be a sort of plaster or yeso, and it is hoped that in the future this interior residue can be further tested to clarify what it may have been used for.

Figure 80: Small Jar Type 3

[200] Definite examples of the Type 3 small jar were found associated with U4.4, U5.1, and U7.2. Possible examples were also found associated with U4.3, U4.6, and U6.6.

Unique and/or Other Forms – In addition to the major forms described above, there are a few ceramic tools and/or vessels that perform other functions. Although they together make up less than 1% (n=32) of all sherds on the Pukara de Khonkho, these forms are still important for an overall understanding of the ceramics at the site.

Figure 81: Ceramic rueca from the Pukara de Khonkho

The plurality of the other ceramic tools were ceramic *ruecas*, or weaving weights, composing approximately a quarter (25%; n=8) of all otherwise uncategorized forms (Figure 81). Ceramic ruecas were spread across the site, appearing on each of the three faces of occupation and on terraces 4, 5, 6, and below. They were found associated with Domestic, Workshop, and Cooking/Storage structures.[201] While nearly every structure (except for the empty structures on the upper terraces) was associated with at least one weaving weight, not all of the weaving weights were made from ceramic material.

[201] Ceramic ruecas were associated with U4.2, U4.5, U5.2, U6.1, U6.2, and U7.2

Others were made from stone. However, while individual structures appeared to be associated with *either* ceramic *or* stone weaving weights (Table 20), there was no other discernible pattern as to why one structure would utilize one material rather than the other.

Table 20: Distribution of ceramic vs. stone ruecas

Context	Description	Rueca Material	Count
U3.2BN1	Structure E534; Interior fill	Stone	1
U4.1AN3	Structure E199; Interior floor	Stone	1
U4.2FN2	Structure E550; Exterior patio	Ceramic	2
U4.3BN3	Structure E490; Interior habitation layer	Stone	1
U4.3EN2	Structure E490; Exterior habitation layer	Stone	1
U4.5AN4	Structure E320; Interior habitation layer	Ceramic	2
U5.2FN2	Structure E741; Exterior habitation layer	Ceramic	1
U6.2AN2	Structure E439; Interior habitation layer	Ceramic	1
U6.6N4	Structure E672; Interior habitation layer	Stone	1
U7.2BN4	Structure E811; Interior habitation layer	Ceramic	2

Aside from ruecas, there were a few other sherds which clearly did not fit into the typology described above, mostly a variety of *vaso* (or cup-shaped) forms, as well as a few flat plate-like forms and a few other unique pieces. These rare and unique forms may have had specialized purposes, may have been exotic pieces, or may be intrusive at the Pukara de Khonkho.[202]

Finally, while the Pukara de Khonkho has been defined as a single component Late Intermediate Period site, it should be noted that a very few Inca-Pacajes and Late Pacajes (Colonial) ceramic sherds were identified, although not in large enough quantities to suggest significant later habitation. Instead, we note the presence of a few, spatially restricted ceramic sherds in the upper levels of a few units, usually on the lower terraces,

[202] See Appendix F for a more complete discussion of these forms.

suggesting sporadic later reuse, probably focusing around the lower agricultural terraces, which were likely utilized by local or Inca populations even after the forced abandonment of the site. While the sample is not big enough to say for sure, it is suggestive that later period sherds were found associated with both of the burial locations at the site. This could suggest later reuse or remembrance of those areas even after Pukara de Khonkho was no longer used as a primary habitation site.

Table 21: Location of Inca-Pacajes and Colonial ceramics at Pukara de Khonkho

Context	Description	Period	Count	Weight
U4.4AN1	Structure E337; Interior wall fall	Colonial	2	31.57 g
U6.1AN3	Structure E470; Interior habitation layer	Colonial	2	21.42 g
U6.1BN1	Structure E470; Interior wall fall	Inca	2	4.23 g
U6.1DN1	Structure E470; Exterior wall fall	Inca	2	2.62 g
U6.6N3	Structure E672; Interior wall fall	Inca	5	43.07 g
U6.7N2	Fill near burial U6.7R1	Colonial	5	16.5 g
U7.2AN1	Structure E811; Interior wall fall	Inca	6	27.96 g

The Inca sherds found at the Pukara de Khonkho primarily come from the upper levels of the same three structures on the lowest terraces of the main face of the site (U6.1, U6.6, and U7.2).[203] Only 15 definitely Inca-Pacajes sherds were collected from the site (78.4 g of ceramic material), less than 1% of the total. These sherds include fragments of bowls, small jars, and plates (Table 21). They are differentiated from Early Pacajes period ceramics because of the presence of a deeper red slip, the use of white as well as black paint in decoration, and the presence (on the plate from U6.6) of a lip tab,

[203] Only in U6.6 do the samples come from Level 3. This unit is in close proximity to the western burials and may have been reused in ceremonies of remembrance. In U6.1 and U7.2, the samples all come from Level 1.

rather than a handle. These attributes are all common on ceramics from the Inca/Colonial period site of Ch'aucha de Khula Marka, discussed below.

The possible Colonial sherds at the site are also relatively scarce, coming from the upper levels of two structures (U4.4 and U6.1) and from contexts associated with the eastern burial.[204] A total of only 9 definitely Late Pacajes (Colonial) sherds were collected from Pukara de Khonkho (69.5 g of ceramic material), again much less than 1% of the total ceramics collected from the site. The sherds represented include fragments of ollas and bowls. They are differentiated from Early Pacajes and Inca-Pacajes ceramics because of the occasional presence of glaze (which was not utilized until after conquest), sherds that appeared to have been thrown on a wheel (also a Spanish introduction), and/or the presence of diagnostic Late Pacajes decorative motifs.

Decorative Motifs at the Pukara de Khonkho

In addition to creating a typology of vessel form at the Pukara de Khonkho, I also took careful note of the various decorative motifs present on ceramics from the site. Aside from the molded decoration on Olla Type 1A, the only form of decoration found on Early Pacajes ceramics at Pukara de Khonkho are simple, black, hand-painted designs, which appear on bowls and small jars. Most motifs are geometric and only roughly executed. While many motifs are similar to those noted on Early Pacajes forms in the Tiwanaku and Desaguadero valleys, they appear in radically different proportions.

A total of thirteen motifs (further subdivided into 33 varieties) of decoration are recorded from bowls and small jars from the Pukara de Khonkho. As was noted for all Early Pacajes bowls, geometric designs predominate, except for the presence of small fat

[204] Again this suggests the possibility that these burial sites may have been remembered even after the Pukara de Khonkho was abandoned.

llamitas. Motifs include various combinations of dots, straight or wavy parallel lines, X's and/or triangles (sometimes filled), circles, and other geometric forms. For a complete discussion of the different motifs, please see Appendix G (Figure 82, Table 22).

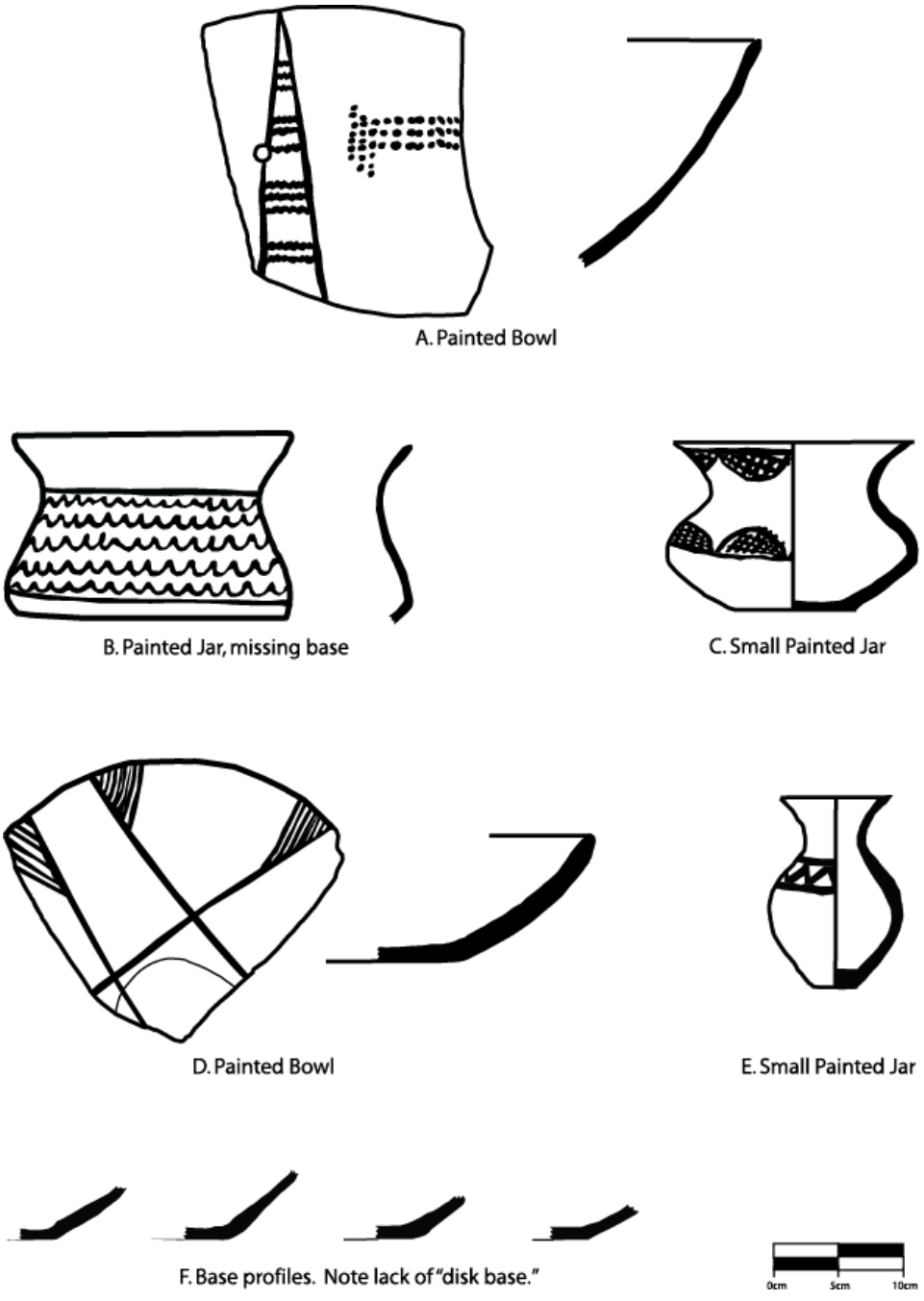

Figure 82: Decorative motifs at the Pukara de Khonkho

Table 22: Decorative motifs present on bowls and small jars at the Pukara de Khonkho, and their distribution

Motif	% Bowls	% Small Jars	Variations	Terraces	Face	Structure
Dots	33% N=240	--	Triple dot Double dot Other dot	T3 T4 T5 T6 T7	Main East West	Workshop Domestic Empty Storage/Cooking High Density
Fern	25% N=176	--	N/A	T3 T4 T5 T6 T7	Main East West	Workshop Domestic Empty Storage/Cooking High Density
Wavy line/ lace	16% N=115	48% N=62	Lace Filled lace Wavy line Other	T4 T5 T6 T7	Main East West	Workshop Domestic Storage/Cooking High Density
Parallel lines	17% N=123	15% N=19	Zig-zag Parallel triangles Other/Unknown	T4 T5 T6 T7	Main East West	Workshop Domestic Storage/Cooking High Density
Single lines	11% N=80	22% N=26	X Zig-zag Neck line	T4 T5 T6 T7	Main East West	Workshop Domestic Storage/Cooking High Density Burials
Circles	9% N=65	32% N=41	Comb Circle Filled half circle Other	T3 T4 T5 T6 T7	Main East West	Workshop Domestic Empty Storage/Cooking High Density
Ladder	10% N=68	5% N=6	Ladder Comb/ladder Spores Other	T3 T4 T5 T6 T7	Main East West	Workshop Domestic Empty Storage/Cooking High Density Burials
Pukara	9% N=61	7% N=9	Pukara Pukara tabs Pukara dots Other	T3 T4 T5 T6 T7	Main East West	Workshop Domestic Empty Storage/Cooking High Density

Llamitas	4% N=29	--	N/A	T3 T4 T5 T6 T7	Main East	Workshop Empty Storage/Cooking High Density
Lip tabs	4% N=28	18% N=24	Triple lip tab Full lip tab	T4 T5 T6	Main East	Workshop Storage/Cooking High Density Burial
Thick decorations	4% N=28	8% N=11	N/A	T4 T6	Main West	Workshop Domestic Storage/Cooking High Density
Small symbols	2% N=13	4% N=5	Plus Other	T4 T5 T6	East Main	Workshop Domestic Storage/Cooking High Density
Cross-hatching	1% N=5	12% N=16	N/A	T4 T6	Main	Workshop

Bowl Decoration – Overall, 52% of the bowl sherds collected from Pukara de Khonkho (n=667) have some sort of painted decoration (65% by weight), usually on the internal face. Of bowls with decoration, 82% (n=547) have internal decoration only (78% by weight), while 16% (n=107) demonstrate both internal and external decoration (20% by weight).[205] There does not appear to be any major difference in the presence or absence of decoration depending on terrace level or face of occupation. Decorated bowls were found associated with all structures except for U2.1 and U3.1. As noted in Chapter 5, however, Type 2 structures were significantly more likely to contain more decorated ceramics than Type 1 structures, following a Chi-squared test of independence with Yates

[205] An additional 2% (n=13; 1% by weight) show only external decoration.

correction: X^2 (1, N=15696) = 140.29, p<.0001. In addition, there are some differences in the *type* of decoration present on different vessels, as demonstrated below (Figure 83).

Figure 83: Common motifs found on bowls at Pukara de Khonkho (Dots, pukara, fern, wavy line, parallel lines, comb)

The most common motifs found on bowls at Pukara de Khonkho were triple lines of dots and "fern" motifs. Simple lines of dots were the most common, appearing on 33% of all decorated bowls (n=240; 28% by weight). Most often dot designs took the form of lines of three dots tracing around the bowl's interior and/or exterior, often without any obvious pattern. Occasionally the lines would consist of double dots of lines, but this was rarer. The triple dot design could appear alone[206] or in combination with most of the other motifs noted from the Pukara de Khonkho. However, it most often appeared with

[206] Approximately 2/3 of the time

the "fern design" which was the next most common design at the site, present on 25% of all decorated bowls (n=176; 28% by weight). Like a fern, this motif is characterized by thin parallel lines emanating at an angle from a longer, thicker line. It most often appeared alone, but also appeared in combination with most of the other designs.[207] Both the triple dot and the fern motifs were found on bowls across the site of Pukara de Khonkho, on all terraces below Terrace 2, and on all three faces of occupation. These decorations appeared in moderate quantities in all types of structures, although the triple dot motif was somewhat more common in Workshop structures. Bowls decorated with the triple dot motif tended to be of average size, while bowls with the fern motif are often somewhat larger than average.[208]

The next most common motifs identified on bowls at the Pukara de Khonkho were variations of a wavy line/lace motif, represented on 16% of all decorated sherds (n=115; 19% by weight), and variations of a parallel lines motif, represented on 17% of all decorated sherds (n=123; 15% by weight). These motifs are characterized by a few different variations (described in Appendix G). Bowls portraying these variations were found across the site on terraces 4 and below and on all three faces of occupation. Both motifs appeared in moderate quantities associated with all types of structures at the site, with the exception of the "empty" ritual structures on the upper terraces.

Only slightly less popular are single line designs, represented on 11% of all decorated sherds (n=80; 15% by weight), circular, semi-circular, or spiral motifs, representing 9% of all decorated sherds (n=65; 15% by weight), "ladder" motifs, represented on 10% of all decorated sherds (n=68; 10% by weight), and "pukara"

[207] The "fern" motif never appears with the thick (possibly Inca) designs nor any cross-hatching.
[208] Rim diameter mean is 16.7 cm and the base diameter mean is 5.3 cm

motifs,[209] represented on 9% of all decorated sherds (n=61; 12% by weight). Each of these motifs encompasses a variety of different variations, which are described in more detail in Appendix G. All of these styles were found across the site on Terraces 4 and below and on all of the major habitation faces.[210] These motifs were all also found in all types of structures except for the empty "ritual" structures on the upper terraces, where only the "ladder" and "pukara" motifs were noted.

While the *llamita* design is among the most common (and most diagnostic) of the Early Pacajes motifs identified in the Tiwanaku and Katari valleys, it is surprisingly underrepresented at the Pukara de Khonkho, appearing on only 4% of all decorated bowl sherds (n=29; 8% by weight). Like all Early Pacajes *llamitas*, those found on the Pukara de Khonkho are roughly drawn and plump. They usually appeared alone and on the interior surface of the vessels, but could also appear externally and/or in association with a few other motifs.[211] While the *llamita* motif was not common, however, it was found across the site, on Terrace 3 and below as well as on the main and eastern faces of site occupation. (Although it was not found on the Western face, its overall distribution is so low that this could just be a sampling error.) Bowls with the *llamita* motif were also found associated with almost all structure types, and were one of only two motifs present in the "Ritual" structure 3.3.[212]

[209] Previously described in Janusek (2003)
[210] All but the single line motifs were also found on the third terrace. Circular motifs were proportionally more common below the major terraces.
[211] The *llamita* motif appeared most often the lace or wavy line designs, although it was also found with the circular "comb," the fern, the triple dot, and the parallel line motif, as well as with triple tabs.
[212] Overall, bowls with the llamita motif were associated with U3.2, U3.3, U4.3, U4.4, U5.1, U6.1, U6.2, U6.3, and U7.2.

Other rare motifs included "lip tabs,"[213] represented on 4% of all decorated sherds (n=28; 4% by weight), thick blocky designs,[214] represented on 4% of all decorated sherds (n=28; 3% by weight), small, distinct symbols,[215] represented on 2% of all decorated sherds (n=13; 3% by weight), and cross-hatching, represented on 1% of all decorated sherds (n=5; 3% by weight). The specific varieties and distribution of each of these motifs are discussed in more detail in Appendix G. Each of these symbols appeared both alone and with other symbols, and no discernible pattern was noted in their distribution across the site.

Overall, the decorative motifs present on bowls at the Pukara de Khonkho are in line with general previously identified "Early Pacajes" motifs. The circular motifs are the only designs present at the Pukara de Khonkho that appear as if they might correlate with Janusek's (2003) "Umasuyu" style, while most of the other motifs appear to have more in common with the "Urkosuyu" style. Nevertheless, as will be discussed below, there are some major differences in stylistic representation between this site and other Early Pacajes settlements.

The motifs present on bowls at the Pukara de Khonkho all appear to be well spread out across the site, with few clear-cut patterns of representation. Structures with the most ceramics overall (Workshop structures) were most likely to have the highest greatest diversity of motifs represented, while structures with the fewest ceramics overall (Ritual structures) had the lowest diversity of motifs.[216] However, in all but the ritual

[213] At least some of which may be a Late Pacajes (Early Colonial) motif
[214] At least some of which are likely Inca
[215] Including the "+" and the "#" sign
[216] Workshop structures had an average of 12 motifs, High Density Storage structures had an average of 8 motifs, Domestic structures had an average of 7 motifs, Cooking/Storage structures had an average of 6 motifs, and Ritual structures had an average of 2 motifs.

structures, dots and ferns were by far the most common motifs, while the less popular motifs were also proportionately represented. In other words, all motifs appear to be almost equally likely to be used on any part of the site (although some are more popular overall than others), suggesting a lack of internal divisions and relatively strong social solidarity within the site. The only exception here was in and around "ritual" structures, which had significantly fewer motifs overall, but where fern, ladder, pukara, and llama motifs were equally popular.

Small Jar Decoration – Small jars are the only other major category of ceramics at the site that are regularly decorated. Over half (53%; n=133) of the small jar sherds found at Pukara de Khonkho (68% by weight) demonstrate some form of painted decoration. The motifs used are exclusively geometric and are generally similar to those on the bowls, although the varieties of designs utilized tend to be more restricted, and there are some unique variations that only appear on small jars (Figure 84).

By far the most common motif utilized on small jars at the site of Pukara de Khonkho is the way lines/lace motif, which appears on 48% of all decorated sherds (n=62; 48% by weight). However, while they are similar, somewhat different variations of this motif appear on small jars than on bowls. The most common variations of this motif on small jars were the simple lace and the filled lace motifs, each representing approximately 33% (n=20) of all sherds decorated in this style.[217] The next most common variation was the simple wavy line, representing approximately 19% (n=12) of small jar shreds utilizing this motif. In addition, a couple of other variations occurred on only one or two examples, including the lace motif filled with cross-hatching decoration and the interconnected wavy line. Decoration most often appeared on the exterior of the

[217] While the simple lace motif was common on bowls, the filled lace motif was very rare.

small jars, but could also appear on the interior lip. The wavy line/lace motifs could appear alone or in combination with nearly all of the other motifs that regularly appeared on small jars at the site.[218] Small jars with these motifs were found associated with all structure types with the exception of the empty "ritual" structures, and were found on the main and the western faces on Terraces 3, 4, 6, and below. The wavy line/lace motif was exclusively associated with Type 1 small jars (carinated jars), most of which appeared to be of the smaller variation, measuring an average of 10.2 cm at the rim and 3.5 cm at the base.

Figure 84: Common decorative motifs found on small jars at the Pukara de Khonkho

[218] Including circle/spiral motifs, single line motifs, lip tabs, cross-hatching, "pukara" motifs, thick line motifs, and ladder motifs.

The next most common motif found on small jars at the site was the circle/spiral motifs, which appeared on approximately 32% of decorated sherds (n=41; 41% by weight). The most common variation of this motif on small jars was the filled half circle (representing 51% [n=21] of the examples), which often appeared on the interior lip of Type 1 small jars, but could also be found on the exterior surface. The next most common was the simple circle,[219] appearing on 40% (n=16) of the samples with this motif, which was usually found on the exterior surface of Type1 jars, sometimes in combination with the filled half circle variation. In addition, a spiral design was noted on a few sherds. The circle/spiral motif could appear alone or in combination with most of the other motifs noted at the Pukara de Khonkho, although it most often appeared in combination with the single line designs.[220] These designs were noted exclusively on Type 1 small jars, and could appear on the interior or exterior of the sherd. The jars tended to be of the large variety, although smaller jars with these designs were also noted. The average rim diameter was 12.7 cm, while the base diameter measured an average of 5 cm. Bowls with this motif were found associated with Workshop and Cooking/Storage structures on the main and western faces of the site on Terraces 4, 6, and below.[221]

Other very common motifs included single line motifs, represented on 22% of all decorated sherds (n=26; 41% by weight) and lip tabs, represented on 18% of all decorated sherds (n=24; 17% by weight). The single line design most often took the form

[219] Note: This design, which has been associated with the Umasuyu style, is much more common on small jars than it is on bowls at the Pukara de Khonkho.
[220] The circle/spiral motif also appeared in combination with ladder motifs, "pukara" motifs, wavy line/lace motifs, lip tabs, and cross-hatching.
[221] Vessels with this motif were associated with U4.3, U4.4, U4.6, U6.1, U7.2, and Ry 2.1

of a zigzag or a single line around the neck.[222] The lip tabs could take the form of the triple lip tab or tabs painted continually around the lip of the vessel.[223] Both motifs could appear on the exterior of the vessels or along the interior lip. Both motifs were found across the site in nearly all kinds of structures except for the empty "ritual" structures.

Slightly less common were parallel line designs, represented on 15% of all decorated small jars (n=19; 18% by weight), cross-hatching, represented on 12% of all decorated small jars (n=16; 8% by weight), and "pukara" designs, represented on 7% of all decorated small jars (n=9; 20% by weight). Multiple variations of each motif are described in Appendix G. These motifs were found primarily on Type 1 carinated small jars, although a parallel zig-zag motif was also noted on a Type 3 pitcher. These motifs were all relatively rare, and appeared primarily in the high-density "workshop" structures, although a few examples with these motifs were found in other parts of the site.[224]

The rarest of the motifs found on small jars at the Pukara de Khonkho were the thick, blocky motifs,[225] represented on 8% of all decorated small jars (n=11; 3% by weight), "ladder" motifs, represented on 5% of all decorated small jars (n=6; 12% by weight), and the small, distinct symbols, represented on 4% of all decorated small jars

[222] These motifs were primarily noted on Type 1small jars, but the zig-zag variation was also noted on at least one example of a Type 2 small jar. Vessels with these motifs were associated with U3.1, U4.3, U4.4, U4.6, U5.1, U6.1, U6.2, U7.1, and U7.2

[223] Unfortunately, it was not always possible to identify vessel type on small jars with this motif, but where it was possible, it appears to always have been painted on Type 1 small jars. Small jars with these motifs were associated with U 4.1, U4.4, U5.1, U6.1, U6.7 and Ry 2.1

[224] Small jars with the parallel line motifs were associated with U4.1, U4.3, U4.4, and U7.2. Small jars with cross-hatching motifs were associated with U4.3, U4.4, and U6.1. Small jars with "pukara" motifs were associated with U4.3, U4.4, U61, and U7.2.

[225] Some of these may date to the Inca Period. At least one example of clearly Inca polychrome painting was noted on one of the small jars.

(n=5; 1% by weight). These motifs are found in small quantities in different structure types on the lower terraces of the main and western faces of the site.

Overall, the decorative motifs found on small jars at the site were not dissimilar from decorative motifs found on bowls at the Pukara de Khonkho and elsewhere in the Pacajes area, although the patterns of representation were somewhat distinct. While dots and fern motifs were most common on bowls, small jars were more likely to be decorated with the wavy line/lace motif, circular motifs, or single line designs. Furthermore, there was less variety in the decorative motifs appearing on small jars than on bowls, although this could just be a reflection of representation, as so many fewer small jars were found at the site. Nevertheless, like the bowls, the decorative motifs found on small jars were well distributed across the site, with few obvious patterns in representation, suggesting a lack of internal divisions and a level of shared identity within the site.

Ceramic Production and Site Integration at Pukara de Khonkho

In summary, I created a typology of the Early Pacajes ceramics from Pukara de Khonkho, based primarily on form, but also considering variables such as paste, surface treatment, firing environment, and decoration. The ceramics were initially assigned to one of five broad formal/functional classes: storage jars, cooking ollas, serving bowls, serving/specialized vessels (small jars), and other/unknown. Specific types, based primarily on form, were identified within each of these classes, and helped to address the functional uses of the vessels at the site. Four specific types of jars were identified, of which three (Type 1, Type 2, and Type 4) were very similar (differing only in terms of neck shape and overall size) and likely served as storage vessels holding water or small grains. These types of vessels would have been important on a site like Pukara de

Khonkho, where it would have been necessary to haul water up from springs, located a few hundred meters below major occupation. The third jar type (Type 3) was much larger, with an extremely short and only slightly restricted neck, likely serving as a fermentation vessel or large storage container.

Ollas were much more difficult to identify, because they were generally less well preserved. However, three specific olla types were identified, although it is likely that other types may have been present, but not well preserved enough to classify. All identified olla types were thin-walled, squat vessels, with short and only slightly restricted necks, which were often characterized by severe external (and occasionally internal) burning and sooting. Type 1 (and probably Type 2)[226] ollas both had handles extending from the lip, and one variety of Type 1 olla demonstrated molded decoration at the point of handle attachment to the lip. Type 3 ollas appeared to lack handles, and were characterized by a beveled rim. The presence of burning and/or sooting on almost all olla sherds helps to clearly categorize these vessels primarily as cooking vessels.

Bowls are among the most diagnostic and interesting of the ceramics collected from the Pukara de Khonkho, and from most Early Pacajes sites (e.g. Albarracin-Jordan 1992; Bandy 2001; Janusek 2003a; Matthews 1992), primarily because they were thought to be the only major Early Pacajes form that was regularly decorated.[227] All bowls found at Pukara de Khonkho were simple open forms that were often painted on the interior (and occasionally the exterior) surface. However, although there was some variation in bowl form, it was impossible to identify any specific types, since the variations on specific attributes were generally rare and did not necessarily correlate with variations on

[226] Type 1 and Type 2 ollas differed primarily due to size – Type 1 ollas were bigger and usually had thicker walls. Type 2 ollas were smaller, with extremely thin walls.
[227] The decorated small jar forms found at Pukara de Khonkho were not previously known from other sites.

other attributes. The majority of the bowls had simple flat bases and rounded or tapered rims, and slightly over half demonstrated simple black painted decoration, most often in geometric shapes. A small subset of bowls, however, had "disk" or pedestal (rather than flat) bases, an attribute that generally characterizes Early Pacajes bowls at other sites (as we will see below). Interestingly, these bowls were less likely to be decorated than flat-based bowls. Another small subset had slightly everted rims and overall thinner walls than other bowls; these bowls may have been associated with ritual/ceremonial use (following Janusek 2003a). Finally, a third subset of bowls had flat-topped rims, and was much more roughly made, with thicker walls, wiped surfaces, and little to no painted decoration, likely serving more utilitarian purposes than the other bowls at the site.

The class of serving/specialized vessels at Pukara de Khonkho was generally categorized into three different types of small jars, many of which had external (and occasionally internal) black painted decoration. This class had not been previously recognized from any other Early Pacajes site, although this may just be because of a dearth of work that has been conducted at these sites; small jars only made up a very small percentage of the ceramics from Pukara de Khonkho, and this level of representation could easily have been overlooked at smaller sites or in smaller projects. The major small jar type was a well-made short, squat, carinated jar with thin walls and external painting with geometric motifs, which could have been used as a serving vessel or for storing small quantities of important material. Other small jar varieties included miniatures, which appeared too small to have anything but ceremonial value (and tended to be found on the "empty" upper terraces), and a few well-made pitcher or vase fragments, which were likely used as serving vessels in specific contexts.

In addition to the four major classes of ceramics at Pukara de Khonkho, additional ceramic artifacts were found including ceramic ruecas (weaving weights), small plates, vasos, and unidentified pieces. These tools likely had specialized uses, but did not appear with enough frequency to influence the overall interpretation and analysis of the ceramic assemblage of the site.

Table 23: Coefficient of variance for different vessel types at Pukara de Khonkho

Ceramic Type	Lip variance	Base variance
Jar Type 1	15.97	14.14
Jar Type 2	16.32	7.53
Jar Type 3	13.29	--
Olla Type 1	20.13	31.92
Olla Type 2	29.68	14.29
Olla Type 3	14.19	--
Bowls	18.7	24.28
Small Jar Type 1	26.8	20.16

An overall general lack of standardization was noted throughout the ceramic assemblage, whether the focus was on measurements of form, codification of decoration, or production attributes like paste inclusions, surface treatment, or firing environment (Table 23). Taking the most common ceramic type (Jar Type 1) as an example, the coefficient of variance of the lip measurement is 15.97%. Base measurements are equally variable, with a coefficient of 14.14%[228] For comparison, a unimodal biological population will not have a coefficient of variance of more than 10% (Costin and

[228] Coefficient of variance for the other two jar types is 16.32% for Type 2 jars and 13.29% for Type 3. Not enough bases from Jar Type 3 were recorded, but bases for Jar Type 2 were somewhat less variable, at 7.53%

Hagstrum 1995).[229] Among the assemblage at Pukara de Khonkho, ollas are even more variable than jars, with coefficients for different types ranging between 19.82% - 36.07% for lip measurements and between 9.43% - 49.38% for base measurements.[230] Likewise bowls had a coefficient of variance of 18.7% at the rim and 24.28% at the base, while Type 1 Small Jars varied by 26.8% at the rim and 20.16% at the base.[231] Furthermore, there is a lot of variability in firing environments as well as levels of inclusions found in the clay.

Taken together, the implication is that the ceramic assemblage found at Pukara de Khonkho was likely produced by what Costin (1991) labels "individual specialization" – "autonomous individuals or households dispersed uniformly among the population and producing for unrestricted local consumption" (Costin and Hagstrum 1995:621). In addition to the relatively low levels of mechanical standardization (judging from the high levels of variance noted above), the ceramic assemblage for the Pukara de Khonkho demonstrates an overall low labor investment, as all pieces tend to be simply made and decorated. While the ceramics are relatively well-made, the skill required to make them is not especially high. In addition, the discovery of raw pottery-quality clay and other indications of pottery-making in some of the circular structures at Pukara de Khonkho, suggests that ceramics were made on-site for local use, although the indication of other types of craft production in those same structures suggests that such production was not highly specialized.

[229] As Costin and Hagstrum (1995:632) note, this larger number could mean that there area unrecognized "types" present in the assemblage I have categorized as Jar Type 1, but it's more likely that "there may in fact be greater variability within hand-built archaeological ceramic assemblages than in biological populations, ancient mass-produced assemblages, or ethnographic assemblages."

[230] Coefficient of variance for olla Type 1 jars is 20.62% for rims and 49.38% for bases, for Type 2 jars it is 19.82% for rims and 9.43% for bases, and for Type 3 olla rims it is 36.07% (not enough bases to measure).

[231] The large coefficient of variance for small jars may reflect the fact that the small jar forms seemed to divide into two basic sizes, but unfortunately the sample size is too small to get more precise.

However, despite the low levels of mechanical standardization, levels of intentional standardization suggest a certain amount of internal integration and shared habitus. There are clear vessel types and a shared decorative style across the entire site, suggesting that the inhabitants shared a daily local practice (following Yaeger 2000) reflected in shared stylistic understandings. Furthermore, the distribution patterns of these ceramics across the site suggest shared understandings of appropriate places to utilize different tools. For example, judging from the ceramic distribution, the upper terraces were not used for regular domestic activities. Very few olla sherds were found on Terraces 2 & 3, while the proportion of bowls and small jars was significantly higher. Bowls on higher terraces were also more likely to be decorated. Another significant pattern is that bowls on the west face were less likely to be decorated than bowls on the main or eastern faces. It should be noted that these differences in ceramic distribution correlate with already noticed patterns in structure type and other artifact distribution, discussed in Chapter 5. Taken together, the ceramics at Pukara de Khonkho support an interpretation of the site as an integrated community that produced most of its materials locally and with little hierarchical or regional-level organization.

Ceramics at Late Intermediate Period Khonkho Wankane

In order to consider how Pukara de Khonkho may relate with other Late Intermediate Period sites in the Pacajes region, a sample of Early Pacajes sherds from Khonkho Wankane was chosen for comparative analysis. These ceramics came from 47 distinct archaeological contexts, which had been previously identified as closed contexts

containing primarily Early Pacajes sherds.[232] The sample was made up of 1012 sherds dating to the Early Pacajes period[233] (a total of 9053 g of ceramic material), and was analyzed following the same system as that described in Appendix E for the analysis of the sherds from Pukara de Khonkho.

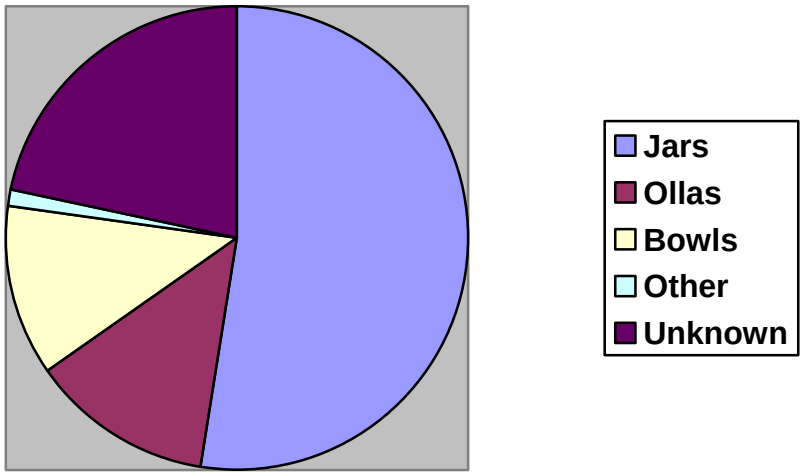

Figure 85: Representation of vessel forms at Late Intermediate Period Khonkho Wankane

Comparative Typology for Khonkho Wankane

As noted in the previous chapter, jars were the most prevalent Early Pacajes form at Khonkho Wankane, making up more than half of the collected sherds. Ollas and bowls made up the bulk of the remainder of the identified ceramics, but a few other forms were noted as well (Figure 85). Surprisingly, jars are overrepresented here even in comparison with Pukara de Khonkho, where water storage would have been much greater of a concern. This may be an error of preservation. Overall, ceramics were not as well preserved at Khonkho Wankane as they were at Pukara de Khonkho, likely because of

[232] The initial analysis was conducted by Dr. John Janusek.
[233] An additional 243 sherds from these contexts (together weighing 1400 g) were found to date to Formative, Tiwanaku, Inka-Pacajes, or Late Pacajes periods.

higher levels of modern use at the site of Khonkho Wankane, and the fact that Early Pacajes sherds are generally found in the first 10 cm of soil at the site. However, as previously discussed, this distribution would seem to suggest that the Late Intermediate Period occupation of Khonkho Wankane as not primarily domestic.

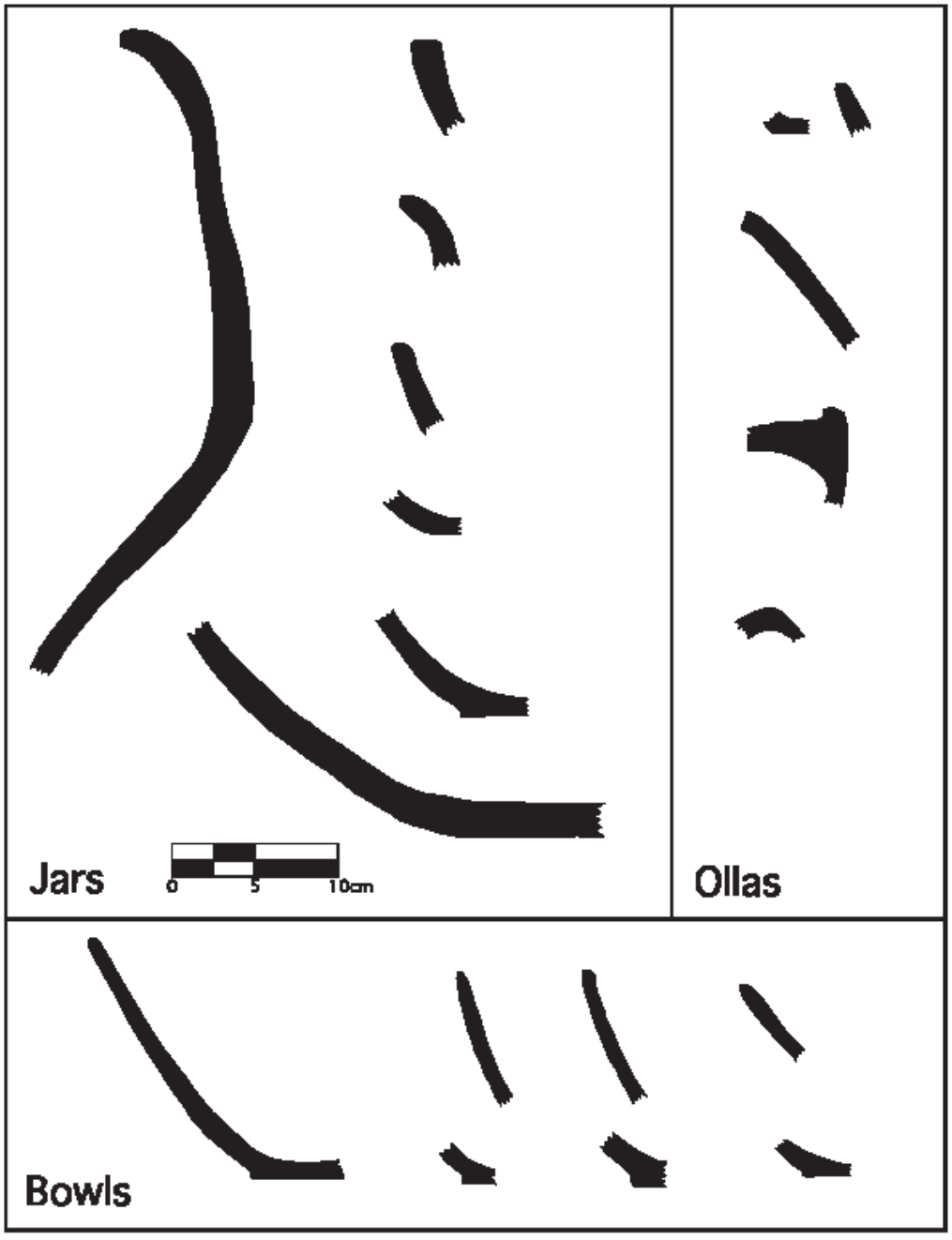

Figure 86: Early Pacajes vessel forms at Khonkho Wankane

In the sections that follow, I discuss the various Early Pacajes forms identified at Khonkho Wankane and how they differ from or are similar to Early Pacajes forms at Pukara de Khonkho (Figure 86). I conclude with a discussion of how both samples compare with previously recorded Early Pacajes forms from the Tiwanaku and Katari valleys, and what these similarities and differences may mean for our understanding of the Late Intermediate Period in the southern Titicaca Basin.

Figure 87: Sample of jar sherds from Khonkho Wankane. Note that most sherds are much smaller than from Pukara de Khonkho.

Jars – While jars were the predominate form at Khonkho Wankane, it was difficult to assign most jar sherds to particular "Types," as was done at Pukara de Khonkho, because the samples were simply not as well preserved. As a result, the only obvious Early Pacajes jar type identified at the site was a type most similar to the Type 1 jars from

Pukara de Khonkho (Figure 87). Two nearly complete vessels were identified corresponding to this form, with a medium-long neck and a bulbous body with two handles attached to the sides.[234] Other diagnostic sherds from the site appeared to have corresponded most closely to either Type 1 or Type 4 jars at the Pukara de Khonkho (which differed primarily in terms of size).[235] No jar forms similar to Type 2 (with the bulbous neck) or Type 3 (the large open jar form, possibly used for fermentation) were found at Khonkho Wankane. However, there was evidence of a different jar type (Type 5) not recognized at Pukara de Khonkho.

Type 5 jars are characterized by the presence of painted external decoration, which generally took the form of rough, thick lines along the lip or around the neck. While less than 1% of jars were decorated at the Pukara de Khonkho (n=11), approximately 3% of Early Pacajes jars (n=18; 1% by weight) at Khonkho Wankane had some form of external decoration. These vessels usually had thick, compact walls and an everted rim, which measured between 14-19 cm in diameter.

Overall the measurements of diagnostic jar sherds from Khonkho Wankane were similar to the average of Jar Types 1, 2, and 4 from Pukara de Khonkho, ranging from 8 – 21 cm at the rim and 5 – 8 cm at the base.[236] The wide range of variation at Khonkho

[234] These vessels were found near Late Intermediate Period cemetery areas in Sector 14 and Sector 9 (U9.24R1), and were likely buried whole with an offering associated with the burial context. While within the range for Type 1 vessels at the Pukara de Khonkho, they were somewhat larger than average. The jar from Sector 9 measured 18 cm at the rim and 8 cm at the base, while the jar from Sector 14 was missing its rim, but also measured 8 cm at the base. Both jars had thick, compact walls, and were fired in an oxidized environment to a red or orange color.

[235] At the Pukara de Khonkho, Type 1 jars averaged 15 cm in rim diameter and had slightly longer necks than Type 4 jars, which averaged 9 cm in rim diameter and had slightly shorter necks and more bulbous bodies.

[236] Type 3 jars from the Pukara were much bigger than other jar types, and the inclusion of these sherds in the analysis makes it look like jars at Pukara de Khonkho were much bigger. When you exclude Type 3 jars however, jars from the Pukara de Khonkho averaged 14.55 cm at the rim (SD=3.63), while jars from Khonkho Wankane averaged 14.17 cm (SD=3.47). The same sample of jars from Pukara de Khonkho

Wankane, as at Pukara de Khonkho, points to low levels of standardization at this site as well.[237] As at the Pukara de Khonkho, most jar rims were either rounded or everted and most jar bases were flat. Little useware was noted, but it is likely that the jars were used for similar functions at both sites. However, mending holes were not noted at Khonkho Wankane, although they appeared on many examples at Pukara de Khonkho.

From a technical perspective, jars at both sites appeared to be constructed in much the same way. As at the Pukara de Khonkho, jars from Khonkho Wankane were red or orange,[238] and were fired in an oxidized or partially reduced environment, to a compact paste. At both sites, the majority of jars had an external slip, although approximately one third from each site showed no evidence of slip on either surface. At both sites the interior surface tended to be wiped and/or smoothed, while the exterior was burnished and/or smoothed, although burnishing was somewhat more common on jars from the Pukara de Khonkho than from Khonkho Wankane.[239] Inclusions present in jars from both sites were also largely similar, although somewhat more variable among the samples from Pukara de Khonkho. In addition, jars from Khonkho Wankane were less likely to use fine sand as temper, but often had more caliza, quartz, and/or biotite. Finally, jars from Khonkho Wankane could be, on average, somewhat thicker than jars at Pukara de Khonkho.[240]

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averaged 7.18 cm (SD=2.19) at the base, while jars from Khonkho Wankane averaged 6.14 cm (SD=1.21 cm).

[237] The overall coefficient of variance for the jar rim at Khonkho Wankane = 24.5% (as compared to 31.8% at Pukara de Khonkho) and for the jar base = 19.8% (as compared to 30.1% at Pukara de Khonkho).

[238] The most common Munsell colors from Pukara de Khonkho are 10 R 5/6 (red), 2.5 YR 5/6 (red), and 2.5 YR 5/8 (red). The most common Munsell colors from Khonkho Wankane are 10 R 5/8 (red), 10 R 5/6 (red), and 10 R 5/3 (weak red).

[239] 62% (n=1825) of jars from the Pukara de Khonkho showed some level of burnishing, while only 37% (n=34) of jars from Khonkho Wankane were burnished.

[240] At the Pukara de Khonkho only 41% (n=1191) of the jar sherds measured a thickness greater than 5 mm. At Khonkho Wankane 93% (n=85) were thicker than 5 mm.

Figure 88: Sample of olla sherds from Khonkho Wankane

Ollas – As already noted, ollas are extremely underrepresented among Late Intermediate Period contexts at Khonkho Wankane, and the olla sherds that are present are often poorly preserved and lack clear diagnostic sherds (Figure 88). As a result, it was even more difficult to identify specific "types" of ollas from Khonkho Wankane than it was at Pukara de Khonkho. However, there was at least one clear example of a sherd from a Type 1A olla (with molding at the connection of the handle and the lip) at the site, which was essentially identical to Type 1A ollas found at Pukara de Khonkho.[241] With this exception, however, it was impossible to definitively assign Early Pacajes ollas from Khonkho Wankane to a specific type. In general, ollas from Khonkho Wankane had a

[241] This sherd came from Sector 12, an area of the site which produced most of the Early Pacajes ollas, and where there was evidence of possible Late Intermediate Period domestic habitation. Interestingly, however, the two Type 1A ollas that were tested through ICP-MS were assigned to different chemical characterization groups.

somewhat globular shape with a short neck and handles often extending from the lip or just below it. It is notable that molded decoration in general is still rare among Early Pacajes ollas at Khonkho Wankane, appearing on only 2% (n=6) of all olla sherds.[242]

In terms of overall measurements, the ollas found at Khonkho Wankane are very similar to ollas found at Pukara de Khonkho. At both sites, there is a large range of variation in measurement, with rim diameter ranging between 7 – 22 cm (M=13.9 cm; SD=4.6) at Khonkho Wankane, and between 6 – 25 cm (M=13.9 cm; SD=3.11) at Pukara de Khonkho. Ollas at Khonkho Wankane are somewhat more likely to have everted (rather than rounded) rims, but otherwise seem very similar. As would be expected for cooking vessels, over half of the ollas from Khonkho Wankane, like those at Pukara de Khonkho, showed signs of external burning. At both sites the high coefficients of variance suggest generally low levels of standardization, although these extremely high levels likely mark some unrecognized type differentiation.[243]

From a technical perspective, ollas from both sites also appeared to be somewhat similar, with slight differences that may have been due to sampling error, although they also seem to suggest that ollas from Khonkho Wankane may have been more roughly made. Ollas from Khonkho Wankane were generally yellower than ollas from Pukara de Khonkho[244] and were more likely to be fired in a partially oxidized environment.[245] Ollas from Khonkho Wankane were also generally thicker, with a more compact paste than

[242] At the Pukara de Khonkho, approximately 1% (n =70) of olla sherds demonstrated molded variation.
[243] At Khonkho Wankane, the coefficient of variance for rim diameter is 33.5% (compared to 22.3% at Pukara de Khonkho), and the coefficient of variance for base diameter is 24% (compared to 31.7% at Pukara de Khonkho).
[244] At Khonkho Wankane the most common Munsell colors for ollas were 7.5 YR 6/6 (reddish yellow), 10 R 4/4 (weak red), and 5 YR 4/6 (yellowish red). At Pukara de Khonkho the most common Munsell colors were 10 R 5/6 (red), 5 YR 4/4 (reddish brown), and 2.5 YR 4/2 (weak red)
[245] At Khonkho Wankane 40% (n=28) were partially oxidized, 28% (n=20) were reduced, and 23% (n=16) were partially reduced. At Pukara de Khonkho 38% (n=1094) were partially reduced and 33% (n=957) were oxidized.

ollas from Pukara de Khonkho. Inclusions were basically similar, although ollas from Khonkho Wankane did tend to have coarser inclusions of mica and caliza. In addition, surface treatment of ollas at Khonkho Wankane was much more variable than ollas from Pukara de Khonkho. At Khonkho Wankane, the interior of the ollas was generally wiped, while the exterior could be burnished, wiped, or unsmoothed, whereas at the Pukara de Khonkho the majority of the ollas were simply smoothed. Ollas from Khonkho Wankane were also more likely to have interior and/or exterior slip.

Figure 89: Sample of bowl sherds from Khonkho Wankane

Bowls – The most notable distinctions, however, between the ceramic assemblages of Khonkho Wankane and Pukara de Khonkho are found among the serving vessels (bowls and small jars), particularly when decorative motifs are also considered. This is not

entirely surprising since previous researchers have already noted that bowls are among the most diagnostic of the Early Pacajes forms (e.g. Albarracin-Jordan and Matthews 1990; Bandy 2001; Janusek and Kolata 2003).

Bowls from both sites are very similar in size and likely in function as well. At Khonkho Wankane bowl rim diameters average 14.35 cm (SD=3.08) and bases measure 6.25 cm (SD=2.11).[246] High coefficients of variance (21.5% for rim measurement and 33.82% for base measurement) suggest overall low levels of standardization. Like bowls from Pukara de Khonkho, bowls from Khonkho Wankane are open forms with straight, only slightly curved walls and (most often) tapered or rounded rims. Bowl sherds from Khonkho Wankane are somewhat less likely to be decorated (only 37% [n=48] of Khonkho Wankane bowl sherds are painted, as compared to 52% [n=667] of Pukara de Khonkho bowl sherds), but this may simply be a result of the fact that sherds tend to be smaller and less well preserved at Khonkho Wankane than at Pukara de Khonkho.

Bowls from both sites are also very similar in terms of technical production. Like bowls from Pukara de Khonkho, bowls from Khonkho Wankane are generally red or orange in color,[247] and tend to be fired in an oxidized environment.[248] Likewise, bowls from both sites have medium-thick walls and compact. Inclusions were also very similar, although fine sand was somewhat more common at Pukara de Khonkho, while caliza, quartz, and biotite were somewhat more common at Khonkho Wankane. Surface

[246] At Pukara de Khonkho the average rim diameter is 15.44 cm (SD=2.89) and the average base diameter is 5.33 cm (SD=1.29).
[247] The most common Munsell collors at Khonkho Wankane are 10 R 5/6 (red), 2.5 YR 5/6 (red), and 10 R 5/8 (red). The most common Munsel colors at Pukara de Khonkho are 10 R 5/6 (red), 2.5 YR 5/6 (red), and 2.5 YR 5/4 (reddish brown).
[248] Bowls from Khonkho Wankane are 70% (n=70) oxidized. Bowls from Pukara de Khonkho are 50% (n=526) oxidized and 22% (n=228) reduced.

treatment between the two sites was also nearly identical, with almost all bowl samples being burnished or occasionally smoothed, most often with both interior and exterior slip.

However, there is a marked distinction in base types between the two sites. While 90% of all bases from the Pukara de Khonkho (n=205) are flat bases, only 5% of bases (n=2) from Khonkho Wankane are flat. Instead, 95% (n=37) of all bases from Khonkho Wankane are "disk bases." This is especially notable because Albarracin-Jordan and Matthews (1990), among others, have called "disk bases" characteristic of Early Pacajes bowls. While Late Intermediate Period Khonkho Wankane appears to fit into this pattern, Pukara de Khonkho does not (Figure 90). There was also a notable difference between the two sites in terms of the decorative motifs that appeared on the bowls, discussed in more detail below.

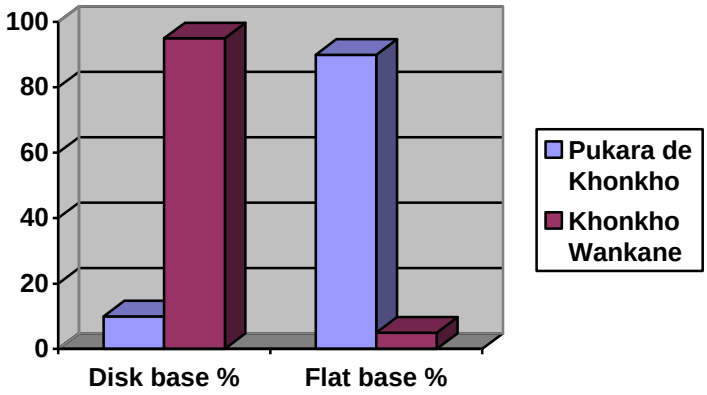

Figure 90: Bowl base types compared between Pukara de Khonkho and Khonkho Wankane

Small Jars – The representation of small jars at Khonkho Wankane also suggests important differences between the occupation of Khonkho Wankane and Pukara de Khonkho. While small jars were exceedingly rare at Pukara de Khonkho, almost no

small jars were found at Khonkho Wankane. At Khonkho Wankane, sherds identified as small jars made up only 0.7% (n=7) of the overall Early Pacajes sample, as opposed to 1.5% (n=252) at Pukara de Khonkho. In addition, because of the small size of the majority of these sherds, it was nearly impossible to assign most small jar fragments to a specific "type" or to reconstruct the form of the vessels they may have come from. Only one sample appeared to resemble the carinated "Type 1"small jar from Pukara de Khonkho, and another small base fragment may have belonged to a "miniature" form, similar to the Type 2 small jars identified at Pukara de Khonkho.[249]

Because of the extremely small sample size of small jars from Khonkho Wankane, it does not make sense to compare measurements between the two sites, but the single possible carinated jar from Khonkho Wankane is somewhat smaller than those found at Pukara de Khonkho, measuring only 5 cm at the rim. There were some differences in terms of technical characteristics as well, but because of the small sample size, it is not clear how relevant they are. Small jars from Khonkho Wankane tended to be gray or brown (rather than red) and were much more likely to have been fired in a reduced environment. Sherds were compact, but generally thicker than small jars from the Pukara de Khonkho, although they seemed to utilize similar temper. Most small jars from both sites had evidence of external slip and marked exterior burnishing, with variable interior surface treatment.

While it is possible that the small jar form as defined at the Pukara de Khonkho is a phenomenon unique to the Pukara, since the form comprises such a small percentage of the ceramic sherds found at either site, it is also possible that no other Late Intermediate

[249] Both of these forms were found in Sector 12, which had a higher proportion of Early Pacajes sherds than much of the rest of the site, and which also suggested the possibility of Late Intermediate Period domestic habitation.

Period sites in the Early Pacajes region have been excavated extensively enough for the form to have been previously noted. Additional research into Early Pacajes ceramics is necessary to better answer this question.

Other – Only a few (n=3) anomalous sherds were identified at Khonkho Wankane that could not be identified as either jars, ollas, bowls, or small jars. These sherds included a two possible cup fragments and an unidentified portion of a zoomorphic figure, which may or may not date to the Late Intermediate Period.

Decorative Motifs at Khonkho Wankane

The decorative motifs on the bowls and the few small jars noted from Khonkho Wankane were similar in style but different in specific patterns of representation from the motifs recorded at Pukara de Khonkho, although they may have more in common with previously recorded motifs from other Early Pacajes ceramics found in the Tiwanaku and Katari valleys.

While the "dots" motif was most common on bowls at Pukara de Khonkho (represented on 33% [n=240] of all decorated sherds), this motif does not appear at all at Khonkho Wankane. Instead, the most common motifs on bowls at Khonkho Wankane are the "Pukara" (32%, n=17) and Llamita (24%, n=12) motifs, which are much less common at the Pukara de Khonkho (Figure 91).[250] Furthermore, the variation of the "Pukara" motif that appears at Khonkho Wankane, is among the least common at Pukara de Khonkho.[251] In addition, there are several variations of different motifs which are found at Khonkho Wankane and not at the Pukara de Khonkho. The most notable is the

[250] At the Pukara de Khonkho, Pukara motifs are only present on 9% of all decorated sherds (n=61) and llamitas are only present on 4% (n=29).

[251] The variation present at Khonkho Wankane is the type where upright tabs mark the parallel rungs of the Pukara motif. This variation only comprises 10% (n=6) of all the "Pukara" motifs present at the Pukara de Khonkho.

presentation of the lip tabs motif that appears with a perpendicular line running through the lip tabs, which appears on 2% (n=2) of all decorated forms, including one nearly complete bowl that was found together with a jar in Sector 9, likely an offering associated with the burials in that area. Other new variations include additional variations on the "lace" motif, as well as additional "thick" line designs (Figure 92).

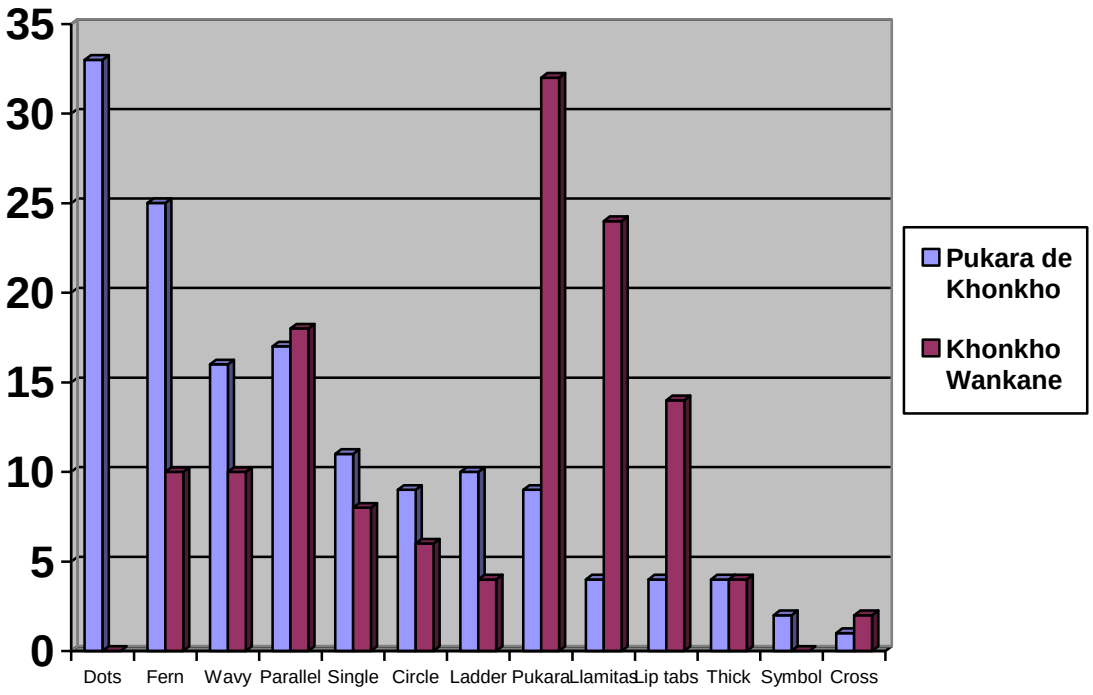

Figure 91: Representation of decorative motifs (by percent) on bowls at Pukara de Khonkho and Khonkho Wankane

The sample size of small jars is too small and incomplete to be sure if differences in decorative motifs are meaningful, but even here they are somewhat suggestive. While on the Pukara de Khonkho, the wavy line/lace motif was most common on small jars (appearing on 48% of all decorated sherds), this motif was not present on small jars at Khonkho Wankane. Instead, the only decorative motifs noted on small jars at Khonkho Wankane consisted of undifferentiated thick motifs (n=2), a series of long parallel lines

(n=2) or a single line around the neck of the vessel (n=1). Similar motifs were noted on the very few painted jars recorded at Khonkho Wankane.

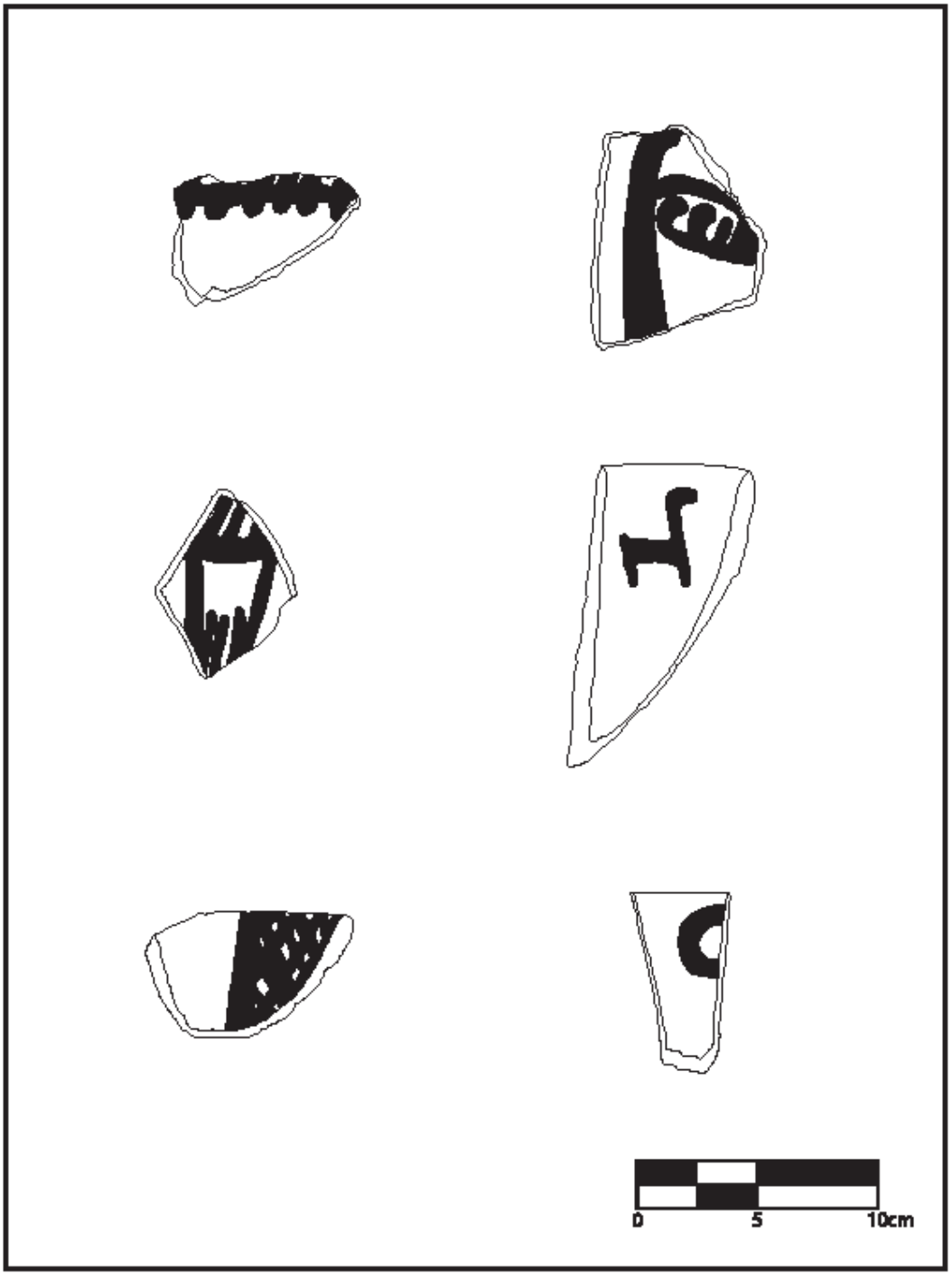

Figure 92: Example of decorative motifs at Khonkho Wankane

Late Intermediate Period Ceramics in the Pacajes Area

While decorations present at both Khonkho Wankane and Pukara de Khonkho seem to roughly fit into the "Urkosuyu" Early Pacajes pattern as defined by previous researchers (see Janusek 2003a), the differences present in both decorative motifs and overall form (especially of bowls and small jars) between Khonkho Wankane and Pukara de Khonkho suggest differences in both the nature and the timing of Late Intermediate Period occupations at the two sites, and could also express differences in how community identity was perceived and/or expressed at the two sites. When considered in comparison with other Late Intermediate Period sites in the Pacajes region, this analysis adds much-needed data to the known sample of Early Pacajes forms and motifs and helps us to better understand Late Intermediate Period community organization and identity formation in the Pacajes region.

As discussed at the beginning of this chapter, I follow Albarracin-Jordan and Matthews' (1990) description of the Early Pacajes style, also utilizing the stylistic difference between Urkosuyu and Umasuyu sherds noted by Janusek (2003). Previously recognized Early Pacajes forms include jars, ollas, and bowls, and some investigators have also briefly mentioned possible small jar forms. Utilitarian ceramics from most Early Pacajes sites (including Khonkho Wankane and Pukara de Khonkho) are essentially very similar. Jars are generally medium-large sized bulbous vessels, with curving necks and side handles. They are composed of a red, orange, or reddish-brown compact paste and fired in both oxidizing and reducing environments. Inclusions could include fine sand, fine-medium grain mica, and occasionally medium-sized caliza (Albarracin-Jordan and Matthews 1990; Janusek 2003a). Likewise, ollas found at Early Pacajes sites are

generally similar, with brown, porous paste, sand and mica temper and thin, often burnished walls (Albarracin-Jordan and Matthews 1990; Janusek 2003a). The only utilitarian forms encountered at Pukara de Khonkho that are not explicitly noted at other sites are the Type 2 and 3 jars.[252]

More of a difference, however, is noted when it comes to the more diagnostic serving forms, especially the bowls. Janusek (2003; Janusek and Kolata 2003) had previously noted that Umasuyu bowls (more common in the Katari valley) tended to be more roughly made, with thicker walls, coarser temper, and reduced, brown or dark gray paste. They were also less likely to be decorated, and when they were decorated, contained higher proportions of circular motifs. In contrast, Urkosuyu bowls, (more common in the Tiwanaku valley) were well made, with thinner walls and with fine mica and sand temper. These bowls could either be fired in an oxidized environment to an orange color or in a reduced environment to a grayish color. They were more likely to be decorated and utilized designs including dots, cross-hatching, llamas, "pukaras," and other geometrical designs. Both Umasuyu and Urkosuyu bowls from the Tiwanaku and Katari valleys tended to have disk bases. In general the bowls analyzed for this project (which come from the Desaguadero Valley) seem more similar to Urkosuyu bowls in terms of construction and decoration, but there are some meaningful differences. Most importantly, bowls from Pukara de Khonkho do not generally have the disk bases common at all other Early Pacajes sites, and they also have a slightly different set of

[252] Type 2 jars are similar to Types 1 and 4, but have a bulbous neck. Type 3 jars are the large open forms, perhaps used for fermentation.

decorative motifs. In contrast, bowls from Khonkho Wankane are more similar overall to the previously defined Urkosuyu ceramics from the Tiwanaku valley.[253]

As previously mentioned, there are some indications that the nature of the Late Intermediate Period occupations of Pukara de Khonkho and Khonkho Wankane may have been significantly different. Pukara de Khonkho, with its large number of residential structures and carefully prepared terraces, appears to have been a permanent (or nearly permanent) residential community for a large number of inhabitants. Khonkho Wankane, on the other hand, does not have any residential structures that clearly date to the Late Intermediate Period, although there are clear cemetery locations and other indications of possible ritual activity. As a result, the Late Intermediate Period occupation of Khonkho Wankane is interpreted as temporary and ephemeral in nature, although it seems to have retained its importance as an important ritual and cemetery site throughout the period. The ceramics from both sites generally support this interpretation. There are very few ollas found at Khonkho Wankane in comparison to Pukara de Khonkho, and at least some of the utilitarian jars that are found at the site are associated with cemetery areas and appear to have been utilized in offerings. In contrast, utilitarian ceramics are found across Pukara de Khonkho (except on the upper terraces, which seemed to have served a different, possibly ritual purpose), and support the interpretation of regular domestic habitation.

Another possible difference between the occupations of the two sites may be one of timing. Although we do not, unfortunately, have any clear Late Intermediate Period occupation dates from Khonkho Wankane at this time, we do know that Pukara de

[253] Although Khonkho Wankane did not appear to utilize the dots motif common on other Urkosuyu ceramics and on ceramics from the Pukara de Khonkho.

Khonkho was inhabited very late in the Late Intermediate Period, during the fourteenth and the first half of the fifteenth centuries (over the 150 years immediately prior to Inca incursion into the area.) Ceramics suggest that there is more similarity between Khonkho Wankane and other previously identified Early P acajes sites, however, which do tend to date to earlier in the Late Intermediate Period (see Table 3). Therefore it is possible that at least some of the differences in ceramic style between Pukara de Khonkho and other Early Pacajes sites may be temporal in nature. While the disk base is characteristic of the Early Pacajes phase, flat bases do tend to predominate during the Inca-Pacajes phase, and there may be a transition of sorts occurring at the Pukara de Khonkho between these two styles. Other differences in decorative style may also signal temporal differences, but more focused study (with more radiocarbon dates) is necessary to more completely confirm this possibility.

Nevertheless, it does appear clear that while Khonkho Wankane, as a site, continued to be used in some fashion or another from the Late Formative through the present day, Pukara de Khonkho had a much briefer period of occupation, as evidenced by the single component Early Pacajes ceramics assemblage. Despite technical variation and low levels of standardization (implying independent production of ceramic materials and other tools), the ceramics at Pukara de Khonkho show a great deal of internal cohesion in terms of overall vessel form and decorative style, suggesting at least some level of internal community cohesion. This raises larger questions regarding the initial reasons for settlement of the site and possible mechanisms for increasing community cohesion, which will be the focus of the next chapter. First, however, I would like to consider the major shifts that occurred as a result of Inca occupation, though a

comparison of the ceramics from Pukara de Khonkho, which appears to have been occupied right up until Inca settlement, and Ch'aucha de Khula Marka, which was occupied primarily during the Inca and Early Colonial Periods.

Ceramics at Ch'aucha de Khula Marka

In order to consider these important changes from the Late Intermediate to the Inca periods, a sample of Inca-Pacajes sherds from Chaucha de Khula Marka was chosen for comparative analysis. These ceramics came from 24 distinct archaeological contexts, consisting of a total of 1401 sherds (a total of 11,262 grams of ceramic material.) Almost all of these sherds were assigned to the Inca Pacajes period (1382 sherds or 10,987 grams of ceramic material), although a few Late Pacajes (Colonial) and Early Pacajes sherds were also identified.[254] The ceramics from Ch'aucha de Khula Marka were analyzed following the same system as that described in Appendix E for the analysis of the sherds from Pukara de Khonkho and Khonkho Wankane.

Comparative Typology from Ch'aucha de Khula Marka

Within the sample of ceramics sampled for the purpose of this dissertation,[255] jars are the most common form, representing 42% of the overall sample (n=592; 52% by weight). Ollas are the next most common, at 28% (n=396; 18% by weight), followed by bowls at 14% (n=202; 22% by weight). Other forms, including plates, keros, spindle whorls, and unidentified polychrome forms comprise 3% of the sample (n=38; 4% by weight), and small jars make up 1% (n=20; 1% by weight). Unknown sherds comprised

[254] While it is likely that some of the Inca-Pacajes sherds actually date to the time of Colonial occupation, only 14 sherds (185 grams of ceramic material) from the site were definitively identified as Late Pacajes. In addition, 5 sherds (90 grams of ceramic material) were identified as Early Pacajes.

[255] The forthcoming licenciatura thesis of Carla Flores (no date) will provide a more complete analysis of all samples collected from Ch'aucha de Khula Marka.

11% of the overall total (n=153), but only made up 3% by weight, due to their small size (Figure 93). This breakdown is somewhat intermediary between the breakdown for Pukara de Khonkho and Khonkho Wankane, although much closer to that of Pukara de Khonkho, suggesting that the occupation of Ch'aucha de Khula Marka was at least in part a regular domestic occupation.

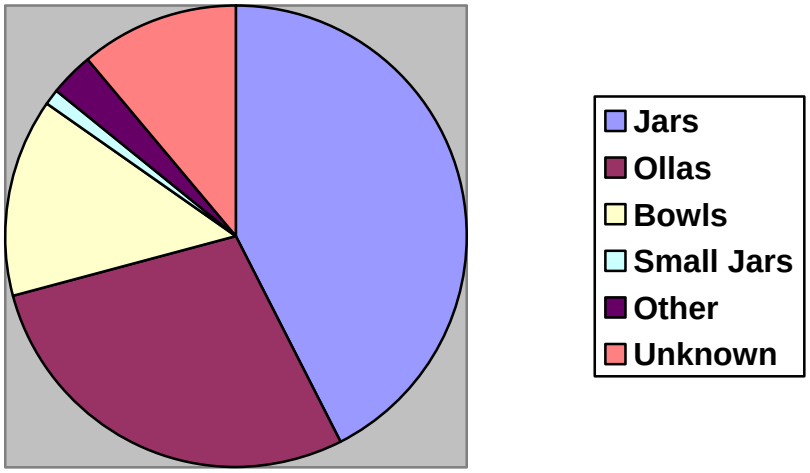

Figure 93: Representation of vessel forms at Ch'aucha de Khula Marka

In the following sections, I will briefly describe each of the forms identified at Ch'aucha de Khula Marka, and discuss how they differ from or are similar to Early Pacajes forms at Pukara de Khonkho and other Inca-Pacajes sites across the southern Titicaca Basin. Overall, the Inca incursion appears to have had a dramatic impact on all aspects of life in the Pacajes region, from settlement patterns to ceramic technology and decoration. The major ceramic style in the Pacajes region during this period is known as Inca-Pacajes or "Saxamar" and is described by Albarracin-Jordan (1996:297-298),

Matthews (1992:191) and Bandy (2001:250-251), among others.[256] This style can be easily distinguished from Early Pacajes ceramics due to differences in form, paste, surface treatment, and decoration. New forms include shallow bowls, plates, and aryballoid jars. The paste is usually deep red, and tends to be more highly burnished than Early Pacajes ceramics. Decoration is still primarily painted with black pigment, although there are polychrome examples, and decorative motifs include both geometric and animal figures. By far the most common Inca-Pacajes motif is the "llamita," which differs from the Early Pacajes llamita in that it is drawn with longer and thinner lines. Other figures include birds and probable stylized plants, while cross-hatching and other geometric designs often appear on the interior lip. In addition, modeled decoration, usually in the form of a bird head or a simple "nub," is sometimes added to the lip of Inca-Pacajes vessels.

After the Spanish conquest, a new ceramic style, known as Late Pacajes, began to predominate in the Pacajes region. This style is also described by Albarracin-Jordan (1996:309-311), Matthews (1992:194-195), and Bandy (2001:254-257), and appears to exhibit a mixture of both Early Pacajes and Inca-Pacajes traits. Paste and slip tend towards a deep red color, but vessels are not as highly burnished as in the Inca-Pacajes phase. Bowls often exhibit disk bases and everted rims. In general only bowls and plates are decorated, both by modeling and painting. "Nubs" are frequently present around the rim of bowls, and designs are painted in either simple black or black and white/yellow polychrome. The most common design motifs are short parallel lines along the interior rim, but plant, animal, and geometric motifs are also present.

[256] Graffam (1990:108-109) has also referred to this style as "llamita ware," due to the use of the llama as a common decorative motif.

The majority of the ceramics found at Ch'aucha de Khula Marka are distinctly different from the Early Pacajes forms at Pukara de Khonkho, Khonkho Wankane, and other Late Intermediate Period sites, and nearly identical with the Inca-Pacajes form as described by investigators in the Tiwanaku Valley (Albarracin-Jordan 1992; Albarracin-Jordan and Matthew 1990; Bandy 2001; Matthew 1992). While the site was clearly occupied into the Early Colonial period (as evidenced by carbon dates and the presence of an early colonial church), very few ceramics actually correlate to the Late Pacajes style as defined by Albarracin-Jordan and Matthews, and it is likely that the site is primarily an Inca Period site with only a very early Colonial occupation.[257]

Figure 94: Examples of jar sherds from Ch'aucha de Khula Marka

[257] As discussed in Chapter 6, carbon dates and community oral histories also support this assertion.

Jars – While some jars identified at Ch'aucha de Khula Marka continued to follow a form somewhat similar to the "Type 1" jars identified at Pukara de Khonkho and Khonkho Wankane, there were enough changes in form that the typology developed for Pukara de Khonkho can not really apply to Ch'aucha de Khula Marka (Figure 94). The most common jar type at the site is a flaring-rimmed, short-necked highly burnished jar, which is sometimes decorated with a simple black line along the rim. The majority of these jars range between 14-22 cm in diameter at the lip (M=16.8 cm; SD=2.9), although there are a couple outliers that measure 30-31 cm in diameter.[258] While handles are not noted on most samples, one sherd does demonstrate a handle extending from the lip. Apart from these jars, the common aryballoid form is noted, as well as a narrow-necked "pitcher" form.

Technically there are few differences between the production of Inca-Pacajes jars and Early Pacajes jars as defined above. Like the jars at Pukara de Khonkho and Khonkho Wankane, jars from Ch'aucha de Khula Marka are red or reddish brown in color, and fired in an oxidized (54%, n=102) or partially reduced (33%, n=62) atmosphere. Walls are compact and of thick-medium thickness, and inclusions can include scarce or dense quantities of fine-medium grained mica, moderate quantities of medium-grained caliza, and occasionally small quantities of biotite or quartz. The interior walls tend to be smoothed (28%, n=52), wiped (27%, n=50) or moderately burnished (17%, n=32), while the exterior walls are almost exclusively heavily,

[258] At 17%, the standard of variance for this form is still somewhat high, but less so than for many of the forms found at the Pukara de Khonkho, suggesting a possible increase in standardization following Inca conquest. Nevertheless, although increased standardization has been said to accompany Inca conquest in other areas (e.g. Bray 2003; Costin and Hagstrom 1995; Hastorf 1990), at this time the sample size from Ch'aucha de Khula Marka is still too low to make any broad claims about standardization.

moderately, or roughly burnished (82%, n=155). Slip is common on both the interior (30%, n=58) and especially on the exterior walls (81%, n=156).

Decorations can also appear on the exterior face of Inca jars, and include simple black painting, polychrome painting, and (more rarely) molding. On two samples a molded face is attached to the exterior jar body.

Figure 95: Examples of olla sherds from Ch'aucha de Khula Marka

Ollas – As at Pukara de Khonkho and Late Intermediate Period Khonkho Wankane, olla sherds from Ch'aucha de Khula Marka are not as well preserved and it is difficult to identify specific olla forms (Figure 95). Nevertheless, the forms do not seem very different from the Type 1 ollas found at Pukara de Khonkho and Khonkho Wankane. The diagnostic sherds that could be identified appeared to belong to squat vessels with

handles attached to the lip, passing over a short neck and attaching on the other end to the shoulder. However, they are significantly larger than ollas at the other two sites, perhaps reflecting a need for larger cooking vessels in the Inca Period as a result of a return to feasting in the Inca Period (Bray 2003). While Early Pacajes ollas at Pukara de Khonkho and Khonkho Wankane had a mean rim diameter of 13.9 cm (SD=3.1) and 13.9 cm (SD=4.6 cm, respectively, ollas at Ch'aucha de Khula Marka measured an average of 17.1 cm (SD=5.4) at the lip and 10.3 cm (SD=4.5) at the base. Extremely high coefficients of variance[259] suggest that more than one type of olla is represented at the site, but there are not enough well-preserved sherds to identify them.

From a technical perspective, ollas at Ch'aucha de Khula Marka are very similar to those found at the other two sites considered in this analysis. They tend to be fired in a partially reduced (62%, n=102) or oxidized (23%, n=37) environment to a red or black color. Walls are generally compact, and can be somewhat thinner than ollas at Pukara de Khonkho and Khonkho Wankane. Inclusions included variable quantities of quartz, fine to medium grained mica, and coarse caliza, as well as occasional inclusions of biotite. Interior and exterior surfaces were most often smoothed, and slightly over half had either external or internal slip. Unlike vessels from the other two sites, however, none of the ollas from Ch'aucha de Khula Marka have any molding or other forms of decoration. Burning or sooting, however, was common, especially on the exterior of these vessels.

Bowls and Plates – As previously noted for the Early Pacajes – Inca Pacajes transition, bowls and other decorated serving vessels are the most diagnostic, demonstrating the most differences in both form and decorative style (Figure 96). While bowls from

[259] Coefficients of variance are 31.3% for measurements of rim diameter and 43.6% for measurements of base diameter.

Ch'aucha de Khula Marka are similar to Early Pacajes forms in terms of rim diameter (measuring an average of 15.9 cm; SD=3.9) and base diameter (measuring an average of 6.3 cm; SD=1.8) there is a wider range of variation in height. Although it was not possible to measure the height of most of these sherds, the vessels that could be measured ranged between 2.3 – 4.8 cm in height (average of 3.6 cm; SD=0.9). The shorter vessels (2.3-3.1 cm) are best categorized as "plates," while the term "bowl" should probably only apply to those measuring between 3.5-4.8 cm in height. However, since decorative and stylistic motifs are similar, it is difficult to differentiate bowls from plates when the whole vessel is not present. As a result, they are discussed together here.

Figure 96: Examples of bowl sherds from Ch'aucha de Khula Marka

In general, bowls and plates from Ch'aucha de Khula Marka appear to have more rounded walls than Early Pacajes bowls, and tend to be semi-spherical rather than straight-walled. The majority (64%; n=76) of recorded bowl rim sherds had flat, slightly angling tops, although a significant proportion (19%; n=23) had more rounded rims.[260] Also in contrast to the Early Pacajes form, all recorded bases were simple, flat bases. A total of 55% (n=105) of ceramic bowl sherds from Ch'aucha de Khula Marka were decorated, more than at Late Intermediate Period Khonkho Wankane, and in the range of Pukara de Khonkho. However, as I will show below, there were far fewer decorative motifs, and they tended to be produced more systematically. Finally, some Inca-Pacajes bowls and/or plates from Ch'aucha de Khula Marka had "nubs" of some sort attached to the rim. These "nubs" could be simple flat semi-circular attachments or they could take the form of zoomorphic heads/tails of animals like birds or cats. Although present on only 3% (n=5) of the bowl/plate groups recorded at the site, these nubs are clear diagnostic indicators of the Inca-Pacajes phase, and together with the other attributes described above, clearly differentiate the ceramic assemblage at Ch'aucha de Khula Marka from that of Pukara de Khonkho and Late Intermediate Period Khonkho Wankane (Figure 97).

From a technical perspective, Inca-Pacajes bowls from Ch'aucha de Khula Marka had some differences and some similarities to the Early Pacajes bowls from Pukara de Khonkho and Khonkho Wankane. Like the Early Pacajes bowls from neighboring sites, they tended to use a red paste, and were most often fired in an oxidized or partially reduced environment. Bowls are uniformly compact with medium-thick walls.

[260] This is in contrast to Early Pacajes bowls from Pukara de Khonkho and Khonkho Wankane, which tended to have tapered or rounded rims.

However, ceramics from Ch'aucha de Khula Marka tended to have fewer inclusions, which could include scarce quantities of fine-medium grained mica, scarce-dense quantities of medium-sized caliza, and very occasionally traces of biotite or quartz. Like Early Pacajes bowls, the bowls from Ch'aucha de Khula Marka were uniformly burnished (84% interior; n=155, 81% exterior; n=149) or occasionally smoothed, but at the Inca-Pacajes site bowls were much more likely to show evidence of a slip, which was most often dark red in color. In fact, 71% (n=133) of bowls from Ch'aucha de Khula Marka demonstrated both interior and exterior slip.

Figure 97: Bird head "nub" from a bowl at Ch'aucha de Khula Marka

Small Jars – Although a very few sherds (n=19) were recorded that might best be described as "small jars," this form does not appear to have the importance at Ch'aucha de Khula Marka as it does at Pukara de Khonkho. Because of the small sample size and lack of diagnostics, however, it is really impossible to define this form in any meaningful way. Like other forms from Ch'aucha de Khula Marka, the few "small jars" were made of red paste and fired in an oxidized or partially reduced environment. They were compact, with medium-thin walls. Inclusions could include sand, mica, caliza, and very occasionally biotite or quartz. Interior surface treatment is variable, but the external face was almost uniformly burnished, with a reddish slip. Two "small jar" sherds showed signs of decoration, including one unique incised piece and a sherd painted with a spiral motif.

Figure 98: Polychrome painting on Inca keros from Ch'aucha de Khula Marka.

Other (Inca Polychrome, Keros, Spindle Whorls, etc.) – Other ceramic types recorded at Ch'aucha de Khula Marka included Imperial Inca polychrome or simple black painted sherds of unidentified form as well as a few that could be clearly identified as keros (Figure 98). The design motifs on these pieces were much more complicated than those painted on the bowls and plates described above, but continued to utilize patterned geometric forms (triangles, circles, parallel lines, etc.).

In addition to these pieces, a few ceramic spindle whorls were also noted in both the village and the church area of the site. These spindle whorls were slightly better made than their counter-parts from Pukara de Khonkho, and some included incised decoration.

Decorative Motifs at Ch'aucha de Khula Marka

At the site of Ch'aucha de Khula Marka, painted decoration is present primarily on bowls and plates, although as noted above a couple examples of jars also demonstrate molded nubs and there are also a few painted small jars and some examples of Imperial Inca-style keros. Overall, however, the decorative motifs are extremely typical of already recorded Inca-Pacajes decorative motifs from the Tiwanaku valley (e.g. Albarracin-Jordan and Matthews 1990; Bandy 2001).

In general, the designs are much more consistent and much more highly standardized than the Early Pacajes decorative motifs from either Pukara de Khonkho or Khonkho Wankane. In addition, they are more complicated and more likely to contain representative elements than the examples from Pukara de Khonkho. While geometric designs are still very common at Ch'aucha de Khula Marka, 64% (n=67; 70% by weight) of the decorated bowls/plates at the site contain some sort of representational depiction of

plants or animals. The most common motif is of llamas, but bird, cat, and plant motifs are also present. Some of the decorated bowls even have molded "nubs" in the shape of birds, cats, or other figures. Nearly a quarter (23% by count [n=24], 22% by weight) of the decorated ceramics from the Ch'aucha de Khula Marka also demonstrate polychrome painting (white/yellow and black), in most instances along the rim of the vessel.

At Ch'aucha de Khula Marka, by far the most common decorative motif is the thin, standardized Inca-Pacajes llamita, which was represented on 55% (n=58; 59% by weight) of all decorated sherds at Ch'aucha de Khula Marka. These depictions are very consistent and carefully stylized and appear replicated across the interior of bowls and plates. They can be easily distinguished from the Early Pacajes llamitas because they are thinner and more standardized.

Simple rim designs are also ubiquitous on bowls and plates at Ch'aucha de Khula Marka, and are found on 64% (n=97; 71% by weight) of all rim sherds at the site, including many vessels that are also decorated with the thin llamita motif. These rim designs take different forms, but the most common (appearing on 45% [n=44] of all decorated rim sherds) is the polychrome (black on white) wavy line, wrapping around the rim of the vessel. The next most common design is identical, but monochromatic, lacking the white background.[261] This motif appears on 36% [n=35] of all decorated rims. Other rim decoration motifs included black X's painted along the rim, black X's with dots in between each X, or black perpendicular lines or dots.

While llamitas and simple rim decorations were by far the most common, depictions of other plants and animals appeared on 9% (n=9; 11% by weight) of the

[261] It is also possible that this is actually the same motif, but that the white undercoat has not preserved on all bowl/plate samples.

decorated bowls and plates at the site. These depictions included birds, cats, possible human figures, and various plant motifs. Other rare geometric designs, together represented on 3% (n=3; 6% by weight) of all decorated ceramics from the site, include parallel lines of lip tabs, external dots, and cross-hatching.

In addition to painted designs, some of these bowls and plates also have molded "nubs" as side handles, an attribute that first appears in Inca-Pacajes ceramics. The majority of these nubs are plain, but others are painted and molded in the form of a bird or cat head. These decorative motifs are rare but very distinctive, and many were included among the (non-representational) sample collected by Rydén (1947:245).

There is little difference in decorative motifs between ceramics found in Sector 1 of the site (the Inca village) and Sector 2 of the site (the area around the early colonial church). In general, the ceramic density was much less in Sector 2 and fewer units were excavated, so there are fewer ceramics overall, but those that are present do not seem to differ greatly in terms of form or decorative motif, although some of the rarer motifs are not noted in Sector 2. The llamitas are still by far the most popular motif in Sector 2 (represented on 67% [n=10] of all decorated sherds), and simple rim decorations are still very common as well. However, the rims in Sector 1 are slightly more likely to be polychromatic than the rims in Sector 2.

Comparison to Inca-Pacajes and Late Pacajes Ceramics

Overall, when the ceramic assemblages from Pukara de Khonkho and Ch'aucha de Khula Marka are compared, there is almost no overlap in style, form, or decorative motifs. This is somewhat surprising because carbon dates suggest that the Pukara was

inhabited until the Inca conquest,[262] and because the two sites are so close geographically. Nevertheless, there is a clear distinction between the two sites. Moreover, the ceramics at Ch'aucha de Khula Marka are practically identical to all other recorded Inca-Pacajes sites (Albarracin-Jordan 1996; Bandy 2001; Matthews 1992). While the ceramics from the Pukara de Khonkho show distinct variation compared to other Early Pacajes ceramics, this local variation is not maintained in the ceramics from Ch'aucha de Khula Marka.

These two observations have significant implications for our understanding of the local experience of the Early Pacajes to Inca-Pacajes transition. First, it demonstrates a clear temporal difference between Pukara de Khonkho and Ch'aucha de Khula Marka (also supported through carbon dating). Pukara de Khonkho appears to have been abandoned immediately after (and probably as a result of) Inca conquest. Furthermore, the difference in ceramics highlights an important difference in social organization between the two phases. During the Late Intermediate Period there are noticeable local (and probably temporal) differences in style between Early Pacajes ceramics at Pukara de Khonkho, those at Khonkho Wankane, and those at other sites in the southern basin. After the Inca conquest, however, these localized differences disappear in favor of a highly standardized Inca decorative style. The slim llamitas that are so prevalent at Ch'aucha de Khula Marka are characteristic of the Inca-Pacajes phase throughout the Pacajes region (Albarracin-Jordan and Matthews 1990:171; Matthews 1992; Rydén 1947), and are noted in some neighboring areas as well (see for example Stanish et al. 1997:48).

[262] In fact, the dates suggest that the first half of the fifteenth century was actually the time of densest occupation.

It has become common knowledge that the Inca took a variety of different approaches in incorporating new groups into their empire (e.g. Covey 2003; D'Altroy 2002; Malpass 1993; Morris 1988), including the movement of different ethnic groups around the empire as *mitimaes*. Based primarily on the distinctively Inca character of the ceramics at the site, Rydén (1947: 321-324) suggested that the inhabitants of Ch'aucha de Khula Marka were likely Inca *mitimaes.* The lack of overlap in ceramic style noted in this study between the ceramics at Pukara de Khonkho and Ch'aucha de Khula Marka does strongly suggest that the two sites were inhabited by different groups. The fact that the Inca-Pacajes style is widespread and consistent across different sites also suggests strong continuity between Inca settlements in the region. Nevertheless, despite high levels of stylistic consistency and the strong similarity in decorative motifs between different sites, the coefficient of variance for rim and base measurements of different forms at Ch'aucha de Khula Marka remains quite high (Table 24). This could be merely a problem of measurement and representation; the sample size is relatively small, and if some vessel types were not identified, that could skew the calculation of the coefficient of variance. However, it could also signify low levels of mechanical standardization in ceramic production (Costin and Hagstrum 1995) suggesting that while the producers of the ceramics at Ch'aucha de Khula Marka drew on standard Inca motifs, the production itself was not highly centralized, but produced at the local level.

Finally, it should be noted that there were very few Late Pacajes (Colonial Period) ceramics noted at the site, despite the fact that there is a known Early Colonial church just a few meters away from the Inca village. This supports the idea that the site was occupied only very early in the colonial period (also supported by carbon dates.) Thus

the ceramics show a clear break in social organization at the time of the Inca incursion, but a less radical transition immediately following the Spanish conquest.

Table 24: Coefficient of variance for different vessel types at Pukara de Khonkho, Khonkho Wankane, and Ch'aucha de Khula Marka

Site	Ceramic Type	Lip variance	Base variance
Pukara de Khonkho	Jar Type 1	15.97	14.14
Pukara de Khonkho	Olla Type 1	20.13	31.92
Pukara de Khonkho	Bowls	18.7	24.28
Pukara de Khonkho	Small Jar Type 1	26.8	20.16
Khonkho Wankane	Jar	24.48	19.78
Khonkho Wankane	Olla	33.46	23.97
Khonkho Wankane	Bowl	21.46	33.82
Ch'aucha de Khula Marka	Jar	38.78	39.47
Ch'aucha de Khula Marka	Olla	31.28	43.64
Ch'aucha de Khula Marka	Bowl	24.55	28.41

ICP-MS Analysis

In addition to ceramic attribute analysis, I also conducted chemical characterization analysis on ceramic samples from Pukara de Khonkho, Khonkho Wankane, and Ch'aucha de Khula Marka. I was interested in using this technology to address the questions of population mobility, intercommunity interaction, and/or long distance trade in the Late Intermediate Period and to further consider changes and continuities into the Inca and Early Colonial Periods. I also hoped that the characterization data I collected would add to the potentially available body of comparative ceramic characterizations from the Andean region, which could prove useful for future projects.

In recent years, chemical characterization studies of ceramics have become increasingly popular as a way to categorize composition groups within a ceramic assemblage, identify clay sources, and determine the presence of long distance trade in ceramic artifacts. I chose to utilize Laser Ablation Inductively Coupled Plasma Mass Spectronomy (LA-ICP-MS) to conduct the research. The archaeological applications of ICP-MS are relatively new, but have been successfully implemented in addressing similar issues (Cochrane and Neff 2006; Dussubieux et al. 2007; Duwe and Neff 2006; Kennett et al. 2002; Li et al. 2005; Mallory-Greenough et al. 1998; Neff 2003; Sharratt et al. 2009). Like other compositional studies (e.g. Instrumental Neutron Activation Analysis – INAA), ICP-MS identifies chemical composition groups that can be matched to a specific geological provenience (Neff et al. 2006; Pollard et al. 2007; Sharer et al. 2006). While INAA is more widely used, ICP-MS was judged to be preferable for this study. It is significantly less costly than INAA, which enabled analysis of a larger sample. Further, it has more target analyses, lower detection limits, and is less destructive than most other techniques. Finally, because the investigator can clearly pinpoint the portion of the ceramic sherd that he/she is measuring, it is possible to avoid large inclusions or pieces of temper that might distort the analysis (Dussubieux et al. 2007; Gratuze et al. 2001; Kennett et al. 2002:444).

For the purpose of this dissertation, I was interested to see if the ceramics at Pukara de Khonkho all demonstrate similar characterizations, indicating that they all came from similar, probably local sources, or if there is significant variation within the characterizations present at the site, indicating a variety of different provenances.[263] I

[263] I do not attempt to identify specific clay sources in this study, although that analysis may be conducted in the future.

hypothesized that patterned differences in characterizations between different ceramic forms could have been due to practical decisions regarding which sources are better for which type of vessel, while patterned differences between different areas of the site could have suggested that different members of the community engaged in different ceramic production or trade strategies. Given the differences in form and decorative motifs of bowls and small jars at Pukara de Khonkho as compared to other Late Intermediate Period sites, I was especially interested to see if the characterizations of painted bowls and small jars fell within the same range as the characterizations of the more utilitarian vessels at the Pukara de Khonkho. ICP-MS analysis was used to help to clarify whether these pieces were made locally, suggesting the production of a unique local style, or remotely, in which case the ceramics could either have been brought by first generation migrants or traded with contacts in other regions.

Late Intermediate Period ceramics from Khonkho Wankane served as a comparison to the Late Intermediate Period ceramics from Pukara de Khonkho. As noted in the above discussion, ceramics from Khonkho Wankane more closely approximate typical Pacajes ceramics in form and the Late Intermediate Period occupation of the site is also more similar to the more typical small, ephemeral Pacajes settlements. Ceramics from Khonkho Wankane were hypothesized to be primarily of local origin, and it was thought that they would provide a good baseline against which to compare ceramics from the Pukara de Khonkho.

Tests of ceramics from the Inca/Colonial site of Chaucha de Khula Marka, in contrast, served primarily to trace changes in ceramic production and distribution from the Late Intermediate Period into the subsequent Inca/Colonial period. Characterizations

of ceramics from Chaucha de Khula Marka are compared to characterizations from Pukara de Khonkho and Khonkho Wankane to address any possible changes in production and trading practices following Inca conquest.

Methodology

This portion of the study was conducted in the LA-ICP-MS lab at the Elemental Analysis Facility at the Field Museum in Chicago, IL. Under the instruction of Laure Dussubieux, I analyzed 100 ceramic samples: 60 from the site of Pukara de Khonkho, 20 from the site of Khonkho Wankane, and 20 from the site of Chaucha de Khula Marka. Samples were chosen to represent a variety of forms (ollas, decorated and undecorated jars, decorated and undecorated bowls, etc.) as well as different parts of the sites (upper and lower terraces an all three faces of occupation), in order to have a broad picture of the characterizations that are present. All samples come from primary occupation layers (e.g. floors, hearths, etc.) Samples are between .5 – 3 cm in diameter, with most closer to 1 cm. The thickness of the ceramic vessels varies between 3 – 6 mm. The analysis was conducted from November – December 2008.

This investigation followed the protocols established by the Field Museum's Elemental Analysis Facility for chemical characterization studies (Dussubieux et al. 2007). The facility utilizes a Varian quadrupole ICP-MS and a New Wave UP213 laser ablation system. The laser was used to ablate the ceramic samples,[264] and the quadrupole mass spectrometer scanned the resulting mass range three times for a total of nine replications. Each ablation was aimed directly at the clay matrix, in an attempt to avoid temper or any other inclusions, and each sample was ablated 10 times to make sure that

[264] Spot size was 100 microns and dwell time was 90 seconds.

an accurate read was taken. A total of 55 elements were measured (Table 25). The isotope 29Si was used as an internal standard,[265] which "corrects for possible instrument drift or changes in the efficiency of the ablation and thus improves the reproducibility of measurements" (Dussubieux et al. 2007:352-353). The known NIST external standards n610 and Brick clay were used to calculate major and minor and trace concentrations. New Ohio Red clay was also used to help check consistency between analyses.

Table 25: Elements measured during ICP-MS ablations

Li7	Sc45	Rb85	Ba137	Er166
Be9	Ti49	Sr88	La139	Tm169
B11	V51	Y89	Ce140	Yb172
Na23	Cr53	Zr90	Pr141	Lu175
Mg24	Mn55	Nb93	Nd146	Hf178
Al27	Fe57	Ag107	Sm147	Ta181
Si29	Co59	Cd111	Eu153	Au197
P31	Ni60	In115	Gd157	Pb...
Cl35	Cu65	Sn118	Tb159	Bi209
K39	Zn66	Sb121	Dy163	Th232
Ca44	As75	Cs133	Ho165	U238

Since ceramics are an inherently heterogeneous material, it was expected that Standard Deviations of the ten runs would be between 20% - 30%, although they were much lower for some elements. In a few other cases, however, the standard deviation was significantly higher. In those cases, following the instructions of Laure Dussubieux, I looked at a graph of the 10 runs to check and make sure there were no far outliers (which might represent a mistaken ablation of temper or other inclusions). If there were any outliers, I erased them. Following this procedure, I was able to ensure that the standard deviation was less than 30% for almost all elements. The notable exceptions

[265] Since ceramics are silica-based materials, this makes the most sense as a standard.

were chlorine (Cl35), arsenic (As75), silver (Ag107), and gold (Au197), all of which were eliminated from further analysis.[266]

Results

Of the 100 sherds that were sampled, 68 were clearly assigned to one single chemical characterization group, and this group was the most common at all three sites. Two other possible chemical characterization groups were identified (one included 5 samples and the other included only 2), and the remaining 25 samples were outliers that it was impossible to clearly define, although the majority likely belonged to Group 1.

The major analysis of the data was conducted by Mark Golitko at the Field Museum in May 2010. In order to make sure that the concentration values were utilizing similar scale, they were first transformed to base-10 logarithms. The first analysis was a hierarchical cluster analysis (Figure 99). The cluster analysis showed three clear outliers from the rest of the ceramic sherds. One bowl sherd from Khonkho Wankane,[267] for example, was more different from all the others than anything else. This particular sherd came from an undecorated bowl with a disk base, and was otherwise unremarkable, but the vastly different chemical characterization signature may suggest that its paste had a different origin than those of the other ceramics. The other two major outliers were very similar to each other and included a painted bowl sherd with a disk base from Pukara de Khonkho and a possible olla from Khula Marka. This pairing is further discussed below.

[266] Cadmium (Cd111), Tantalum (Ta181), and Phosphorous (P) were also omitted when Mark Golitco performed the analysis as he had found that they were problematic in the past.
[267] KW6; From U1.21N2 Grupo A

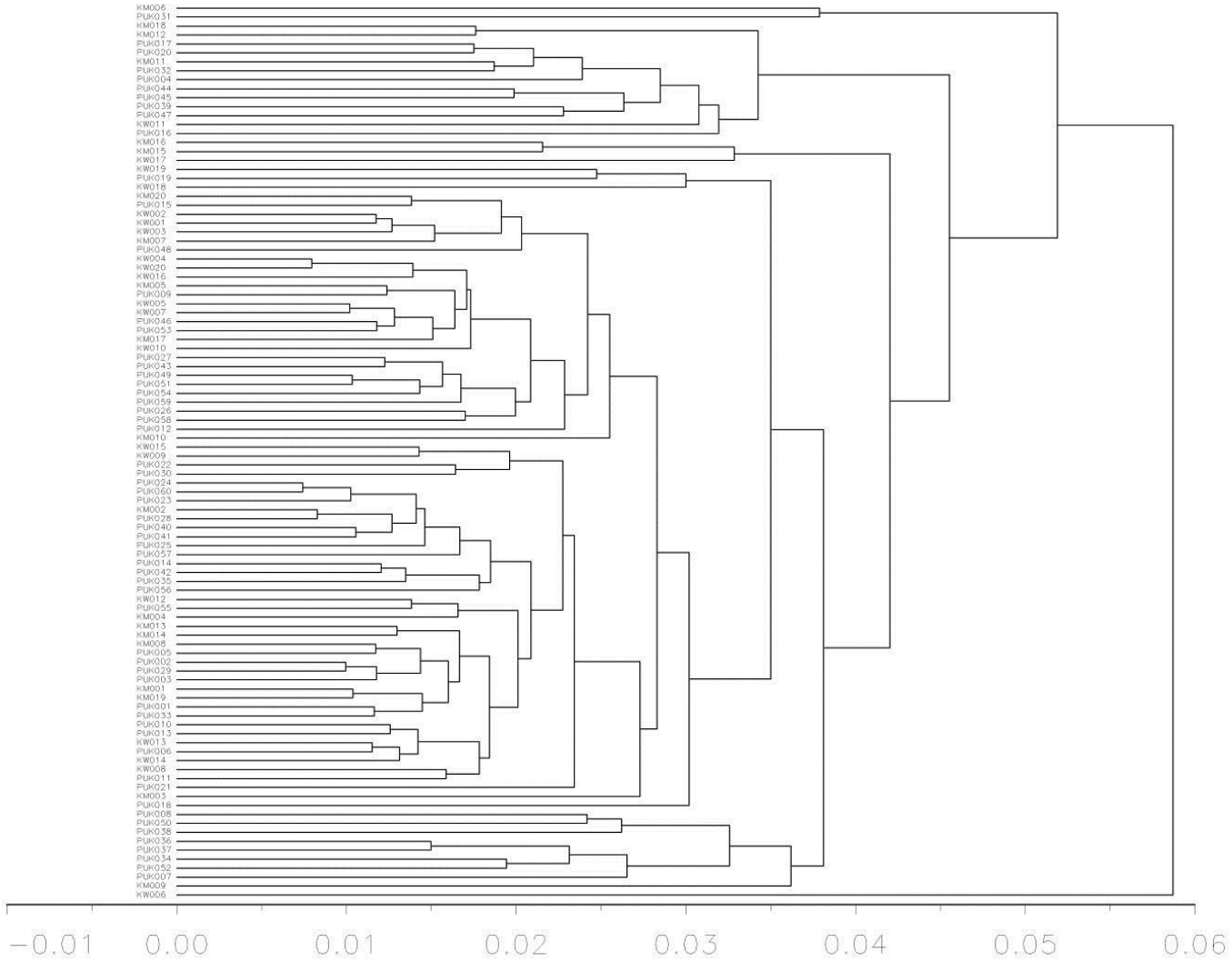

Figure 99: Results of the hierarchical cluster analysis

At this stage, multivariate correlations were considered and the Mahalnobis distance was calculated to try to identify group membership probability within the entire data set. The majority of the sherds from each site[268] were found to belong to a single core group. Two possible smaller additional chemical characterization groups were also recognized. (The third group was composed of the two sherds previously isolated in the hierarchical cluster analysis.)[269] After the core group was identified, principal components were calculated from the variance-covariance matrix. A biplot of the first two principal components, which account for 49% of the total variance clearly shows the first two groups (Figure 100). (The third group does not show up in this biplot because it is primarily identified by principal component 8.) Further discriminate function analysis (Figure 101) shows all three groups clearly differentiated and suggests that the majority of the remaining (25) unassigned outliers belong the core (or possibly the second) group.

As the core group is heavily represented among ceramics at all three sites, it seems obvious that this is local clay, and suggests that similar clay sources were used by the inhabitants of each site during the Late Intermediate Period and the Inca/Colonial Period. Other than the obvious dominance of this particular characterization group, there were not a lot of clear patterns of distribution. Group 1 ceramics included a variety of types and variations of decorated and undecorated bowls, small jars, jars, and ollas. Only 5 ceramic sherds were characterized as Group 2, including jars and ollas from all three sites.[270] Finally, only 2 ceramic sherds were characterized as Group 3, including an olla sherd from Khula Marka and a disk-based, painted bowl sherd from Pukara de

[268] 39/60 from Pukara de Khonkho, 14/20 from Khonkho Wankane, and 15/20 from Ch'aucha de Khula Marka were assigned to the core group.
[269] PUK031 and KM006
[270] Group 2 includes sample numbers PUK036, KW017, KM009, KM015, and KM016. Note that Khula Marka is more strongly represented, as 3/5 sherds are from Khula Marka.

Khonkho.[271] It is not clear whether Group 2 and Group 3 sherds were from rare local sources or from more exotic locales, but the fact that they are not confined to a single site suggests that either: 1) they are local and represent continuity between the three site and from the Early Pacajes to the Inca-Pacajes, or 2) Group 2 sherds (which are mostly from Ch'aucha de Khula Marka) may represent an alternate (perhaps non-local) Inca-Pacajes clay source, and the presence of this source at the other two sites may simply relate to Inca-Pacajes use of that area.[272]

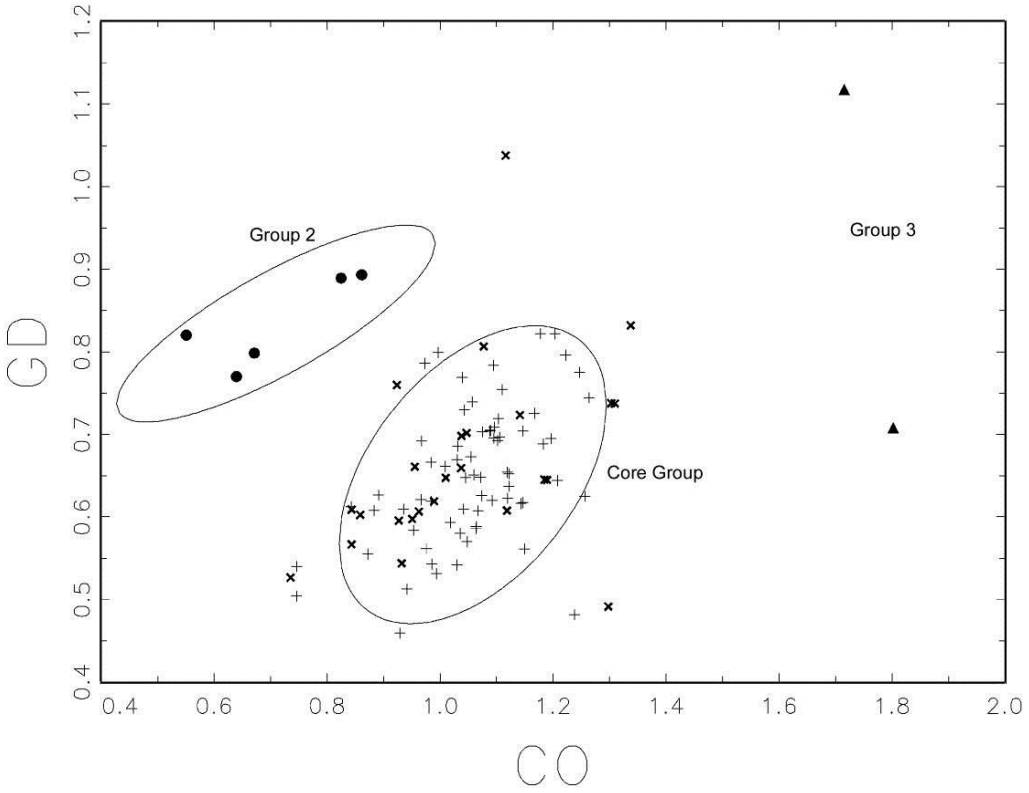

Figure 100: Biplot showing two main chemical characterization groups

[271] Group 3 includes sample numbers PUK031 and KM006. Since these two sherds would appear to have little in common, it may be possible that these are read errors in the ceramics. These sherds did demonstrate higher than normal levels of standard deviation, and it may be possible that they only seem similar because of mistakes in the ablation and/or calculation process.

[272] The Group 2 sherds from Pukara de Khonkho and Khonkho Wankane are both small olla sherds, and it is nearly impossible to definitively determine temporal affiliation of olla sherds based on paste alone. However, it is notable (if somewhat confusing) that the Group 2 sherd from Khonkho Wankane was identical in form to the molded rim olla variation (Type 1A) found at Pukara de Khonkho. Nevertheless, the Type 1A olla that was tested from Pukara de Khonkho was assigned to Group 1.

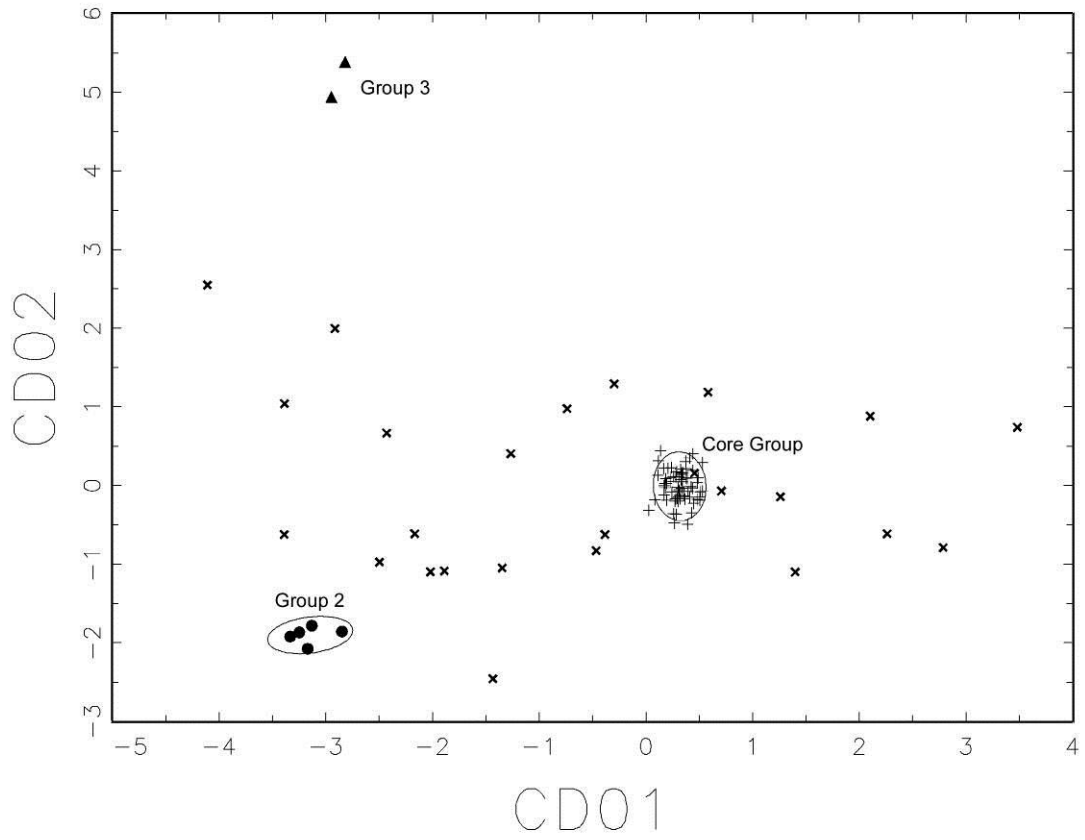

Figure 101: Results of discriminate function analysis, showing all three chemical characterization groups

The majority of outliers likely actually belong to the chemical characterization Group 1, although some may belong to Group 2 and it is possible that a few[273] may be single representatives of non-local clay sources, introduced through trade or small-scale migration. Without further study of actual clay sources in the area, it is impossible to more definitively group these samples.

Surprisingly, the results to date suggest very little change in use of local resources between the three sites, despite the more notable differences in ceramic form and decoration between the two Late Intermediate Period sites and between the Late

[273] Most notably KW006, which stood out so strikingly in the hierarchical cluster analysis.

Intermediate Period and the Inca/Colonial Period. Although there are radical differences in community organization, and perhaps even the migration of a new Inca population during the Inca/Colonial Period, there is almost no difference in the collection and use of local clay sources. This suggests clay use at all three sites was primarily local and chosen for practicality and convenience, which remained the same for all groups.

Ceramics and Identity in the Pacajes Late Intermediate Period

In summary, my ceramic study consisted of an intensive ceramic attribute analysis of materials from the Pukara de Khonkho, and comparative attribute analyses from Late Intermediate Period Khonkho Wankane and Inca/Colonial Ch'aucha de Khula Marka. In addition, I conducted LA-ICP-MS analysis on ceramic samples from all three sites to identify chemical characterization groups. The major results of these investigations are reviewed below.

First, I should note that the site of Pukara de Khonkho provided the rare opportunity to analyze a large assemblage of Early Pacajes ceramics due to its large size and the fact that it was a single occupancy Late Intermediate Period site. (In contrast, most Late Intermediate Period sites in the Pacajes area are smaller, more ephemeral, and/or mixed contexts that also include earlier and/or later period material.) Because of the large, unmixed sample provided to me by the site, I was able to create a more complete typology of Early Pacajes material than had previously been possible, isolating different types and variations of simple domestic form (jars and ollas) as well as serving vessels (bowls and small jars). I was also able to describe, discuss, and categorize the

decorative motifs that appear at the site. It is my hope that this typology will be useful as a comparative study for any subsequent projects working on the Late Intermediate Period in the Pacajes region.

The complete typology also allowed me to look at measurements of lip and base diameters as well as the execution of painted decoration for signs of standardization that might suggest what sort of production style was utilized at the site. Very high coefficients of variance suggested that the ceramics were not highly standardized, probably due to a production mechanism of independent specialization (Costin 1991), whereby ceramic products were made by different individuals at the local level for local consumption. Nevertheless, it was clear by the shared forms and decorative motifs across the site that there was a level of internal consistency and intentional standardization in the way that different local individuals at the site of Pukara de Khonkho all drew on the same forms and decorative motifs. The analysis demonstrated that ceramic styles and forms at Pukara de Khonkho exhibit a shared domestic tradition, and patterns of distribution across the site help to better understand site organization.

However, the site of Pukara de Khonkho stands out from other local Late Intermediate Period settlements in terms of site organization and many aspects of ceramic style. As part of my analysis, I also conducted a comparative study considering similarities and differences between the ceramic assemblage at Pukara de Khonkho and the Early Pacajes assemblage from Khonkho Wankane, also referencing other published local Late Intermediate Period sites (e.g. Albarracin-Jordan 1996; Bandy 2001; Janusek and Kolata 2003; Matthews 1992). I found that, although the ceramics at Pukara de Khonkho could clearly be identified as "Early Pacajes," there were significant differences

between the ceramic assemblage at Pukara de Khonkho and other Late Intermediate Period sites in the region, which I attribute to possible chronological differences as well as differences between the kinds of occupation.

In general the domestic forms are the same between both sites, although the assemblage from the Pukara de Khonkho includes some types and variations which do not appear (or are not very common) at Khonkho Wankane or other LIP sites. These types/varieties include Jar Type 2 (with the bulbous neck) and Olla Type 1A (with the incised design at the handle.)[274] Moreover, while domestic jars and ollas constitute the majority of vessel forms at both sites, at Khonkho Wankane the jars tend to be associated with ritual offerings, and there are fewer ollas overall, suggesting that Khonkho Wankane was not primarily a domestic settlement during the Late Intermediate Period.

The differences are far more significant when it comes to the serving vessels, however. First, Khonkho Wankane has a slightly larger proportion of decorated bowls. More notably, the diagnostic Early Pacajes "disk-base" bowl is found at Khonkho Wankane, but is very rare at Pukara de Khonkho. In addition, the carinated Type 1 Small Jar identified at Pukara de Khonkho has not been (to my knowledge) identified at any other Early Pacajes site (although this may just be a problem of representation.) Finally, the painted decoration on bowls and small jars, while utilizing the same or similar geometric motifs, drew on these motifs in distinctly different proportions at both sites, and certain motifs or variations appeared only at one site and not the other. For example, at the Pukara de Khonkho the three most common motifs are dots, wavy lines/lace, and parallel lines. At Khonkho Wankane, the dots motif is not even used, and the three most common motifs are the "pukara," llamita, and parallel lines. The different proportions of

[274] But note that one example of this variation is found at Khonkho Wankane.

these different motifs may possibly reflect temporal differences, with the major settlement of Khonkho Wankane dating to earlier in the Late Intermediate Period than the settlement of Pukara de Khonkho.

Comparison between ceramics at the site of Pukara de Khonkho and the Inca/Colonial site of Ch'aucha de Khula Marka showed even more marked differences. While the ceramics at the Pukara de Khonkho appear to belong to a previously undefined variation of Early Pacajes, the ceramics at Ch'aucha de Khula Marka clearly fall within the Inca-Pacajes canon. This pattern has two major implications for our understanding of pre-Colonial and early Colonial occupations in the Desaguadero valley. First, it is important to emphasize that there is little to no overlap between ceramic styles at Pukara de Khonkho and Ch'aucha de Khula Marka, despite the fact that it appears that Pukara de Khonkho was occupied until the Inca occupation. This, together with differences in site structure and organization suggests that the inhabitants of Ch'aucha de Khula Marka may have belonged to a different ethnic group than those at Pukara de Khonkho, who appear to have been moved to a different location following the Inca conquest. The second important point is that, despite the fact that the construction of the church demonstrates site use into the Early Colonial Period, there are very few clear Late Pacajes ceramic sherds at Ch'aucha de Khula Marka, suggesting that the site was either very lightly occupied after Colonial occupation or that it was only occupied very early in the Colonial Period.

Finally, the LA-ICP-MS analysis demonstrated that there were no significant chemical differences in ceramic pastes between the three sites and between the Late Intermediate and the Inca/Colonial periods. In other words, despite the numerous

differences noted in the ceramic attribute analysis, the majority of the ceramics at all three sites appeared to have been made locally by local potters.

Overall, the ceramic data points to a florescence in local Pacajes identity at the end of the Late Intermediate Period. During the centuries immediately following the collapse of Tiwanaku, there were no large population centers. For the most part, Pacajes peoples appeared to live in small groups, following a subsistence pattern of migrating pastoralism in which they moved across the landscape, returning to important places like Khonkho Wankane to bury their dead and conduct other rituals. Towards the end of the Late Intermediate Period, larger groups began to come together at sites like Pukara de Khonkho, forming new settlements and larger, local communities. This process was abruptly disrupted by the Inca incursion, when the Pukara de Khonkho was abandoned, and another, smaller, group of individuals settled at Ch'aucha de Khula Marka. This understanding of the Pacajes Late Intermediate Period will be elaborated in the following chapter.

CHAPTER VIII

THE RECONSTITUTION OF COMMUNITY IN POST-COLLAPSE CONTEXT

Joseph Tainter (1988) has argued that the period following the collapse of a major political system is characterized by a loss of centralized control over economic, social and other behaviors; a lack of investment in monumental art and architecture; an increase in conflict; and a retraction of interregional contact. In the period after collapse, a number of different variables affect when, how, and if complex society rematerializes (e.g. Bronson 2006; Hegmon et al. 2008; Kolata 2006; Marcus 1998). Nevertheless, while archaeological theory often focuses on the various factors that lead to state collapse, too often the periods that follow have not received as much attention. (Schwartz and Nichols 2006 are a notable exception.) In this dissertation, I demonstrate that post-collapse periods provide a unique opportunity to investigate the way in which local and community identities are reformulated in the periods following the collapse of a major political system. In this chapter, I summarize my findings as I consider how people reorganize their social and political systems and restructure their individual and community identities in the wake of the loss of the social structures, identities and interactions that accompanied the collapse of the political infrastructure.

The research conducted as part of this dissertation has sought to interrogate the practices and processes that may lead to or help support the formation of new local communities in post-collapse context. The site of Pukara de Khonkho provides an excellent opportunity to assess the way in which new communities form in the periods of

sociopolitical confusion and unrest that so often follow collapse. In this chapter, I synthesize the data presented in Chapters 5-7 in order to help address the research questions that were articulated in Chapter 4. First, I consider the origin of the settlers and the role of population movement in the settlement of the new site of Pukara de Khonkho. I then address the issue of chronology, in order to more explicitly speak to changes occurring within the post-collapse Late Intermediate Period (AD 1150-1450). Following the interactionalist approach to an archaeology of communities (Yaeger and Canuto 2000) that I outlined in Chapter 2, I look at the role interaction may have played as the community of Pukara de Khonkho was created, defined, and redefined over the course of site occupation, specifically evaluating the role of intercommunity interaction (warfare, trade, ritual, etc.) in the formation of the site. I also consider how internal community solidarity could have been established and maintained within a relatively new settlement. Finally, I discuss all of these questions in the context of a broader understanding of post-collapse practice and community identity formation.

Origin, Migration, and Population Movement

When I first surveyed the site of Pukara de Khonkho in 2005, I was struck by how different it seemed from all other Late Intermediate Period settlements in the southern Titicaca Basin. While most recorded Late Intermediate Period sites were small, ephemeral settlements characteristic of nomadic pastoralism (Albarracin-Jordan 1992; Albarracin-Jordan and Matthews 1990; Bandy 2001; Janusek and Kolata 2003; Lémuz 2005; Matthews 1992; Wise 1993), the Pukara de Khonkho is large (more than 20 ha

with more than 500 circular structures) with a density of artifacts that suggests intensive habitation. Moreover, many of the ceramic sherds initially collected from the surface of the site appeared somewhat different from the Early Pacajes style that characterized regional Late Intermediate Period ceramics. In addition, one of the few ethnohistoric sources to specifically address the region surrounding Pukara de Khonkho related that some individuals living within the Pacajes *señorio* claimed to have emigrated from the "*Laguna de Chuquito*" (Lake Titicaca), while others said they came from the Carangas region, to the south (Mercado de Peñalosa (1965[1583]:337-338). As a result of this suggestive early evidence, I began to wonder if the Pukara de Khonkho was, in whole or in part, a community of migrants. If so, I hoped to be able to investigate where they came from and why they chose to settle where they did.

As I explain in Chapter 4, I developed my research program to test three basic hypotheses: 1) Pukara de Khonkho was established as a community of migrants who shared an original homeland; 2) Pukara de Khonkho was settled by long-term inhabitants of the local area; or 3) Pukara de Khonkho was a multiethnic community, settled by people from different regions. I tested these hypotheses through a consideration of ceramic attribute analysis, LA-ICP-MS analysis, architectural/special analyses, and strontium isotope analysis. I also looked at the way that the site of Pukara de Khonkho fit into the wider regional settlement system. After considering the data from all of these sources, I have concluded that the Pukara de Khonkho was likely settled by long-term inhabitants of the Pacajes region. Differences in ceramics and settlement style between the Pukara de Khonkho and other Pacajes settlements are likely due to temporal differences. Furthermore, the sites appear to be very different kinds of settlements, which

may influence their respective material culture in particular ways. Despite the initial appearance to the contrary, there is no evidence supporting an interpretation that the inhabitants were migrants.

Ceramic Attribute Analysis

Although there are many notable differences, there is significant overlap in ceramic styles between the ceramics at Pukara de Khonkho and surrounding Late Intermediate Period sites. As discussed in the previous chapter, the Early Pacajes ceramics are usually plain, with few finewares and no polychromes. Technically, they are well made and evenly fired, with thin, often burnished, walls, composed of an orange or red-brown paste with inclusions of very fine sand and mica. With the exception of a few small jars (likely utilized for serving), bowls are usually the only decorated forms, and are the most diagnostic Early Pacajes pieces. Decoration tends towards simple geometric patterns, which are roughly executed in black paint, suggesting little codification or centralized control over ceramic production. Popular motifs include dots, cross hatching, parallel lines, and small llama figures (Albarracin-Jordan 1996; Albarracin-Jordan and Matthews 1990; Bandy 2001; Janusek 2003a; Matthews 1992).

This basic description matches the characteristics of the ceramics found at the Late Intermediate Period site of Pukara de Khonkho, leading me to unequivocally assign those ceramics to the Early Pacajes phase.[275] If the Pukara de Khonkho had been settled by migrants I would have expected to see a uniform ceramic style that was clearly distinct from styles at other coeval settlements. The fact that the ceramics are, in fact, quite similar in terms of general form and types of decorative motif argues against an

[275] As explained in the next section, this date is also supported by radiocarbon dating.

interpretation of long-distance migration. In addition, there are no patterned variations in style between different structures or different parts of the site as might be expected if the site was home to a multiethnic population or to refugees from different parts of the Titicaca basin. Instead, the use of specific vessel forms and a shared decorative tradition across the site demonstrates that the inhabitants of Pukara de Khonkho shared a common stylistic understanding that likely reflected a shared local identity, reinforced through local daily practice and shared material culture (Yaeger 2000).

In general, the overall similarities of ceramic styles to the more broad Early Pacajes style and the even distribution of the Pukara de Khonkho variation of this style across the site supports the hypothesis that the original inhabitants of the Pukara de Khonkho came from the local (Early Pacajes) area. When I address chronology (in the section that follows) I suggest that the differences initially noted between Early Pacajes ceramics at the Pukara de Khonkho and Early Pacajes ceramics at other Late Intermediate Period sites may be better explained through temporal differences than by reference to a theory of migration.

LA-ICP-MS Analysis

As noted in the previous chapter, LA-ICP-MS analysis revealed that the vast majority of the ceramics from all three excavated sites (Pukara de Khonkho, Khonkho Wankane, and Ch'aucha de Khula Marka) appeared to be made from the same local clays. While this is to be expected at any site with long-term habitation and local ceramic production, a site that was settled by migrants would also likely have a smaller subset of ceramics with the chemical characterization signature of their local homeland.

Instead, the majority of the ceramics from Pukara de Khonkho were assigned to Group 1, the largest chemical characterization group, which also accounted for the largest proportion of ceramic sherds tested from Khonkho Wankane and Ch'aucha de Khula Marka. One sherd each was assigned to the remaining two groups, which were also represented at the other two sites. While a number of the tested sherds could not be definitively assigned to a specific group, it is likely that the majority of these are simply outliers from Group 1 or possibly Group 2. This distribution of chemical characterization groups is nearly identical to that presented at Khonkho Wankane and Ch'aucha de Khula Marka, suggesting that at all three sites the majority of the ceramics were made from the same local clay sources.

This data alone does not prove that the inhabitants were not migrants, as a migrant population may not have brought very many ceramics from their original homeland with them. Nevertheless, when considered together with the other data presented here, the hypothesis that the majority of the inhabitants at the site came from the local area is most supported by the evidence.

Strontium Isotope Analysis

As discussed in Chapter 5, strontium isotope analysis was conducted on human bones and teeth excavated from four separate burials on or near the site of Pukara de Khonkho. The isotope signatures collected from these specimens were compared with specimens from local fauna in order to create a baseline, and were also compared to already tested Late Intermediate Period burials from Khonkho Wankane and from elsewhere in the southern Titicaca Basin.

The analysis showed that all tested individuals were born and died in an area with the same strontium signature as that which has been previously calculated for the southeastern Titicaca Basin.[276] Moreover, they fell within the range established as "local" for both Khonkho Wankane and Pukara de Khonkho.[277] If the individuals who were tested were actually immigrants from another area, we would expect to see a different strontium isotope signature in the teeth (which reflects childhood residence) than in the bone (which reflects the region where the individual spent the last 6-7 years of his/her life.)[278]

Architecture/Spatial Analysis

When I first began to survey the site of Pukara de Khonkho, it was clear that it was distinct from the majority of the other previously reported Late Intermediate Period sites in the Pacajes region. While most recorded Late Intermediate Period sites in the region are small and ephemeral, with few signs of architecture, large populations, or permanent habitation, the Pukara de Khonkho is a large hilltop settlement with stone-walled terraces and more than 500 structures, some constructed completely out of stone, and some with stone foundations. Some other hilltop settlements have been recorded in the Pacajes area, but with the exception of Pukarpata they are all small (between 1-6 hectares) with little or no standing architecture except for defensive walls, and are

[276] Note that this does not preclude the possibility that these individuals may have migrated from an area that (by coincidence) shares the same isotopic signature.
[277] There are two caveats to this statement: 1) One of the burials from Pukara de Khonkho (U6.7R1) was actually slightly higher than the "local" range for Pukara de Khonkho; 2) The isotopic signatures from the bones and teeth collected from Pukara de Khonkho were slightly higher than from Late Intermediate Period burials at Khonkho Wankane.
[278] Note that this would only record first generation immigrants, not the children of immigrants who were actually born in the local area. However, carbon dates suggest the burial contexts are the oldest part of the site, so it is likely that these burials are actually the original settlers (and some could even be secondary burials of ancestors brought to the site from elsewhere).

generally interpreted as refuges without permanent habitation (Matthews 1992:195). The Pukara de Khonkho is a very different type of settlement from either the empty hilltop refuges or the small ephemeral camps. Its lack of defensive walls and signs of dense domestic habitation suggest it was the center of a large, permanent local community.

I initially saw this difference as possible evidence that the site of Pukara de Khonkho may be a settlement of migrants who built their community in the style of their original homeland. However, the small, circular layout of the domestic structures is very characteristic of the local region. In the Desaguadero Valley, circular domestic structures are noted both before and after the occupation at Pukara de Khonkho. The stone foundations of circular domestic structures at Khonkho Wankane date to the Late Formative (AD 0-500), and circular stone foundations dating to the Inca/Colonial Period (AD 1450-1600) are recorded at Ch'aucha de Khula Marka. While the structures at each site differ slightly in terms of construction style, they are similar in size and likely served a variety of different domestic functions (sleeping, kitchen, storage, workshop, etc.). The long-term persistence of circular domestic structures in the area is especially interesting, because for both the Tiwanaku (Bermann 1994; Couture 2003; Janusek 2003b) and the Inca (Rydén 1947; Wise 1993) square structures were the norm. The presence of circular structures at Pukara de Khonkho fits in nicely with this local pattern.

Nevertheless, there are some differences between the style of the circular structures at Pukara de Khonkho and the other two sites. While circular structures at Khonkho Wankane and Ch'aucha de Khula Marka only used stone foundations (and likely adobe brick walls), many of the structures at Pukara de Khonkho have completely

stone walls.[279] The differences may best be explained by availability of resources; stone walled structures appear at Pukara de Khonkho rather than at other sites perhaps because stone is more readily available at the site since the bedrock is found very close to the surface in this part of the mountains.

Settlement Patterns

As discussed in Chapter 3, regional studies of settlement patterns conducted since the 1990's in the southern Titicaca Basin have illustrated significant population movement over the Late Intermediate Period (Albarracin-Jordan 1992; Albarracin-Jordan and Matthews 1990; Bandy 2001; Janusek and Kolata 2003; Matthews 2002). After the collapse of Tiwanaku, the large Tiwanaku centers of the altiplano were abandoned or severely diminished in size. Instead, small ephemeral settlements characteristic of nomadic pastoralism began to appear, not only across the altiplano, but also on the mountain slopes. Most Tiwanaku Period settlements continued to be occupied into the Late Intermediate Period, but the overall settlement size dropped dramatically, and new settlements, including fortified *pukaras,* were built in the hills rather than on the high plains (Albarracin-Jordan and Matthews 1990; Arkush 2005; Bandy 2001; Janusek 2005a; Stanish et al. 1997).

While an overall drop in population is noted across much of the southern basin at this time, Janusek (2005a) and Pärssinen (2005) find evidence of population growth near

[279] Other differences include the fact that the stone foundations at Khonkho Wankane are made of flat, double rows of stone, while the stone foundations at Pukara de Khonkho and Ch'aucha de Khula Marka have only a single row of stones which are placed on end. Also, the structures at Khonkho Wankane often have constructed storage "annexes" which are absent at Pukara de Khonkho and Ch'aucha de Khula Marka. The stone-walled structures at Pukara de Khonkho do often have internal "niches" in the walls, however, that likely served the same function.

the sites of Pukara de Khonkho and Pukarpata. The archaeological evidence also seems to support oral histories, which suggest that sites near Khonkho, including the Pukara de Khonkho, became important as people moved into the region following Tiwanaku collapse (Paredes 1955). The question still remains as to where these people came from. While I initially posited that the settlers of Pukara de Khonkho might have migrated from outside the Pacajes region, the evidence reviewed above suggests that they were probably fairly local. Most likely, the inhabitants were the former inhabitants of the more common small ephemeral sites found across the former Tiwanaku heartland during the Late Intermediate Period.

Chronology

When she began studying the Late Intermediate Period in the northern Titicaca basin, Arkush (2005) noted a disturbing tendency for Andeanists to treat the entire 300-500[280] year period as an undifferentiated "Dark Age." As I note in Chapter 3, however, she was able to articulate at least two distinct phases during this long period in the northern Titicaca Basin. Specifically, she found significant differences in settlement patterns and site organization throughout the Late Intermediate Period, the most notable being a dramatic increase in fortified pukara construction after approximately 1275 AD (Arkush 2005, 2011). Likewise Nielsen (2002a, 2008) notes a tendency towards population aggregation in the later part of the Late Intermediate Period in the southern Bolivian region of Lípez. Unfortunately, until recently little work had been conducted to

[280] The dates vary depending on when Tiwanaku influence is lost in different areas of the region and when the Inca invaded.

clarify changes and continuities during the Late Intermediate Period in the former Tiwanaku heartland.

When I began my research at the Pukara de Khonkho, I hoped to be able to clarify some subdivisions in the experience of the Late Intermediate Period in Bolivia's southeastern Titicaca Basin. I wanted to address the chronology of this site and the way in which the community it represented was situated in terms of major regional events including the Tiwanaku collapse (ca. 1150 AD) and the Inca invasion (ca. 1450 AD). I focused on two major questions: What was the sequence of community formation at the Pukara de Khonkho, and how does it fit into the larger regional chronology of the Late Intermediate Period (following the collapse of Tiwanaku)? When was the site settled, how did it grow, and when was it abandoned?

In addition to considering the initial occupation, I was interested to see if there were changes over the time of site occupation. How quickly did the site grow and how quickly was it abandoned? Although it seemed obvious from the ceramic representation that the site was not occupied far into the Inca conquest, I wanted to test exactly when site abandonment occurred and identify what happened to the population. Again, I considered three possible scenarios: 1) Pukara de Khonkho was abandoned rapidly after the Inca conquest and the population moved to Ch'aucha de Khula Marka; 2) Pukara de Khonkho was abandoned rapidly after the Inca conquest and the population was removed from the area, while a more strongly Inca population settled at Ch'aucha de Khula Marka; 3) There was a certain amount of overlap between the Late Intermediate Period (Early Pacajes) occupation of Pukara de Khonkho and the Inca Period (Inca-Pacajes) occupation of Ch'aucha de Khula Marka.

In order to assess these different models for site occupation and abandonment, I considered data from radiocarbon dating of different contexts at the site of Pukara de Khonkho compared with other known dates from the Pacajes Late Intermediate Period. This data is supported by information from ceramic attribute analysis and ethnohistoric manuscripts. Taken together, the data suggests that the Pukara de Khonkho was not settled until the second half of the Late Intermediate Period although (as discussed in the following section) it does not have the defensive characteristics you would expect if it was settled primarily in response to growing levels of conflict. The first sign of occupation appears to have been the burial of the ancestors at prominent locations on the site (under large rock outcrops that framed the primary occupation face). The site was initially sparsely occupied, but grew rapidly, and was most intensively occupied in the first half of the fifteenth century. The site was abandoned quickly at the time of Inca conquest, and the inhabitants were resettled by the Inca conquerors (see Paredes 1955:154-155). Ch'aucha de Khula Marka was likely inhabited by another group.

Radiocarbon Dates

As described in Chapter 5, a total of 10 carbon samples were tested from different contexts across the site, including burial locations and the floors of different types of structures from different terraces and different occupation faces. The median probability of nine of the ten tested samples range from AD 1340 – 1448, suggesting the site was occupied for approximately 100 years in the second half of the Late Intermediate Period, right up until the Inca conquest.

Before research began at Pukara de Khonkho, few Late Intermediate Period sites in the Pacajes area had been dated. This was in part due to the fact that sites were so scattered and ephemeral that it was difficult to find clear contexts to date, but also because so little work has focused on the Late Intermediate Period. Nevertheless, as previously discussed, most of the tested Early Pacajes sites have returned dates that are significantly earlier than that of the Late Intermediate Period occupation at Pukara de Khonkho, coming primarily from the twelfth and thirteenth centuries.

In contrast, the earliest date from Pukara de Khonkho has a median probability of 1340,[281] signaling that the site was initially occupied in the early-mid fourteenth century. The earliest carbon dates submitted date the two cemetery areas, suggesting that the site may have first been utilized for mortuary/ritual purposes, and only gradually grew into a permanent settlement. Nevertheless, at least one domestic structure (U4.6, located on the fourth terrace of the western face of the site) also dates to the fourteenth century, with a median probability date of 1349.[282] By far the majority of the sampled structures, however, date to the first part of the fifteenth century, right before the Inca conquest. Six of the ten submitted samples returned median probability dates between 1409 and 1448. This suggests that the major occupation of the site was in the first half of the fifteenth century, and it is possible that the growth of the site may have been related to the Inca expansion.

This clustering of dates in the first half of the fifteenth century also suggests that the site was abruptly abandoned around the time of Inca conquest. Nevertheless, a single Inca or Early Colonial period date from a structure on the western face of occupation

[281] 1 sigma date ranges = 1284-1313, 1357-1388. 2 sigma date ranges = 1275-1331, 1337-1397
[282] 1 sigma date range = 1310-1360, 1387-1407. 2 sigma date ranges = 1296-1417

does imply that limited, low intensity use of the site may have continued after the Inca conquest and/or the Spanish conquest. Since the western face of the site was located nearest to the terraced agricultural fields, it may suggest that the Inca continued to utilize the fields even after they removed the inhabitants from the settlement of Pukara de Khonkho.

Carbon samples were also collected from the nearby site of Ch'aucha de Khula Marka to see whether or not there was significant overlap between the occupations of the two sites. As discussed in Chapter 6, the two samples conclusively date the site to the Inca/Early Colonial Period, but the range is too broad to get much more specific than that. These dates do, however, confirm that the site was occupied in the Inca and/or Early Colonial Period, and after the abandonment of Pukara de Khonkho.

Ceramic Analysis

As noted in the previous section, there is a significant difference in ceramic styles between the site of Pukara de Khonkho and other Pacajes settlements. The fact that carbon dates for Pukara de Khonkho are significantly later than any other Late Intermediate Period settlement that has been studied so far in the Pacajes region suggests that temporal difference may account for these previously discussed differences in ceramic style. More carbon dates and a more detailed ceramic study considering sites across the southern basin are necessary to confirm this hypothesis.[283]

The present study has identified clear differences in ceramic style at the Pukara de Khonkho, however. Using the site of Khonkho Wankane as a representative of more typical Early Pacajes sites, we see that the "disk base" is significantly more common on

[283] This is a project I am interested in conducting after I complete my dissertation.

bowls from Khonkho Wankane than from bowls at Pukara de Khonkho. Furthermore, while the same (or similar) decorative motifs appear at each site, they appear in different proportions, with dots being much more common at Pukara de Khonkho and llamitas and "pukara" motifs being much more common at Khonkho Wankane. Finally, certain vessel forms (like the carinated Type 1 small jar) have only been recorded at the site of Pukara de Khonkho.

Since it now appears that the Pukara de Khonkho was settled later in the Late Intermediate Period than other dated Early Pacajes sites, differences in ceramic style may reflect changes over time that have not been previously noted. Another possible explanation for the differences in ceramic style is simply that the settlement at Pukara de Khonkho is a drastically different kind of settlement from the small ephemeral habitation sites or the small hilltop refuges without permanent habitation. With a larger full-time population, the inhabitants of Pukara de Khonkho may well have developed their own unique variations in ceramic style as a part of their own developing "community of practice" (e.g. Lave and Wenger 1991; Wenger 1998; see also Roddick 2009).

Ethnohistoric Data

As discussed in Chapter 3, a number of ethnohistoric sources deal directly with the Inca conquest of the Pacajes area and briefly reference the pre-Inca settlements in the region (e.g. Cobo [1653]1991; Diez de San Miguel 1567, cited in Murra 1968; Espinoza Soriano 1582, cited in Bouysse-Cassagne 1986; Mercado de Peñalosa 1965[1583]).[284] These sources describe the era we now know as the Late Intermediate Period as the period of the *awqa runa*, a time of war between bellicose Aymara factions. As

[284] See also Julien 1983; Paredes 1955

previously noted, Mercado de Peñalosa (1965[1583]:337-338) suggested that some the inhabitants of the Pacajes area had migrated to the region from the lake while others had moved from further to the south. Nevertheless, most ethnohistoric sources cannot directly address the origins of the Late Intermediate Period occupants.

In contrast, the manuscripts do discuss the Inca conquest and the subsequent Spanish conquest in a great deal of detail, and some even mention the Pukara de Khonkho specifically. Paredes (1955:154-155) notes that the site was fortified to resist Inca conquest, but that after fierce battles the Inca destroyed the town and forced the survivors to resettle in the nearby settlement of Jesus de Machaca, which became the regional center in colonial times. Mercado de Peñalosa (1965[1583]) relates that the majority of the Pacajes inhabitants were resettled at the town of Guaqui, near the lake in the Tiwanaku Valley. Regardless, there is some agreement that the original inhabitants of the Pacajes area were resettled in another location, an idea that is now supported by the archaeological evidence.

The initial Spanish military occupation of the Titicaca Basin was established in 1538, although some explorers had previously passed through the area (Julien 1983:246-247). While few ethnohistoric manuscripts explicitly mention the site of Ch'aucha de Khula Marka, archaeological evidence suggests it was inhabited very early in the colonial period, and the site may have been a location where the Aymara reported for their *mita* service, to travel to the mines in Potosi (Julien 1983). Oral histories collected in the modern village of Qhunqhu Liquiliqui also describe the site as the earliest colonial center, which was abandoned when the villagers killed the priest. At that time, the Spanish center was moved to Jesús de Machaca, where a much larger cathedral was constructed.

Trade, Warfare, and Other External Relationships

In this chapter so far I have discussed *who* settled at Pukara de Khonkho (previously nomadic pastoralists from the local Pacajes region) and *when* the site was settled (in the fourteenth century). We now turn to reasons *why* the site may have been settled. What led these previously nomadic pastoralists to come together to form a more permanent site in this seemingly inhospitable location along the steep, rocky hillside? While common answers privilege explanations related to conflict or other local pressures, overall, I found that there was little evidence for high levels of conflict, ritual, or trade at the site, and few signs of interaction with other Late Intermediate Period communities. This does not mean that such interactions did not happen, but only that they were not highly codified or centrally controlled and that they left no obvious correlates.

Warfare

The Andean Late Intermediate Period is often characterized in the ethnohistoric documents as a time of warfare, whose presence is represented archaeologically through the sudden growth of pukaras and other settlements in defensive locations. Arkush and Stanish (2005; Arkush 2005) argue that ethnographic analogy, together with documentary evidence and analysis of *pukara* settlement patterns in the Colla region of the northern Titicaca basin point to the importance of warfare during the Late Intermediate Period. Nevertheless, there are far fewer *pukaras* in the southeastern Titicaca Basin than in the north, and it appears very likely that conflict may not have been as important among the Pacajes as it was among the Colla and Lupaqa populations. Looking at the Pukara de

Khonkho itself, the site does not appear to be a major center for warfare, despite its defensible location. The only walls are domestic terraces rather than fortifications, and excavation has only uncovered a few possible weapons, which could also be explained as tools for herding or agriculture. In addition, osteological analysis of the human remains found at the site identified no trauma patterns suggestive of warfare.

Nevertheless, while conflict does not seem to be as primary a concern at the Pukara de Khonkho or in the Pacajes region as in the Colla and Lupaqa regions, this does not mean that we should downplay the defensive potential of the site or the military capabilities of the Pacajes population. The Pukara de Khonkho is naturally defensive, with many approaches blocked by rock faces. Rydén (1947:327) even suggests that the terraces may serve *better* as defensive platforms than would walls with parapets, which can interfere with the effective use of a sling. Furthermore, the 1583 *visita* of Mercado de Peñalosa (1965[1583]:338) stresses the warlike nature of the Pacajes population and gives a detailed description of fighting techniques. Even if the Pukara de Khonkho was not initially intended as a fortress, its natural defenses may well have been utilized in times of conflict, and local community members relate that the site was used as a defensive base during a local indigenous revolt in 1921.

The chronological data discussed above show that the highest occupancy of the site took place immediately before the Inca conquest, suggesting that perhaps people were banded together in a defensible location to attempt to fight off the Inca incursion. Documentary evidence describes actual confrontations between the Inca and the Pacajes, as well as their Lupaqa allies. For example, Rowe (1946:207-208) points out that the Pacajes united with the Lupaqa to rebel against the Inca. All available evidence suggests

that the site was abandoned as a result of Inca conquest, and the chronicles relate that some violence accompanied this transition in the local Pacajes area. Nevertheless, while its defensiveness may well have been one important characteristic of the site, it does not necessarily explain its original settlement in the fourteenth century. Until the violence that accompanied the Inca conquest, conflict does not seem to have been as significant during the Late Intermediate Period in the Pacajes region as in other areas, and it is important to consider other possible influences, including ritual and trade.

Trade

Trade, perhaps mediated by pastoral seasonal migration, is another influence that would have had profound implications for the formation of communities in the Late Intermediate Period. Dillehay and Nuñez (1988) argue that throughout much of its history, mobile trading caravans tied the South-Central Andes together through a series of "caravan webs" moving in "fixed spirals" through different ecological zones. The collapse of Tiwanaku was a collapse of long-distance trade networks, when many of the settlements that had previously acted as "middlemen" for the Tiwanaku trade developed into regionally independent axis settlements in their own right. As regional chiefdoms began to form, shorter trade routes and growing numbers of fortresses suggest an increase in conflict (Dillehay and Nuñez 1988). However, it is important not to assume that increased conflict implies diminished trade. Keeley (1996) and Nielsen (2005) have noted that conflict is often actually associated with trade and population movement. Topic and Topic (1987), using examples from Peru's North Coast, observe that fortifications were often associated with major roads and trade ceramics, suggesting that

they were not just defenses against attack, but also control points regulating interaction and trade between various groups.

Nevertheless, there is little evidence that the Pukara de Khonkho served a major role in any similar sort of trade network. There are no obvious trade goods of any sort at the site. Ceramic attribute analysis was not able to identify any trade ceramics, and ICP-MS suggested that the vast majority of ceramics at the site were produced by local clays. All of the faunal remains found at the site came from locally available animals, and the only lithic artifacts that would have come from far away are the very few small flakes of obsidian found at the site. Only a few metal artifacts were found at the site, and most were roughly made out of material that could have been easily acquired locally.[285] Furthermore, the similarity of domestic artifacts of all types across the site, together with their generally rough craftsmanship suggests that the majority of the ceramics (and likely the stone and bone tools as well) were made locally at the household level by the residents of Pukara de Khonkho rather than by specialists from outside the community.

Nevertheless, the lack of direct evidence for long-distance trade does not mean that some level of trade may not have taken place at Pukara de Khonkho. The site is on a path that leads to the Tiwanaku valley and in a location that would be idea for moderating trade between people depending on the resources of the lake, north of the site, and those that lived in the wider, drier altiplano to the south (for comparison, see Parsons et al. 1997). Furthermore, as the largest site in the area during the Late Intermediate Period it would be a good candidate for a trade center, and its defensible location could have served to protect both long term inhabitants and to regulate trading activities. However,

[285] One possible exception is the metal miniature *chaqui taclla* pendant spoon, which was actually very finely made.

people may also have been attracted to the highly defensible site for other reasons as well.

Ritual

Topic and Topic (1987) point out that the mere location of sites in what appear to be defensive locations is not enough to automatically assume the threat of warfare. There are, after all, many other reasons to live on a hill than for defense, and walls could be more important as symbolic markers of identity than as physical barriers against intruders. Empty pukaras without household structures are usually interpreted as places of refuge during times of war, but could just as easily be seen as spaces for communal ritual activity. Furthermore, it is important to remember that settlements and architecture can be used for more than one primary purpose over the course of their existence.

Ritual use or ritual associations to this particular peak on the landscape could have originally drawn people to the area.[286] Especially after collapse of Tiwanaku ritual practices (Janusek 2005a), there would be a need for developing new ritual centers and ritual identities. The still-standing Late Formative monoliths of Khonkho Wankane seem to have been an obvious choice for early Late Intermediate Period ritual use. New local ritual patterns may have developed around particular features on the landscape, like the prominent rocky outcrops of Pukara de Khonkho, which directly overlooked the earlier stie of Khonkho Wankane. As noted previously, such an interpretation would be in line with traditional Andean cosmology, which often focuses on mountain peaks as sacred spaces (e.g. Abercrombie 1998; Bastien 1978; Ceruti 2003, 2004).

[286] Today the Pukara de Khonkho is considered to be an important *apu*, and periodic ceremonies are held at the peak, where a mythical "golden bell" is said to be buried in a cave.

It should be noted that there is no concrete evidence to suggest that Pukara de Khonkho actually served as a center for ritual activity. The site is densely populated with small domestic structures and a complete lack of specialized ceremonial or political architecture. There is no clear monumental ritual center that would have attracted members of other communities. Moreover, the majority of the artifacts and architecture associated with the site appear to be domestic or utilitarian in nature, making it difficult to support an interpretation that sees ritual usage as the primary purpose behind site settlement.

Nevertheless, as the largest site in the area, the Pukara de Khonkho would be a good candidate for a ritual center. It is suggestive that the upper-most terrace wall is the most finely constructed and that surface survey and test excavation units found no cultural material above that terrace wall.[287] Moreover, the few structures built on the second terrace are also empty and slightly larger and better constructed than other structures at the site, suggesting their use was not simply domestic. In additional to possible ritual use of the upper terraces, the cemetery areas at the site may well have been a center for ritual activity, and it is suggestive that the burials appear to predate major site occupation. It is possible that the settlement of Pukara de Khonkho may have begun with periodic use for burial or other ritual purposes, similar to the pattern that is suggested for the Late Intermediate Period occupations of Khonkho Wankane. Over time, however, Pukara de Khonkho grew into a permanent settlement, perhaps due to the influences of conflict or trade.

[287] As previously discussed, this stands in stark contrast to the density of remains across the rest of the site.

Internal Solidarity and Identification with Community

It may seem that the attempt to answer "why" the Pukara de Khonkho was initially settled is somewhat unsatisfying. Thus far, I have suggested that the settlement was likely initially a site for local mortuary and other ritual that gradually grew into a large, permanently occupied domestic community as previously nomadic populations were drawn to the site, perhaps in part due to a desire to protect themselves from a growing Inca threat. However, while this interpretation correlates well with the available data, it is not the only possible explanation, and it may well be difficult or impossible to ever really know *why* the site of Pukara de Khonkho was originally occupied. What is more, it is not clear if this is even really a legitimate question; after all, most communities do not form for a single simple reason. A better and more productive avenue for exploration (following Pauketat 2001) may be *how* the inhabitants of Pukara de Khonkho would have come to identify themselves as members of a shared community – the process of meaning-making that constituted community development. The final question my dissertation attempts to address is whether or not the inhabitants of Pukara de Khonkho formed a distinct community identity with high levels of within-group solidarity. If so, how did this community form, how was community identity renegotiated over the period of site occupation, and what happened to that "community" when the site was abandoned?

There are at least four possibilities regarding the question of community identity formation at Pukara de Khonkho: 1) Pukara de Khonkho was a permanent habitation site, settled by individuals who considered it their home and the center of their local

community; 2) The inhabitants of Pukara de Khonkho had a distinct community identity, but it was not highly localized, and the site of Pukara de Khonkho was only one of a number of locations where members of the community resided at different times; 3) The Pukara de Khonkho was intended as a center of refuge in times of war, and those who sought refuge in that location did not necessarily self-identify as members of the same community; or 4) The Pukara de Khonkho was a full-time community of refugees from many different areas who did not necessarily self-identify as members of the same community.

At this time, the bulk of the evidence suggests that the Pukara de Khonkho was the site of permanent habitation and that the inhabitants did share a relatively strong sense of community identity that was reflected through architecture and site organization. Although evidence suggests that most of the inhabitants were from the local area, as previous small, nomadic pastoralists came together into a full-time local community, there may have been a need to symbolically emphasize their new relationship with each other (e.g. Preucel 2000). The inhabitants of Pukara de Khonkho appeared to have a shared understanding of space, and the way in which the site is laid out suggests a link between the community, the ancestors, and the landscape (as in Abercrombie 1998; Basso 1996). Moreover, shared patterns of domestic architecture and artifacts across the site show that the inhabitants share an everyday "local habitus" (Yaeger 2000) that likewise tied them together through the shared patterns of everyday life.

Landscape/Architectural Analysis

As discussed in Chapter 5, site organization and construction styles at Pukara de Khonkho suggest a shared conception of space, as different parts of the site seem to have been designated for different activities. The long terrace walls clearly delimited the site, connecting the three faces of occupation, and wrapping around the two peaks that frame the main face to incorporate the cemetery areas into the site. Furthermore, it is clear that there was agreement on how to use different areas of the settlement. For example, use of the uppermost terrace (where no structures or artifacts were found) was likely restricted to specialized ritual or other uses that left few material traces. In contrast, the lower, domestic terraces were intensively occupied, leaving behind evidence of regular domestic habitation. Agricultural terraces stretched below the lowest domestic terraces, especially on the western face of site occupation. Burials were not associated with individual dwellings, but instead burials from across the site appear to be placed in one of two designated cemetery locations, which prominently flanked the major occupation face.

The fact that the six major terraces stretch across the entire site suggests a certain level of planned construction. It would have been easier (and just as functional) to depend merely on short domestic retaining walls, rather than extending the same terrace for a kilometer or more over difficult, rocky terrain. Nevertheless, the long terraces explicitly link the three habitation faces and also wrap around the Jisk'a Pukara and the other small peak to include the cemetery areas, thus linking both the living and the dead inhabitants of the site. The construction of these terraces would have been a major endeavor, and likely required the cooperation of larger numbers of people, perhaps in the context of a planned work group.

In addition to the shared communal architecture of the terraces, it is also notable that domestic architecture styles are similar across the site. Differences in structure location and organization appear to correlate with differences in use patterns of these different parts of the site rather than with identification with different ethnic or other social groups.

Finally, the landscape itself may have served to define and reflect a shared sense of local community. As discussed in Chapter 5, the landscape plays an active role in Andean community, ritual, and heritage (Abercrombie 1998; Bastien 1985). The site of Pukara de Khonkho was intentionally chosen out of a number of similar hillsides, likely for a number of possible reasons. First, the site location overlooks the Formative center of Khonkho Wankane, which was still utilized on an irregular basis during the Late Intermediate Period, especially for mortuary and ritual purposes. The mountain peak of Sajama, today an important *apu*, is also directly south of the main face of habitation. Moreover, the site of Pukara de Khonkho itself is intentionally constructed to fit into the natural landscape. The rocky drop-offs to the north unite with the lowest long terrace to form the site's boundaries, and the site itself encompasses three occupation faces and two small rocky peaks. These rocky outcrops, which marked the cemetery areas, may have served as natural "chullpas," connecting the inhabitants of the site to the landscape, to the ancestors, and to each other.

Mortuary Analysis

Further analysis of the mortuary locations at the Pukara de Khonkho and immediately off-site illustrate that the inhabitants of Pukara de Khonkho also shared

conceptions of appropriate patterns of burial. All identified burials at the site were located near prominent rock outcrops, and dug partially into the bedrock and lined by upright stones, which are only now visible above the surface due to erosion. One burial was a mix of bones, but the others were all articulated or partially articulated and facing towards the east. The infant burial was the only one to have any burial goods, but even here there was only a simple metal bead. This pattern has not been previously recorded in the basin, and may have been unique to the community, another marker of community identity.

Nevertheless, there were some notable differences between the burials below the Jisk'a Pukara (east of the main face) and those beneath the rock outcrop west of the main face. Most notably, in the western (and the off-site) burials, one mostly articulated skeleton was placed in its own grave. In the burial excavated in the east, however, the bones of at least two (incomplete) individuals were scattered in a single shallow grave. Some of the bones were burned, and some were partially articulated, while others were completely missing. (There was only one cranium and one set of pelvic bones.) Moreover, an empty stone-lined tomb was located near the shallow jumbled burial, although it was not clear whether or not those bones (or others) were once buried in the tomb or why they may have been moved. More excavation is necessary to see if these are patterned differences between burials in the eastern and western locations (perhaps reflecting a bipartite division within in the site) or if the perceived differences are merely a sampling error.

Although only six individuals were excavated on and around the site of Pukara de Khonkho, it is notable that they represent a diverse demographic, including young and

older adult men, adult women and an infant, suggesting that the site was utilized by families (not merely warriors in times of conflict.) All of the individuals have strontium isotope ratios falling well within the local limits, suggesting a relatively homogenous population in terms of regional origin. Finally, where cranial elements were present, all excavated individuals had the same style of cranial deformation, a characteristic that has been tied to ethnic identity in the Andes (Blom 1999).

Taken together with the location of the burials in such a dramatic spot at the site, the suggestion is that of a relatively homogenous population utilizing the bones of their ancestors to establish a connection with the land. Periodic rituals at the mortuary sites may have cemented this connection. It may be significant that the earliest radiocarbon dates at the site come from the burials, which may have been situated at the base of these striking natural landforms in order to establish community and history in this place. The association of the ancestors with important natural features on the landscape that are also incorporated with the built environment symbolically links the ancestors, the land, and the community.

Artifact Distribution

The shared contexts for ritual/mortuary use and large-scale construction projects like the long domestic terraces described above appear to reflect what Yaeger (2000:129) terms "practices of affiliation, often interactive in nature, that more discursively created and reinforced perceived similarities within the settlement and thus fostered a local community identity." However, as Yaeger also points out, community identity can also be reinforced through less conscious, everyday patterns of shared habitus. At Pukara de

Khonkho, this connection is demonstrated in part by the fact that the inhabitants of the settlement appeared to have shared a basic quotidian lifestyle, utilizing similar tools and artifact assemblages across the site.

In general, the artifact assemblage was utilitarian and appeared to have been made of local materials. Artifacts included utilitarian ceramics, groundstone, bone tools, and a few metal adornments. No patterned differences in artifact assemblages were noted between domestic structures in different parts of the site. While there were some differences in terms of different *types* of structures, patterns related to how each structure type was used were also similar across the site, suggesting once again a shared conception of the kinds of activities that were appropriate for specific spaces.

Ceramic Attribute Analysis

In addition to the shared patterns of artifact distribution across the site, ceramic attribute analysis demonstrates shared patterns of ceramic form and decorative motifs as well. Major ceramic forms at the site include at least four different types of jars, at least three different types of ollas, a variety of different bowls, and at least three different types of small jars. These patterns are similar to previously recorded forms in the Pacajes region with a few variations. As I discuss in Chapter 7, this suggests that the ceramics at the Pukara de Khonkho should be considered an Early Pacajes assemblage, but the newly recorded variations highlight the differences between the Pukara de Khonkho and other Early Pacajes sites. I have previously suggested that these differences may be primarily temporal in nature.

While clear differences are noted in both form and decorative motifs between ceramics at Pukara de Khonkho and other Early Pacajes sites, no such differences are noted in the domestic spaces across the site of Pukara de Khonkho. There was no clear pattern in the distribution of unique forms (like the Type 2 jar, the Type 1 small jar, or the flat-based bowl), each of which was found in various quantities across the site. Likewise, there were no obvious patterns in the distribution of different decorative motifs, except where this could be explained as the result of different activity areas. Units where more ceramics were found tended to have a representative sample of nearly all of the forms and motifs present at the site, while it was only the units with smaller assemblages that had corresponding fewer forms and motifs.

The general similarity of ceramic forms and decorative motifs across the site of Pukara de Khonkho and their differences from other previously recorded Early Pacajes sites was especially notable given the overall low levels of technical standardization. Measurements of rim and base diameter of different ceramic types were extremely variable across the site as were the executions of the wide variety of decorative motifs. These low levels of technical standardization in ceramic production suggest pottery was likely made at the household level. Nevertheless, shared patterns of form and decorative techniques that are somewhat different from those at previously recorded Early Pacajes sites suggest that the inhabitants of the Pukara de Khonkho shared a sense of everyday community that marked them as distinct from earlier time periods and from neighboring sites.

Site Abandonment

In the discussion above I propose that the Pukara de Khonkho was a community united through mortuary/ritual practices of affiliation, architectural forms that served to tie the site together, and quotidian elements of daily practice. The evidence (discussed in the "Chronology" section above) also suggests that the site was relatively rapidly abandoned around the time of Inca conquest. What, then, happened to this community when the site was abandoned?

Excavations at the Inca/Colonial site of Ch'aucha de Khula Marka, located just 2 km SE of Pukara de Khonkho demonstrate a clear break in terms of architectural style, site organization, and material culture (especially in ceramic form and decoration) from what was found at Pukara de Khonkho. Moreover, Ch'aucha de Khula Marka is a much smaller site than Pukara de Khonkho, both in terms of overall area and in terms of recorded domestic structures. This divergence clearly demonstrates that the occupants of Ch'aucha de Khula Marka were not settlers of Pukara de Khonkho who had just moved down the mountain, but rather a new groups of Inca or (or strongly Incanized) settlers who established the settlement after Inca conquest.

The Inca pattern of removing their newly conquered subjects to new locations so as to avoid organized armed rebellion is well-known. In the Pacajes area, the historical documents relate that many Pacajes inhabitants were relocated to the town of Guaqui (Mercado de Peñalosa 1965[1583]). Unfortunately, it is difficult to address this issue archaeologically, as the modern town of Guaqui overlays the majority of the Inca settlement. If this is true, however, the inhabitants of the community of Pukara de Khonkho would have been living alongside members of other Late Intermediate Period

communities from across the southern basin, and these new interactions, together with their removal from the particular hillside where they made their home, would have no doubt influenced their understanding of community, and their identification with a unique community identity. However, more research is necessary into the Pacajes – Inca transition period before this question can readily be answered.

Discussion

Throughout this dissertation, I have attempted to take a holistic view of the experience of the later part of the Pacajes Late Intermediate Period, paying special attention to the ways in which the details of this experience complicate the understanding of the LIP that has been developed through documentary analysis and archaeological investigations focusing on the northern basin. I have focused on the site of Pukara de Khonkho, to date the largest recorded Pacajes site, in order to better understand how community identities were reconstituted in the area that was once the Tiwanaku heartland in the centuries following Tiwanaku collapse. The community-focused nature of this research allows me to better address the lived experience of everyday life in the Pacajes Late Intermediate Period. However, expanding on a traditional household archaeology approach, this frame also considers the interaction of the community within a regional context.

I have also sought to address the way in which the unique site of Pukara de Khonkho fit into the larger social, historical, and political milieu of the Late Intermediate Period. Research conducted by the Proyecto Jach'a Machaca into the Late Intermediate

Period occupations of Khonkho Wankane was utilized together with published material regarding other Early Pacajes sites to serve as a comparison, to help assess a local chronology, and to lead to a better understanding of the context within which the site of Pukara de Khonkho was founded. Research conducted at the neighboring Inca/Colonial site of Ch'aucha de Khula Marka, together with historical documents and published material from other known Inca-Pacajes sites, helps to contextualize the abandonment of the Pukara de Khonkho and to form a better understanding of the the Pacajes-Inca transition.

More research (especially focused excavations at Pacajes sites) is still needed to fully understand the overall patterns and consequences of post-collapse population movement in the southern Titicaca basin. Nevertheless, investigations conducted for this dissertation combined with previous settlement studies paint a compelling picture. Following the collapse of Tiwanaku, most of the inhabitants of the Pacajes region appear to have left the major centers and begun to follow a subsistence pattern of migrating pastoralism. However, most of those centers do not appear to have been fully abandoned. Instead, like Khonkho Wankane, they remained as important sites that were utilized as part of a nomadic circuit. After some time, many of the populations that were utilizing these sites began to come together into larger, more permanent communities like Pukara de Khonkho. The Pukara de Khonkho was originally settled in the fourteenth century, but was most intensively occupied in the first half of the fifteenth century, immediately before the Inca conquest. The site was abandoned immediately following the Inca incursion, and the inhabitants were relocated to another area, while a more loyal Inca population settled near the base of the hill, at the site of Ch'aucha de Khula Marka.

My research drew on the example of Pukara de Khonkho to investigate the way in which community and community identity formed in the period of sociopolitical turmoil following the collapse of the Tiwanaku state. I considered this broad question through the lens of four major fields of inquiry. First, I considered the often-contentious issue of population movement and migration in the post-collapse period in order to assess where the original inhabitants of Pukara de Khonkho may have come from. Second, I looked at how the site fit into the larger chronology of the Pacajes Late Intermediate Period. Third, I assessed the community of Pukara de Khonkho's possible relationships with surrounding coeval settlements, in an effort to consider why the site may have been settled in the first place. Finally, I considered how a sense of community may have been established and maintained at the site.

As noted above, there is evidence of significant population movement and shifts in settlement patterns following the Tiwanaku collapse. It should not be surprising that the factors that lead to collapse can often encourage population movement. As old connections break down, groups and individuals begin to come into contact with other groups with which they may have been previously unfamiliar. Groups or individuals may move because they are fleeing violence, because they are withdrawing from a failing city, or because they are taking advantage of new trade or subsistence activities that were not previously possible under a strong state system.

These movements have significant repercussions for the processes of cultural regeneration that follow collapse, as everyday interactions begin to bring individual actors into contact with members of other communities, and those interactions help to reconstruct community identity. One good example of this can be found in studies of the

classic Maya collapse. Demarest (2004; Demarest et al. 2004) argues that violent collapse in the Petexbatun region of Guatemala led to the migration of many refugees to other parts of the Maya world. In some areas, the new migrants put strain on the local systems, leading to further instability, but in others the refugees were successfully integrated into the local system, initiating a period of prosperity. This was one of the reasons why Maya collapse was experienced differently throughout Mesoamerica.

While I initially thought the inhabitants of Pukara de Khonkho might be migrants, the evidence discussed above suggests otherwise. Instead, the major differences between the sites of Pukara de Khonkho and other Late Intermediate Period sites appear to be best explained by two simple factors. First, the Pukara de Khonkho and Khonkho Wankane are both different kinds of sites, and as a practical matter are organized differently. Pukara de Khonkho is a site of permanent habitation, so effort was put into constructing stone structures and domestic terraces. Khonkho Wankane was only inhabited sporadically, so effort was put into the construction of useful features (like the mini-qochas) that did not need much maintenance.

The other major difference is temporal, with Pukara de Khonkho being occupied later in time than other recorded Late Intermediate Period sites in the region. The combination of radiocarbon dates and ceramic analysis also suggests that there are also two ceramic phases within the Early Pacajes style (a later phase represented at Pukara de Khonkho and an earlier phase represented at Khonkho Wankane and many of the other small sites), which may help scholars to more accurately date and more completely understand occupation at other Bolivian Late Intermediate Period sites.

In addition, the current research highlights important differences between the Pacajes Late Intermediate Period and the patterns previously recorded during the Late Intermediate Period in other parts of the Lake Titicaca Basin. This illustrates the simple premise that collapse and subsequent regeneration is not a uniform process. As Demarest (2004) notes in his discussion of the fall of the Classic Maya, collapse may be experienced differently and at different times in different areas. This is no less true for the periods of cultural reconstitution that follow the collapse of a major political system. Nevertheless, until very recently, our understanding of the Titicaca Basin following Tiwanaku collapse has been greatly colored by the experiences of the populations in the northern basin, where the Colla and Lupaqa señorios have been much more intensively studied.

Most often, the Late Intermediate Period in the Titicaca basin is characterized as the time of the *awka runa* (people of war). Nevertheless, it appears that this characterization is most accurate for the North Basin during the second half of the LIP (Arkush 2005, 2011; Arkush and Stanish 2005).[288] During this time, Arkush (2005, 2011) was able to document regional patterns in the Colla region that seemed to correlate with defensive coalitions of different scales that may have banded together depending on the defensive need. In contrast, as previously discussed, the southern basin lacks organized networks of fortified pukaras and other evidence for intensive conflict. Such pukaras that do exist are either small refuge pukaras or lack signs of fortification (like the Pukara de Khonkho.)

[288] Note: Arkush argues that conflict increased in the northern basin during the second half of the Late Intermediate Period, NOT as a result of Tiwanaku collapse, but as a part of larger regional-level processes across the central and southern basin, due in part to climate change and a warrior ethos that grew out of a period of constrained resources.

Unfortunately, before this project was initiated, focused studies on the Pacajes *señorio* were lacking. The Late Intermediate Period in the southern basin was most often discussed as incidental to the study of Tiwanaku (the primary focus of most archaeology conducted in the region), and our only data on the local manifestations of this period came from large scale settlement surveys. Nevertheless, the Pacajes region is the part of the Titicaca Basin that most closely corresponds to the Tiwanaku heartland, and it is logical that this part of the altiplano would have experienced the Tiwanaku collapse and the following period of regeneration significantly differently than parts of the basin where Tiwanaku influence was not as strong.

With the data that we currently have at this time, it appears that in the period immediately following the Tiwanaku collapse, the population entered a time of "cultural amnesia," when Tiwanaku imagery was abandoned and at times even defaced or destroyed (Janusek 2005a). During this time some sites (like Khonkho Wankane) appeared to retain importance, as nomadic populations of pastoralists regularly returned to the space to utilize the *qochas* and bury their dead and offerings in the sacred spaces of the site. However, no larger, permanent Pacajes settlements were founded until much later.

It is possible that the Pukara de Khonkho was one of those sites which was periodically visited for ritual reasons and to bury the dead. (It is likely significant that the two oldest dates at the site are associated with the cemetery areas.) Continuing mortuary and other rituals, as well as the unified nature of site architecture would have helped unite previously disparate nomatic bands into a coherent community (c.f. Preucel 2000). As time progressed, the site grew into a permanent habitation, being most intensively

occupied at in the first half of the fifteenth century, just before the Inca conquest. While trade or ritual may well have played a role in its growth, the timing suggests that a concern about Inca invasion may well have had an important impact in the rapid growth and the defensive location of the site. Nevertheless, the defensive aspects of the site are not as obvious as in other *pukaras*, and the site's organization and shared domestic patterns appear to suggest that the Pukara de Khonkho was more than just a defensive refuge. Instead, it was the center of a local community whose inhabitants were connected by periodic ritual, the constructed and natural landscape, everyday *habitus*, and a shared history – a community that was abruptly interrupted by Inca conquest.

While Inca and/or Colonial period populations may have made limited use of the agricultural portions of the site, the Pukara de Khonkho was not intensively occupied after Inca conquest. Instead, the site was rapidly abandoned and the inhabitants were relocated to another location, possibly Guaqui. Additional research is still necessary to more closely interrogate how the concept of "community" and the relationship with the landscape changed in the time following removal. However, it is interesting to note that the site is still considered to be an important *apu* by the local community of Qhunqhu Liquiliqui today.

CHAPTER IX

CONCLUSION

In this dissertation I have described the occupation of the site of Pukara de Khonkho and the way in which "community" was formed, maintained, and renegotiated in and around this unique post-collapse habitation site in Bolivia's southern Titicaca basin. Situating my research within a theoretical framework informed by an interactionalist approach to an archaeology of community, I posit that the post-collapse context is a rich environment for the investigation of the way in which communities creatively (re)invent and/or maintain their own unique local identities. Previous studies addressing the Late Intermediate Period in the Titicaca Basin have focused on the experiences of the Colla and Lupaqa *señorios* of the northern and western Titicaca basin through an examination of ethnohistoric documents (Bouyesse-Cassagne 1986; Julien 1983, 2000; Murra 1968; Platt 1987; Rowe 1995; Saignes 1986; Torero 1987) and (more recently) archaeological surveys and excavations (Arkush 2005, 2011; Frye 1997; Frye and de la Vega 2005; Hyslop 1976; Julien 1983; Stanish 2003). Nevertheless, at the time I began my study, the post-collapse period in the Pacajes *señorio* of the southern basin had received significantly less attention, most often discussed only in the context of large-scale settlement studies (e.g. Albarracin-Jordan 1996; Albarracin-Jordan and Matthews 1990; Bandy 2001; Matthews 1992). I argue, however, that this area is particularly important for an analysis of the consequences of the Tiwanaku collapse,

because the Pacajes *señorio* closely corresponds to the area that was once considered to be the Tiwanaku heartland.

My research drew on detailed data from the single-component site of Pukara de Khonkho to help fill in the gaps about this little-known but important period. I also drew on comparative data from the LIP occupation of the nearby site of Khonkho Wankane as well as other published LIP sites in the region to help situate this understanding in broader context. Information gathered through short-term excavations at the nearby Inca-Colonial site of Ch'aucha de Khula Marka also helped to provide a temporal frame to this analysis. Mapping and excavations were conducted at the Pukara de Khonkho over three summer field seasons (2005-2007) and at Ch'aucha de Khula Marka in 2006. The majority of the material analysis was conducted over the subsequent two field seasons (2008-2009).

The site of Pukara de Khonkho, which is located along the slope of a steep rocky hill bordering the Desaguadero Valley, was found to be densely populated, with more than 500 small, circular structures built onto domestic terraces spanning three faces of occupation over more than 20 ha. The uppermost terrace is completely empty of structures or artifacts, while the lower terraces are filled with small structures and domestic refuse, including ceramics, bone, groundstone, and a few metal artifacts. Two rock outcrops frame the main face of occupation and also mark the location of cemetery areas for the site, while agricultural terraces extend below the habitation area, especially on the western face. Excavation focused on the circular structures, although test units were also dug on the upper terrace (to confirm the lack of material culture in that area) and in the cemetery areas by the rock outcrops.

Excavation and analysis demonstrated a shared pattern of material culture across the site, but also highlighted differences between different kinds of structures, which I have labeled "Empty/Ritual," "Domestic/Workshop," and "Cooking/Storage." Overall, the majority of the artifacts collected from the Pukara de Khonkho appeared domestic and utilitarian in nature, relating to agriculture, food preparation, food storage, pottery manufacture, weaving, or other quotidian activities. Excavation of the mortuary contexts by the rocky outcrops identified the remains of at least five individuals. An elderly woman, a young man, and an infant were all buried near each other in individual graves near the western outcrop, while the bones of at least two individuals (one of whom was an older female) were found mixed together near the eastern outcrop. A sixth individual (adult male) was found just off-site, buried near a similar natural rocky outcrop – a pattern which is notably different from previously known Late Intermediate Period burials in the region. Stable isotope analysis suggested that all individuals were from a region with the same strontium isotope signature as the local area and that corn (and other C4 foods) did not play a major role in their diet. Ten carbon dates collected from across the site date the major occupation from about AD 1340-1450, although one sample did return a date that fell into the Inca-Colonial Period. The earliest dates come from the cemetery areas, but the most intense occupation seems to have fallen between AD 1400-1450, just before the Inca invasion.

The Late Intermediate Period occupation of Khonkho Wankane provides a remarkable contrast to the patterns noted at Pukara de Khonkho. While Khonkho Wankane is primarily known as a Late Formative Period site (see Gladwell 2007a, 2007b; Janusek et al. 2003; Marsh 2012; Smith 2009; Zovar 2009), it continued to be

utilized during the Tiwanaku period and into the Late Intermediate and even the Inca/Colonial periods for specific purposes. Unlike the settlement at Pukara de Khonkho, however, the Late Intermediate Period occupation of Khonkho Wankane lacks evidence of permanent habitation, and I have suggested (Zovar in press) that the site saw ephemeral, but regular, domestic use by migrating pastoralists. Unfortunately, because of the lack of clear LIP contexts, it was not possible to isolate carbon samples that dated the LIP occupation, but similarities with other dated sites suggest it may have been primarily utilized in the earlier part of the Late Intermediate Period. Early Pacajes ceramics were spread across the site, with more intense concentrations in the southwest and the northeast sectors of the site. There were few obvious Late Intermediate Period contexts, in part because of soil erosion and in part because of the ephemeral nature of settlement, and no structures were recorded that clearly date to the LIP.[289] There were, however, at least three mini-*qochas* dug into the remains of Formative Period temples and compounds, which would have helped to store water for humans, animals, and possibly crops. Finally, the burials of numerous infants and a few adults were located in at least two different areas of the site, alongside large jars, which may have served as mortuary offerings. While I found that the Pukara de Khonkho saw intense, permanent occupation during the latter part of the Late Intermediate Period, the LIP occupation of Khonkho Wankane (which was more in line with other recorded Pacajes sites) appears to have been based around the periodic use of the site for both quotidian and ritual purposes and likely date to earlier in the LIP.

[289] Possible Pacajes walls were associated with Early Pacajes ceramics in the northeastern portion of the site, but could not be securely dated.

Because the Pukara de Khonkho was occupied right up until the Inca conquest, additional investigations at the nearby Inca/Colonial site of Ch'aucha de Khula Marka helped to track changes and continuities in the local area after the site of Pukara de Khonkho was abandoned and to address the question of what happened to the people who had lived there. The site of Ch'aucha de Khula Marka contains a small village area with circular domestic structures, the remains of an early colonial church, a *qocha*, and surrounding agricultural fields. Excavations were conducted in the village, which was found to contain at least five circular structures surrounding a common area with a central hearth, and in the church, where a probably European male was found buried under the church floor. Like Pukara de Khonkho and Khonkho Wankane, the majority of the excavated artifacts were utilitarian in nature, suggesting primarily domestic habitation at the site. Nevertheless, the site of Ch'aucha de Khula Marka is dramatically different from the Pukara de Khonkho both in terms of spatial organization and material culture. The site is much smaller, and the organization of structures around a single hearth is quite different from the haphazard arrangement of structures across the Pukara de Khonkho's terraces. Moreover, the artifacts found at Ch'aucha de Khula Marka are very distinct from those found at Pukara de Khonkho and are created in a clearly Incanized style. Taken together, the evidence suggests that the inhabitants of Ch'aucha de Khula Marka were likely not individuals who had simply moved down the hill from Pukara de Khonkho, but rather Inca *mitimaes*.

A detailed analysis of ceramics from Pukara de Khonkho, LIP Khonkho Wankane, and Ch'aucha de Khula Marka conducted during the 2008 and 2009 field seasons helped to address a number of questions about community identity in the Pacajes

Late Intermediate Period. In Chapter 7 I outlined a typology of the ceramics collected from the Pukara de Khonkho and then compared them with Late Intermediate Period ceramics from Khonkho Wankane and other Pacajes contexts, as well as ceramics from the nearby Inca/Colonial site of Ch'aucha de Khula Marka. The Pukara de Khonkho was an ideal focus for such a study because it is a large, single component site, which allowed for detailed descriptions of both utilitarian and decorated ceramic forms. The ceramic attribute analysis indicated that the collected assemblage shared a number of key stylistic motifs and vessel forms which were similar across the site, suggesting a shared pattern of ceramic production as well as shared symbols and decorative motifs. Nevertheless, there were low levels of standardization with all ceramic types, demonstrating that production was not centralized, but rather took place at the household level.

Interestingly, when compared with Khonkho Wankane and other recorded Late Intermediate Period sites, a few patterned differences were noted, although overall the ceramics from Pukara de Khonkho were clearly identified as Early Pacajes. It is suggested that these differences may be primarily temporal, with the Pukara de Khonkho dating to the later part of the Late Intermediate Period. The differences may also serve to set Pukara de Khonkho off as a different sort of site from other recorded LIP settlements, a site in which shared patterns of material culture were important for community identity formation as previously nomadic groups came together at the site. Even more dramatic differences were noted between the ceramic assemblage of Pukara de Khonkho and that found at Ch'aucha de Khula Marka, a sign that the sites were likely inhabited by different groups of people and that the inhabitants of Pukara de Khonkho were settled somewhere else after site abandonment. Instead, the ceramics at Ch'aucha de Khula Marka were in

line with the typical Inca-Pacajes style, and it is likely that the site was inhabited by people loyal to the Inca. LA-ICP-MS analysis on ceramic sherds from all three sites found no differences in chemical characterization, suggesting that despite the differences in form, the ceramics from all three sites were primarily made from local clay sources.

Based on the data from mapping, excavation, and ceramic analysis, I was able to begin to address the practices and processes that may have led to or helped support the formation of new local communities in the southern Titicaca basin during the period following Tiwanaku collapse. While I had initially posited that the inhabitants of Pukara de Khonkho may have been long-distance migrants who settled in the region during the period of sociopolitical turmoil that followed Tiwanaku collapse, data from ceramic attribute analysis, LA-ICP-MS analysis, and strontium isotope analysis suggest that in fact these were long-time local inhabitants who gathered at a permanent settlement on the mountain after a couple of centuries of more nomadic pastoralism. This interpretation is supported by the very late dates for the occupation of Pukara de Khonkho (1340-1450 AD) as compared to the dates of other known Late Intermediate Period Pacajes settlements (1166-1349 AD).

Looking at why the site of Pukara de Khonkho may have been initially settled, I found little evidence for significant levels of conflict, ritual, or trade at the site. Nevertheless, the very late date of occupation together with the defensive location and the fact that it was abruptly abandoned at the time of Inca conquest, suggests that its settlement may have had something to do with a population uniting against an Inca threat. Moreover, it is interesting that the earliest dates at the site come from the two cemetery areas, while the time between 1400 and 1450 appears to be the period of major

occupation. This suggests that Pukara de Khonkho may have begun as a ritual/mortuary site that may have been only periodically occupied, much as is suggested for Late Intermediate Period Khonkho Wankane. As time passed, however, more people came together to form a permanent local community, perhaps in part driven by a desire to protect themselves against Inca intruders. Nevertheless, the structured configuration of site organization and the shared patterns of material culture suggest that the inhabitants were not simply a loosely formed confederacy brought together against a common enemy. Instead, as discussed in Chapter 8, previously local nomadic pastorists were united at Pukara de Khonkho by a common history, periodic ritual, the constructed and natural landscape, and the shared patterns of everyday life.

In this dissertation I have attempted to address the interconnected themes of community, memory, and identity during the period of sociopolitical instability that followed the collapse of the Tiwanaku state in the southern Titicaca Basin. How are community identities formed, maintained, and renegotiated in the wake of state collapse? Janusek (2005a) argued that the Late Intermediate Period in the southern Titicaca basin was a period of "cultural amnesia," during which people and groups disassociated from Tiwanaku symbols and identities as they disavowed the power of the Tiwanaku state. If Tiwanaku collapse is seen as a "cultural revolution" (Janusek 2005a), it is incumbent upon archaeologists to investigate exactly how new communities and identities are formed and how the memories of previous social constructions are dealt with. In this instance, I found that the Pukara de Khonkho, like other Late Intermediate Period sites, made no material reference to a Tiwanaku past. At the same time, new memories and shared histories were inscribed on the landscape through practices like the prominent

burials of recent ancestors. A shared identity as members of the same local community was emphasized through the long terrace walls that linked the whole site together and encompassed both ritual and domestic/utilitarian space as well as shared patterns of material culture and everyday life.

Broader Significance

The Pukara de Khonkho provides a unique opportunity to analyze community re-construction in the wake of state collapse. My dissertation's additional foci on population movement and subsequently changing relationships of warfare, ritual, and trade highlight the unstable nature of post-collapse time periods, but also provide a more nuanced understanding of the possible responses to post-collapse turmoil as reflected through the processes of community formation at the Pukara de Khonkho. Overall, the contributions of my research to the discipline of anthropology are threefold: practical, methodological, and theoretical.

From a practical standpoint, I am addressing a topic that has been widely under-theorized and under-researched, particularly in the south-central Andes and am adding to knowledge about post-collapse societies in general and post-Tiwanaku communities in particular. This has not been an insignificant gap in research. The Late Intermediate Period in the Pacajes region is incredibly important because it lay the groundwork for historical processes and cultural formations that continue to the present day. As Janusek (2005a:175) notes, by the time the Spanish colonizers came across the site of Tiwanaku, none of the local inhabitants knew anything about who built the site or what it had represented. In contrast, many of the local regional/political divisions that were in place

under Inca and Early Spanish government are thought to be based on sociopolitical boundaries that were established in the Late Intermediate Period (Bouysse-Cassagne 1986; Julien 1983).[290] Isbell (1997) has even suggested that the pervasive *ayllu* system originated during this time period. While more research has focused on the Late Intermediate Period in the northern basin (e.g. Arkush 2005, 2011; Frye 1997; Julien 1983; Stanish 2003; Stanish et al. 1997) and in the central Andes (Parsons and Hastings 1988; Parsons et al. 1997; Parsons et al. 1997; Wernke 2003, 2007), this dissertation is, to my knowledge, the first in-depth research project focusing specifically on the Late Intermediate Period in the former Tiwanaku heartland. Although there is still much to be addressed, this work begins to fill an important lacuna in Andean research, and I hope that it will be useful to anyone considering the post-Tiwanaku period in the southern Titicaca basin.

My methodology brought together a number of different techniques including survey, spatial analysis, excavation, osteological analysis, and ceramic attribute analysis to more fully answer my research questions. Overall, this holistic approach has enabled me to address large-scale questions about the nature of the Late Intermediate Period in the Pacajes region and to better understand how communities were formed, reconstituted, and renegotiated during this tumoltuous time. In addition, my use of the comparatively new technology of ICP-MS characterization studies (Cochrane and Neff 2006; Kennett et al. 2002) adds to what I hope will eventually be an ICP-MS comparative database of ceramic material from the South Central Andes. This study worked with my ceramic attribute analysis to more completely address the practice of ceramic production at Pukara de Khonkho. From a methodological perspective, the results have been useful in

[290] See also Arkush 2011: 38, who references Spurling 1992 on this point.

two major ways. First, they have helped to create a new typology of Early Pacajes ceramics, drawing on the resources of a single large site. More importantly, however, as a result of these investigations, I was able to identify a possible temporal shift in ceramics during the LIP. Pukara de Khonkho dates to much later in the Late Intermediate Period than other known Early Pacajes sites, and it is probable that many of the differences in ceramic form and style between Pukara de Khonkho and other known sites may be due to temporal differences. While more research is still needed to confirm this hypothesis, if true it will allow for more accurate dating of Early Pacajes sites based on ceramic analysis alone – a very important contribution given the difficulty of isolating clear Early Pacajes contexts for radiocarbon analysis.

Even more importantly, however, in investigating the reconstruction of communities following state collapse, I have problematized a common theoretical approach to studies of collapse. In his seminal analysis, Tainter (1988) roughly characterizes post-collapse periods as defined by conflict and the collapse of interregional contact. While certain aspects of the Andean Late Intermediate Period support this characterization, I have made the argument that the processes at work in a post-collapse context are actually much more complex. In the case of Tiwanaku, I have built on Janusek's (2005a) suggestion of "collapse as cultural revolution" and utilized Pauketat's (2001) paradigm of "historic processualism" to argue that collapse occurred as part of a historic process which was created, defined, and experienced as people disavowed Tiwanaku symbols and ideology and created their own local identities, unrelated to their Tiwanku past. Following approximately 200 years of nomadic pastoralism, some of these individuals came together in a new settlement at Pukara de Khonkho, where they

rooted themselves and reinvented their local identities through mortuary ritual, site architecture, and shared daily practice.

By constructing a theoretical framework informed by an interactionalist approach to community, my research is better able to evaluate the larger context of post-collapse society and thus to construct a better model for the post-collapse experience at the community level. In recent years an approach based on the archaeology of communities has become increasingly popular (e.g. Canuto and Yaeger 2000; Goldstein 2005; Joyce and Hendon 2000; Peterson and Drennan 2005; Wernke 2006, 2007). However, most of the above studies have looked at community formation during relatively stable time periods or during periods when complexity is increasing. (Urban and Schortman 2004 is a notable exception.) Nevertheless, local community identities may become especially salient during times when there is no centralized authority,[291] and it is also important to consider how such communities chose to deal with the material manifestations of pre-collapse society that occupied the same space.

In the case of Pukara de Khonkho, there is no material reference to Tiwanaku identity, but the community is undoubtedly rooted into the local landscape through interconnections of the built and the natural environment. Moreover, the site clearly overlooks the earlier Late Formative center of Khonkho Wankane (which, as has been discussed, continued to be used into the LIP as a center for periodic mortuary rituals and other more quotidian practices). The inhabitants are referencing not a Tiwanaku past, but another, more temporally distant but yet more localized, past in the form of the ruins they overlook on the altiplano.

[291] See also McLaren 2010 and Manger 2007 for a discussion of community formation in refugee camps during more recent post-collapse periods (of Germany and Sudan respectively).

Although the example of Pukara de Khonkho is a single site in a particular post-collapse context, I believe that this research has implications for post-collapse periods in other parts of the world (e.g. the European "Dark Ages", the post-Classic Maya, the Late Prehistoric Period in the American Midwest, and possibly even modern day state collapse). While each example is different, each can benefit from the reminder that post-collapse periods are not just diminished copies of what came before, but can be real opportunities for reinvention at the local level. In this context, an archaeology of communities approach permits an analysis that focuses on the level of lived experience, but that also allows for the consideration of the broader cultural context.

Future Research

As with most projects, this investigation has raised as many questions as it has answered, and additional research is necessary to address many of these issues. For example, while full-coverage settlement surveys have been conducted in the Tiwanaku valley (Albarracin Jordan and Matthews 1990), the Katari Valley (Janusek and Kolata 2003), the Taraco Penninsula (Bandy 2001), and the parts of the Desaguadero Valley directly around Khonkho Wankane (Lémuz 2005) there is still a need to look at regional patterns in the Pacajes Late Intermediate Period over a larger area, especially considering hilltop settlements, some of which may have been overlooked by survey strategies focusing on the valleys. This would help to more accurately place the Pukara de Khonkho in regional context and to assure that the regional patterns I have described in this dissertation are not merely influenced by uneven sampling practices. Another useful study would be to consider additional local Inca/Colonial sites (many of which have

never been excavated) in comparison with Ch'aucha de Khula Marka in order to better understand the Inca conquest at the local level and to help address the question of what happened to the local population after they were removed from the settlement of Pukara de Khonkho.

Furthermore, while this dissertation has focused on the Early Pacajes ceramics from Pukara de Khonkho in comparison with those from Khonkho Wankane and other published sites, a complete ceramic attribute analysis considering ceramics from other Pacajes sites would enable the creation of a more nuanced ceramic chronology. In addition, in order to clarify the ceramic chronology and to better understand the transformations that took place during the Pacajes Late Intermediate Period, we need more radiocarbon dates from other Pacajes Late Intermediate Period sites, which means it will be necessary to find and excavate clear Late Intermediate Period contexts. Finally, as I noted in Chapter 7, it is also still necessary to clarify how the Early Pacajes ceramic phase articulates with the Pacajes *señorio* and to more closely examine the relationships between the Pacajes and other regional experiences. These issues are the starting point for my suggested post-doctoral research.

Nevertheless, while more work is still necessary, the research conducted for this dissertation has made a number of important contributions to the discipline. I have initiated the first intensive excavation and analysis of a major Pacajes area Late Intermediate Period site, filling a significant gap in knowledge about an important time period. The work has demonstrated differences in the experience of the Late Intermediate Period in the northern and the southern basins, especially regarding the assumed prevalence of conflict. I have also addressed the question of migration and population

movement during the Late Intermediate Period, although the results seem to suggest that long-distance population movement may not have played as large a role as I initially suspected. Comparison with the Late Intermediate Period occupation of Khonkho Wankane and other known Early Pacajes sites has also helped to articulate different kinds of habitation sites in the Pacajes Late Intermediate Period, a difference that appears to be in part temporal, with the Pukara de Khonkho being occupied in the later part of that time period. In addition, the detailed, typological analysis of ceramic material from a single context late period LIP site will be useful for later analysis in the region and may help to identify possible temporal distinctions within the broad category of Early Pacajes ceramics. Finally, my consideration of the contrast between the occupations of Pukara de Khonkho and Ch'aucha de Khula Marka begins to address the impact of Inca conquest at the local level, although more work is still needed in this regard.

This research was not intended to definitively delineate the Pacajes Late Intermediate Period. It is both expected and desired that future research will challenge some of my interpretations and fill in the gaps that were not able to be addressed in this dissertation. My study of Pukara de Khonkho and the Pacajes Late Intermediate Period has shown that post-collapse periods are rich, complex, diverse, and important for later cultural formations. In the Titicaca Basin, social patterns and structures established during the Late Intermediate Period affected the local and regional experience of Inca and later Spanish Colonial conquest. It is expected that future research into this time period will continue to be productive and will benefit from the investigations that I have presented here.

APPENDIX A

MAPPED STRUCTURES AT THE PUKARA DE KHONKHO

Structure	Possible	Terrace	Face	Type	N-S Width	E-W Width	Average	Height	Width	Doorway	Niche	Excavated
17	E	2	M	2	2.37	2.33	2.35	0.38	0.61	E		
18	E	2	M	2	2.17	2.03	2.1	0.51	0.84	W		
19	**E**	**2**	**M**	**2**	**2.8**	**2.68**	**2.74**	**0.87**	**0.61**	**NW**		**U2.1**
21	E	2	M	2	1.68	1.81	1.745	0.68	0.73	W		
22	E	2	M	2	2.23	2.08	2.155		0.61	?		
24	E	2	M	2	1.58	1.8	1.69	0.89	1.14	W		
25	P	2	M	2	2	2.3	2.15	0.4	0.5	?		
26	E	2	M	2	2.21	2.36	2.285	0.37	0.61	W		
33	E	2	M	1	2.87	3.15	3.01	0.49	0.66	W		
38	P	3	M	4	2.1	2	2.05	0.25	0.4	?		
41	E	3	M	2	1.9	1.9	1.9	0.6	0.5	E		
42	P	3	M	4						?		
43	E	3	M	2	2.4	2.3	2.35	0.45	0.6	W	Niche	
44	P	3	M	1						?		
45	E	3	M	2	1.82	1.92	1.87	0.83	0.68	?		
46	E	3	M	2	2.06		2.06	1.07	0.76	W		
47	E	3	M	2	1.64	1.85	1.745	0.47	0.5	?		
48	P	3	M	1	2.3	2.7	2.5	0.2	0.25	?		
49	E	3	M	2	2.49	2.34	2.415	0.5	0.77	?		
50	E	3	M	2	2.37	2.07	2.22	0.7	0.97	E		
51	E	3	M	2	2.5	2.3	2.4	0.6	0.5	W		
52	E	3	M	2	1.7	1.4	1.55	0.22	0.74	?		
53	E	3	M	2	2.2	2	2.1	0.6	0.6	?		
54	E	3	M	1	2.4	2.6	2.5	0.45	0.4	?		
55	E	3	M	1	1.8	1.7	1.75	0.12	0.5	?		
56	E	3	M	2	3.02	2.1	2.56	0.88	0.84	?		
57	E	3	M	2	2.24	2.6	2.42	0.48	0.57	?		
58	E	3	M	2	2.5	2.7	2.6	0.65	0.6	SW		
59	E	3	M	1	2.2	2	2.1	0.44	0.45	?		
60	E	3	M	3	2.3	2.2	2.25	0.42	0.3	?		
62	E	3	M	2	2.5	2.6	2.55	0.825	0.62	SE		

Structure	Possible	Terrace	Face	Type	N-S Width	E-W Width	Average	Height	Width	Doorway	Niche	Excavated
63	E	3	M	2	2.3	2.2	2.25	0.37	0.4	W		
64	E	3	M	2	2.64	2.43	2.535	0.76		W		
66	P	3	M	4						?		
67	E	3	M	2	2.4	2.08	2.24	0.5	0.53	W		
68	E	3	M	2	2.52	1.74	2.13	0.4	0.4	?		
69	E	3	M	2	2.4	2.3	2.35	0.55	0.5	?		
70	E	3	M	2	2.4	2.6	2.5	0.6	0.55	W		
71	E	3	M	2	2.3	2.4	2.35	0.84	0.5	E		
72	E	3	M	2	1.8	2.3	2.05	0.45	0.54	?		
73	E	3	M	2	2.2	2.2	2.2	0.5	0.4	?		
74	E	3	M	2	2.26	2.34	2.3	0.52	0.5	?		
75	E	3	M	2	1.46	2.05	1.755	0.52	0.6	W		
78	E	3	M	2	1.8	2.3	2.05	0.65	0.37	?		
79	E	3	M	2	1.9	2.2	2.05	0.6	0.4	?		
80	P	3	M	2	2.2	1.7	1.95	0.5	0.4	?		
83	E	3	M	1	2.7	2.8	2.75	0.3	0.3	?		
84	P	3	M	2						?		
85	E	3	M	4	2	1.93	1.965			?		
88	E	3	M	4						?		
89	E	3	M	4	1.8	2	1.9	0.46	0.3	?		
90	E	3	M	2	2.4	2.5	2.45	1	0.6	W		
93	P	3	M	4						?		
94	E	3	M	1	2.7	2.4	2.55	0.35	0.5	?		
95	P	3	M	4						?		
96	P	3	M	4						?		
97	P	3	M	4						?		
98	P	3	M	4						?		
99	P	3	M	4						?		
100	E	3	M	2	2.4	2.55	2.475	1.1	0.5	W		
101	E	3	M	2	2.1	2.2	2.15	0.9	0.87	W		
102	E	3	M	2	2.3	2.3	2.3	0.55	0.8	W	Niche	

Structure	Possible	Terrace	Face	Type	N-S Width	E-W Width	Average	Height	Width	Doorway	Niche	Excavated
104	E	3	M	2	3.7	3.8	3.75	1.4	0.7	E	2 Niches	
105	E	3	M	2	1.9	1.8	1.85	0.86	0.5	?		
106	E	3	M	2	2.1	2.5	2.3	1	0.8	W		
107	E	3	M	2	2.6	2.9	2.75	0.65	0.6	W		
108	E	3	M	1	2.5	2.5	2.5	0.3	0.1	?		
109	E	3	M	2	2.7	2.6	2.65	1.1	0.47	SW		
110	E	3	M	2	2.8	2.3	2.55	0.8	0.8	W		
111	E	3	M	1	2.8	2.7	2.75	0.3	0.3	?		
112	E	3	M	2	3.1	2.7	2.9	0.7	0.75	W		
114	E	3	M	2	1.9	2.1	2	0.95	0.8	W		
115	E	3	M	2	2.7	2.4	2.55	0.45	0.55	W		
120	**E**	**3**	**M**	**2**	**2.5**	**2.4**	**2.45**	**0.4**	**0.8**	**W**	**Niche (N)**	**U3.1**
121	E	3	M	2	2.5	2.6	2.55	0.8	0.8	E		
122	E	3	M	2	1.9	1.7	1.8	0.58	0.4	W		
123	E	3	M	2	2.1	1.8	1.95	0.45	0.5	?		
124	E	3	M	1	2.2	2.3	2.25	0.34	0.4	?		
155	E	4	M	2	2	1.75	1.875	0.39	0.69	W		
156	E	4	M	2	2.07	2.51	2.29	0.67	0.86	W	Niches	
157	E	4	M	2	2.13	2.43	2.28	0.87	0.69	SW		
158	E	4	M	2	2.59	2.75	2.67	0.73	0.36	W		
159	E	4	M	4	1.9	2.1	2	0.3	0.45	E		
161	E	4	M	2	2.16	2.67	2.415	0.98	0.99	W	Niche	
162	E	4	M	2	1.96	2.03	1.995	0.86	0.83	SW	Niches	
163	E	4	M	4	2.1	2.1	2.1	0.2	0.4	SE		
164	E	4	M	2	2.2	2.3	2.25	0.2	0.52	?		
165	E	4	M	2	2.06	2.41	2.235	0.4	0.45	W		
166	P	4	M	4						?		
167	P	4	M	1	2.4	2.2	2.3	0.25	0.55	?		
169	E	4	M	4	2.43	2.02	2.225	0.45	0.52	W		
170	E	4	M	2	2.27	2.39	2.33	0.64	0.48	W		
171	E	4	M	2	1.83	2.29	2.06	0.36	0.36	?		

Structure	Possible	Terrace	Face	Type	N-S Width	E-W Width	Average	Height	Width	Doorway	Niche	Excavated
172	E	4	M	1	2.1	1.9	2	0.32	0.1	?		
173	E	4	M	1	2.4	3.12	2.76	0.3	0.2	W		
174	E	4	M	1	2.9	3	2.95	0.25	0.1	?		
176	E	4	M	2	2.03	2.22	2.125	0.72	0.57	W		
177	E	4	M	2	2.81	2.24	2.525	0.57	0.62	?		
178	E	4	M	2	2	2.58	2.29	1.02	0.65	W		
179	E	4	M	2	2.13	1.55	1.84	0.57	0.55	E		
180	P	4	M	4	2.41	2.34	2.375			?		
181	E	4	M	2	1.94	2.13	2.035	0.36	0.6	E		
184	E	4	M	2	1.8	1.8	1.8	0.2	0.7	?		
186	E	4	M	2	1.94	2.3	2.12	0.55	0.61	?		
187	E	4	M	2	1.76	1.72	1.74	0.67	0.87	E		
188	E	4	M	1	1.64	1.29	1.465	0.28	0.18	W		
189	E	4	M	2	2.85	2.59	2.72	0.81	0.59	W		
190	E	4	M	2	1.89	2.17	2.03	0.45	0.57	?		
191	E	4	M	1	1.6	2.3	1.95	0.18	0.15	?		
192	E	4	M	2	2.46	1.94	2.2	0.62	0.48	?		
193	E	4	M	2	1.84	2	1.92	0.53	0.64	W		
195	E	4	M	1	1.46	1.6	1.53	0.36	0.5	?		
199	**E**	**4**	**M**	**1**	**2.9**	**2.6**	**2.75**	**1.05**	**0.13**	**NW**		**U4.1**
201	E	4	M	4	2.9	2.93	2.915	0.4	0.17	W		
202	E	4	M	1	2.615	2.36	2.4875	0.39	0.26	NW		
205	P	4	M	4	2.5	2.85	2.675	0.46	0.31	?		
206	E	4	M	4	2.97	3.5	3.235	0.27	0.28	?		
207	E	4	M	4	2.4	2.3	2.35	0.31	0.13	W		
209	E	4	M	1	2.48	1.79	2.135	0.56	0.19	W		
210	E	4	M	1	2.18	2.68	2.43	0.37	0.13	W		
211	E	4	M	1	2.83	3.75	3.29	0.63	0.4	W		
213	E	4	M	1	2.85	2.8	2.825	0.55	0.15	SE		
216	E	4	M	4	2.35	2.55	2.45	0.35	0.21	?		
217	E	4	M	4	2.8	2.65	2.725	0.65	0.22	W		

Structure	Possible	Terrace	Face	Type	N-S Width	E-W Width	Average	Height	Width	Doorway	Niche	Excavated
218	E	4	M	1	2.14	2.14	2.14	0.45	0.18	?		
219	E	4	M	1	2.43	2.3	2.365	0.7	0.13	SE		
220	E	4	M	1	2.67	2.62	2.645	0.62	0.25	SW		
221	E	4	M	4	2.28	2.1	2.19	0.42	0.15	?		
222	E	4	M	1	2.14	3.12	2.63	0.39	0.15	?		
223	E	4	M	2	3.2	3.27	3.235	0.59	0.27	W		
224	P	4	M	4	2.9	2.4	2.65	0.57	0.5	?		
225	E	4	M	4	2.4	2.12	2.26	0.33	0.45	?		
226	E	4	M	1	3.05	3.49	3.27	0.9	0.24	?		
227	P	4	M	4	2.35	2.41	2.38	0.35	0.33	?		
228	E	4	M	4	2.6	3.1	2.85	0.58	0.21	?		
229	E	4	M	2	2.7	2.8	2.75	0.72	0.42	W		
230	E	4	M	1	2.43	2.89	2.66	0.67	0.25	W		
231	E	4	M	1	2.4	2.36	2.38	0.5	0.22	W		
232	E	4	M	2	1.76	2.2	1.98	0.76	0.56	SW	Niches	
233	E	4	M	1	2.85	2.7	2.775	0.58	0.15	W		
234	E	4	M	4	2.55	2.5	2.525	0.4	0.21	?		
235	E	4	M	1	2.44	2.64	2.54	0.68	0.21	?		
236	E	4	M	4	2.37	2.4	2.385	0.86	0.38	W		
237	E	4	M	2	3	2.8	2.9	0.7	0.4	W		
238	E	4	M	4	2.97	2.45	2.71	0.6	0.34	?		
239	E	4	M	2	2.45	2.15	2.3	1.13	0.43	SW		
240	E	4	M	2	2.1	1.99	2.045	0.79	0.45	W		
242	E	4	M	2	2.7	2.5	2.6	0.42	0.4	W		
243	E	4	M	2	2.5	2.62	2.56	0.64	0.4	SE	Niches	
245	E	4	M	2	2.12	2.23	2.175	0.75	0.42	SW		
246	E	4	M	2	1.75	1.75	1.75	0.66	0.45	W		
248	E	4	M	2	2.35	2.4	2.375	0.9	0.5	SW	Niches	
249	E	4	M	1	2.42	2.37	2.395	0.55	0.44	W		
250	E	4	M	1	3.2	2.95	3.075	0.6	0.44	W		
251	E	4	M	1	2.13	2.15	2.14	0.68	0.42	W		

Structure	Possible	Terrace	Face	Type	N-S Width	E-W Width	Average	Height	Width	Doorway	Niche	Excavated
252	E	4	M	1	2.57	2.85	2.71	0.77	0.4	W		
253	E	4	M	1	2.15	2.15	2.15	0.42	0.7	W		
254	E	4	M	2	2.2	2.02	2.11	0.66	0.46	W		
255	E	4	M	2	1.35	1.75	1.55	0.58	0.47	E		
257	E	4	M	2	2.69	2.69	2.69	1.3	0.48	SW		
258	E	4	M	2	3.5	3.61	3.555	1.23	0.61	W	Niche	
260	E	4	M	4	2.5	1.92	2.21	0.75	0.47	W		
261	E	4	M	2	3.5	3.19	3.345	0.79	0.56	?		
263	E	4	M	2	2.6	2.55	2.575	0.65	0.54	W		
264	E	4	M	2	2.3	2.27	2.285	0.7	0.5	W		
265	E	4	M	4	2.45	2.57	2.51	0.6	0.54	W		
267	E	4	M	4	2.7	2.5	2.6	0.48	0.52	W		
268	E	4	M	2	3.74	3.24	3.49	0.7	0.35	E		
270	E	4	M	2	2.6	2.22	2.41	1.03	0.36	W		
271	E	4	M	2	3.1	2.5	2.8	1.34	0.5	?		
272	P	4	M	4	2.2	2.05	2.125	0.57	0.1	?		
274	E	4	M	2	2.7	2.75	2.725	0.5	0.59	?		
275	E	4	M	2	3.15	2.4	2.775	0.38	0.52	?		
279	E	4	M	2	3.14	2.52	2.83	0.34	0.4	?		
280	E	4	M	1	2.85	2.7	2.775	0.45	0.3	?		
283	E	4	M	2	2.55	2.73	2.64	1.37	0.84	SE	Niche	
284	E	4	M	2	2.85	2.53	2.69	1.29	0.75	E		
286	E	4	M	2	2.66	2.45	2.555	0.8	0.52	E		
287	E	4	M	2	1.9	1.89	1.895	0.53	0.37	W		
288	E	4	M	2	2.5	2.18	2.34	0.7	0.45	W		
290	E	4	M	1	2.15	2.35	2.25	0.56	0.31	?		
293	E	4	M	2	2.59	2.68	2.635	0.38	0.48	W		
294	E	4	M	2	3.6	3.25	3.425	0.85	0.42	W		
295	E	4	M	3	3.15	3.82	3.485	0.6	0.36	?		
296	E	4	M	1	2.32	2.78	2.55	0.44	0.36	?		
297	E	4	M	2	3.5	3.1	3.3	0.9	0.43	W		

Structure	Possible	Terrace	Face	Type	N-S Width	E-W Width	Average	Height	Width	Doorway	Niche	Excavated
299	E	4	M	2	2.5	2.6	2.55	0.66	0.3	W		
300	E	4	M	2	1.9	1.81	1.855	0.73	0.52	SW		
302	E	4	M	2	3.09	2.75	2.92	0.88	0.46	W	Niches	
303	E	4	M	2	1.6	2.1	1.85	0.78	0.4	?		
304	E	4	M	1	3.16	2.77	2.965	0.6	0.3	W		
305	E	4	M	2	2.6	2.45	2.525	0.72	0.71	E		
306	E	4	M	2	2.3	3	2.65	0.5	0.35	W		
307	E	4	M	2	3	3.2	3.1	0.5	0.5	W		
308	E	4	M	2	2.15	2.65	2.4	0.42	0.36	W		
310	E	4	M	4	3	3	3	0.62	0.3	W		
311	E	4	M	1	2.85	2.6	2.725	0.55	0.15	?		
312	E	4	M	1	2.37	2.12	2.245	0.35	0.25	W		
313	E	4	M	2	3.85	3.25	3.55	0.77	0.43	?		
314	E	4	M	4	2.42	2.45	2.435	0.55	0.16	?		
315	E	4	M	2	2.96	2.88	2.92	0.6	0.41	W		
318	E	4	M	1	3.64	3.03	3.335	0.63	0.49	?		
320	**E**	**4**	**M**	**1**	**2.6**	**2.7**	**2.65**	**0.52**	**0.4**	**W**		**U4.5**
321	E	4	M	2	2.7	2.65	2.675	0.76	0.55	W		
322	E	4	M	2	2	1.55	1.775	0.5	0.4	?		
324	E	4	M	2	2.9	3.2	3.05	0.52	0.32	?		
325	E	4	M	2	2.2	2.2	2.2	0.46	0.4	W		
326	E	4	M	2	2.6	2.5	2.55	0.85	0.44	W		
331	E	4	M	1	2.4	2.2	2.3	0.41	0.16	W		
333	E	4	M	4	1.8	1.9	1.85	0.45	0.23	?		
334	E	4	M	2	2.87	2.88	2.875	0.4	0.4	E	Niches	
335	E	4	M	2	3.1	3.25	3.175	0.35	0.35	W		
337	**E**	**4**	**M**	**2**	**3.2**	**3.5**	**3.35**	**1.05**	**0.8**	**W**	**Niche**	**U4.4**
338	E	4	M	2	2	2.05	2.025	0.82	0.44	?		
339	E	4	M	2	2	2.5	2.25	0.3	0.3	?		
340	E	4	M	2	2.38	2.4	2.39	0.65	0.43	W		
342	E	4	M	2	2.88	2.9	2.89	0.55	0.45	W		

Structure	Possible	Terrace	Face	Type	N-S Width	E-W Width	Average	Height	Width	Doorway	Niche	Excavated
343	E	4	M	2	3.45	3.35	3.4	0.35	0.36	W	Niches	
344	E	4	M	2	2.22	2.2	2.21	0.95	0.59	W		
346	E	4	M	2	3	3	3	1.33	0.46	W	Niches	
348	E	4	M	2	2.48	2.5	2.49	0.76	0.66	W		
349	E	4	M	2	3.7	3.62	3.66	1.22	0.65	?		
351	E	4	M	2	2.98	2.8	2.89	0.53	0.48	E		
352	E	4	M	2	2.09	2.55	2.32	1.4	0.88	S		
355	E	4	M	2	3.05	3.1	3.075	0.75	0.35	S		
356	E	4	M	2	2.2	2.3	2.25	0.4	0.45	?		
358	E	4	M	2	2.24	2.15	2.195	0.3	0.36	?		
359	E	4	M	1	3	2.9	2.95	0.48	0.4	?		
364	E	4	M	1	2.15	2	2.075	0.48	0.21	W		
365	E	4	M	2	2.3	2.16	2.23	0.6	0.3	W		
366	E	4	M	1	2.15	2.25	2.2	0.25	0.35	?		
367	E	5	M	4	2.98	2.7	2.84	0.65	0.41	W		
370	E	5	M	1	3.3	3.51	3.405	0.8	0.42	W		
371	E	5	M	1	2.93	2.4	2.665	0.49	0.35	W		
372	E	5	M	4	3	3.15	3.075	0.7	0.44	?		
373	E	5	M	1	2.37	2.5	2.435	0.55	0.28	?		
374	E	5	M	1	2.8	3.1	2.95	0.33	0.2	?		
375	E	5	M	1	2.6	2.7	2.65	0.58	0.25	W		
376	E	5	M	1	2.6	2.6	2.6	0.18	0.35	?		
378	E	5	M	1	2.6	2.46	2.53	0.49	0.18	W		
379	E	5	M	2	2.73	2.53	2.63	0.73	0.64	E		
381	E	5	M	2	2.81	2.9	2.855	0.74	0.35	?		
382	E	5	M	2	3	2.7	2.85	0.47	0.38	W		
384	E	5	M	2	2	2.4	2.2	0.52	0.3	?		
385	E	5	M	2	2.73	2.47	2.6	0.7	0.55	W		
386	E	5	M	2	2.72	2.97	2.845	0.51	0.4	?		
387	E	5	M	1	2.9	2.85	2.875	0.48	0.25	?		
389	E	5	M	2	2.5	2.5	2.5	0.27	0.31	?		

Structure	Possible	Terrace	Face	Type	N-S Width	E-W Width	Average	Height	Width	Doorway	Niche	Excavated
390	E	5	M	2	2.48	2.5	2.49	0.42	0.44	?		
391	E	5	M	2	2.63	2.73	2.68	0.3	0.22	W		
392	E	5	M	4	2.58	2.51	2.545	0.63	0.16	?		
393	E	5	M	2	2.7	3	2.85	0.71	0.43	W		
394	E	5	M	2	2.6	2.31	2.455	0.36	0.36	W		
395	E	5	M	2	2.34	2.2	2.27	0.31	0.77	W		
396	E	5	M	4	2.56	2.4	2.48	0.39	0.46	?		
397	E	5	M	2	3.2	2.87	3.035	0.52	0.4	W	Niches	
399	E	5	M	2	3.45	3.45	3.45	0.7	0.55	E		
400	E	5	M	2	2.95	2.72	2.835	0.7	0.82	E		
402	E	5	M	1	2	2	2	0.3	0.48	?		
403	E	5	M	2	3	3	3	0.48	0.64	W		
405	E	5	M	2	2.4	2	2.2	0.92	0.32	W		
406	E	5	M	4	2.3	2.28	2.29	0.45	0.48	?		
407	E	5	M	1	3.2	3.2	3.2	0.68	0.16	W		
411	E	5	M	1	2.34	2.45	2.395	0.45	0.3	?		
412	E	5	M	2	2.25	2.3	2.275	0.36	0.45	E		
413	E	5	M	2	2.15	2.5	2.325	0.5	0.23	?		
415	E	5	M	2	2	2	2	0.74	0.4	E		
417	E	5	M	2	2.36	2.3	2.33	0.41	0.35	?	Niches	
418	E	5	M	2	2.5	2.5	2.5	0.68	0.3	?		
420	E	5	M	2	2.2	2	2.1	0.43	0.15	?		
421	E	5	M	2	1.95	1.64	1.795	0.55	0.73	?		
422	E	5	M	4	2.8	2.84	2.82	0.57	0.15	?		
425	E	5	M	2	2.3	2.5	2.4	0.55	0.36	W		
428	E	5	M	2	2	2	2	0.67	0.25	W		
430	E	6	M	4	2.3	2.3	2.3	0.27	0.29	?		
432	E	6	M	1	2.55	2.55	2.55	0.8	0.4	E		
433	E	6	M	3	2.49	2.46	2.475	0.76	0.46	E		
435	E	6	M	2	2.5	2.4	2.45	0.58	0.25	W		
436	E	6	M	4	2.2	2.2	2.2	0.59	0.15	E		

Structure	Possible	Terrace	Face	Type	N-S Width	E-W Width	Average	Height	Width	Doorway	Niche	Excavated
437	E	6	M	1	3.5	3	3.25	0.51	0.16	W		
438	E	6	M	2	3.25	2.93	3.09	0.55	0.4	E		
439	**E**	**6**	**M**	**1**	**2.3**	**2.2**	**2.25**	**0.38**	**0.35**	**E**		**U6.2**
440	E	6	M	3	3	2.58	2.79	0.35	0.36	E		
441	E	6	M	1	2.7	2.6	2.65	0.42	0.18	E		
442	E	6	M	2	2.8	2.5	2.65	0.39	0.4	?		
443	E	6	M	1	2	1.94	1.97	0.43	0.15	E		
444	E	6	M	1	3.25	2.8	3.025	0.3	0.29	W		
445	E	6	M	1	2.35	2.5	2.425	0.4	0.27	E		
446	E	6	M	2	3	2.95	2.975	0.77	0.39	W		
447	E	6	M	2	2.2	2.1	2.15	0.68	0.27	?		
449	E	6	M	1	2.5	2.43	2.465	0.57	0.35	E		
450	E	6	M	1	2.95	2.89	2.92	0.45	0.12	W		
452	E	6	M	1	2.75	2.9	2.825	0.31	0.23	SE		
453	E	6	M	2	2.5	2.5	2.5	0.47	0.45	SW		
454	E	6	M	2	2.9	2.9	2.9	0.7	0.44	?		
456	E	6	M	1	1.57	1.76	1.665	0.62	0.23	?		
457	E	6	M	4	2.4	2.67	2.535	0.5	0.4	?		
459	E	6	M	4	2.75	2.75	2.75	0.25	0.25	?		
461	E	6	M	4	2.35	2.2	2.275	0.28	0.44	?		
462	E	6	M	2	2.55	2.25	2.4	0.55	0.13	?		
463	E	6	M	2	2.85	2.6	2.725	0.48	0.21	?		
464	E	6	M	1	2.1	2.4	2.25	0.16	0.16	?		
467	E	6	M	1	3.45		3.45	0.69		?		
468	E	6	M	1	2.24	2.18	2.21	0.5	0.2	?		
470	**E**	**6**	**M**	**2**	**2.2**	**2.4**	**2.3**	**0.74**	**0.5**	**SE**		**U6.1**
474	P	6	M	4						?		
475	P	6	M	4						?		
476	E	6	M	2	2.95	2.81	2.88	0.3	0.39	SW		
477	E	6	M	2	3.16	2.74	2.95			?		
478	E	5	M	2	2.14	2.08	2.11	0.37	0.25	?		

Structure	Possible	Terrace	Face	Type	N-S Width	E-W Width	Average	Height	Width	Doorway	Niche	Excavated
479	E	5	M	4	1.56	1.8	1.68	0.25	0.3	?		
480	P	5	M	4	1.73	2.91	2.32			?		
482	E	5	M	4	2.67	2.35	2.51	0.31	0.53	?		
483	E	5	M	2		3.08	3.08	0.55	0.35	E		
484	E	5	M	2	2.92	2.88	2.9	0.55	0.54	S		
487	E	5	M	4	3.24	2.85	3.045			?		
488	E	5	M	2	2.65	3.05	2.85	0.72	0.35	S		
490	**E**	**4**	**M**	**2**	**2.2**	**2.2**	**2.2**	**0.44**	**0.7**	**W**		**U4.3**
491	E	4	M	2						?		
494	P	4	M	4						?		
495	E	4	M	1	2	2.31	2.155	0.3	0.25	W		
498	E	4	M	2	2.11	2.4	2.255	0.96	0.48	S		
499	E	4	M	2	2.94	2.54	2.74	1.05	0.33	W		
500	E	4	M	2	2.28	2.74	2.51	0.39	0.4	S		
502	E	3	M	4		2.25	2.25			W		
503	E	6	E1	2	2.36	2.63	2.495	0.8	0.65	S		
506	E	6	E1	2	2.86	2.32	2.59	0.71	0.47	S		
507	E	6	E1	2	2.42	2.42	2.42	1.03	0.23	W		
509	E	6	E1	1						?		
512	E	6	E1	2	2.15	3.38	2.765	0.85	0.65	?		
513	E	5	E1	1	4.16	3.18	3.67			?		
514	E	5	E1	2	2.4	2.44	2.42	0.48	0.53	W		
515	P	5	E1	1						?		
519	E	5	E1	3	2.15	2.29	2.22	0.46	0.51	W		
524	E	4	E1	2	2	2.14	2.07	0.26	0.26	SE		
526	P	4	E1	4						?		
527	P	4	E1	4						?		
528	E	4	E1	4						SSE		
530	E	3	E1	1		3	3			?		
531	P	3	E1	1						?		
532	P	3	E1	4						?		

Structure	Possible	Terrace	Face	Type	N-S Width	E-W Width	Average	Height	Width	Doorway	Niche	Excavated
534	**E**	**3**	**E1**	**2**	**3.7**	**4.3**	**4**	**1.12**	**0.58**	**SE**		**U3.2**
535	**E**	**3**	**E1**	**3**	**3.2**	**2.1**	**2.65**			**?**		**U3.3**
543	E	4	E	2	1.79	3.29	2.54	0.7	0.43	?		
544	E	4	E	4						?		
545	P	4	E	4						?		
547	E	4	E	2						?		
548	E	4	E	1				0.48	0.18	?		
549	E	4	E	2	1.46	2.3	1.88	0.41	0.41	?		
550	**E**	**4**	**E**	**2**	**3.1**	**2.7**	**2.9**	**0.98**	**0.75**	**E**		**U4.2**
553	E	4	E	4						?		
554	E	4	E	2						?		
555	E	4	E	2				0.48	0.8	W		
556	E	4	E	4						?		
558	E	5	E	1						?		
560	E	5	E	1						?		
561	P	5	E	4						?		
562	E	5	E	2		2.1	2.1	0.42	0.38	?		
563	E	5	E	2		1.94	1.94	0.78	0.68	?	Niche	
564	E	5	E	2						?		
566	E	5	E	4						?		
567	E	5	E	4						?		
569	E	5	E	2	2.39	2.56		0.5	0.4	?		
570	E	5	E	1	2.43	2.2	2.315	0.3	0.17	E		
571	E	5	E	4		1.81	1.81	0.36	0.5	?		
572	E	5	E	4						?		
573	E	5	E	1		3	3			?		
574	E	5	E	2	2.61	2.09	2.35	0.35	0.62	?		
575	E	5	E	2		3	3	0.89	0.38	N		
577	**E**	**5**	**E**	**1**	**3.2**	**2.7**	**2.95**	**0.5**	**0.14**	**E**		**U5.1**
578	E	5	E	2				0.76		W		
579	P	5	E	4						?		

Structure	Possible	Terrace	Face	Type	N-S Width	E-W Width	Average	Height	Width	Doorway	Niche	Excavated
580	E	5	E	2		1.69	1.69	0.34	0.46	?		
581	P	5	E	4						?		
582	E	5	E	2	2.4	2.87	2.635	0.35	0.55	?		
583	E	5	E	2	2.3	1.96	2.13	0.74	0.33	?		
585	E	5	E	2						?		
586	E	5	E	2						?		
587	E	5	E	2						?		
588	E	5	E	3						?		
589	E	6	E	3						?		
590	E	6	E	1	2.73	2.57	2.65	0.42	0.1	W		
591	E	6	E	2						?		
595	E	4	E1	4						?		
600	P	4	W	1	1.7	1.7	1.7	0.2	0.1	?		
601	E	4	W	1	3	2.9	2.95	0.45	0.2	SW		
603	E	4	W	4	1.4	1.28	1.34	0.38	0.16	SW		
604	E	4	W	2	2.03	1.62	1.825	0.77	0.5	?	Niche	
605	**E**	**4**	**W**	**3**	**2.4**	**2.3**	**2.35**	**0.54**	**0.4**	**?**		**U4.6**
606	E	4	W	1	2.7	2.8	2.75	0.55	0.14	NW		
607	E	4	W	2	2.15	1.75	1.95	0.53	0.84	SE		
608	E	4	W	2	2.37	2.5	2.435	0.57	0.73	E		
609	E	4	W	2	2.75	2.57	2.66	0.9	0.63	SW		
610	P	4	W	1	1.7	2.18	1.94	0.08	0.3	?		
611	E	4	W	1	2.8	2.68	2.74	0.32	0.55	W		
612	P	4	W	1	2.5	2.65	2.575	0.05	0.3	?		
613	E	4	W	1	2.3	2.3	2.3	0.24	0.5	E		
614	E	4	W	1	1.88	1.83	1.855	0.3	0.13	?		
615	E	4	W	1	1.8	1.9	1.85	0.32	0.15	E		
616	P	4	W	1	1.4	1.6	1.5	0.17	0.27	?		
617	P	4	W	1	2	2.1	2.05	0.1	0.44	E		
618	P	4	W	1	2.36	2.4	2.38	0.18	0.46	?		
619	E	4	W	2	2.3	2.15	2.225	0.54	0.53	E		

Structure	Possible	Terrace	Face	Type	N-S Width	E-W Width	Average	Height	Width	Doorway	Niche	Excavated
620	P	4	W	1	2.4	2.2	2.3	0.45	0.15	?		
622	P	4	W	1	1.5	1.05	1.275	0.39	0.09	?		
623	E	4	W	1	1.6	1.7	1.65	0.14	0.25	?		
624	E	4	W	1	2.03	2	2.015	0.16	0.37	?		
625	E	4	W	1	2.1	2.1	2.1	0.37	0.34	W		
626	E	4	W	1	3.25	3.04	3.145	0.36	0.35	W		
628	E	4	W	1	2.4	2.1	2.25	0.48	0.4	E		
629	E	4	W	1	2.2	2.15	2.175	0.16	0.12	?		
630	P	4	W	1	2.2	2.08	2.14	0.55	0.46	W		
632	P	4	W	4	2.1	2	2.05	0.58	0.5	?		
633	E	4	W	2	2.94	3.05	2.995	0.9	0.65	NW		
634	E	4	W	1	1.9	1.9	1.9	0.4	0.35	?		
636	E	4	W	2	2.5	2.5	2.5	0.38	0.46	E		
637	P	4	W	1	1.7	1.8	1.75	0.5	0.55	?		
638	E	4	W	2	2.6	2.5	2.55	0.75	0.7	SE		
639	E	4	W	2	1.8	1.7	1.75	0.7	0.48	SE		
640	E	4	W	2	2	2	2	0.55	0.65	SE		
642	E	4	W	1	3.1	3.05	3.075	0.62	0.3	E		
644	E	4	W	1	2.53	2.53	2.53	0.4	0.5	W		
645	E	4	W	2	1.57	1.77	1.67	0.29	0.45	SE		
646	E	4	W	2	2.2	2.1	2.15	0.8	0.6	W		
647	E	4	W	1	2.04	2	2.02	0.29	0.37	NE		
648	E	4	W	1	2	2.05	2.025	0.45	0.2	SE		
649	E	4	W	2	2.4	2.4	2.4	0.78	0.6	?		
650	E	4	W	1	2.5	2.5	2.5	0.36	0.3	SW		
651	E	4	W	2	2.4	2.4	2.4	0.84	0.5	SE		
652	E	4	W	2	2.5	2.4	2.45	0.57	0.6	SE		
653	E	4	W	1	2.95	3	2.975	0.2	0.3	?		
654	E	4	W	1	2.04	2	2.02	0.45	0.33	SE		
655	E	4	W	2	2.3	2.4	2.35	0.66	0.6	SE		
656	P	2	W	1	2.3	2.4	2.35	0.15	0.5	?		

Structure	Possible	Terrace	Face	Type	N-S Width	E-W Width	Average	Height	Width	Doorway	Niche	Excavated
658	**E**	**6**	**M**	**1**	**2.4**	**2.3**	**2.35**			**W**		**U6.3**
659	P	1	W	1						?		
670	P	5	W	1						?		
671	E	5	W	1						?		
672	**E**	**6**	**M**	**1**	**2.27**	**2.45**	**2.36**			**?**	**Niche**	**U6.6**
690	E	8	O	1						?		
700	E	5	W	1	1.55	1.65	1.6	0.9	0.8	SW		
701	E	5	W	1	2.6	2.35	2.475	0.37	0.25	SW		
702	E	5	W	1	2.25	2.45	2.35	0.23	0.2	SW		
703	E	5	W	1	2.1	3	2.55	0.2	0.37	NW		
704	E	5	W	1	2.25	2.4	2.325	0.3	0.35	SW		
705	E	5	W	2	2.3	2.2	2.25	1.1	0.6	W		
706	E	5	W	2	2.8	2.5	2.65	0.95	0.6	SW		
707	E	5	W	2	2.4	2.3	2.35	0.42	0.55	SW		
708	E	5	W	1	2.3	2.95	2.625	0.26	0.4	SW		
709	E	5	W	1	2.55	2.2	2.375	0.3	0.45	SW		
710	E	5	W	1	2.05	2.05	2.05	0.28	0.96	SW		
711	E	5	W	1	2.25	2.42	2.335	0.31	0.18	S		
713	P	5	W	1	2.3	2.6	2.45	0.35	0.4	?		
714	P	5	W	4	2	2	2	0.23	0.55	?		
716	P	5	W	3	2.7	2.7	2.7	0.2	0.35	?		
717	P	5	W	1	2.1	2	2.05	0.45	0.45	W		
718	E	5	W	1	2.2	2	2.1	0.15	0.23	?		
719	E	5	W	1	2.5	2.4	2.45	0.28	0.19	?		
720	E	5	W	1	2.05	2	2.025	0.4	0.45	W		
721	E	5	W	2	1.7	1.45	1.575	0.85	0.5	SW		
722	P	5	W	1	1.7	1.7	1.7	0.2	0.25	SW		
723	E	5	W	2	1.85	1.9	1.875	1	0.6	ESE	Niche	
724	P	5	W	2	1.9	2.7	2.3	0.4	0.6	W		
725	E	5	W	2	2	2.3	2.15	0.55	0.45	W		
726	E	5	W	1	2.2	2.25	2.225	0.35	0.4	E		

Structure	Possible	Terrace	Face	Type	N-S Width	E-W Width	Average	Height	Width	Doorway	Niche	Excavated
727	E	5	W	1	2.35	2.65	2.5	0.3	0.5	W		
728	P	5	W	1	1.9	2.1	2	0.2	0.45	?		
729	P	5	W	1	2.3	2.1	2.2	0.35	0.3	W		
734	P	5	W	1	1.3	1.4	1.35	0.25	0.25	?		
735	P	5	W	2	1.7	1.6	1.65	0.25	0.4	?		
736	E	5	W	1	2	2.2	2.1	0.5	0.4	?		
737	E	5	W	2	1.35	1.4	1.375	0.65	0.4	W	Niche	
738	P	5	W	4	1.1	1.1	1.1	0.25	0.5	?		
740	P	5	W	2	2.4	2.2	2.3	0.25	0.4	SW		
741	**E**	**5**	**W**	**2**	**1.7**	**2.5**	**2.1**	**0.5**	**0.6**	**SW**	**Niche(s)**	**U5.2**
742	E	5	W	3	3.1	3	3.05	0.45	0.4	E		
743	E	5	W	2	2.5	2.3	2.4	0.2	0.45	E		
744	P	5	W	4	2.2	2.2	2.2	0.1	0.35	?		
745	P	5	W	1	2.22	2.4	2.31	0.1	0.45	E		
746	E	5	W	1	2.95	2.9	2.925	0.4	0.4	SE		
747	E	5	W	1	1.8	1.9	1.85	0.25	0.3	E		
748	P	5	W	1	2.9	2.8	2.85	0.15	0.3	?		
749	E	5	W	2	2.4	2.4	2.4	0.68	0.7	E		
750	P	5	W	2	2.2	2.2	2.2	0.4	0.4	W		
751	P	5	W	4	1.4	1.3	1.35	0.35	0.6	W		
752	P	5	W	1	1.4	1.4	1.4	0.25	0.2	?		
753	E	5	W	1	1.6	1.7	1.65	0.4	0.4	SW		
754	E	5	W	1	2.4	2.2	2.3	0.35	0.4	SE		
755	E	5	W	3	2.2	1.8	2	0.65	0.45	?		
756	P	5	W	1	2.9	2.7	2.8	0.15	0.3	W		
757	E	5	W	1	2.9	2.8	2.85	0.32	0.3	SE		
758	E	3	W	2	2.7	2.2	2.45	0.95	0.5	SE		
759	E	3	W	1	2.9	2.2	2.55	0.6	0.5	SW		
760	E	3	W	2	2.3	2.4	2.35	0.7	0.5	SW	Niche	
761	E	3	W	3	2.3	2.4	2.35	0.4	0.55	SW		
764	P	1	W	1	1.9	2	1.95	0.36	0.3	?		

Structure	Possible	Terrace	Face	Type	N-S Width	E-W Width	Average	Height	Width	Doorway	Niche	Excavated
767	E	6	W	1	2	2.1	2.05	0.32	0.33	?		
768	P	6	W	2	2.1	2.2	2.15	0.8	0.7	?		
769	E	6	W	1	2.6	2.4	2.5	0.5	0.35	SE		
770	P	6	W	1	1.6	1.9	1.75	0.1	0.3	?		
771	E	7	W	1	2.2	2.2	2.2	0.65	0.6	S		
772	P	7	W	1	1.8	2	1.9	0.3	0.2	?		
773	E	7	W	1	3	3.1	3.05	0.6	0.25	S		
774	E	6	W	2	3.1	2.7	2.9	0.8	0.3	SW		
775	P	7	W	1	1.2	1.3	1.25	0.25	0.2	?		
780	E	6	W	3	2.6	2.6	2.6	0.5	0.2	W		
781	E	6	W	2	2.6	2.9	2.75	0.4	0.35	E		
783	P	6	W	2	1.8	1.8	1.8	0.7	0.4	SW	Niche?	
784	E	6	W	2	1.9	2.5	2.2	0.65	0.5	?		
785	E	6	W	2	2.9	2.3	2.6	0.7	0.7	SE	Niche?	
786	E	6	W	1	1.9	1.8	1.85	0.35	0.35	?		
789	E	6	W	1	2.1	2	2.05	0.5	0.4	?		
790	E	6	W	1	2	2	2	0.1	0.3	?		
791	E	6	W	1	2.3	2.3	2.3	0.3	0.5	?		
792	E	6	W	2	2.5	2.4	2.45	0.7	0.7	SW		
794	P	6	W	2	1.1	1.9	1.5	0.1	0.3	?		
795	E	6	W	2	2.5	2.5	2.5	0.3	0.6	SW		
798	E	6	W	2	2.5	2.3	2.4	0.8	0.5	?		
810	E	7	M	2	2.1	2.65	2.375	0.47	0.4	E		
811	**E**	**7**	**M**	**1**	**3**	**2.8**	**2.9**	**0.7**	**0.52**	**E**		**U7.2**
812	E	7	M	2	1.5	1.43	1.465	0.3	0.54	W		
813	E	7	M	2	1.38	1.86	1.62	0.69	0.55	W		
814	E	7	M	2	2	2	2	0.39	0.37	E		
815	E	7	M	2	3.47	2.88	3.175	0.67	0.48	W		
816	E	7	M	1	2.83	2.64	2.735	0.53	0.26	?		
817	E	7	M	1	2.2	2.4	2.3	0.39	0.38	?		
818	E	7	M	1	1.66	1.85	1.755	0.22	0.35	W		

Structure	Possible	Terrace	Face	Type	N-S Width	E-W Width	Average	Height	Width	Doorway	Niche	Excavated
819	**E**	**7**	**M**	**2**	**3**	**2.8**	**2.9**	**0.66**	**0.76**	**W**	**Niches**	**U7.1**
820	E	7	M	1	2.1	2.3	2.2	0.35	0.28	E		
821	E	7	M	1	1.49	2.03	1.76	0.62	0.51	E		
822	E	7	M	1	2	2.2	2.1	0.16	0.18	E		
823	E	7	M	1	2.3	2.3	2.3	0.65	0.53	W		
824	E	7	M	1	2.3	2.5	2.4	0.25	0.8	?		
825	E	7	M	1	1.8	2.22	2.01	0.32	0.26	?		
826	E	7	M	1	2.6	2.26	2.43	0.4	0.37	?		
900	E	7	W	2	2.7	2.7	2.7	0.6	0.5	E	Niche	
902	E	7	W	1	2.1	2.2	2.15	0.3	0.2	?		
903	P	7	W	4						?		
904	E	7	W	2	2.1	2.9	2.5	0.35	0.45	?		
907	P	7	W	1	1.8	1.8	1.8	0.3	0.3	?		
908	P	7	W	1	3.1	3.1	3.1	0.3	0.3	?		
909	P	7	W	1	2.2	2.2	2.2	0.3	0.4	?		
910	P	7	W	4	1.9	2	1.95	0.1	0.35	?		
912	P	7	W	1	2.2	2.1	2.15	0.3	0.4	?		
913	E	7	W	2	2.6	2.4	2.5	0.3	0.4	?		
914	E	7	W	1	2.4	2.4	2.4	0.3	0.4	?		
915	P	7	W	4	1.2	1	1.1	0.36	0.43	?		
916	E	7	W	2	2.6	2.6	2.6	0.9	0.58	E		
917	E	7	W	2	1.3	1.22	1.26	0.93	0.93	SSE		
919	E	7	W	1	2.8	2.82	2.81	0.5	0.33	?		
920	E	7	W	2	1.86	1.7	1.78	0.43	0.35	?		
1064	E	6	M	1						?		
1065	E	6	M	1						?		
1066	P	6	M	2						?		
1073	P	7	M	1						?		
1082	P	7	M	2						?		
1085	P	7	M	1						?		
1096	P	7	E1	1						?		

Structure	Possible	Terrace	Face	Type	N-S Width	E-W Width	Average	Height	Width	Doorway	Niche	Excavated
1104	P	7	E	2						?		
1105	E	7	E	2						?		
1106	E	7	E	1						?		
1107	E	7	E	1						?		

APPENDIX B

PUKARA DE KHONKHO: EXCAVATION UNITS

Unit 1.1
Excavated in 2007
Terrace 1
Main Face
Test Unit

Unit 1.1 was a 2 m X 2 m unit opened above Terrace 1 to test for possible structures, features, or artifacts on what appeared from the surface to be an empty terrace. The unit was opened around a cluster of stones that was originally identified as a possible tomb. However, excavation illustrated that it was merely an undifferentiated pile of rocks over a loose, rocky fill, probably associated with the construction of the terrace.

The unit was excavated in three arbitrary levels. The natural stratigraphy was composed of two layers; a layer of brown (7.5 yr 4/3) hard silty sand approximately 15 cm in depth overlay a similarly colored very loose rocky fill, probably related to the construction of the wall. The only cultural artifact found in this unit was a single metal pin (probably of modern manufacture) in Level 1 (Table 26).

Unit 1.2
Excavated in 2007
Terrace 1
Main Face
Test Unit

Unit 1.2 was a 2 m X 2 m unit opened above the western entrance to Terrace 1. Since Unit 1.1 was found to be completely sterile, this unit was situated in order to not

only test for possible artifacts, but also to address the construction style of the terrace walls. The excavation demonstrated that the terrace walls were simple, single-faced constructions, supporting a rough rocky fill. Large stone slabs in the southern part of the unit may represent a rough pavement, collapsed stone stairs, or merely wall-fall from the terrace walls.

The unit was excavated in three arbitrary levels. The natural stratigraphy was composed of two layers; a layer of brown (7.5 yr 4/4) hard silty sand approximately 15 cm in depth overlay a similarly colored very loose rocky fill, associated the construction of the wall. Although the unit did help to clarify the details of terrace construction, no artifacts were found.

Unit 1.3
Excavated in 2007
Terrace 1
Main Face
Test Unit

Unit 1.3 was a 1 X 2 m unit. It was situated along the south side of Unit 1.2 to help clarify whether the large stone slabs located in the southern portion of Unit 1.2. While the unit did contain a large number of stone slabs, it was not clear from their placement whether they represented a disturbed pavement or stair steps or simply the fallen remains of the terrace walls. The unit was excavated in 1 level down to the fallen stones (~15 cm), and the soil was identical to that in Unit 1.2. No artifacts were found.

Unit 2.1
Excavated in 2007
Terrace 2
Main Face
Structure Type 2

Unit 2.1 was a 6 m X 6 m unit opened around E19, a large Type 2 structure on a promontory on the main face with a good view of the altiplano and of the lower parts of the Pukara. The structure has an average internal diameter of 2.74 m, with a clear door facing towards the northwest. Sections A, B, C, and F were completely excavated. Excavation demonstrated that the interior floor of the structure was lower than the use surface outside of the structure. A possible small hearth (concentration of burnt soil) was noted inside the structure along the north wall. While the interior wall of the structure was composed of cleanly faced stones, the exterior of the wall was more rough.

Inside the structure, stratigraphy was noted as a 20-30 cm layer of wallfall within a brown (7.5 yr 4/3) sandy loam matrix. This overlay a 5-8 cm dark brown (7.5 yr 3/2) silty sand habitation zone, which itself overlay a dark brown (7.5 yr 3/3) sandy clay floor over sterile clay. Outside the structure, approximately 5-25 cm of brown (7.5 yr 4/3) sandy loam overlay a similar clayey fill. Few artifacts were associated with the structure, and most of the small assemblage came from the areas excavated outside the structure itself. However, a copper *tupu* was located on the floor inside of the structure. The faunal remains were primarily identified as small mammals, likely viscacha who took advantage of the structure after site abandonment (Table 27).

Unit 3.1
Excavated in 2005
Terrace 3
Main Face
Structure Type 2

Unit 3.1 was excavated within Structure E120, a Type 2 structure on the main face, just above the Terrace 3 wall and below a small retention wall. The structure has an average internal diameter of 2.45 m, with a clear door facing due west and a single niche in the north wall. Because of time constraints, only the western half of the structure was fully excavated to below the floor surface. Nevertheless, in terms of architecture and artifacts, the structure appeared very similar to other domestic structures that were excavated in subsequent seasons.

Stratigraphy was noted as a ~40 cm layer of wall fall within a dark grayish brown (10YR4/2) sandy clay matrix. This overlay a packed dirt floor of similar color and consistency. Excavated artifacts corresponded to a typical domestic structure of the Early Pacajes period, being mostly composed of jars and ollas (Table 28).

Unit 3.2
Excavated in 2006
Terrace 3
Eastern Face
Structure Type 2

Unit 3.2 was a 6 m X 6 m unit excavated around Structure E534, a Type 2 structure located on a promontory of Terrace 3 above a small retaining wall on the small eastern subface of habitation. There is a great view of the altiplano and of some of the other faces of habitation from this location. The interior of the structure (Sections A and B) was completely excavated down to bedrock, while outside of the structure sections D

and F were also excavated. The structure, which measures an average of 4 m in diameter, is one of the largest at the site. The door is located in the southeast of the structure, while a small niche is found in the northeast. A formal hearth was not identified, but there was a thin lens of ash just in front of the niche.

During excavation, stratigraphy was noted as a ~20 cm layer of wallfall in a dark brown (7.5YR 3/3) sandy matrix, overlaying a very dark brown (7.5YR2.5/3) sandy clay floor. The floor lay directly over bedrock in the northern part of the unit and over a brown (7.5YR4/3) clay in the southern part of the unit. Despite its large size, few artifacts were found associated with this structure. The single notable piece was the bronze pendant spoon in the shape of an Andean footplow, found just above the structure floor (Table 29).

Unit 3.3
Excavated in 2006
Terrace 3
Eastern Face
Structure Type 3

Unit 3.3 is a 6 m X 6 m unit opened around a Structure E535, a Type 3 structure located just about 1 meter east of Unit 3.2 and Structure E534. Sections A, B, and C of the unit were excavated to sterile soil or bedrock. The structure appeared to be a Type 1 structure before excavation, but excavation revealed a Type 2 style lower foundation and the suggestion of decomposing adobe brick walls at the surface. This structure was much smaller than its neighbor, measuring only about 2.65 m in diameter. There was no clear doorway, but a gap in the stones to the east suggested that there may have been an eastern entrance.

Like Structure E534, Structure E535 was almost completely empty of artifacts. In fact, only 7 small ceramic sherds were found inside the structure (Table 30). Excavation did, however, demonstrate that the inside floor was approximately 30 cm below the outside occupation surface. The interior stratigraphy was characterized by an initial 10-15 cm hard brown (7.5 YR 5/3) sandy clay cap, which may have been the remainder of fallen adobe brick walls. This overlay a ~35 cm layer of stone wall fall in a dark brown (7.5YR3/3) sandy matrix, which covered the occupation floor.

Unit 4.1
Excavated in 2005
Terrace 4
Main Face
Structure Type 1

Unit 4.1 was excavated within Structure E199, a Type 1 structure located on the main face of Terrace 4. Due to time constraints, only section A was completely excavated to sterile soil, while section B was only partially excavated. The building measured approximately 2.75 m in internal diameter, with a doorway in the northwest.

Stratigraphy was noted as approximately 10 cm of rubble in a dark grayish brown (10YR4/2) sandy matrix above a more compact occupation layer of similar soil color. The floor lay above a sterile brown (7.5YR4/3) sandy clay soil in the north and a dark grayish brown (10YR4/2) level full of rubble likely related to the construction of the terrace in the south. The habitation layers were completely full of ceramic artifacts, mostly undecorated jars and ollas some of which showed signs of burning (Table 31).

Unit 4.2
Excavated in 2006
Terrace 4
Eastern Face
Structure Type 2

Unit 4.2 is a 6 m X 6 m unit opened around a Structure E550, a Type 2 structure located on the eastern face of Terrace 4, just beneath a small retention wall. Sections A, B, C, D, and F of the unit were excavated. This structure measured approximately 2.9 m in internal diameter with a clear doorway to the east, opening onto a small stone-paved surface. Two possible hearths were recorded within the structure itself, and a clear outside work space was located just below the structure, south of the doorway.

Excavation uncovered a thick (~30 cm) level of rocky fill and wall fall in a dark brown (7.5YR3/3) sandy matrix overlaying a very dark brown (7.5YR2.5/2) sandy clay habitation layer. This lay over a ~8cm layer of sterile dark brown (7.5YR3/2) sandy clay which in turn lay over a dark reddish brown (5YR3/3) clay. Significantly more artifacts were found outside the structure than within it, although a circular silver adornment was found on the structure floor. The work areas outside the structure, however, were associated with higher quantities of ceramics as well as a copper adornment (possibly a knife) and fragments of stone and llama bone (Table 32).

Unit 4.3
Excavated in 2006
Terrace 4
Main Face
Structure Type 2

Unit 4.3 is a 6 m X 6 m unit opened around a Structure E490, a Type 2 structure located on a promontory on the east side of the main face with a good view of the

altiplano below. A retaining wall was just below the structure, to the south. Sections A, B, C, D, and E of the unit were excavated. The structure measured approximately 2.2 m in internal diameter with a clear doorway facing west. There were signs of a hearth on the southeastern side of the structure, next to a small hole in the wall that could have served as a vent or a chimney.

Excavation identified two separate layers of rubble and wall fall within the structure, together measuring approximately 40-50 cm in depth – a loose brown (7.5YR4/2) or dark brown (7.5YR3/3) sandy matrix mixed with large rocks over a slightly more compact dark brown (7.5YR3/2) layer of sand and rock. This overlay a dark brown (7.7YR3/3) habitation layer. As with nearly all structures at the site, the exterior occupation layer was significantly higher than the interior floor. Numerous artifacts were found both within and outside of the structure, including stone and bone tools in various phases of manufacture and a large variety of different ceramics, mostly utilitarian ollas and jars (Table 33).

Unit 4.4
Excavated in 2007
Terrace 4
Main Face
Structure Type 2

Unit 4.4 is a 6 m X 6 m unit opened around a Structure E337, a Type 2 structure located in the center of the main face just above the wall of Terrace 4. Sections A, B, and D of the unit were excavated to sterile soil or bedrock. This structure was one of the larger Type 2 structures at the site, measuring an average of 3.35 m in internal diameter. A clear doorway was recorded in the southwest, and there was a single niche in the north

wall. There were no clear signs of a hearth, but there was a thin ash lens just above the floor.

Excavation recorded a thick (35-45 cm) layer of wallfall in a brown (7.5YR4/2) sandy matrix over a reddish brown (5YR4/3) sandy clay habitation layer, which itself overlay a brown (7.5YR4/3) sandy clay fill, with bedrock appearing in parts. This structure was filled with large quantities of artifacts, especially ceramics, even in the thick layer of wallfall. The assemblage was most dense, however, just above the floor, where the nearly complete remains of numerous broken vessels (mostly jars and ollas, but also some decorated bowls) were found in situ. Additional artifacts included metal tupus and groundstone tools. A similar artifact assemblage was noted in the area just outside the structure (Table 34).

Unit 4.5
Excavated in 2007
Terrace 4
Main Face
Structure Type 1

Unit 4.5 is a 6 m X 6 m unit opened around a Structure E320, a Type 1 structure located near the center of the main face on Terrace 4 just to the west of a Type 2 structure of similar size. Sections A, B, E, and F of the unit were excavated. The structure measured approximately 2.65 m in internal diameter, with a clear doorway to the southwest.

Excavation revealed a 20-30 cm layer of rubble with few artifacts within a brown (7.5YR4/2) sandy matrix above a strong brown (7.5YR4/6) sandy clay habitation layer and a very dark brown (7.5YR2.5/3) sandy clay floor. As with nearly all structures on

the Pukara, the interior floor was lower than the exterior use surface. Below the floor was a loose, dark brown rocky fill, probably associated with the construction of the terrace. Artifacts included large quantities of ollas as well as some jars and bowls in addition to bone and stone tools (Table 35).

Unit 4.6
Excavated in 2007
Terrace 4
Western Face
Structure Type 3

Unit 4.6 is a 4 m X 4 m unit opened around Structure E605, a Type 3 structure located on the west face of Terrace 4, above a small retention wall. Sections A, B, and C of the unit were excavated down to sterile soil or bedrock. The structure is somewhat unique in that the northern half of the structure has characteristics of Type 2, while the southern half has characteristics of Type 1. Like many of the structures on the west face, this one was somewhat smaller than average, measuring approximately 2.35 m in diameter. There was a clear doorway in the northwest, and a possible hearth was recorded in the southwest.

Excavation revealed an initial layer of brown (7.5YR4/3) wall fall over a dark brown (7.5YR3/2) habitation zone and a reddish brown (5YR4/3) clay floor. Excavation below the floor demonstrated a sterile layer of brown (7.5YR4/4) clay immediately above bedrock. The structure and surrounding areas contained a moderate quantity of domestic artifacts, including jars, ollas, and bowls. The unit also produced some unusual bone and stone tools, including a finely made groundstone bowl with associated pestle (Table 36).

Unit 5.1
Excavated in 2006
Terrace 5
Eastern Face
Structure Type 1

Unit 5.1 is a 6 m X 6 m unit opened around Structure E577, a Type 1 structure located on the east face of Terrace 5, just below the wall of Terrace 4 and above a small retention wall. Sections A, B, C, D, E, and F of the unit were all at least partially excavated. The structure measured approximately 2.95 m in internal diameter, with a clear doorway in the east. A large hearth was located along the structure's north wall, and was associated with numerous utilitarian ceramics. The southern portion of the unit sloped dramatically downhill, showing evidence of erosion, and revealing portions of the rough rocky fill upon which the structure was built.

Stratigraphy was recognized as a 0-25 cm layer of dark brown (7.5YR3/3) sandy clay wallfall above a 2-8 cm dark brown (7.5YR3/2) sandy clay habitation layer. In most parts of the unit, this overlay a very dark brown (7.5YR2.5/2) rocky fill layer. Ceramics were found in great quantities inside the structure, suggesting it had been abandoned with large complete vessels still inside. Ceramics and other artifacts were also present outside of the structure but not in as high quantities (Table 37).

Unit 5.2
Excavated in 2007
Terrace 5
Western Face
Structure Type 2

Unit 5.2 is a 4 m X 4 m unit opened around Structure E741, a small Type 2 structure located on the west face of Terrace 5. Sections A, B, and F of the unit were

excavated to sterile soil or bedrock. The structure measured approximately 2.1 m in internal diameter, with a possible doorway in the southwest and niches along the northern wall.

Stratigraphy was composed of a sandy brown (7.5YR4/3) layer of wallfall overlaying a dark brown (7.5YR3/3) sandy clay habitation layer and a sterile dark brown (7.5YR4/3) subsoil. Somewhat fewer artifacts were associated with this unit than was normal for other structures on the lower terraces, but the artifacts that were present were primarily typical domestic jars, ollas, and bowls (Table 38).

Unit 6.1
Excavated in 2006
Terrace 6
Main Face
Structure Type 2

Unit 6.1 is a 6 m X 6 m unit opened around Structure E470, a Type 2 structure located on a promontory on the eastern side of the main face of Terrace 6, just below Structure E490 and Unit 4.3. Sections A, B, C, D, and F of the unit were all at least partially excavated. The structure measured approximately 2.3 m in internal diameter, with a clear doorway in the southeast and a niche in the north. A possible hearth was identified near the niche, along the structure's north wall. Outside the structure were apparent workspaces, approximately 30 cm higher than the interior floor. One retaining wall stood just above and to the north of the structure, while the other stood just below and to the south.

Within the structure the stratigraphy was composed of 25-50 cm of wall fall in a dark brown (7.5YR3/3) sandy clay matrix. This overlay an 18-20 cm dark brown

(7.5YR3/2) habitation layer. Beneath the habitation floor was a sterile dark brown (7.5YR3/2) clay fill level. Much like Unit 4.3, this unit was full of ceramics, and also contained a clump of pottery quality clay just above the interior floor of the structure. In addition, stone and bone tools in various stages of manufacture were present as well as three metal adornments and a human tooth (Table 39).

Unit 6.2
Excavated in 2007
Terrace 6
Main Face
Structure Type 1

Unit 6.2 is a 4 m X 4 m unit opened around Structure E439, a Type 1 structure located on the main face of Terrace 6, just northeast of a major site entrance. Sections A, B, and D of the unit were all excavated. The structure was not as clearly defined as some of the others, and the foundation stones (especially in the north) were somewhat collapsed. Nevertheless, it was possible to measure a diameter of approximately 2.25 m, and to identify a probable eastern doorway. A possible hearth was also identified along the north wall.

Excavation demonstrated a layer of wall fall in a dark brown (7.5YR3/2) sandy matrix measuring approximately 5-40 cm above a very dark gray (7.5YR3/1) habitation layer and a dark brown (7.5YR3/3) clay floor. Below the floor the soil was a similarly colored clay with large rock inclusions. Domestic ceramics (jars, bowls, and ollas) were found inside and outside of the structure, and grinding stones and a bronze tupu were found within the structure, just above the floor (Table 40).

Unit 6.3
Excavated in 2007
Terrace 6
Main Face
Structure Type 1

Unit 6.3 is a 4 m X 4 m unit opened around Structure E658, a Type 1 structure located on the top of the peak between the main and the western face, just above the burials in Unit 6.4. Sections A, B, and C of the unit were all excavated down to bedrock, which was very close to the surface. The structure was approximately 2.35 m in diameter, with a clear door in the west. A circle of burned red soil was noted in the southwest of the structure.

The surface of this unit was never more than 10-20 cm above bedrock, in places much less. Inside the structure, a level of brown (7.5YR4/3) sandy clay overlay a layer of dark brown (7.5YR3/3) clay that was immediately over bedrock. Outside the structure, the bedrock was much closer to the surface. The interior of the structure was full of small sherds of decorated and undecorated domestic ceramics (jars, ollas, and bowls), as well as a single piece of bronze. However, much less was found outside the structure, probably due to the lack of soil and the effects of erosion (Table 41).

Unit 6.4
Excavated in 2007
Terrace 6
Main Face
Burial Unit

Unit 6.4 is a 2 m X 2 m unit opened around the human bones that were found eroding out of the ground at the base of the peak between the main and the western faces of site occupation, and just below Unit 6.3. As excavation continued, it became clear that

three different burials were located within the unit, each in their own burial pit, but within close proximity to one another. Burial 6.4R1 was an older adult female, Burial 6.4R2 was an adolescent male, and Burial 6.4R3 was an infant. Each burial was set between at least two large stones, and the cut was dug into the bedrock. The individuals were in a flexed or partially flexed position and appeared to be facing towards the east.

There were no clear stratigraphic layers in this unit, and the burial cuts were visible only due to differences in texture. In general the soil was a brown (7.5YR4/3) sand or sandy clay, and bedrock appeared within 20 cm. A few small ceramic sherds (jars and ollas) were found associated with the unit, but little was noted within the burial cuts themselves. In fact, the only burial to contain any grave goods at all was the infant burial, which contained a small metal bead, which may have been part of the child's necklace (Table 42).

Unit 6.5
Excavated in 2007
Terrace 6
Main Face
Burial

Unit 6.5 is a 1 m X 1 m unit opened just to the south of Unit 6.4, in order to continue the excavation of the infant burial (6.4R3), which was found along the southern unit wall. A large rock was noted in the southwest corner of the unit, similar to those marking burials in Unit 6.4. However, due to lack of time, excavation was not expanded to attempt to locate additional burials.

Only about 10 cm of brown (7.5YR4/3) sandy clay soil was excavated before the unit hit bedrock. Except for the burial (which was excavated as part of Unit 6.4) very little additional material was found (Table 43).

Unit 6.6
Excavated in 2007
Terrace 6
Main Face
Structure Type 1

Unit 6.6 is a 2 m X 2 m unit opened around Structure E672, a Type 1 structure located on approximately 10 m southeast of Unit 6.4. It was initially identified as a possible tomb, but further excavation revealed that it was, in fact, a structure. However, only the northwest corner of the structure (and the area immediately outside it) was excavated. The structure measured approximately 2.36 m in diameter, but no clear doorway was noted. There was, however a clear niche in the northeast, with a hearth placed right in front of it.

As with all of the structures on the Pukara, the use surface outside the structure was approximately 20-30 cm higher than the interior floor. Within the structure, a thick layer of brown (7.5YR4/3) wallfall and fill covered a dark brown (7.5YR 3/3) sandy clay habitation layer. Most artifacts, including utilitarian ceramics (ollas, jars, etc.) were identified inside the structure (Table 44).

Unit 6.7
Excavated in 2007
Terrace 6
Main Face
Burial Unit

Unit 6.7 is a 2 m X 2 m unit opened at a random location below the Jisk'a Pukara (the large peak between the main and the eastern faces of occupation) to test for the presence of human burials. Almost immediately, a single, shallow pit (U6.7R1) was identified in the south wall of the unit. The burial contained the mixed bones of at least two individuals, but only one pelvis and one crania was present. The pelvis was clearly that of an older female, but the crania appeared to belong to a younger, probably male individual. The bones were mixed together in the burial cut, and only small portions of the skeleton were articulated. Some of the bones were also burned. In addition, there were three episodes of burning noted in the northern part of the unit, which were excavated as separate features.

Apart from the features, the stratigraphy of the unit was noted as a simple 10-20 cm of brown (7.5YR4/3) sandy soil above flaky bedrock. In addition to the human remains, a few ceramic sherds (ollas, jars, and bowls) were scattered across the unit, but there was not a high concentration of material (Table 45).

Unit 6.8
Excavated in 2007
Terrace 6
Main Face
Test Unit

Unit 6.8 is a 2 m X 2 m unit opened in a random location on a lower part of the Jisk'a Pukara (southwest of Unit 6.7) to test for use of this part of the site. The unit was

excavated to bedrock or sterile soil. The bedrock lay immediately below a 10-15 cm level of brown (7.5YR4/3) sandy clay with very few ceramics or other objects of material culture (Table 46).

Unit 6.9
Excavated in 2007
Terrace 6
Main Face
Burial Unit

Unit 6.9 is a 2 m X 2 m unit opened just 0.5 m west of Unit 6.7, situated around a large rock that appeared as if it may mark a second burial. While this rock did not mark anything in particular, a stone-lined shaft tomb was discovered in the northern part of the unit. The tomb was capped with a large batán, but was completely empty of bones or any other artifacts of material culture.

Like Unit 6.7, Unit 6.9 was characterized by approximately 10-20 cm of brown (7.5YR4/3) sandy soil directly over bedrock. Except for the empty tomb, very little was found in this unit (Table 47).

Unit 6.10
Excavated in 2007
Terrace 6
Main Face
Burial Unit

Unit 6.10 is a small, irregularly shaped unit opened along the south wall of Unit 6.9 in order to see if any burials were located along the wall of the rocky outcrop of the peak of the Jisk'a Pukara (which is where the burial was located in Unit 6.7.) While most

of the unit was excavated to bedrock, located under ~10 cm of brown (7.5YR4/3) sandy soil, the only artifacts collected were two jar sherds (Table 48).

Unit 7.1
Excavated in 2007
Below major terraces
Main Face
Structure Type 1

Unit 7.1 is a 4 m X 4 m unit opened around Structure E819, a Type 2 structure located on the main face, just below Terrace 6 (the lowest long terrace). Sections A, B, and C of the unit were all excavated. The structure was approximately 2.9 m in diameter, with a clear door in the west. It was also characterized by the presence of a very clear double niche in the north wall.

Excavation revealed a thick level of wallfall within a dark brown (7.5YR3/4) sandy matrix overlaying a very dark grayish brown (10YR3/2) habitation layer. Domestic artifacts including jars, ollas, and bowls as well as groundstone artifacts were found both within and outside of the structure (Table 49).

Unit 7.2
Excavated in 2007
Below major terraces
Main Face
Structure Type 1

Unit 7.2 is a 4 m X 4 m unit opened around Structure E811, a Type 1 structure located on the main face, just below Terrace 6 (the lowest long terrace). Because of lack of time, only Sections A and B (the interior of the structure) were fully excavated. The structure was approximately 2.9 m in diameter, with a clear door in the east.

Stratigraphy was noted as a level of rubble and brown (7.5YR4/4) fill over a dark brown (7.5YR3/3) habitation level and a brown (7.5YR4/2) clay floor. Regular domestic artifacts were recorded, including jars, ollas, bowls, and two metal adornments (Table 50).

Unit 8.1
Excavated in 2007
Off-site
Burial Unit

Unit 8.1 is a 1 m X 1 m unit opened around a human burial that was noted eroding out of the ground on the hill of Kapukapuni, just off the trail leading up to the Pukara de Khonkho from the village of Qhunqhu Liquiliqui. Like the burials at the Pukara de Khonkho, this burial was placed between two upright stones just below a rock outcrop, and there was also a Type 1 structure located just northeast of the burial and slightly above it. Although the burial was partially eroded, enough of the bones were left *in situ* to tell that the individual was buried in a partially flexed position with the head facing east. The bones were identified as belonging to an older adult male, with healed trauma at the right knee, which had led to the fusing of the tibia and the fibula.

Due to lack of time, this unit was not fully excavated, but excavation of the burial itself demonstrated that bedrock was not far below the surface. No artifacts or cultural material of any sort were noted in the burial matrix.

Table 26: Artifact assemblage from Unit 1.1

Artifact Type	*U1.1N1*	***Total Count***	***Total Weight***
Metal			
Small metal pin	1	**1**	**0.32 g**
Total	1	**1**	**0.32 g**

Table 27: Artifact assemblage from Unit 2.1

Artifact Type	*U2.1AN1*	*U2.1AN2*	*U2.1AN3*	*U2.1BN1*	*U2.1BN2*	*U2.1BN3*	*U2.1CN1*	*U2.1CN2*	*U2.1FN1*	*U2.1FN2*	***Total Count***	***Total Weight***
Ceramics												
Jars	0	0	3	0	0	0	0	0	0	0	**3**	**8.21 g**
Bowls	0	0	0	0	0	0	0	2	0	0	**2**	**11.29 g**
Small Jars	0	0	0	0	0	0	0	2	0	0	**2**	**2.59 g**
Unknown	0	0	7	0	0	0	4	15	4	1	**31**	**72.96 g**
Total	0	0	10	0	0	0	4	19	4	1	**38**	**95.05 g**
Faunal Bone												
Unworked (g.)	(84.1 g)	(129.23 g)	(49.9 g)	(38.2 g)	(86.8 g)	(79.2 g)	0	(10.2 g)	0	(9.2 g)	--	**486.83 g**
Total	--	--	--	--	--	--	0	--	0	--	--	**486.83 g**
Lithics												
Flakes/Other	0	0	0	2	2	1	0	0	0	0	**5**	**26.01 g**
Total	0	0	0	2	2	1	0	0	0	0	**5**	**26.01 g**
Metal												
Copper *tupu*	0	0	0	0	0	1	0	0	0	0	**1**	**11.56 g**
Total	0	0	0	0	0	1	0	0	0	0	**1**	**11.56 g**

Table 28: Artifact assemblage from Unit 3.1

Artifact Type	*U3.1AN1*	*U3.1AN2*	*U3.1AN2/3*	*U3.1AN3*	***Total Count***	***Total Weight***
Ceramics						
Jars	1	19	34	27	**81**	**1268.92 g**
Ollas	0	27	0	1	**28**	**171.94 g**
Jar/Olla	0	0	0	4	**4**	**21.96 g**
Bowls	0	0	0	1	**1**	**33.42 g**
Small Jars	0	0	0	7	**7**	**124.0 g**
Unknown	5	34	0	10	**49**	**424.32 g**
Total	6	80	34	50	**170**	**2044.56 g**
Faunal Bone						
Weaving tool	0	0	1	0	**1**	**42 g**
Unworked (g.)	(31.5 g)	(73.1 g)	(9.1 g)	(230 g)	**--**	**343.7 g**
Total	--	--	1 tool	--	**1 tool**	**385.7 g**
Lithics						
Flakes/Other	0	1	0	3	**4**	**79.65 g**
Total	0	1	0	3	**4**	**79.65 g**

Table 29: Artifact assemblage from Unit 3.2

Artifact Type	*U3.2AN1*	*U3.2AN2*	*U3.2AN3*	*U3.2BN1*	*U3.2BN2*	*U3.2BR1*	*U3.2DN1*	*U3.2DN2*	*U3.2D N3*	*U3.2FN1*	***Total Count***	***Total Weight***
Ceramics												
Jars	0	9	0	0	0	0	0	0	0	0	**9**	**251.8 g**
Jar/Olla	0	0	0	0	1	0	0	0	0	0	**1**	**14.9 g**
Bowls	0	2	1	1	8	0	0	1	0	0	**13**	**80.37 g**
Unknown	0	0	1	0	0	0	0	0	0	1	**2**	**3.46 g**
Total	0	11	2	1	9	0	0	1	0	1	**25**	**350.53 g**
Faunal Bone												
Worked bone	0	0	0	1	1	0	0	0	0	0	**2**	**2.5 g**
Unworked (g.)	(70.6 g)	(17.0 g)	(6.3 g)	(44.5 g)	(155.9 g)	(20 g)	(79.2 g)	0	(19.6 g)	(10.4 g)	**--**	**423.5 g**
Total	--	--	--	1 tool	1 tool	--	--	0		--	**2 tools**	**426.0 g**
Lithics												
Rueca	0	0	0	1	0	0	0	0	0	0	**1**	**12.13 g**
Batán	0	0	0	0	0	0	0	1	0	0	**1**	**3670 g**
Flakes/Other	0	2	17	1	0	0	0	0	4	0	**24**	**44.09 g**
Total	0	2	17	2	0	0	0	1	4	0	**26**	**3726.2 g**
Metal												
Bronze spoon	0	0	0	1	0	0	0	0	0	0	**1**	**4.53 g**
Total	0	0	0	1	0	0	0	0	0	0	**1**	**4.53 g**

Table 30: Artifact assemblage from Unit 3.3

Artifact Type	*U3.3AN2*	*U3.3AN3*	*U3.3BN2*	*U3.3BN3*	*U3.3CN2*	*U3.3CN3*	***Total Count***	***Total Weight***
Ceramics								
Jars	0	0	0	0	1	0	**1**	**12.98 g**
Olla	0	0	0	1	0	0	**1**	**1.9 g**
Bowls	0	0	0	4	0	0	**4**	**8.6 g**
Small Jars	0	0	0	2	0	0	**2**	**6.1 g**
Total	0	0	0	7	1	0	**8**	**29.58 g**
Faunal Bone								
Unworked (g.)	(44.2 g)	(17.6 g)	(32.1 g)	(14.2 g)	0	0	--	**108.1 g**
Total	--	--	--	--	0	0	--	**108.1 g**
Lithics								
Flakes/Other	0	3	2	5	22	34	**66**	**219.96 g**
Total	0	3	2	5	22	34	**66**	**219.96 g**

Table 31: Artifact assemblage from Unit 4.1

Artifact Type	*U4.1AN1*	*U4.1AN2*	*U4.1AN3*	*U4.1AR1*	*U4.1AR2*	*U4.1BN1*	***Total Count***	***Total Weight***
Ceramics								
Jars	8	163	5	39	1	51	**267**	**3538.91 g**
Olla	0	140	15	0	0	11	**166**	**869.07 g**
Olla/Jar	0	8	0	0	0	0	**8**	**134.96 g**
Bowls	1	24	0	0	0	4	**29**	**267.59 g**
Small Jars	0	16	0	0	1	3	**20**	**132.23 g**
Unknown	25	29	66	0	0	113	**233**	**1619.56 g**
Total	34	380	86	39	2	182	**723**	**6696.39 g**
Faunal Bone								
Unworked (g.)	(45.8 g)	(15.8 g)	(6.6 g)	(56.0 g)	(7.8 g)	(33.0 g)	--	**165.0 g**
Total	--	--	--	--	--	--	--	**165.0 g**
Lithics								
Rueca	0	0	1	0	0	0	**1**	**14.42 g**
Flakes/Other	0	2	5	0	0	7	**14**	**247.96 g**
Total	0	2	6	0	0	7	**15**	**26.01 g**

Table 32: Artifact assemblage from Unit 4.2

Artifact Type	*U4.2Sup*	*U4.2AN1*	*U4.2AN2*	*U4.2BN2*	*U4.2CN1*	*U4.2CN2*	*U4.2DN1*	*U4.2DN2*	*U4.2FN2*	***Total Count***	***Total Weight***
Ceramics											
Jars	0	0	2	0	0	0	1	52	14	**69**	**1335.49 g**
Olla	0	0	7	31	0	0	0	45	21	**104**	**820.4 g**
Jar/Olla	0	0	0	0	0	0	0	1	0	**1**	**21.96 g**
Bowls	0	0	1	1	2	0	0	12	5	**21**	**501.82 g**
Other	0	0	0	0	0	0	1	0	2	**3**	**13.43 g**
Unknown	3	0	0	2	6	24	18	24	0	**77**	**256.16 g**
Total	3	0	10	34	8	24	20	134	42	**275**	**2949.26 g**
Faunal Bone											
Unworked (g.)	0	(9.4 g)	(54.9 g)	(10.4 g)	(8.7 g)	(13.6 g)	(10.1 g)	(7.9 g)	(180.1 g)	--	**295.1 g**
Total	--	--	--	--	--	--	--	--	--	--	**295.1 g**
Lithics											
Flakes/Other	0	0	0	0	0	0	0	5	11	**16**	**538.18 g**
Total	0	0	0	0	0	0	0	5	11	**16**	**538.18 g**
Metal											
Silver adornment	0	0	0	1	0	0	0	0	0	**1**	--
Copper adornment	0	0	0	0	0	0	0	1	0	**1**	--
Total	0	0	0	1	0	0	0	1	0	**2**	--

Table 33: Artifact assemblage from Unit 4.3

Artifact Type	*U4.3Sup*	*U4.3AN1*	*U4.3AN2*	*U4.3AN3*	*U4.3BN1*	*U4.3BN2*	*U4.3BN3*	*U4.3BR1*	*U4.3CN1*
Ceramics									
Jars	1	1	157	1	6	3	7	2	4
Olla	0	0	86	21	0	0	41	40	0
Jar/Olla	0	0	4	0	0	0	0	0	1
Bowls	2	0	25	0	0	2	5	4	7
Small Jars	0	0	1	0	0	0	1	0	0
Other	0	0	0	0	0	0	0	1	0
Unknown	16	13	28	32	26	19	124	51	116
Total	19	14	301	54	32	24	177	97	720
Faunal Bone									
Worked bone	0	0	3	0	0	1	2	0	0
Unworked (g.)	0	(53.9 g)	(83.6 g)	(109.9 g)	(25.8 g)	(65.1 g)	(71 g)	(410 g)	(13.8)
Total	--	--	3 tools	--	--	1 tool	2 tools	--	--
Lithics									
Batán	0	0	0	0	0	0	1	0	0
Doughnut stone	0	0	1	0	0	0	0	0	0
Rueca	0	0	0	0	0	0	1	0	0
Weights	0	0	3	0	0	0	0	0	0
Disk	0	0	0	0	0	0	0	0	0
Obsidian flake	0	0	0	0	0	1	0	0	0
Flakes/Other	0	0	8	10	0	1	6	0	2
Total	0	0	12	10	0	2	8	0	32
Metal									
Copper/bronze piece	0	0	0	2	0	0	0	0	0
Total	0	0	0	2	0	0	0	0	0

Artifact assemblage from Unit 4.3, cont.

Artifact Type	*U4.3CN2*	*U4.3DN1*	*U4.3DN2*	*U4.3EN1*	*U4.3EN2*	*U4.3EN3*	*U4.3ER1*	***Total Count***	***Total Weight***
Ceramics									
Jars	7	6	10	6	32	15	0	**258**	**4036.53 g**
Olla	0	29	348	10	5	2	0	**582**	**2251.03 g**
Jar/Olla	0	0	6	0	1	0	0	**12**	**75.6 g**
Bowls	4	11	17	3	13	2	0	**95**	**1058.77 g**
Small Jars	1	2	20	4	5	1	0	**35**	**238.17 g**
Other	0	0	0	0	0	1	0	**2**	**48.51 g**
Unknown	49	203	86	115	303	4	0	**1185**	**6266 g**
Total	61	251	487	138	359	25	0	**2169**	**13974.61 g**
Faunal Bone									
Worked bone	0	0	0	1	2	0	0	**9**	**188.88 g**
Unworked (g.)	(33.12 g)	0	(3.67 g)	(142.3 g)	(191.55 g)	(59.69 g)	(12 g)	--	**1275.43 g**
Total	--	--	--	1 tool	2 tool	--	--	**9 tools**	**888.5 g**
Lithics									
Batán	0	0	0	0	2	0	0	**3**	**9345.3 g**
Doughnut stone	0	0	0	0	0	0	0	**1**	**135.44 g**
Rueca	0	0	0	0	1	0	0	**2**	**20.85 g**
Weights	1	0	0	0	0	0	0	**4**	**217.02 g**
Disk	1	0	0	0	4	0	0	**5**	**107.2 g**
Obsidian flake	0	0	0	0	0	0	0	**1**	**.1 g**
Flakes/Other	2	0	0	0	7	0	0	**36**	**867.52 g**
Total	3	0	0	0	14	0	0	**52**	**10693.43 g**
Metal									
Copper/bronze piece	0	0	0	0	0	0	0	**2**	**1.1**
Total	0	0	0	0	0	0	0	**2**	**1.1**

Table 34:Artifact assemblage from Unit 4.4

Artifact Type	*U4.4Sup*	*U4.4AN1*	*U4.4AN2*	*U4.4AN3*	*U4.4AR1*	*U4.4BN1*	*U4.4BN2*	*U4.4BN3*	*U4.4BR1*
Ceramics									
Jars	10	376	23	1	13	17	149	239	0
Olla	0	507	38	1	6	3	108	101	0
Jar/Olla	0	0	0	0	0	0	0	13	0
Bowls	10	38	1	1	3	2	21	54	0
Small Jars	0	27	1	0	0	0	1	14	0
Other	0	0	0	0	0	0	0	0	0
Unknown	44	187	12	0	5	0	89	49	3
Total	64	1135	75	3	27	22	368	470	3
Faunal Bone									
Unworked (g)	0	(340 g)	(3.46 g)	0	(12.23 g)	(91.52 g)	(315.3 g)	(181.1 g)	(2.36 g)
Total	0	--	--	0	--	--	--	--	--
Lithics									
Mano	0	0	0	0	0	0	0	1	0
Flakes/Other	0	5	2	0	1	0	11	0	0
Total	0	5	2	0	1	0	11	1	0
Metal									
Copper tupu	0	1	0	0	0	0	0	0	0
Silver tupu	0	0	1	0	0	0	0	0	0
Other metal	0	0	0	0	0	0	0	0	0
Total	0	1	1	0	0	0	0	0	0

Artifact assemblage from Unit 4.4, cont.

Artifact Type	*U4.4DN1*	*U4.4DN2*	*U4.4DN3*	*U4.4DN4*	*U4.4DN5*	*U4.4DN6*	*U4.4DR1*	*U4.4DR2*	*U4.4DR3*	***Total Count***	***Total Weight***
Ceramics											
Jars	129	368	23	47	19	25	2	11	32	**1484**	**14202.99g**
Olla	14	97	19	28	9	29	2	0	1	**963**	**5460.64 g**
Jar/Olla	0	2	0	0	0	1	0	0	0	**16**	**210.63 g**
Bowls	17	165	7	17	1	17	1	0	0	**355**	**3195.24 g**
Small Jars	3	11	0	9	1	1	0	0	0	**68**	**681.83 g**
Other	0	1	0	0	0	0	0	0	0	**1**	**20.14 g**
Unknown	0	192	0	0	0	0	0	0	0	**581**	**1232.7 g**
Total	163	836	49	101	30	73	5	11	33	**3468**	**25004.17g**
Faunal Bone											
Unworked (g)	0	(278.8 g)	(20.76 g)	(151.4 g)	(20.7 g)	(71.71 g)	(39.17 g)	0	0	**--**	**1528.51 g**
Total	0	--	--	--	--	--	--	0	0	**--**	**1528.51 g**
Lithics											
Mano	0	0	0	0	0	0	0	0	0	**1**	**1140 g**
Flakes/Other	1	23	0	0	0	0	0	0	0	**43**	**413.67 g**
Total	1	23	0	0	0	0	0	0	0	**44**	**1553.67 g**
Metal											
Copper tupu	0	1	0	0	0	0	0	0	0	**2**	**13.16 g**
Silver tupu	0	0	0	0	0	0	0	0	0	**1**	**2.09 g**
Other metal	0	1	0	0	0	0	0	0	0	**1**	**6.56 g**
Total	0	2	0	0	0	0	0	0	0	**4**	**21.81 g**

Table 35: Artifact assemblage from Unit 4.5

Artifact Type	*U4.5Sup*	*U4.5AN2*	*U4.5AN3*	*U4.5AN4*	*U4.5AN5*	*U4.5AR1*	*U4.5BN1*
Ceramics							
Jars	0	0	0	1	17	0	11
Olla	0	7	58	220	99	11	3
Jar/Olla	0	0	3	0	0	0	0
Bowls	1	1	5	12	0	0	1
Small Jars	0	0	0	1	0	0	0
Other	0	0	0	3	0	0	0
Unknown	0	0	0	139	24	0	0
Total	1	8	66	375	140	11	15
Faunal Bone							
Cut bone	0	0	0	0	1	0	0
Weaving tool	0	0	0	0	0	0	0
Unworked (g)	0	0	(6.85 g)	(23.34 g)	(134.2 g)	0	0
Total	0	0	--	--	1 tool	--	
Lithics							
Grinding stone	0	1	1	0	0	0	0
Obsidian	0	0	0	0	1	0	0
Flakes/Other	0	3	1	12	8	0	3
Total	0	4	1	12	9	0	3
Metal							
Twisted copper	0	0	0	2	0	0	0
Total	0	0	0	2	0	0	0

Artifact assemblage from Unit 4.5, cont.

Artifact Type	*U4.5BN2*	*U4.5BN3*	*U4.5EN1*	*U4.5EN2*	*U4.5FN1*	***Total Count***	***Total Weight***
Ceramics							
Jars	0	0	37	4	2	**72**	**421.72 g**
Olla	0	19	100	12	0	**529**	**1940.86**
Jar/Olla	2	0	0	0	0	**5**	**24.3 g**
Bowls	0	6	6	0	0	**32**	**352.67 g**
Small Jars	4	0	2	0	0	**7**	**18.41 g**
Other	0	0	6	0	0	**9**	**90.86 g**
Unknown	0	0	0	5	0	**168**	**125.41 g**
Total	6	25	151	21	2	**617**	**1942.41 g**
Faunal Bone							
Cut bone	0	0	0	0	0	**1**	**27.21 g**
Weaving tool	0	0	1	0	0	**1**	**10.81 g**
Unworked (g)	0	(7.58 g)	(76.96 g)	(21.35 g)	(10.55 g)	**--**	**280.83 g**
Total	0	--	1 tool	--	--	**2**	**318.85 g**
Lithics							
Grinding stone	0	0	0	0	0	**2**	**1020 g**
Obsidian	0	0	1	0	0	**2**	**1.82 g**
Flakes/Other	2	2	11	2	3	**47**	**4023.87 g**
Total	2	2	12	2	3	**51**	**5045.69 g**
Metal							
Twisted copper	0	0	0	0	0	**2**	**1.46 g**
Total	0	0	0	0	0	**2**	**1.46 g**

Table 36: Artifact assemblage from Unit 4.6

Artifact Type	*U4.6AN1*	*U4.6AN2*	*U4.6AN3*	*U4.6BN1*	*U4.6BN2*	*U4.6BN3*	*U4.6BN5*
Ceramics							
Jars	6	66	1	17	133	3	11
Olla	0	52	5	5	5	0	16
Olla/Jar	0	0	0	0	15	0	0
Bowls	1	14	0	4	10	0	1
Small jars	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Unknown	0	42	0	0	5	0	6
Total	7	174	6	26	168	3	34
Faunal Bone							
Worked bone	0	1	0	0	0	0	0
Unworked (g)	0	(244.2 g)	(32.11 g)	(5.75 g)	(19.89 g)	(8.55 g)	(4.32 g)
Total	0	--	--	--	--	--	--
Lithics							
Mano	0	0	0	0	1	0	0
Bowl	0	0	0	0	1	0	0
Doughnut stone	0	0	0	0	1	0	0
Obsidian	0	0	0	0	0	0	0
Flakes/Other	0	5	0	0	3	1	1
Total	0	5	0	0	6	1	1
Metal							
Copper piece	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

Artifact assemblage from Unit 4.6, cont.

Artifact Type	*U4.6CN1*	*U4.6CN2*	*U4.6CN3*	*U4.6CN4*	*U4.6CN5*	*U4.6CN6*	***Total Count***	***Total Weight***
Ceramics								
Jars	33	77	11	97	85	45	**585**	**4968.67 g**
Olla	22	15	20	47	127	17	**331**	**1430.26 g**
Olla/Jar	0	0	0	2	0	0	**17**	**98.23 g**
Bowls	5	11	8	11	20	7	**92**	**836.62 g**
Small jars	2	1	0	2	1	1	**7**	**163.23 g**
Other	0	0	0	0	1	1	**2**	**42.58 g**
Unknown	0	75	0	10	114	26	**278**	**280.63 g**
Total	62	179	39	169	348	97	**1312**	**7820.22 g**
Faunal Bone								
Worked bone	0	0	0	0	0	0	**1 tool**	**12.26 g**
Unworked (g)	(250.61g)	(88.64 g)	(16.44 g)	(36.71 g)	(97.09 g)	(44.6 g)	--	**848.91 g**
Total	0	--	--	--	--	--	**1 tool**	**861.17 g**
Lithics								
Mano	0	0	0	0	0	0	**1**	**110.37 g**
Bowl	0	0	0	0	0	0	**1**	**104.88 g**
Doughnut stone	0	0	0	0	0	0	**1**	**128.77 g**
Obsidian	0	0	0	1	0	0	**1**	**.06 g**
Flakes/Other	7	11	7	7	10	5	**57**	**1276.03 g**
Total	7	11	7	8	10	5	**61**	**1620.11 g**
Metal								
Copper piece	0	1	0	0	0	0	**1**	**.44 g**
Total	0	1	0	0	0	0	**1**	**.44 g**

Table 37: Artifact assemblage from Unit 5.1

Artifact Type	*U5.1Sup*	*U5.1AN1*	*U5.1AN2*	*U5.1AN3*	*U5.1AR1*	*U5.1AR2*	*U5.1AR3*	*U5.1BN1*	*U5.1BN2*	*U5.1BR1*	*U5.1CN1*
Ceramics											
Jars	27	248	70	21	103	7	18	55	74	27	52
Olla	6	210	103	29	84	0	7	53	24	36	77
Olla/Jar	0	78	1	0	0	0	0	23	0	0	15
Bowls	2	39	2	2	3	1	0	5	1	1	32
Small jars	0	0	0	0	2	0	0	1	1	0	3
Unknown	0	0	26	6	0	0	0	0	0	0	0
Total	35	575	202	58	192	8	25	137	100	64	179
Faunal Bone											
Unworked	0	(82.17 g)	(89.89 g)	(5.8)	(40.01 g)	(9.89 g)	(5.39 g)	(37.6 g)	0	(27.11 g)	(260 g)
Total	0	--	--	--	--	--	--	--	0	--	--
Lithics											
Batán	0	0	0	0	0	0	0	0	0	0	0
Bola	0	0	0	0	0	0	0	0	0	0	0
Flake/Other	0	1	0	0	3	0	0	0	0	0	5
Total	0	1	0	0	3	0	0	0	0	0	5

Artifact assemblage from Unit 5.1, cont.

Artifact Type	*U5.1CR1*	*U5.1DN1*	*U5.1DN2*	*U5.1DN3*	*U5.1DR1*	*U5.1EN1*	*U5.1EN2*	*U5.1ER1*	*U5.1FN1*	***Total Count***	***Total Weight***
Ceramics											
Jars	8	4	141	38	3	15	5	9	122	**1047**	**16692.58g**
Olla	7	0	30	19	0	6	3	0	59	**753**	**3788.72 g**
Olla/Jar	0	0	0	26	0	0	0	0	0	**143**	**798.55 g**
Bowls	6	2	13	3	0	9	1	5	12	**139**	**1535.06 g**
Small jars	0	0	0	0	0	0	0	0	0	**7**	**194 g**
Unknown	0	0	0	0	0	0	0	0	0	**32**	**66.52 g**
Total	21	6	184	86	3	30	9	14	193	**2121**	**23075.43g**
Faunal Bone											
Unworked	(116.71g)	--	--	--	(3.97 g)	(16.31 g)	(12.15 g)	(43.25 g)	(34.61 g)	--	**784.86 g**
Total	--	--	--	--	--	--	--	--	--	--	**784.86 g**
Lithics											
Batán	1	0	0	0	0	0	0	0	0	**1**	**1010 g**
Bola	0	0	1	0	0	0	0	0	0	**1**	**42.99 g**
Flakes/Other	5	0	3	0	0	0	0	0	0	**17**	**1521.31 g**
Total	6	0	4	0	0	0	0	0	0	**19**	**2574.3 g**

Table 38: Artifact assemblage from Unit 5.2

Artifact Type	*U5.2AN1*	*U5.2AN2*	*U5.2AN3*	*U5.2BN2*	*U5.2BN3*	*U5.2FN1*	*U5.2FN2*	*U5.2FN3*	***Total Count***	***Total Weight***
Ceramics										
Jars	15	15	22	7	1	55	59	5	**179**	**992.8 g**
Olla	9	1	2	0	9	18	105	23	**167**	**457.27 g**
Olla/Jar	0	13	0	0	0	0	0	0	**13**	**49.68 g**
Bowls	9	3	1	0	2	11	8	0	**34**	**136.56 g**
Other	0	0	0	0	0	0	1	0	**1**	**9.59 g**
Unknown	0	8	0	0	0	0	0	0	**8**	**11.09 g**
Total	33	40	25	7	12	84	173	28	**402**	**1656.99 g**
Faunal Bone										
Unworked (g)	(2.57 g)	--	(4.76 g)	(7.49 g)	(9.01 g)	(7.76 g)	(5.41 g)	(3.98 g)	--	**40.98 g**
Total	--	--	--	--	--	--	--	--	--	**40.98 g**
Lithics										
Weight	1	0	0	0	0	0	0	0	**1**	**96.06 g**
Flakes/Other	0	0	1	0	0	3	8	0	**12**	**77.74 g**
Total	1	0	1	0	0	3	8	0	**13**	**173.8 g**

Table 39: Artifact assemblage for Unit 6.1

Artifact Type	*U6.1Sup*	*U6.1AN1*	*U6.1AN2*	*U6.1AN3*	*U6.1AN4*	*U6.1BN1*	*U6.1BN2*
Ceramics							
Jars	24	13	62	125	5	31	21
Olla	22	6	5	343	15	11	4
Olla/Jar	0	0	5	11	0	0	3
Bowls	8	5	15	73	2	3	9
Small jars	0	0	3	23	0	1	0
Other	0	0	0	0	0	0	0
Unknown	0	0	0	8	0	0	0
Total	54	24	90	583	22	46	37
Faunal Bone							
Worked bone	0	0	0	2	0		0
Unworked (g)	(18.74 g)	(41.82 g)	(47.01 g)	(933.9 g)	(69.47 g)	(20.67 g)	(39.67 g)
Total	--	--	--	--	--	--	--
Human bone							
Incisor	0	0	0	1	0	0	0
Total	0	0	0	1	0	0	0
Lithics							
Batán	0	0	2	0	0	0	0
Stone bead	0	0	0	1	0	0	0
Obsidian	0	0	0	3	0	0	0
Flakes/Other	0	2	1	37	4	0	0
Total	0	2	3	41	4	0	0
Metal							
Silver tupu	0	0	0	2	0	0	0
Flat silver	0	0	0	1	0	0	0
Total	0	0	0	3	0	0	0

Artifact assemblage from Unit 6.1, cont.

Artifact Type	*U6.1BN3*	*U6.1CN1*	*U6.1CN2*	*U6.1DN1*	*U6.1FN1*	***Total Count***	***Total Weight***
Ceramics							
Jars	40	48	45	211	147	**772**	**7079 g**
Olla	31	52	28	100	125	**742**	**3168.62 g**
Olla/Jar	16	1	0	0	0	**36**	**274.27 g**
Bowls	22	11	20	22	12	**202**	**2419.21 g**
Small jars	2	0	3	5	5	**42**	**245.22 g**
Other	0	1	1	1	2	**5**	**43.98 g**
Unknown	53	0	0	0	0	**61**	**113.03 g**
Total	164	113	97	339	291	**1860**	**13343.33g**
Faunal Bone							
Worked bone	4	0	1	--	0	**7**	**99.4 g**
Unworked (g)	(295.1 g)	(95.89 g)	(500 g)	(80.9 g)	(143.05 g)	**--**	**1991.12 g**
Total	4	--	1	--	--	**7**	**2090.52 g**
Human bone							
Incisor	0	0	0	0	0	**1**	**.71 g**
Total	0	0	0	0	0	**1**	**.71 g**
Lithics							
Batán	0	0	0	0	0	**2**	**14810 g**
Stone bead	0	0	0	0	0	**1**	**.96 g**
Obsidian	1	0	0	0	0	**4**	**1.33 g**
Flakes/Other	19	7	4	12	26	**112**	**7440.43 g**
Total	20	7	4	12	26	**119**	**22252.72g**
Metal							
Silver tupu	0	0	0	0	0	**2**	**3.89 g**
Flat silver	0	0	0	0	0	**1**	**.19 g**
Total	0	0	0	0	0	**3**	**4.08 g**

Table 40: Artifact assemblage from Unit 6.2

Artifact Type	*U6.2AN1*	*U6.2AN2*	*U6.2AN3*	*U6.2BN1*	*U6.2BN2*	*U6.2BN3*	*U6.2BR1*	*U6.2DN1*	*U6.2DN2*	***Total Count***	***Total Weight***
Ceramics											
Jars	10	12	2	3	22	6	3	22	33	**113**	**1377.59 g**
Olla	8	3	2	4	0	0	0	7	11	**35**	**76.08 g**
Olla/Jar	0	0	0	0	1	0	0	0	0	**1**	**2.4 g**
Bowls	8	6	1	2	4	0	1	7	9	**38**	**219.32 g**
Small jars	0	4	0	0	1	0	0	0	3	**8**	**19.42 g**
Other	0	1	0	0	0	0	0	0	0	**1**	**14.55 g**
Unknown	0	0	0	0	6	0	0	0	18	**24**	**15.48 g**
Total	26	26	5	9	34	6	4	36	74	**220**	**1634.84 g**
Faunal Bone											
Unworked (g)	(12.48 g)	(3.76 g)	0	0	0	(1.28 g)	0	(4.24 g)	(7.31 g)	--	**29.07 g**
Total	--	--	0	0	0	--	0	--	--	--	**29.07 g**
Lithics											
Batán	0	3	0	0	0	0	1	0	0	**4**	**5271.53 g**
Flakes/Other	1	3	1	1	6	1	12	0	6	**31**	**490.14 g**
Total	1	6	1	1	6	1	13	0	6	**35**	**5761.67 g**
Metal											
Bronze tupu	0	0	0	0	0	0	1	0	0	**1**	**7.9 g**
Total	0	0	0	0	0	0	1	0	0	**1**	**7.9 g**

Table 41: Artifact assemblage from Unit 6.3

Artifact Type	*U6.3Sup*	*U6.3AN1*	*U6.3AN2*	*U6.3BN1*	*U6.3BN2*	*U6.3BR1*	*U6.3CN1*	***Total Count***	***Total Weight***
Ceramics									
Jars	41	141	29	292	280	10	3	**796**	**5748.69 g**
Olla	16	144	56	194	102	0	1	**513**	**2571.34 g**
Olla/Jar	0	0	8	0	11	0	0	**19**	**207.84 g**
Bowls	2	15	5	21	33	2	0	**78**	**676.06 g**
Small jars	0	0	4	0	9	0	0	**13**	**71.96 g**
Unknown	0	0	0	0	111	0	0	**111**	**141.52 g**
Total	59	300	102	507	546	12	4	**1530**	**9417.41 g**
Faunal Bone									
Unworked (g)	(14.52 g)	(13.59 g)	0	(18.83 g)	(20.44 g)	0	0	--	**67.38 g**
Total	--	--	0	--	--	0	0	--	**67.38 g**
Lithics									
Obsidian	0	0	0	0	1	0	0	**1**	**3.21 g**
Flakes/Other	0	5	4	1	4	0	1	**15**	**342.43 g**
Total	0	5	4	1	5	0	1	**16**	**345.64 g**
Metal									
Bronze piece	0	0	0	0	1	0	0	**1**	**15.54 g**
Total	0	0	0	0	1	0	0	**1**	**15.54 g**

Table 42: Artifact assemblage from Unit 6.4

Artifact Type	*U6.4Sup*	*U6.4N1*	*U6.4N2*	*U6.4R1*	*U6.4R2*	*U6.4R3*	***Total Count***	***Total Weight***
Ceramics								
Jars	4	0	0	0	1	0	**5**	**26 g**
Olla	0	37	0	0	0	0	**37**	**110.54 g**
Total	4	37	0	0	1	0	**42**	**136.54 g**
Faunal Bone								
Unworked (g)	(5.04 g)	(2.74 g)	(2.61 g)	(19.58 g)	0	0	**--**	**29.97 g**
Total	--	--	--	--	0	0	**--**	**29.97 g**
Human remains								
MNI	0	0	0	1	1	1	**3**	**--**
Total	0	0	0	1	1	1	**3**	**--**
Lithics								
Flakes/Other	0	2	0	0	0	0	**2**	**13.87 g**
Total	0	2	0	0	0	0	**2**	**13.87 g**
Metal								
Metal bead	0	0	0	0	0	1	**1**	**.63 g**
Total	0	0	0	0	0	1	**1**	**.63 g**

Table 43: Artifact assemblage from Unit 6.5

Artifact Type	*U6.5N1*	***Total Count***	***Total Weight***
Ceramics			
Jars	3	**3**	**6.49 g**
Total	3	**3**	**6.49 g**
Lithics			
Flakes/Other	5	**5**	**21.91 g**
Total	5	**5**	**21.91 g**

Table 44: Artifact assemblage from Unit 6.6

Artifact Type	*U6.6N1*	*U6.6N2*	*U6.6N3*	*U6.6N4*	***Total Count***	***Total Weight***
Ceramics						
Jars	0	10	11	19	**40**	**1055.63 g**
Olla	1	87	17	26	**131**	**772.07 g**
Olla/Jar	0	0	0	14	**14**	**74.76 g**
Bowls	0	19	3	3	**25**	**235.6 g**
Small jars	0	1	8	0	**9**	**45.16 g**
Other	0	0	5	0	**5**	**43.07 g**
Total	1	117	44	62	**224**	**2226.29 g**
Faunal Bone						
Unworked (g)	(4.29 g)	(4.09 g)	(3.33 g)	(28.75 g)	**--**	**40.46 g**
Total	--	--	0	--	**--**	**40.46 g**
Lithics						
Weaving weight	0	0	0	1	**1**	**2.19 g**
Flakes/Other	7	1	1	0	**9**	**300.31 g**
Total	7	1	1	1	**10**	**302.5 g**

Table 45: Artifact assemblage from Unit 6.7

	U6.7Sup	*U6.7N1*	*U6.7N2N*	*U6.7N2S*	*U6.7R1*	*U6.7R2*	*U6.7R3*	*U6.7R4*	***Total Count***	***Total Weight***
Ceramics										
Jars	5	3	16	3	1	1	0	0	**29**	**132.92 g**
Olla	0	31	51	0	0	1	0	2	**85**	**338.76 g**
Olla/Jar	0	0	1	0	0	0	0	0	**1**	**5.02 g**
Bowls	1	6	4	2	1	0	0	0	**14**	**133.21 g**
Small jars	0	0	1	0	0	0	0	0	**1**	**4.07 g**
Total	6	40	73	5	2	2	0	2	**130**	**613.98 g**
Faunal Bone										
Unworked (g)	0	(11.98 g)	(39.69 g)	(13.23 g)	(20.28 g)	0	0	(17.68 g)	**--**	**102.86 g**
Total	0	--	--	--	--	0	0	--	**--**	**102.86 g**
Human Remains										
MNI	0	0	0	0	2	0	0	0	**2**	**--**
Total	0	0	0	0	2	0	0	0	**2**	**--**
Lithics										
Flakes/Other	0	0	0	3	1	0	0	2	**6**	**137.92 g**
Total	0	0	0	3	1	0	0	2	**6**	**137.92 g**

Table 46: Artifact assemblage from Unit 6.8

Artifact Type	*U6.8N1*	***Total Count***	***Total Weight***
Ceramics			
Jars	8	**8**	**15.71 g**
Olla	2	**2**	**3.04 g**
Bowls	5	**5**	**10.97 g**
Total	15	**15**	**29.72 g**
Lithics			
Flakes/Other	5	**5**	**13.08 g**
Total	5	**5**	**13.08 g**

Table 47: Artifact assemblage from Unit 6.9

Artifact Type	*U6.9N2*	*U6.9R1*	***Total Count***	***Total Weight***
Ceramics				
Jars	3	0	**3**	**19.98 g**
Total	3	0	**3**	**19.98 g**
Faunal Bone				
Unworked (g)	(8.78 g)	0	**--**	**8.78 g**
Total	--	0	**--**	**8.78 g**
Lithics				
Grinding stone	0	1	**1**	**2220 g**
Total	0	1	**1**	**2220 g**

Table 48: Artifact assemblage from Unit 6.10

Artifact Type	*U6.10N1*	***Total Count***	***Total Weight***
Ceramics			
Jars	2	**2**	**7.2 g**
Total	2	**2**	**7.2 g**

Table 49: Artifact assemblage from Unit 7.1

Artifact Type	*U7.1AN1*	*U7.1AN2*	*U7.1AN3*	*U7.1BN1*	*U7.1BN2*	*U7.1BN3*	*U7.1CN1*	*U7.1CN2*	*U7.1CN3*	***Total Count***	***Total Weight***
Ceramics											
Jars	5	6	17	18	40	110	46	24	8	**274**	**1545.09 g**
Olla	5	0	14	8	8	46	2	0	9	**92**	**520.28 g**
Olla/Jar	0	0	0	0	32	19	0	2	1	**54**	**259.31 g**
Bowls	1	0	6	1	4	8	1	1	0	**22**	**578.86 g**
Small jars	0	0	6	0	0	0	0	0	1	**7**	**15.81 g**
Other	0	0	0	0	0	0	0	1	0	**1**	**24.29 g**
Unknown	0	0	0	0	0	36	0	0	0	**36**	**55.5 g**
Total	11	6	43	27	84	219	49	28	19	**486**	**2999.14 g**
Faunal Bone											
Unworked (g)	0	0	(9.97 g)	0	0	(71.88 g)	0	(28 g)	(28.11 g)	**--**	**137.96 g**
Total	0	0	--	0	0	--	0	--	--	**--**	**137.96 g**
Lithics											
Grinding stone	0	0	1	0	0	0	0	0	0	**1**	**1890 g**
Bola	0	0	0	0	0	1	0	0	0	**1**	**103.86 g**
Flakes/Other	2	0	4	0	0	5	2	3	0	**16**	**311.79 g**
Total	2	0	5	0	0	6	2	3	0	**18**	**2305.65 g**

Table 50: Artifact assemblage from Unit 7.2

Artifact Type	*U7.2AN1*	*U7.2AN3*	*U7.2AN4*	*U7.2BN1*	*U7.2BN3*	*U7.2BN4*	***Total Count***	***Total Weight***
Ceramics								
Jars	18	8	65	7	3	137	**238**	**2815.73 g**
Olla	1	0	3	1	0	180	**185**	**1279.15 g**
Olla/Jar	0	0	30	0	1	13	**44**	**198.29 g**
Bowls	8	0	6	4	0	25	**43**	**1431.43 g**
Small jars	0	1	1	0	1	6	**9**	**136.45 g**
Other	0	0	0	0	0	2	**2**	**33.2 g**
Unknown	0	0	0	0	0	68	**68**	**141.5 g**
Total	27	9	105	12	5	431	**589**	**6035.75 g**
Faunal Bone								
Unworked (g)	0	(17.68 g)	(163.33g)	0	(7.91 g)	(300 g)	--	**488.92 g**
Total	0	--	--	0	--	--	--	**488.92 g**
Lithics								
Obsidian	0	0	0	0	0	1	**1**	**.1 g**
Bola/Weight	0	0	1	0	0	4	**5**	**252.99 g**
Flakes/Other	0	0	5	0	3	32	**40**	**883.2 g**
Total	0	0	6	0	3	37	**46**	**1136.29 g**
Metal								
Bronze/copper	0	0	0	0	2	0	**2**	**11.73 g**
Total	0	0	0	0	2	0	**2**	**11.73 g**

Table 51: Artifact assemblage from Unit 8.1

Artifact Type	*U8.1R1*	***Total Count***	***Total Weight***
Human Remains			
MNI	1	**1**	--
Total	1	**1**	--

APPENDIX C

CH'AUCHA DE KHULA MARKA: EXCAVATION UNITS

Unit 1.1
Excavated in 2006
Inca Village

Unit 1.1 is a 2 m X 2 m unit opened just south of Rydén's circular Structure 1 and along the possible north wall of Rydén's rectangular Structure 2. A line of stones that appeared to represent the north wall of the structure appeared in Level 2 of the Unit. The structure was excavated in artificial 10 cm levels until sterile soil was reached in Level 7. The natural stratigraphy was composed of an initial level of brown (7.5YR4/2) silty sand, approximately 15-25 cm in depth. This overlay a 15-30 cm habitation layer composed of dark brown (7.5YR 3/2) sandy soil filled with lots of bone and Inca period ceramic artifacts (Table 52). This overlay a brown (7.5YR 4/2) sandy soil, into which was cut a trash pit (Rasgo 1), composed of very dark brown (7.5YR2.5/2) silty sand and filled with faunal bone, Inca period ceramics, metal tupus, and inclusions of carbon red burnt clay. The feature extended to a depth of approximately 40 cm and was located in the northwest corner of the unit, along the possible north wall of Structure 2. Below the feature, the soil was a sterile brown (7.5YR4/3) sand.

Unit 1.2
Excavated in 2006
Inca Village

Unit 1.2 is a 2 m X 2 m unit opened just south of Rydén's circular Structure 6 and partially extending into the northwest quarter of his Structure 3. The foundation stones of Structure 3 were still clearly visible in the southwestern corner of the unit, and soil from within the structure was excavated as a separate feature. The rest of the unit was excavated in artificial 10 cm levels into the habitation level, when excavation halted in order to extend the unit to follow a possible structure that appeared in the northwest corner. Most of the excavated soil was a rocky fill layer in a brown (7.5YR4/2) silty sand matrix, approximately 10-25 cm in depth. This overlay a probably habitation surface. The possible structure in the northwest corner (identified as Rasgo 2) was characterized by a layer of dark brown soil (7.5YR 3/2) over a probable paved stone floor. The small rectangular structure, which partially extended into Units 1.3 and 1.4, was interpreted as a probable small storage space. Most of the artifacts came from Levels 2 and 3 of the unit, and consisted of typical Inca-Pacajes ceramics, a ceramic weaving weight, grinding stones, a bronze needle, and some copper fragments (Table 53).

Unit 1.3
Excavated in 2006
Inca Village

Unit 1.3 is a 2 m X 2 m unit which was opened just west of Unit 1.2 to follow the possible storage structure noted in the northwest corner. The rest of the unit was excavated in artificial 10 cm levels to the level of the structure, in order to better identify its construction style. Most of the excavated soil was a rocky fill layer in a brown

(7.5YR4/2) silty sand matrix, approximately 10-20 cm in depth. The first level was full of roughly piled large paving rocks, especially in the eastern half of the unit, and it is possible that this could represent backfill from Rydén's original excavations. After excavating through the fill level, it was possible to identify some stone foundations in Level 2. Only a small corner of the structure from Unit 1.2 extended into the northeast corner of this unit, but another rounded circle of stones (possibly a prepared hearth) was noted in the southeast portion of the unit. Associated artifacts consisted primarily of typical Inca-Pacajes ceramics and some faunal remains (Table 54).

Unit 1.4
Excavated in 2006
Inca Village

Unit 1.4 is a 2 m X 2 m unit opened along the north walls of Units 1.2 and 1.3 to follow the small storage structure originally noted in the northwest corner of Unit 1.2. The unit also extended into the southwest quarter of Rydén's Structure 6. The foundation stones of Structure 6 were still clearly visible in the northeastern corner of the unit, and soil from within the structure was excavated as a separate feature. The rest of the unit was excavated in artificial 10 cm levels until sterile soil was reached. The natural stratigraphy was recorded as a 20-25 cm layer of brown (7.5YR4/2) fill over a reddish compact floor, which itself overlay a sterile sandy subsoil. The small rectangular structure, previously noted in Units 1.2 and 1.3 clearly extended into the southeastern corner of this unit, and was excavated as a separate feature (Rasgo 2), but no artifacts were collected from this area. A possible paved surface was recorded between this structure, interpreted as a small storage structure, and the wall of Rydén's Structure 6,

interpreted as a domestic structure. Collected artifacts included typical Inca-Pacajes ceramics, faunal remains, and groundstone (Table 55).

Unit 1.5
Excavated in 2006
Inca Village

Unit 1.5 is a 2 m X 2 m unit opened in the middle of the circle of circular structures excavated by Rydén. The unit is approximately 14 m north and only slightly east of Unit 1.1. It was excavated in artificial 10 cm levels until sterile soil was reached. The natural stratigraphy was noted as a brown (7.5YR4/2) silty sand layer of approximately 30-40 cm in depth, overlaying a slightly darker brown (7.5YR4/4) sterile sandy subsoil. A very clear, stone-lined hearth (Rasgo 1), measuring approximately 1 m in diameter, was first recorded approximately 25-30 cm below the surface, and extended approximately 15 cm in depth, into sterile soil. This feature was composed of a very dark brown (7.5YR2.5/2) silty sand matrix, and included large quantities of carbonized wood and royal Inca ceramic sherds, as well as the more typical Inca-Pacajes ceramics and burnt faunal remains. Outside of the hearth, most of the artifacts were found in Levels 2 and 3, and were primarily composed of Inca-Pacajes ceramics and faunal bones (Table 56).

Unit 1.6
Excavated in 2006
Inca Village

Unit 1.6 is a 2 m X 2 m unit opened just west of Unit 1.3 where a slight depression indicated the possibility of a circular structure not excavated by Rydén. The

unit was excavated in artificial 10 cm levels until sterile soil was reached. A portion of the possible circular structure wall was recorded in the northwest corner of the unit, and a small hearth (Rasgo 1) was identified along the eastern wall of the unit, extending into the sterile soil. Most of the artifacts came from Levels 2 of the excavation, which seemed to correspond to the habitation layer, and consisted of typical Inca-Pacajes ceramics and stone and bone tools (Table 57).

Unit 1.7
Excavated in 2006
Inca Village

Unit 1.7 is a 2 m X 2 m unit opened in the space between Rydén's Structures 4, 6, and 7 in order to investigate the possible outside workspace area between the domestic structures. The unit was excavated in artificial 10 cm levels until sterile soil was reached. Excavation revealed a possible paved patio area, similar to what was uncovered in Units 1.2, 1.3 and 1.4. A possible stone-lined hearth (Rasgo 1) and a small storage structure (Rasgo 2) were recorded and excavated separately, but produced few artifacts. The artifacts that were collected consisted of typical Inca-Pacajes ceramics, faunal remains, groundstone tools, and a copper tupu (Table 58).

Unit 1.8
Excavated in 2006
Inca Village

Unit 1.8 is a 2 m X 2 m unit opened just to the east of the other excavated units in this sector, where a small rise indicated the possibility of an unexcavated structure. Due to lack of time, only two artificial 10 cm levels were excavated. While no clear structure

was identified, two parallel rows of stones (Rasgos 1 and 2) were recorded, and the corner of a possible circular structure (Rasgo 3) was noted in the southeast corner. Unfortunately, time did not permit an expansion of this excavation. The artifacts that were collected consisted of typical Inca-Pacajes ceramics and faunal remains (Table 59).

Unit 2.1
Excavated in 2006
Colonial Church

Unit 2.1 is a 2 m X 2 m unit opened towards the front of the colonial church structure, where the principal alter would have been located, along the north wall. It was excavated in artificial 10 cm levels until sterile soil was reached. The natural stratigraphy was noted as an initial layer of brown (7.5YR5/3) compact soil, composed primarily of wall fall and the remains of adobe bricks. The initial layer measured approximately 20 cm in depth and overlay a very compact 10-15 cm layer of brown (7.5YR 4/3) clay, which was likely also composed primarily of decomposing adobe bricks. Below the layer of wall fall, a hard brown (7.5YR4/3) clay floor was noted in the western half of the unit, perhaps related to a constructed higher floor where the altar would have been located. In the eastern half of the unit, the soil was composed of a reddish brown (5YR4/4) silty sand, continuing down approximately 20 cm in depth to a brown (7.5YR5/3) habitation layer, overlaying a sterile strong brown (7.5YR4/6) subsoil. Very dark brown clay (7.5YR2.5/3) soil was noted just along the foundation stones, probably related to the construction of the church walls. Excavation continued to the bottom of the foundation stones, in order to record the construction of the building. Stone foundation stones were found to have been placed into sterile soil, with adobe bricks continuing above them.

While few artifacts were found associated with this unit (Table 60), a complete skeleton (Rasgo 2) was identified under the church floor. The burial cut through the clay surface in the western part of the unit, but also extended beneath the habitation layer of the eastern half of the unit. The burial was extended, with arms crossed across the chest. The feet were in the western wall of the unit, while the head was towards the east. Cranial traits on the skull and pelvic bones were used to identify the individual as an adult male of probable European ancestry. Some isolated metatarsals identified in the far southeastern corner of the unit suggest that additional burials likely lie under the church floor as well.

Unit 2.2
Excavated in 2006
Colonial Church

Unit 2.2 is a 1 m X 2 m unit opened just south of the church in what was hoped to be a possible "plaza" area. It was excavated in artificial 20 cm levels until sterile soil was reached. The natural stratigraphy was noted as a brown (7.5YR4/3) silty sand layer of approximately 15 cm in depth, overlaying a 10 cm brown (7.5YR4/2) clay layer that may have been the remains of adobe brick. This lay over sterile reddish brown (5YR4/3) hard packed clay. Very few artifacts were found associated with this unit, mostly consisting of ceramic sherds that appeared to date to the Inca-Colonial transition (Table 61).

Unit 2.3
Excavated in 2006
Colonial Church

Unit 2.3 is a 1 m X 2 m unit opened in the entry-way of the colonial church. It was excavated in artificial 20 cm levels until the level where the stone foundations of the church wall were placed. The natural stratigraphy was noted as a ~20 cm layer of reddish brown (5YR4/4) silty sandy loam overlaying a ~6 cm brown (7.5YR4/3) clay layer that may have been the remains of adobe brick. This lay over a ~15 cm layer of dark brown (7.5YR3/3) fill, interspersed with a couple thin ash lenses. In the final level, the stone foundations of the church wall were identified, within a dark brown (7.5YR3/4) clay matrix. Very few artifacts were found associated with this unit, mostly consisting of ceramic sherds that appeared to date to the Inca-Colonial transition (Table 62).

Table 52: Artifact assemblage from Unit 1.1 (Khula Marka)

Artifact Type	*U1.1Sup*	*U1.1N1*	*U1.1N2*	*U1.1N3*	*U1.1N4*	*U1.1N5*	*U1.1N6*	*U1.1R1*	***Total Count***	***Total Weight***
Ceramics										
Jars	--	--	--	--	--	--	94	125	**219**	**2035.99 g**
Olla	--	--	--	--	--	--	100	77	**177**	**694.01 g**
Olla/Jar	--	--	--	--	--	--	0	1	**1**	**5.53 g**
Bowls	--	--	--	--	--	--	30	64	**94**	**959.42 g**
Small jars	--	--	--	--	--	--	2	0	**2**	**22.01 g**
Other	--	--	--	--	--	--	4	19	**23**	**282.85 g**
Unknown	--	--	--	--	--	--	21	17	**38**	**162.82 g**
Unanalyzed (g)	--	(439.7 g)	(378.7 g)	(3000 g)	(2250 g)	(2400 g)	--	--	**--**	**8468.4 g**
Total Count	--	--	--	--	--	--	251	303	**554**	**12631.0 g**
Faunal Bone										
Worked bone	0	0	0	0	0	0	0	1	**1**	**--**
Unworked (g)	0	(71.34 g)	(51.11 g)	(200+ g)	(126.1 g)	(200+ g)	(200+ g)	(447+ g)	**--**	**1296+ g**
Total	0	--	--	--	--	--	--	1	**1**	**1296+ g**
Lithics										
Grinding stone	0	1	0	0	0	0	0	0	**1**	**--**
Mano	1	0	0	0	0	0	0	0	**1**	**--**
Weaving weight	0	0	0	0	0	0	0	1	**1**	**--**
Flakes/Other	0	2	3	13	0	9	5	11	**43**	**239.2+ g**
Total	1	2	3	13	0	9	5	12	**46**	**239.2+ g**
Metal										
Copper tupu	0	0	0	0	1	0	0	1	**2**	**6.55 g**
Total	0	0	0	0	1	0	0	1	**2**	**6.55 g**

Table 53: Artifact assemblage from Unit 1.2 (Khula Marka)

Artifact Type	*U1.2N1*	*U1.2N2*	*U1.2N3*	*U1.2R1*	*U1.2R2*	***Total Count***	***Total Weight***
Ceramics							
Jars	--	--	29	10	6	**45**	**481.5 g**
Olla	--	--	0	5	0	**5**	**16.12 g**
Bowls	--	--	28	3	0	**31**	**211.83 g**
Small jars	--	--	1	0	0	**1**	**4.19 g**
Other	--	--	12	0	0	**12**	**111.77 g**
Unanalyzed (g)	(187.5 g)	(2148.4g)	--	--	--	**--**	**2335.9 g**
Total Count	--	--	70	18	6	**94**	**3161.31 g**
Faunal Bone							
Unworked (g)	(34.29 g)	(200+ g)	(200+ g)	(36.87 g)	(33.92 g)	**--**	**505.08**
Total	0	--	--	--	--	**--**	**--**
Lithics							
Grinding stone	0	0	2	0	0	**2**	--
Flakes/Other	0	1	4	0	0	**5**	**14.79+ g**
Total	--	1	6	0	0	**7**	**14.79+ g**
Metal							
Copper piece	0	0	4	0	0	**4**	**1 g**
Bronze needle	0	1	0	0	0	**1**	**8.6 g**
Total	0	1	4	0	0	**5**	**9.6 g**

Table 54: Artifact assemblage from Unit 1.3 (Khula Marka)

Artifact Type	*U1.3Sup*	*U1.3N1*	*U1.3N2*	*U1.3R1*	***Total Count***	***Total Weight***
Ceramics						
Jars	--	--	94	35	**129**	**2224.4 g**
Olla	--	--	69	9	**78**	**647.1 g**
Bowls	--	--	8	13	**21**	**344.7 g**
Small jars	--	--	0	1	**1**	**.9 g**
Other	--	--	0	1	**1**	**4.5 g**
Unknown	--	--	22	17	**39**	**90.5 g**
Unanalyzed (g)	(59.4 g)	(223.1 g)	--	--	**--**	**282.5 g**
Total Count	--	--	193	76	**269**	**3594.6 g**
Faunal Bone						
Unworked (g)	0	(16.45 g)	(124.87g)	(200+ g)	**--**	**341.32+ g**
Total	0	--	--	--	**--**	**341.32+ g**
Lithics						
Grinding stone	0	0	1	0	**1**	**--**
Total	0	0	1	0	**1**	**--**

Table 55: Artifact assemblage from Unit 1.4 (Khula Marka)

Artifact Type	*U1.4N1*	*U1.4N2*	*U1.4N3*	*U1.4N4*	*U1.4N5*	*U1.4R1*	*U1.4R3*	***Total Count***	***Total Weight***
Ceramics									
Jars	--	--	--	--	22	10	--	**32**	**237.03 g**
Olla	--	--	--	--	14	1	--	**15**	**45.3 g**
Olla/Jar	--	--	--	--	1	0	--	**1**	**20.77 g**
Bowls	--	--	--	--	7	0	--	**7**	**64.32 g**
Unanalyzed (g)	(285.4 g)	(1837.3g)	(2433.9g)	(147.8 g)	--	--	--	**--**	**4704.4 g**
Total Count	--	--	--	--	44	11	--	**55**	**5071.82 g**
Faunal Bone									
Unworked (g)	(30.73 g)	(61.1 g)	(208.43+g)	(28.1 g)	(41.86 g)	(22.83 g)	(52.85 g)	**--**	**445.9 g**
Total	--	--	--	--	--	--	--	**--**	**445.9 g**
Lithics									
Groundstone	0	0	1	0	0	0	3	**4**	**23.19+ g**
Total	0	0	1	0	0	0	3	**4**	**23.19+ g**

Table 56: Artifact assemblage from Unit 1.5 (Khula Marka)

Artifact Type	*U1.5Sup*	*U1.5N1*	*U1.5N2*	*U1.5N3*	*U1.5N4*	*U1.5R1*	***Total Count***	***Total Weight***
Ceramics								
Unanalyzed (g)	(11.5 g)	(1500 g)	(3000 g)	(2700 g)	(418 g)	(3200 g)	--	**10829.5 g**
Total Count	--	--	--	--	--	--	--	**10829.5 g**
Faunal Bone								
Unworked (g)	0	(13.44 g)	(200+ g)	(200+ g)	(23.87 g)	(362.56+g)	--	**799.87+ g**
Total	0	--	--	--	--	--	--	--
Lithics								
Flakes/Other	0	0	6	6	0	0	**12**	**182.36 g**
Total	0	0	6	6	0	0	**12**	**182.36 g**

Table 57: Artifact assemblage from Unit 1.6 (Khula Marka)

Artifact Type	*U1.6N1*	*U1.6N2*	*U1.6N3*	*U1.6R1*	***Total Count***	***Total Weight***
Ceramics						
Jars	--	--	--	1	**1**	**20.99 g**
Olla	--	--	--	13	**13**	**109.86 g**
Unanalyzed (g)	(3100 g)	(5357.1g)	(1300 g)	--	**--**	**9757.1 g**
Total Count	--	--	--	14	**14**	**9887.95 g**
Faunal Bone						
Weaving tools	0	2	0	0	**2**	**80.12 g**
Unworked (g)	(50.28 g)	(200+ g)	(20.27 g)	0	**--**	**270.55+ g**
Total	--	--	--	--	**2**	**350.67 g**
Lithics						
Groundstone	1	0	0	0	**1**	**110.16 g**
Mano	0	1	0	0	**1**	**--**
Hammerstone	0	0	0	1	**1**	**--**
Flakes/Other	0	0	2	0	**2**	**29.17 g**
Total	1	1	2	1	**5**	**139.33+ g**

Table 58: Artifact assemblage from Unit 1.7 (Khula Marka)

Artifact Type	*U1.7N1*	*U1.7N2*	*U1.7N3*	*U1.7N4*	*U1.7N5*	*U1.7N6*	*U1.7R2*	*U1.7R3*	*U1.7R4*	***Total Count***	***Total Weight***
Ceramics											
Jars	--	--	--	--	--	2	2	24	--	**28**	**304.65 g**
Olla	--	--	--	--	--	1	0	5	--	**6**	**31.79 g**
Bowls	--	--	--	--	--	1	0	8	--	**9**	**66.94 g**
Small jars	--	--	--	--	--	0	0	1	--	**1**	**4.09 g**
Other	--	--	--	--	--	0	0	3	--	**3**	**43.66 g**
Unanalyzed (g)	(288 g)	(2179.6g)	--	(517 g)	(222.1g)	--	--	--	(360 g)	--	**3566.7 g**
Total Count	--	--	--	--	--	4	2	41	--	**47**	**4017.83 g**
Faunal Bone											
Unworked (g)	(28.59 g)	(105.51g)	(200+g)	(80.54g)	(158.66g)	(200+g)	0	(98.89 g)	(81.66 g)	--	**953.85+g**
Total	--	--	--	--	--	--	0	--	--	--	**953.85+g**
Lithics											
Groundstone	0	1	0	0	0	0	1	0	0	**2**	--
Total	0	1	0	0	0	0	1	0	0	**2**	--
Metal											
Copper tupu	0	1	0	0	0	0	0	0	0	**1**	**2.32 g**
Total	0	1	0	0	0	0	0	0	0	**1**	**2.32 g**

Table 59: Artifact assemblage from Unit 1.8 (Khula Marka)

Artifact Type	*U1.8N1*	*U1.8N2*	***Total Count***	***Total Weight***
Ceramics				
Unanalyzed (g)	(166.2 g)	(1800 g)	--	**1966.2 g**
Total Count	--	--	--	--
Faunal Bone				
Unworked (g)	(16.01 g)	(200+ g)	--	**216.01+g**
Total	--	--	--	--

Table 60: Artifact assemblage from Unit 2.1 (Khula Marka)

Artifact Type	*U2.1N1*	*U2.1N2*	*U2.1N3*	*U2.1N4*	*U2.1N5*	*U2.1R1*	*U2.1R2*	***Total Count***	***Total Weight***
Ceramics									
Jars	1	3	20	12	27	15	7	**85**	**786.98 g**
Olla	0	0	12	3	56	12	0	**83**	**340.88 g**
Bowls	0	0	2	1	12	3	0	**18**	**221.25 g**
Small jars	0	11	2	0	1	0	0	**14**	**88.37 g**
Other	0	0	2	0	2	1	0	**5**	**28.96 g**
Unknown	4	4	15	0	0	0	0	**23**	**64.19 g**
Total Count	5	18	53	16	98	31	7	**228**	**1530.63 g**
Faunal Bone									
Unworked (g)	(10.64 g)	(200+ g)	(173.85g)	(15.61g)	(80.04 g)	(31.9 g)	0	--	**512.04+g**
Total	--	--	--	--	--	--	0	--	**512.04+g**
Human Remains									
MNA	0	0	0	1	0	0	1	**2**	--
Total	0	0	0	1	0	0	1	**2**	--
Lithics									
Blue bead	0	0	1	0	0	0	0	**1**	**1.05 g**
Flakes/Other	0	0	1	4	0	0	0	**5**	**48.75 g**
Total	0	0	2	4	0	0	0	**6**	**49.8 g**
Metal									
Metal fragment	0	1	0	0	0	0	0	**1**	**29.33 g**
Total	0	1	0	0	0	0	0	**1**	**29.33 g**

Table 61: Artifact assemblage from Unit 2.2 (Khula Marka)

Artifact Type	*U2.2N1*	*U2.2N2*	***Total Count***	***Total Weight***
Ceramics				
Jars	9	6	**15**	**104.27 g**
Olla	19	0	**19**	**115.2 g**
Bowls	9	0	**9**	**63.88 g**
Other	1	0	**1**	**2.89 g**
Unknown	12	0	**12**	**13.82 g**
Total Count	50	6	**56**	**300.06 g**

Table 62: Artifact assemblage from Unit 2.3 (Khula Marka)

Artifact Type	*U2.3N1*	*U2.3N2*	***Total Count***	***Total Weight***
Ceramics				
Jars	8	31	**39**	**237.03 g**
Bowls	0	3	**3**	**15.2 g**
Other	0	1	**1**	**9.21 g**
Total Count	8	35	**43**	**261.44 g**
Faunal Bone				
Unworked (g)	0	(19.5 g)	--	**19.5 g**
Total	0	--	--	**19.5 g**
Lithics				
Flakes/Other	0	2	**2**	**34.09 g**
Total	0	2	**2**	**34.09 g**

APPENDIX D

KHONKHO WANKANE: UNIT DESCRIPTIONS OF ANALYZED CONTEXTS

Because the results of excavations at Khonkho Wankane have been previously published (e.g. Gladwell 2007b, in prep; Janusek 2008; Janusek and Plaza eds. 2005, 2006, 2007, 2008; Janusek et al. 2003; Marsh 2012; Pérez 2007; Plaza 2007; Smith 2009; Zovar 2009), I here only present a brief description of the contexts whose ceramics were analyzed as part of this dissertation. These contexts were chosen for attribute analysis as part of this dissertation project based on a preliminary analysis by John Janusek, which indicated that they were primarily composed of Early Pacajes ceramics. The discussion below is meant only to provide broader context for the results.

Unit 1.1
Excavated in 2001
Analyzed contexts: Levels 3 and 4

Unit 1.1 is a 2 m X 2 m unit located within the Dual Court complex, along the western wall of the northern court. The upper levels of the unit appeared to have been disturbed, perhaps by earlier excavations. Levels 3 and 4 composed the fill above the floor, and the ceramics date these contexts to the Early Pacajes phase (Table 63).

Table 63: Analyzed ceramic assemblage from Unit 1.1 (Khonkho Wankane)

Artifact Type	*U1.1N3*	*U1.1N4*	***Total Count***	***Total Weight***
Ceramics				
Jars	13	0	**13**	**82.04 g**
Olla	0	1	**1**	**5.62 g**
Bowls	6	2	**8**	**32.9 g**
Small Jar	0	1	**1**	**.77 g**
Total Count	19	4	**23**	**121.33 g**

Unit 1.2
Excavated in 2001
Analyzed contexts: Levels 2 and 3

Unit 1.2 is a 2 m X 2 m unit just east of Unit 1.2, entering into the northern court of the Dual Court complex. The southwest corner was characterized by looser fill, which was interpreted as backfill from an earlier excavation unit. This area was excavated separately as "S." Levels 2 and 3 composed the fill above the floor, and the ceramics date these contexts to the Early Pacajes phase, although a few sherds clearly date to the Tiwanaku period (Table 64).

Table 64: Analyzed ceramic assemblage from Unit 1.2 (Khonkho Wankane)

Artifact Type	*U1.2N2N*	*U1.2N2S*	*U1.2N3D*	*U1.2N3S*	***Total Count***	***Total Weight***
Ceramics						
Jars	9	13	13	13	**48**	**127.18 g**
Bowls	7	3	3	8	**21**	**44.35 g**
Small Jar	2	1	0	0	**3**	**7.06 g**
Tiwanaku	1	4	0	0	**5**	**45.02 g**
Unknown	0	0	8	0	**8**	**6.96 g**
Total Count	19	21	24	21	**85**	**230.57 g**

Unit 1.3
Excavated in 2001
Analyzed contexts: Level 2

Unit 1.3 is a 2 m X 2 m unit just south of Unit 1.1, along the western wall of the northern court of the Dual Court Complex. Level 2 belongs to a fill level above the wall, and the ceramics, which include a nicely painted Early Pacajes bowl, date this context to the Early Pacajes phase (Table 65).

Table 65: Analyzed ceramic assemblage from Unit 1.3 (Khonkho Wankane)

Artifact Type	*U1.3N2*	***Total Count***	***Total Weight***
Ceramics			
Jars	20	**20**	**66.64 g**
Bowls	8	**8**	**18.15 g**
Other	1	**1**	**26.19 g**
Total Count	29	**29**	**110.98 g**

Unit 1.5
Excavated in 2001
Analyzed contexts: Levels 1 and 2

Unit 1.5 is a 2 m X 2 m unit located to the east of Unit 1.2, within the northern court of the Dual Court Complex. Levels 1 and 2 are fill levels, well above the complex floor, and the ceramics date these contexts to the Early Pacajes phase (Table 66).

Table 66: Analyzed ceramic assemblage from Unit 1.5 (Khonkho Wankane)

Artifact Type	*U1.5N1*	*U1.5N2*	***Total Count***	***Total Weight***
Ceramics				
Jars	16	16	**32**	**120.25 g**
Olla	0	1	**1**	**31.87 g**
Bowls	4	6	**10**	**37.36 g**
Other	1	0	**1**	**19.17 g**
Unknown	0	9	**9**	**8.79 g**
Total Count	21	32	**53**	**217.44 g**

Unit 1.6
Excavated in 2001
Analyzed contexts: Level 2

Unit 1.6 is a 2 m X 2 m unit located along the northern wall of the northern court in the Dual Court Complex. The foundation stones appeared just under the surface, but the actual floor of the structure was under a thick layer of fill and wall-fall. Level 2 was excavated within this fill, and the ceramics date this context to the Early Pacajes phase (Table 67).

Table 67: Analyzed ceramic assemblage from Unit 1.6 (Khonkho Wankane)

Artifact Type	*U1.6N2*	***Total Count***	***Total Weight***
Ceramics			
Jars	12	**12**	**74.17 g**
Bowls	2	**2**	**3.28g**
Total Count	14	**14**	**77.45 g**

Unit 1.17
Excavated in 2004
Analyzed contexts: Feature 1

Unit 1.17 is a 2 m X 2 m unit located along the western compound wall of the Dual Court Complex. Feature 1 was composed of material associated with the wall itself. Analysis dated most of the associated ceramics to the Early Pacajes phase (Table 68).

Table 68: Analyzed ceramic assemblage from Unit 1.17 (Khonkho Wankane)

Artifact Type	*U1.17R1*	***Total Count***	***Total Weight***
Ceramics			
Jars	8	**8**	**89.4 g**
Bowls	3	**3**	**16.63 g**
Total Count	11	**11**	**106.03 g**

Unit 1.21
Excavated in 2004
Analyzed contexts: Levels 2

Unit 1.21 is a 2 m X 2 m unit located on the platform inside the compound wall of the Dual Court Complex and just west of the northern court. Level 2 appeared to be a disturbed level, probably as a result of the use of this part of the site for the construction of adobe bricks. In addition to the Early Pacajes ceramics (Table 69), this level also included disturbed human remains.

Table 69: Analyzed ceramic assemblage from Unit 1.21 (Khonkho Wankane)

Artifact Type	*U1.21N2*	***Total Count***	***Total Weight***
Ceramics			
Jars	3	**3**	**79.37 g**
Bowls	3	**3**	**39.03 g**
Total Count	6	**6**	**118.4 g**

Unit 2.13
Excavated in 2001
Analyzed contexts: Level 5

Unit 2.13 is a 2 m X 2 m unit located inside the sunken temple, along the eastern wall. Excavation showed that the original temple floor had been cut, probably due to the construction of a mini-qocha in this location. As a result, the excavated levels were somewhat mixed contexts. Level 5, which was analyzed as part of this dissertation, included Formative, Tiwanaku, and Colonial sherds, as well as the Early Pacajes ceramics (Table 70).

Table 70: Analyzed ceramic assemblage from Unit 2.13 (Khonkho Wankane)

Artifact Type	*U2.13N5*	***Total Count***	***Total Weight***
Ceramics			
Jars	3	**3**	**28.66 g**
Bowls	3	**3**	**15.42 g**
Formative	11	**11**	**68.68 g**
Tiwanaku	1	**1**	**1.17 g**
Colonial	1	**1**	**30.53 g**
Total Count	19	**19**	**144.46 g**

Unit 6.8
Excavated in 2002
Analyzed contexts: Level 2

Unit 6.8 is a 2 m X 2 m unit located in Compound K1 over the stone-lined patio floor. Level 2 was the level of fill just above the paved floor. Although it was initially identified as an Early Pacajes context, more detailed evaluation demonstrated that most of the ceramics dated to the Late Formative period (Table 71).

Table 71: Analyzed ceramic assemblage from Unit 6.8 (Khonkho Wankane)

Artifact Type	*U6.8N2*	***Total Count***	***Total Weight***
Ceramics			
Jars	4	**4**	**12.28 g**
Formative	35	**35**	**194.61 g**
Total Count	39	**39**	**206.89 g**

Unit 6.37
Excavated in 2002
Analyzed contexts: Level 1

Unit 6.37 is a 2 m X 2 m unit located within Compound K1, near the wall that separates the compound from the sunken temple. Level 1 is a mixed context, but includes some bowls with very clear Early Pacajes decoration (Table 72).

Table 72: Analyzed ceramic assemblage from Unit 6.37 (Khonkho Wankane)

Artifact Type	*U6.37N1*	***Total Count***	***Total Weight***
Ceramics			
Jars	4	**4**	**23.4 g**
Bowls	4	**4**	**19.33 g**
Formative	3	**3**	**18.51 g**
Total Count	11	**11**	**61.24 g**

Unit 7.3
Excavated in 2004
Analyzed contexts: Level 2

Unit 7.3 is a 1 m X 4 m unit originally opened to follow a wall that appeared to extend west of the compound wall of Compound K3. The roughly constructed east-west wall was first exposed at the bottom of Level 1, and clarified in Level 2. Artifacts found north and south of the wall were collected and bagged separately. While the majority of the ceramics were characteristic of the Early Pacajes phase, Late Formative sherds were noted in the assemblage as well (Table 73).

Table 73: Analyzed ceramic assemblage from Unit 7.3 (Khonkho Wankane)

Artifact Type	*U7.3N2N*	*U7.3N2S*	***Total Count***	***Total Weight***
Ceramics				
Jars	5	5	**10**	**66.97 g**
Formative	5	1	**6**	**25.92 g**
Total Count	10	6	**16**	**92.89 g**

Unit 7.4
Excavated in 2004
Analyzed contexts: Level 2

Unit 7.4 is a 2 m X 2 m unit located just to the east of Unit 7.3, and was opened in order to follow the construction of the wall originally noted in that unit. Level 2 was primarily a level of fill over the primary occupation level. The majority of the ceramics were associated with a single Early Pacajes phase jar, but at least one Late Formative sherd was also associated with the context (Table 74).

Table 74: Analyzed ceramic assemblage from Unit 7.4 (Khonkho Wankane)

Artifact Type	*U7.4N2*	***Total Count***	***Total Weight***
Ceramics			
Jars	23	**23**	**92.46 g**
Formative	1	**1**	**12.04 g**
Total Count	24	**24**	**104.5 g**

Unit 7.5
Excavated in 2004
Analyzed contexts: Levels 1 and 2

Unit 7.5 is a 2 m X 2 m unit associated with Compound K3. No architectural or other features were associated with this unit. Levels 1 and 2 were both fill contexts with few artifacts. The ceramic assemblage from Level 2 dated primarily to the Early Pacajes phase, but Late Formative ceramics were present in Level 1 (Table 75).

Table 75: Analyzed ceramic assemblage from Unit 7.5 (Khonkho Wankane)

Artifact Type	*U7.5N1*	*U7.5N2*	***Total Count***	***Total Weight***
Ceramics				
Jars	1	12	**13**	**91.64 g**
Bowls	1	0	**1**	**2.27 g**
Formative	6	0	**6**	**22.15 g**
Total Count	8	12	**20**	**116.06 g**

Unit 9.16
Excavated in 2004
Analyzed contexts: Level 1

Unit 9.16 was a 1 m X 1 m unit opened around an intrusive Early Pacajes burial of an adult male, located just north of the wall of Compound K2. The burial was first

identified in Level 1, but because of the high levels of erosion, it was very difficult to identify a clear burial cut. Associated ceramics included fragments from the Early Pacajes phase as well as the Late Formative, Tiwanaku, and Inca-Pacajes periods (Table 76).

Table 76: Analyzed ceramic assemblage from Unit 9.16 (Khonkho Wankane)

Artifact Type	*U9.16N1*	***Total Count***	***Total Weight***
Ceramics			
Jars	2	**2**	**11.78 g**
Formative	16	**16**	**140.37 g**
Tiwanaku	1	**1**	**1.86 g**
Inca-Pacajes	1	**1**	**1.03 g**
Unknown	7	**7**	**19.87 g**
Total Count	27	**27**	**174.91 g**

Unit 9.20
Excavated in 2004 and 2005
Analyzed contexts: Level 1 and Feature 1

Unit 9.20 is a 2 m X 2 m unit located in the middle of the large circular structure that was identified in the southeast corner of Compound K2. Level 1 is a layer of fill that overlay the major Late Formative occupation surface. While Early Pacajes bowls were noted in this assemblage, the majority of the material in this fill layer dated to the Late Formative period. Tiwanaku vessels were also represented in this mixed context. Feature 1 was an intrusive burial of an adolescent male, originally identified in Level 2. The burial cut extended into the Late Formative floor, and ceramics collected from within the feature all dated to the Early Pacajes phase (Table 77).

Table 77: Analyzed ceramic assemblage from Unit 9.20 (Khonkho Wankane)

Artifact Type	*U9.20N1*	*U9.20R1*	***Total Count***	***Total Weight***
Ceramics				
Jars	0	8	**8**	**54.45 g**
Olla	0	12	**12**	**58.05 g**
Bowls	11	1	**12**	**51.19 g**
Formative	54	0	**54**	**190.3 g**
Tiwanaku	2	0	**2**	**5.28 g**
Total Count	67	21	**88**	**359.27 g**

Unit 9.24
Excavated in 2005
Analyzed contexts: Feature 1

Unit 9.24 is a 2 m X 2 m unit originally excavated in an effort to identify the southeast corner of the wall enclosing Compound K2. The upper fill layers in this part of the site were very close to a number of intrusive Late Intermediate Period burials. While no burials were noted in this unit, Feature 1 was composed of an offering that may have been connected to mortuary ritual. In this feature, a large Early Pacajes jar was buried intact, capped with a decorated Early Pacajes phase bowl. While the jar had fragmented over the years, it was possible to reassemble most of it (Table 78).

Table 78: Analyzed ceramic assemblage from Unit 9.24 (Khonkho Wankane)

Artifact Type	*U9.24R1*	***Total Count***	***Total Weight***
Ceramics			
Jars	137	**137**	**5400 g**
Bowls	1	**1**	**280 g**
Total Count	138	**138**	**5680 g**

Unit 9.25
Excavated in 2005
Analyzed contexts: Features 1, 3, and 6

Unit 9.25 is a 2 m X 2 m unit originally opened east of the large circular structure in Compound K2 in order to clarify the stratigraphic relationship between the large circular structure, another smaller circular structure at a higher elevation, the wall of Compound K2, and the constructed platform east of the compound. Excavation, however, immediately uncovered a large number of intrusive Late Intermediate Period juvenile burials in the upper levels of the unit. Features 1, 3, and 6 are all examples of these burials. While the burials clearly date to a period after the Late Formative structures were no longer in use, the majority of the broken ceramics in the burial fill dated to the Late Formative period (Table 79).

Table 79: Analyzed ceramic assemblage from Unit 9.25 (Khonkho Wankane)

Artifact Type	*U9.25R1*	*U9.25R3*	*U9.25R6*	***Total Count***	***Total Weight***
Ceramics					
Formative	14	1	0	**15**	**85.87 g**
Unknown	0	0	1	**1**	**1.02 g**
Total Count	14	1	1	**16**	**86.89 g**

Unit 9.28
Excavated in 2005
Analyzed contexts: Feature 2

Unit 9.28 is a 2 m X 2 m unit excavated just to the west of the large circular structure in Compound K2, in order to assess the relationship between the circular structure and the layer of greenish ash that was located to the west. Feature 2 was an

infant burial located within this green ash layer. Although it was initially thought to date to the Late Intermediate Period, like the majority of the burials in this area, its location within the Late Formative ash layer and its association with a grinding stone, suggest that this may actually be a Late Formative burial. The only ceramic sherd found in this context dated to the Late Formative period (Table 80).

Table 80: Analyzed ceramic assemblage from Unit 9.28 (Khonkho Wankane)

Artifact Type	*U9.28R2*	***Total Count***	***Total Weight***
Ceramics			
Formative	1	**1**	**19.96 g**
Total Count	1	**1**	**19.96 g**

Unit 9.29
Excavated in 2005
Analyzed contexts: Level 1

Unit 9.29 is a 2 m X 2 m unit located just to the east of Unit 9.28, and just west of the large circular structure in Compound K2. Level 1 is a mixed level of fill above the major Late Formative occupation layer. The only ceramic sherds associated with it were two clear decorated Early Pacajes bowl fragments (Table 81).

Table 81: Analyzed ceramic assemblage from Unit 9.29 (Khonkho Wankane)

Artifact Type	*U9.29N1*	***Total Count***	***Total Weight***
Ceramics			
Bowls	2	**2**	**27.01 g**
Total Count	2	**2**	**27.01 g**

Unit 10.6
Excavated in 2006
Analyzed contexts: Level 7

Unit 10.6 is a 2 m X 2 m unit opened on the Putuni mound. Level 7 is a think context on top of the constructed mound, apparently dating to its last period of use. The context includes Early and Late Pacajes (Colonial) phase ceramics (Table 82).

Table 82: Analyzed ceramic assemblage from Unit 10.6 (Khonkho Wankane)

Artifact Type	*U10.6N7*	***Total Count***	***Total Weight***
Ceramics			
Jars	1	**1**	**1.73 g**
Bowls	1	**1**	**1.76 g**
Colonial	2	**2**	**12.73 g**
Unknown	2	**2**	**1.24 g**
Total Count	6	**6**	**17.46 g**

Unit 12.18
Excavated in 2005
Analyzed contexts: Levels 3 and 4

Unit 12.18 is a 2 m X 2 m unit located along the northern wall of Compound K3. Levels 3 and 4 are fill layers above the major Late Formative occupation surface. Although this part of the site generally showed high levels of Late Intermediate Period occupation, the majority of the ceramics in this unit (especially in the area north of the wall) appear to date to the Late Formative (Table 83).

Table 83: Analyzed ceramic assemblage from Unit 12.18 (Khonkho Wankane)

Artifact Type	*U12.18N3*	*U12.18N4N*	*U12.18N4S*	***Total Count***	***Total Weight***
Ceramics					
Jars	0	0	5	**5**	**14.72 g**
Formative	27	13	12	**52**	**352.34 g**
Unknown	0	1	5	**6**	**12.04 g**
Total Count	27	14	22	**63**	**379.1 g**

Unit 12.19

Excavated in 2005
Analyzed contexts: Levels 3 and 4

Unit 12.19 is a 2 m X 2 m unit opened a few meters west of Unit 12.18, along the northern wall of Compound K3. Levels 3 and 4 appeared to be mixed contexts of fill above the major Late Formative occupation surface. Although the majority of the ceramics from these contexts dated to the Early Pacajes phase, an Inca-Pacajes sherd was also recorded in Level 3, and Formative sherds began to appear in Level 4 (Table 84).

Table 84: Analyzed ceramic assemblage from Unit 12.19 (Khonkho Wankane)

Artifact Type	*U12.19N3*	*U12.19N4*	***Total Count***	***Total Weight***
Ceramics				
Jars	32	5	**37**	**175.42 g**
Olla	14	4	**18**	**46.57 g**
Bowls	2	7	**9**	**47.02 g**
Small Jar	1	0	**1**	**5.78 g**
Formative	0	11	**11**	**66.19 g**
Inca-Pacajes	1	0	**1**	**5.02 g**
Unknown	11	16	**27**	**38.94 g**
Total Count	61	43	**104**	**384.94 g**

Unit 12.20
Excavated in 2005
Analyzed contexts: Levels 2, 3, 4 and 5

Unit 12.20 is a 2 m X 2 m unit located just south of Unit 12.18. Level 2 was a layer of fill over a probable Late Intermediate Period use surface, and a probable Pacajes wall was recorded in Level 3. Levels 4 and 5 were composed of fill over the primary Late Formative occupation surface. This area of the site appeared to be heavily utilized during the Late Intermediate Period, and most of the ceramics from these contexts dated to the Early Pacajes phase, although at least 2 Tiwanaku sherds were also noted in Level 3 (Table 85).

Table 85: Analyzed ceramic assemblage from Unit 12.20 (Khonkho Wankane)

Artifact Type	*U12.20N2*	*U12.20N3*	*U12.20N4*	*U12.20N5*	***Total Count***	***Total Weight***
Ceramics						
Jars	7	32	28	10	**77**	**329.23 g**
Olla	1	8	24	9	**42**	**167.64 g**
Bowls	2	0	1	6	**9**	**41.6 g**
Tiwanaku	0	2	0	0	**2**	**4.5 g**
Unknown	10	19	60	5	**94**	**107.2 g**
Total Count	20	61	113	30	**224**	**650.17 g**

Unit 12.21
Excavated in 2005
Analyzed contexts: Levels 2, 4 and 5

Unit 12.21 is a 2 m X 2 m unit located east of Units 12.18 and 12.20, along the northern wall of Compound K3. The wall was first noticed in Level 3, and in the lower levels the areas north and south of the wall were excavated separately. Levels 2 and 4 were both fill layers over the primary Late Formative use surface. Level 2 showed high

levels of Early Pacajes phase ceramics, and these continued south of the wall in Level 4. A single Early Pacajes jar sherd was noted just above the Late Formative floor in Level 5 (Table 86).

Table 86: Analyzed ceramic assemblage from Unit 12.21 (Khonkho Wankane)

Artifact Type	*U12.21N2*	*U12.21N4N*	*U12.21N4S*	*U12.21N5*	***Total Count***	***Total Weight***
Ceramics						
Jars	38	0	7	1	**46**	**174.7 g**
Olla	18	0	8	0	**26**	**96.84 g**
Bowls	8	0	0	0	**8**	**41.95 g**
Small Jar	2	0	0	0	**2**	**25.86 g**
Formative	0	14	0	0	**14**	**56.81 g**
Tiwanaku	2	0	0	0	**2**	**3.24 g**
Unknown	40	0	0	0	**40**	**51.33 g**
Total Count	108	14	15	1	**138**	**450.73 g**

Unit 12.22
Excavated in 2005
Analyzed contexts: Level 2

Unit 12.22 is a 2 m X 2 m unit located south of the other units described above in Sector 12, within Compound K3, south of the circular structures that were built along the compound wall. Level 2 is a layer of fill above the Late Formative use area. The artifacts associated with this context date to the Early Pacajes phase (Table 87).

Table 87: Analyzed ceramic assemblage from Unit 12.22 (Khonkho Wankane)

Artifact Type	*U12.22N2*	***Total Count***	***Total Weight***
Ceramics			
Jars	10	**10**	**33.09 g**
Olla	4	**4**	**13.8 g**
Bowls	3	**3**	**6.33 g**
Unknown	6	**6**	**13.67 g**
Total Count	23	**23**	**66.89 g**

Unit 12.29
Excavated in 2005
Analyzed contexts: Feature 1

Unit 12.29 is a 1 m X 1 m unit that was opened to define a pit feature originally identified in a unit to its west. The feature was associated with fish and camelid bone, and the ceramics in the fill were diagnostic of the Early Pacajes phase (Table 88), suggesting that this was a Late Intermediate Period use area. Unfortunately, a carbon sample taken from Feature 1 returned a Late Formative date.

Table 88: Analyzed ceramic assemblage from Unit 12.29 (Khonkho Wankane)

Artifact Type	*U12.29R1*	***Total Count***	***Total Weight***
Ceramics			
Jars	21	**21**	**121.47**
Olla	14	**14**	**159.84 g**
Bowls	7	**7**	**24.7 g**
Other	1	**1**	**2.28 g**
Unknown	20	**20**	**26.37 g**
Total Count	63	**63**	**334.66 g**

Unit 12.80
Excavated in 2005
Analyzed contexts: Feature 1

Unit 12.80 is a 2 m X 2 m unit opened in the southern portion of Compound K3. Feature 1 was a thin lens of darker soil in the layers of fill above the Late Formative use surface. Associated ceramics appeared to date to the Early Pacajes phase (Table 89).

Table 89: Analyzed ceramic assemblage from Unit 12.80 (Khonkho Wankane)

Artifact Type	*U12.80R1*	***Total Count***	***Total Weight***
Ceramics			
Jars	2	**2**	**7.7 g**
Olla	12	**12**	**37.13 g**
Bowls	2	**2**	**19.27 g**
Total Count	16	**16**	**64.1 g**

Unit 12.100
Excavated in 2006
Analyzed contexts: Level 3

Unit 12.100 is a 4 m X 1 m unit located in the southern portion of Compound K3. Level 3 is a layer of fill above the Late Formative use surface. The ceramics all appear to date to the Early Pacajes phase, suggesting later use of this area as well (Table 90).

Table 90: Analyzed ceramic assemblage from Unit 12.100 (Khonkho Wankane)

Artifact Type	*U12.100N3*	***Total Count***	***Total Weight***
Ceramics			
Jars	3	**3**	**15.34 g**
Olla	1	**1**	**24.18 g**
Bowls	1	**1**	**9.38 g**
Total Count	5	**5**	**48.9 g**

APPENDIX E

METHODOLOGICAL PROCEDURES OF CERAMIC ANALYSIS

Ceramic attribute analysis conducted under the auspices of Proyecto Jach'a Machaca followed the following process. First, community assistants were hired to prepare the ceramics for analysis. Sherds were washed in cold water, gently scrubbed with toothbrushes to wash off dirt, and air dried.[292] Once dry, ceramics were analyzed by excavation context,[293] utilizing a ceramic analysis form that was designed specifically for this investigation (Figure 11). The first step was to divide all sherds from a given context into the formal/functional classes described in Chapter 7. Then, within each class, sherds were divided between diagnostic and non-diagnostic sherds. All of the diagnostic sherds and a small sample of the non-diagnostic sherds[294] were selected for further attribute analysis. The remaining non-diagnostic sherds were simply counted and weighed within their formal/functional classes, and a partial ceramic analysis form was filled out for each group of non-diagnostic sherds from each class.

Because so many of the sherds appeared to come from the same or similar vessels, the sherds that were chosen for further analysis were also further divided into "groups," rather than analyzed individually. "Groups" were sherds that shared the majority of the same attributes (paste type, surface treatment, etc.) meaning that they likely belonged to

[292] Although great care was taken not to mix contexts, there were a few mistakes at this phase, and a couple of contexts were lost or mixed with others. In most cases, however, contexts were washed and dried completely separately from other contexts.

[293] At this stage, analysis was conducted by the author, Carla Flores, and Luis Viviani. The author completely performed the analysis of the plurality of the groups from Pukara de Khonkho (1095 groups – 46%) while Flores and Viviani analyzed the remainder under the direct supervision of the author. (Flores was responsible for 803 groups – 34%, while Viviani was responsible for 470 groups – 20%).

[294] This sample consisted of one floor context from within each of the circular structures.

the same or a similar vessel. When possible, these sherds were refit, and counted as a single sherd. Because the contexts varied greatly in size, the number of groups per context from Pukara de Khonkho ranged between 1 and 139 with an average of 13 groups per context. The number of sherds in each group ranged between 1 and 328, averaging at around 7.3. A separate ceramic analysis form was filled out for each group. The form was created in Microsoft's Access Database. Information was first filled out on a paper copy (by hand)[295] and was later entered into the computer database for numeric analysis.

Each analysis form requested the provenience information and interpretation of the overall context. In addition, each group was lettered and a note was made of how many groups were in each context. The group was defined by class (jar, olla, bowl, small jar, other) and by associated temporal period.[296] The sherds belonging to each group were counted and weighed. In addition, sherds were categorized based on whether they came from the rim, base, body, neck, or handle of the vessel in question, and, when possible, diameters were taken from rim sherds and base sherds.

Next, for diagnostic sherds (and the sample of non-diagnostic sherds that were fully analyzed) notes were taken as to a variety of additional attributes. The form and thickness of diagnostic sherds were recorded as well as paste, surface treatment, decoration, and usewear, following a clearly demarcated process. Since three different people were responsible for this phase of analysis, great care was taken to make sure that there was consistency in all of our labeling. Each of the categories and terms utilized on

[295] I have kept all of the original forms on file in case of inconsistencies.
[296] In almost all cases the associated period at the Pukara de Khonkho was "Early Pacajes," but in a few Inca-Pacajes and Late Pacajes (Early Colonial) sherds were also noted. Likewise, the majority of the sherds from Ch'aucha de Khula Marka were Inca-Pacajes or Late Pacajes. Although primarily Early Pacajes contexts were selected for analysis from Khonkho Wankane, Formative and Tiwanaku sherds were also recorded at that site.

the form was strictly defined, and I personally regularly reviewed the diagnostic forms completed by my two assistants in order to check for personal variation in recording. When inconsistencies were noted, they were discussed and corrected. The process for the methodical analysis of diagnostic groups is described below.

First, the average thickness of sherds in the group was described as either Thin (<4 mm), Medium (4-5 mm), or Thick (>5 mm).[297] Next, the shapes of rims and bases, and the location of handles were identified, when possible. While significant variation in rim shape was noted, categorization was restricted to a few key variables.[298] Rim sherds were defined as Tapered, Rounded, Flattened, Thickened, Everted/Beveled, Unclear, or Other. Differences in rim shape generally corresponded to differences in overall form, and helped to define specific types and variants identified during the course of this study. A similar process was followed for identification of specific base shapes, which were recorded as Flat, Disk Base, Rounded, Unclear, or Other. Differences in base shape were especially important in identifying distinctions between ceramics from Pukara de Khonkho and other Late Intermediate Period contexts (including Khonkho Wankane). Finally, different types of handles were identified, including Rim Handles, Body Handles, Nubs, Unknown, or Other.

While the thickness of the vessel and the shapes of the rims, bases, and other diagnostic shards were important in identifying specific forms, attention was also paid to paste, firing conditions, and surface treatment. When noting the paste, color was taken

[297] Special note was taken of extremely thick sherds (>8 mm).
[298] Other analyses in the southern Titicaca Basin (see esp. Steadman 1995: 678-680) have utilized very fine grained techniques for describing rim shapes. While recognizing the possibility of defining rim shapes far more narrowly, for the purposes of this analysis it was decided that broad categorizations would be more analytically useful, in as much as they are more likely to correspond with meaningful choices made during production. Nevertheless, as all rim sherds were drawn, a more fine-grained analysis would be possible in the future.

from a freshly broken corner[299] and was recorded using both a Munsell sheet and a word description of the color. The paste was also described as porous (breaks easily with many air bubbles), compact (few air bubbles but not too hard to break easily), or very compact (no air bubbles and very strong). Specific inclusions (sand, mica, caliza, and other) were noted, along with the density and size of each. Previously defined, ranked categories were used for these descriptions,[300] and the analysts frequently conversed to make sure we were consistent in terms of how we were assigning these terms. The firing environment was also noted, and was described as oxidized (clear, generally red color), partially oxidized (less clear), reduced (fully grey or white), or partially reduced (reduced core with oxidized edges). Paste and firing environment were most important in identifying particular varieties for specific types (forms) of vessels.

Surface treatment was also described in detail, but was less important in defining specific types or varieties, as single vessels often demonstrated a variety of different surface treatments. Surface treatment (interior or exterior) was either described as Not treated, Combed, Wiped (vertical, horizontal, or irregular), Smoothed, Burnished (light, medium, heavy), or Polished.[301] Where more than one type of surface treatment was noted, more than one box was checked. Interior Wash or Slip was also noted, with slip color being recorded by Munsell Color and word descriptions. Wash was defined as a

[299] Clean pliers were used to produce a clean break.
[300] Density was defined as Scarce, Moderate, Dense, or Extremely Dense and was defined based on comparison with a standard sketch. Size was defined as Very Fine (<0.13mm), Fine (0.24-0.25 mm), Medium (0.25-0.5 mm), Coarse (0.5-1.0 mm), Very Coarse (1-2 mm), Gravel (2-4 mm), or Pebble (>4 mm).
[301] Not treated = very rough, no noticeable treatment; Combed = thick striations visible on surface; Wiped = striations visible but not thick (following Rice here, not Steadman) with differentiation based on direction of the striations; Smoothed = smooth surface with no marks noticed from smoothing material; Burnished (little) = some shiny streaks noted on sherd; Burnished (medium) = sherd is evenly (but not completely) covered with shiny streaks; Burnished (much) = sherd is almost completely shiny, but some gaps are still noticed; Polished = sherd is fully smooth and shiny.

sort of self-slip, which gave the impression of a slipped surface without a notable change in color or type of the paste.

The presence or absence of decoration was also noted on the ceramic analysis form. Decoration was categorized as painted (with the paint color(s) provided), incised, or modeled. The ceramic analysis form itself had no space to record the presence or absence of specific decorative motifs, but all decorated sherds were drawn or photographed for later analysis.

Finally, use wear (erosion, residues, smoking, or burning) was also noted on the interior and exterior of each vessel. While this was not strictly relevant in terms of the identification of particular forms and variations, it is useful in that it can clarify or confirm the supposed use of particular functional groups.

All diagnostic sherds (rims, bases, handles, and decorated sherds, in addition to a few sherds considered as diagnostic because of special characteristics) were individually photographed and drawn by the author. This work was all done by the author because it also gave me an opportunity to individually assess each diagnostic sherd and correct any inconsistencies between my analysis and those of my assistants. This record also provided me with the opportunity to check, clarify, and continue analysis of these sherds after returning to the states, specifically expanding my assessment of decorative motifs. After returning to the United States, I identified a number of specific motifs based on the drawings completed in Bolivia, and was able to track their presence or absence on particular sherds that were previously recorded.

Overall, the analysis conducted in Bolivia under the auspices of Proyecto Jach'a Machaca was aimed at delineating specific typological forms and their variations in order

to better understand day to day life and to see how it compared to and interacted with other communities in the southern Titicaca Basin during the Late Intermediate Period. To summarize the above description: all ceramic sherds were assigned to a particular formal/functional class, and were counted and weighed. Diagnostic sherds (rims, bases, decorated sherds, etc.) were subject to further analysis. Specific types (forms) were identified, based primarily on the size, thickness, and shape of rims, bases, and other diagnostic sherds. Consideration of paste, surface treatment, decoration, and use ware illustrate the variation present within the types as I have defined them and allow for a more detailed comparison with material published from other sites.

The analysis conducted of the material excavated by Rydén in Sweden had the same goals, but the actual analysis was conducted somewhat differently. This was in part due to restrictions associated with analysis of materials curated in a museum environment. (For example, I was not able to break the sherds in order to record their paste color from a clean break.) However, differences were also due to the small size of the sample[302] and the fact that this analysis was conducted before the ceramic analysis process established for my research with Proyecto Jach'a Machaca was fully designed. In Sweden, each of the sherds was analyzed individually rather than in "groups" and the results were initially recorded on an Excel spreadsheet. However, since the same data were collected, this information was later placed in the Access file, and is used for comparison in this analysis.

[302] Only 601 sherds from Pukara de Khonkho were collected by Rydén and stored in Göteborg. He also collected numerous sherds from Ch'aucha de Khula Marka. Unfortunately, there was not sufficient time for a complete analysis of this material, although I was able to conduct a more superficial analysis of a sample of this collection.

After all information was collected in the Access database, it was subject to numeric/statistical analysis to define and describe the classes, types and varieties of vessels represented by the samples collected from Pukara de Khonkho and the comparative sites (Khonkho Wankane and Ch'aucha de Khula Marka). This research was primarily conducted by the author after return to the United States, and is based almost entirely on the information recorded on the ceramic analysis form, together with photographs and illustrations.[303] Queries were run utilizing the Access database in order to both help categorize the ceramics from Pukara de Khonkho and to compare them with ceramics collected from Khonkho Wankane and Ch'aucha de Khula Marka.

[303] Inconsistencies and additional questions that came up during analysis were addressed during the second analysis trip to the field in 2009.

APPENDIX F

CERAMIC TYPES AND VARIENTS: PASTE DESCRIPTIONS

Jar Type 1

The paste is compact or very compact, and tended to be fired in an oxidizing environment, although a number of sherds were also partially reduced. The paste fired to an orange or reddish brown color (2.5 YR 6/6, 2.5 YR 5/8, or 10 R 5/6). Inclusions were scarce in general, consisting primarily of fine-medium grained sand and/or fine mica in scarce to moderate quantities. Medium sized caliza was also occasionally present in scarce quantities. The exterior of the vessels were smoothed (occasionally wiped), often with medium to light burnishing. Internal surface treatment was somewhat more variable, however, depending on the part of the vessel analyzed, with some (harder to reach) areas showing no surface treatment at all. However, the majority of the sherds demonstrated interior smoothing, wiping, and/or combing, with rough burnishing occasionally visible near the lip. While slip was not always visible (perhaps due to erosion) there was very often a red or orange exterior slip and/or exterior/interior wash. However, the form does not appear to have ever been decorated in any way, and was probably very utilitarian.

Jar Type 2

Like Jar Type 1, the paste of Jar Type 2 is compact, and appears to have been primarily fired in an oxidized environment, although a large proportion of the samples

were also partially reduced.[304] The paste fired to a red, red-orange, or red brown color, although some sherds were also darker brown or gray (2.5 YR 5/6, 10 R 3/1, 10 R 4/1). Medium to very fine grained mica inclusions were noted in almost all of the sherds, along with variable quantities of very fine sand. Medium to fine grained inclusions of caliza were also much more common in Type 2 jars than in Type 1 jars. The exterior of the vessel is smoothed or wiped, usually with some degree of burnishing, from very slight to heavy, while the interior was generally smoothed or wiped, although some portions of the vessel may be untreated. There was also usually exterior (and occasionally interior) red or red-brown slip. Like Type 1 jars, Type 2 jars do not appear to have ever been decorated in any way, and were likely largely utilitarian vessels.

Jar Type 3

Like the majority of jars, Type 3 jars are compact or very compact. Almost all of the samples appear to have been fired in an oxidizing environment to a red or orange color (10 YR 5/8, 2.5 YR 5/8). Inclusions consist primarily of medium-grained mica and caliza, in medium quantities. The interior surface is generally wiped or combed, while the exterior is usually roughly to moderately burnished, although some sherds are only smoothed or wiped. Almost all examples showed a red – orange exterior slip. Like most jars, Type 3 jars were never painted. Nevertheless, a few samples from U4.4 demonstrate some molded decoration at the rim, near the handle. It is not clear whether this represents a specific variety of Type 3 jar or merely an exception to the rule.

[304] There are some fully reduced or partially oxidized samples as well, suggesting that the firing environment was essentially uneven.

Jar Type 4

Type 4 jars have compact walls, and are generally fired in an oxidized environment, although some are partially reduced. The paste is fired to an orange or light brown (2.5 YR 5/6, 2.5 YR 5/8). Inclusions include scarce – medium quantities of medium to very fine grained mica and very fine to very coarse grained quartzite sand, with occasional inclusions of coarse caliza. The interior of these vessels was smoothed or combed, while the exterior was smoothed or wiped. While many samples were unslipped, others did show exterior and occasional interior pink or orange slip. Like most other jars, Type 4 jars were undecorated, and probably utilitarian in nature. There was no notable usewear on Type 4 jars, although there was some external erosion.

Olla Type 1

Type 1 vessels are generally compact, but could also be pourous, and tend to be fired in an oxidized or partially reduced environment. The paste is a reddish brown or orange color (10 R 5/6, 2.5 YR 5/6, 5 YR 4/4). Inclusions included moderate to dense quantities of medium grained mica, moderate to dense quantities of medium to very coarse quartzite sand, scare to moderate quantities of medium sized caliza, and often scarce to dense quantities of medium to coarse grained biotite. The interior surface treatment is mostly wiped, although some samples were smoothed or unfinished. The exterior surface, on the other hand was more likely to be smoothed or wiped, although some sherds showed a certain level of burnishing. The majority also demonstrated exterior and/or interior reddish orange or brown slip. No Type 1 ollas were painted, although a Type 1 variant (Olla Type 1A) did exhibit some molded decoration along the rim near the handle.

Olla Type 1A

Like the majority of Type 1 ollas, variety 1A ollas are all compact, but are more likely to be fired in a partially reduced environment to a more brownish color (5YR 4/4, 7.5 YR 4/3). Inclusions are similar to other Type 1 ollas, but appear in somewhat smaller quantities, consisting of scarce quantities of small to medium grained mica, scarce to moderate quantities of coarse quartzite sand, and moderate to dense quantities of medium sized cal. The interior of the vessel is generally smoothed, and the exterior is wiped or burnished with exterior and occasionally interior red slip.

Olla Type 2

Type 2 ollas can be compact or porous. The firing pattern is also highly variable, with nearly equal numbers of reduced, partially reduced, and oxidized sherds. The paste is fired to an orange, red-brown, or black color (2.5 YR 5/6, 7.5 YR 2.5/1, 5 YR 3/1). Inclusions are prominent, consisting of scarce to dense quantities of medium to very thick quartzite sand, moderate to dense quantities of medium grained mica, and occasionally scarce quantities of coarse caliza. Interior surface treatment is predominately smoothed or wiped, while the exterior tends to be burnished or wiped. Approximately equal numbers of sherds have no slip or an external dark slip, but no Type 2 ollas contained any kind of decoration.

Olla Type 3

Type 3 ollas are compact or very compact and are fired in a fully oxidized or a fully reduced environment. The paste is a red or grayish brown color (10 R 5/6, 2.5 YR 4/1). Inclusions are somewhat variable, composed of scarce to dense quantities of medium-grained quartzite sand, scarce to dense quantities of fine to medium-grained mica, and scarce to dense quantities of medium to coarse caliza. Interior surface treatment is wiped and/or smoothed, while the exterior was burnished or smoothed, the majority with a red-brown exterior (and occasional) interior slip.

Disk based and Flat based Bowls

Both disk based and flat based bowls tend to be compact or very compact, and the majority of all bowls are fired in an oxidized environment, although flat-based bowls are more likely than disk-based bowls to be fired in a reduced environment. Disk based bowls were somewhat more likely to have a reddish paste than flat based bowls.[305] There does not appear to be any difference in terms of inclusions for either flat based or disk based bowls, as both types are characterized by variable quantities of very fine sand and mica with occasional medium to coarse caliza.

Rim Variation in Bowls

Both everted rimmed and flat top rimmed bowls were slightly more likely to be partially reduced, while rounded/tapered bowls were more often fully oxidized, but the

[305] The most common Munsell color for disk based bowls are Gley 2 3/10B or 10 R 5/8 while flat based bowls were mostly 2.5 YR 5/6, 10 R 5/6, or 2.5 YR 5/4

difference was slight. There was no difference at all in terms of paste density or color, inclusions, or use wear.

Small Jar Type 1

The form was primarily compact or very compact, and could be fired in an oxidized or a reduced environment to a grey, orange, or reddish color. Inclusions were composed of variable quantities of fine – very fine sand, scarce quantities of fine – medium grained mice, and occasional inclusions of caliza. The exterior surface uniformly showed at least some level of burnishing, while the interior was somewhat less uniform. Burnishing was only common near the lip, while the rest of the interior could be smoothed, unfinished, combed, and/or wiped. All sherds had exterior red/orange slip, which usually extended onto the interior lip, but not through the entire interior of the vessel. Very few Type 1 small jars showed use ware of any kind.

Small Jar Type 2

Like other small jars, Type 2 small jars are compact or very compact and are fired in an oxidized or partially reduced environment to a red-orange or dark gray color. Inclusions are generally scarce, and are composed of fine-very fine grained sand, mica, and/or caliza. Surface treatment was variable, ranging from an unsmoothed to moderately burnished exterior and an unsmoothed or smoothed interior. The majority of the sherds that were recovered were undecorated, although one nearly complete piece did demonstrate a band of painted zig-zag decoration around the neck of the vessel. There was no usewear noted on any of these vessels.

Small Jar Type 3

These forms were all compact, and fired in a partially reduced or fully oxidized environment to an orange or reddish color. Inclusions consisted of moderate to dense quantities of fine or very fine sand and mica, with occasional additional inclusions of caliza. The exterior of Type 3 small jars was most often a medium to heavy burnish, although some examples were also treated by wiping. On the interior, the surface was uniformly wiped, either irregularly or horizontally. The majority of the samples have some sort of exterior decoration, often utilizing the parallel line motifs. A number of the pieces showed internal white residue, while others were somewhat eroded.

Ruecas

The ceramic ruecas tended to be roughly made, likely at the household level, and demonstrated little standardization and no decoration. They were generally compact and fired in an oxidized (rarely partially reduced) environment to an orange-brown or reddish color. Inclusions included moderate quantities of fine to coarse quartzite sand as well as scarce to moderate quantities of fine or very fine mica, as well as occasional caliza in a few examples. Surface treatment was most often a simple smoothing, although one example did show traces of moderate burnish and another demonstrates traces of combing. None of the examples from the Pukara de Khonkho are decorated or show use wear of any kind beyond normal erosion.

Vasos and Other Rare Forms

A total of five possible *vaso*-like forms were found at the site, none of which are similar to the other. All of the possible *vaso* forms are found on the fourth terrace, but there is at least one example from each of the three faces of occupation. A single painted, well-made *vaso* fragment was found associated with U4.2, a domestic structure on the east face. Two other possible *vaso* fragments were associated with U4.3 and U4.4, workshop structures on the main face. One of these fragments was especially large and thick, and could also be interpreted as the ceramic equivalent of a grinding stone. The other could also have been a spout attachment for a kettle-like vessel, but no such form was noted in any other location of the site. Finally, two small "shot-sized" *vaso* fragments were associated with U4.6, a cooking/storage structure on the west face of the site.

Another rare form was a small flat, undecorated, oval shaped plate associated with two workshop structures on the main face of the site (U4.3 and U6.1). While only two examples of this form were found, it is nearly complete in both cases, and would have served the same function in both contexts. The only other "plate" form found at the site was a clearly Inca plate associated with U6.6, a cooking/storage structure located near the western burials (discussed in more detail in the next section.)

The remaining ceramic sherds took a few unique forms, whose uses are not clear. A rough coiled vessel – the only vessel at the site with the coil technique still clearly visible – was found in U7.1, a domestic structure below the sixth terrace on the main face. A small possible lip plug (looking somewhat like a small top) was associated with U6.1, a workshop structure on the main face. Similar artifacts were found from

Formative contexts at Khonkho Wankane, but this was the only one of its kind at Pukara de Khonkho. A strange finger-sized probable mold was also associated with the same structure. These artifacts are noted for the record, but they are not considered in the overall analysis of the ceramics at the site.

APPENDIX G

DECORATIVE MOTIFS

Bowl Motifs

Dot Designs

Three varieties of dot designs were present at Pukara de Khonkho: triple dots, double dots, and other. Of these, the triple dot design was by far the most common. The triple dot design was found across the site of Pukara de Khonkho, on all terraces below Terrace 2, and on all three faces of occupation. It was especially prevalent in "Workshop" structures on the lower terraces. The bowls themselves are of average size,[306] with flat bases and (most often) tapered/rounded lips, although some everted samples were also recorded. In terms of production (firing, surface treatment, etc.) bowls on which these designs appeared did not differ much from the overall bowl average.

Fern Motif

Only one variation of the fern motif was recorded, but it was the second most popular design motif at the site. This motif was found across the site of Pukara de Khonkho, on all terraces below Terrace 2 and on all three faces of occupation, appearing in moderate quantities in all types of structures.[307] The bowls on which the motif appears tend to be slightly larger than average, with a rim diameter averaging 16.7 cm and a base

[306] Mean rim diameter = 15.0 cm, Mean base diameter = 5.4 cm

[307] The only structures in which a bowl with this design did not appear were U2.1, U3.1, U3.3, U4.5 and Ry2.

diameter averaging 5.3 cm. The design always appears on flat-based bowls, and the lips are usually rounded/tapered, although a few everted and one flat topped sample were recorded with the fern motif. In general, bowls on which this motif appear differ little in terms of production (firing, surface treatment, etc.) from the average bowl, although they do appear to be slightly more finely made. Some level of burnishing (usually moderate to heavy) was noted on the interior (94%; n=165) and the exterior (96%; n=169) of almost all samples with this motif, which also demonstrated an obvious interior and exterior reddish slip.

Wavy Line Motif

The wavy line motif appeared in three variations at the site of Pukara de Khonkho. The most common was the "lace" variation (composing 64% [n=74] of this motif), a wavy line drawn above a straight line, resembling simple lace. The other common variation was the simple wavy line (composing 29% [n=33] of this motif), drawn without the straight line. Additional variations appeared on only one or two sherds, including intertwined wavy lines and lace motifs filled with either dots or parallel lines. Bowls portraying the wavy line or lace motifs were found across the site, on terraces 4 and below, and on all three faces of occupation, although they appeared to be slightly more common on the western face. However, they appeared in moderate quantities in all kinds of structures, with the exception of the Empty Ritual structures on the upper terraces.[308] In general, the bowls on which these motifs appear are of average size, measuring 15.7 cm at the lip (SD=3.2) and 5.5 cm at the base (SD=0.9). The rim

[308] Wavy line/lace motifs were found in U4.1, U4.3, U4.4, U4.5, U4.6, U5.1, U5.2, U6.1, U6.2, U7.1, U7.2, and Ry2.

shape was almost exclusively rounded/tapered, although there was one example of an everted rim (with wave design) and one example of a flat top rim (with filled lace design). Likewise, the base was almost exclusively flat, although one disk based bowl was decorated with the lace motif. Overall, there were few differences in production (firing and surface treatment) between bowls with these designs and the average, although (like bowls with the fern motif), these bowls were somewhat more likely to be burnished, on both the interior (94%; n=108) and exterior (96%; n=110) surfaces. In addition, almost all had an obvious red internal and external slip.

Parallel Lines Motifs

This motif was also characterized by a few variations, which were not always recognizable, depending on the size of the sherd. One was a simple parallel line zig-zag, represented by approximately 28% (n=35) of the sherds showing this motif, while the other was two parallel lines converging in a peak with a parallel-lined semi-circle on either side of the peak, representing approximately 19% (n=23) of the sherds with the parallel lines motif. For the remaining (53%; n=65) it was not possible to assign specific variation, as they simply showed fragments of long, straight parallel lines, occasionally crossing in an X shape. Bowls with the parallel lines motif were found across the site, on Terrace 4 and below and on all three faces of occupation. They appeared to be most commonly represented in Workshop structures, where they were second only in popularity to the dots motif (and in nearly equal numbers with the fern motif), but appeared in moderate quantities associated with all types of structures at the site, with the

exception of the "empty" ritual structures on the upper terraces.[309] In general, bowls with parallel line decorations are of average size (rim = 15.7 cm, SD=2.6; base = 5.4 cm SD=1.1) with rounded/tapered rims and a flat base, but variation was noted.[310] Like the bowl types described above, bowls with parallel line designs were not significantly different from average, although they did have higher proportions of interior (96%; n=118) and exterior (97%; n=119) burnishing, as well as obvious red slip.

Single Lines Motifs

These motifs usually took the form of either a large "X" between two parallel lines (61%; n=49) or a large "zig zag" between two parallel lines (39%; n=31). Both variations most often appeared alone, but could appear with other motifs as well. Bowls with single line designs were not common across the site, but at least a few were found on all terraces Terrace 4 and below and on all faces of site occupation. They were also associated with all types of structures (in small quantities), with the exception of the empty ritual structures, although they appeared in highest quantities in a couple of "workshop" structures on the main face (U4.4 and U61.)[311] A few examples of sherds with the "zig-zag" design were also found in association with the burials at the eastern side of the site. Bowls with the single line design are slightly larger than average at the rim (M=16.4 cm; SD=2.2), with a base measurement average of 5.1 cm (SD=1.0). The lips of bowls with single line designs are almost exclusively rounded or tapered (although there are a few samples with slightly everted rims), and bases are all flat. In general,

[309] Bowls with parallel line motifs were found in U4.2, U4.3, U4.4, U4.5, U4.6, U5.1, U5.2, U6.1, U6.2, U6.3, U6.6, and U7.1)
[310] There was 1 flat topped rim, 2 everted rims, and 1 disk base.
[311] Ceramics with these designs were also found associated with U4.3, U4.4, U4.6, U5.1, U5.2, U6.1, U6.3, U6.7, and U7.2.

these bowls were did not vary from the average in terms of production, except that a larger proportion were burnished on both the interior (96%; n=77) and the exterior (96%; n=77) surfaces.

Circular Motifs

The most common variation by far is a half circle (facing up) with lines extending up from the base, somewhat resembling a silhouette of people in a canoe, which represents 63% (n=41) of all the circular motifs. The next most common variation, represented on 17% (n=11) of the samples with circular motifs, is a simple rough circle design, often drawn in thicker lines than other designs.[312] The third most common circular variation, represented on 15% (n=10) of the samples, is a closed half circle facing down, filled with vertical parallel lines. The final variations (represented by only one example each) are a spiral motif and a circle filled with a zig-zag line. Bowls with circular motifs were found in relatively small quantities across the site, on Terrace 3 and below and on all of the major habitation faces. In addition, they were associated in at least some amount with all of the major structure types, although they occurred in the highest quantities in two of the workshop structures on the main face (U4.4 and U6.1). However, they were proportionately highest in the two structures below the lowest major terrace (U7.1 and U7.1).[313] Overall, these bowls are only slightly larger than average, averaging 16.0 cm at the rim (SD=2.4) and 5.7 cm at the base (SD=1.4). Rims of bowls with circular motifs are primarily rounded or tapered, with only a couple examples of

[312] This motif is similar to that identified by Janusek (2003) at Tiwanaku and in the Katari valley as an Umasuyu motif, and as such, is unique at the Pukara de Khonkho.
[313] Overall, bowls with circular motifs were found in U3.2, U4.3, U4.4, U4.6, U5.1, U5.2, U6.1, U6.2, U7.1, and U7.2.

everted rims, and one example of flat topped rims, while bases are uniformly flat. In terms of production (firing, inclusions, surface treatment, etc.), bowls with circular motifs differed little from the average, although these bowls were much more likely to be burnished (in most cases moderately – heavily) on both the interior (98%; n=64) and the exterior (100%; n=65) surfaces.

Ladder Motifs

All "ladder" motifs are similar long, thin designs, with "rungs," but there are a number of different variations. The most common is the variation that looks most like a traditional ladder – two long vertical parallel lines, filled with parallel horizontal lines like rungs, representing 37% (n=25) of all ladder motifs. The next most common, representing 29% (n=20) of all ladder motifs had comb-like motifs instead of rungs between the parallel lines. The third most common is characterized by a single vertical line, with small curving "rungs" (somewhat like "spores") extending from it, representing 18% (n=12) of all ladder motifs. Finally, a few other motifs are represented by only one or two examples, including a "rope ladder" (with small horizontal parallel lines running through a single vertical line), a "ladder" without any vertical lines, and a traditional ladder with gaps between groups of rungs. Bowls with ladder motifs are found in relatively low quantities across the site, appearing on Terrace 3 and below as well as on all three faces of site occupation. They are also represented in all major structure types, and are the most common of the decoration associated with the burials on the eastern side of the site. While they appear in highest quantities in Workshop structure of U4.4, they are proportionately more common in the Ritual structure of U3.2 and the

Cooking/Storage structure of U7.2.[314] Overall, bowls with ladder designs were somewhat larger than average, measuring an average of 16.4 cm at the rim (SD=2.8) and 5.4 cm at the base (SD=0.9). Lips are almost exclusive tapered/rounded, although there was one example of a slightly everted lip and another that had a flat top. All but one of the bases associated with the ladder motif were flat bases, but there was one disk base. In terms of production (firing, inclusions, surface treatment, etc.) these bowls differed little from the overall average, except that bowls with ladder designs tended to have somewhat higher quantities of sand inclusions. In addition, they were more likely to be burnished both internally (96%; n=65) and externally (100%; n=68).

Pukara Motifs

The vast majority of these designs (79%; n=48) are the simple "Pukara" motifs previously described in Janusek (2003:84), although there are a few other variations. Of these, the most popular are the variation where the rungs of the "pukara" have short vertical tabs, and the variation where the triangle is turned upside-down and filled with dots, each of which represent 10% (n=6) of the "pukara" motifs. There is also one example of a variation with tabs along the diagonal lines. "Pukara" motifs appeared across the site, on Terrace 3 and below and on all three of the major habitation faces. They were associated with all major types of structures, and were among the most common motifs (proportionately) identified in the "empty" ritual structures.[315] Overall, bowls with the "pukara" motifs are larger than average, measuring 17.0 cm at the rim

[314] Overall, bowls with ladder designs are found associated with U3.2, U4.2, U4.4, U4.6, U5.1, U6.1, U6.2, U6.3, U6.7, U7.1, and U7.2.
[315] Bowls with "pukara" motifs were found associated with U3.2, U3.3, U4.1, U4.2, U4.3, U4.4, U4.6, U5.1, U5.2, U6.1, U6.2, U6.3, and U7.1.

(SD=2.5) and 6.0 cm at the base (SD=1.5). Rims are almost uniformly tapered/rounded, although there are a couple of examples of sherds with slightly everted rims. Likewise, all but one of the bases are flat. In terms of production, bowls with pukara motifs differ only slightly from the average. They are somewhat less likely to be fully oxidized (34%; n=21) and somewhat more likely to be partially reduced (31%; n=19), and their inclusions tend to include higher quantities of sand, as well as occasional caliza. Furthermore, while the exterior surface is similar to average, the interior surface is more likely to be burnished (93%; n=57). While there continues to be little use wear, one sherd with a "pukara" motif did demonstrate interior residue.

Llamita Motifs

While the *llamita* motif was not common at the Pukara de Khonkho it was found across the site, on Terrace 3 and below as well as on the main and eastern faces of site occupation. Bowls with the *llamita* motif were also found associated with Ritual, Workshop, High Density Storage, and Cooking/Storage structures, and were (in fact) one of only two motifs present in the "Ritual" structure 3.3.[316] Overall, these bowls were slightly larger than average, measuring 16.6 cm at the rim (SD=2.8) and 5.5 cm at the base (SD=1.3). Rims of these vessels are almost all rounded or tapered, although there was one example of an everted rim, and all bases are flat. In terms of production, these vessels also differed slightly from average bowls in terms of firing, inclusions, and surface treatment. They were less likely to be oxidized (17%; n=5) and more likely to be partially reduced (41%; n=12), while at the same time containing inclusions with higher

[316] Overall, bowls with the llamita motif were associated with U3.2, U3.3, U4.3, U4.4, U5.1, U6.1, U6.2, U6.3, and U7.2.

quantities of mica and in some cases of quartzite sand as well. In addition, both the interior (97%; n=28) and exterior (97%; n=28) were extremely likely to be burnished. Finally, while the majority of bowls with the *llamita* motif showed no use wear, there was a higher proportion of bowls with interior and especially with exterior sooting.

Lip Tabs

There are two variations to this motif. The most popular (representing 68% [n=19] of all bowls with lip tabs), is the triple lip tab, with the lines being divided into groups of three around the rim of the bowl. This motif was previously identified as a Late Pacajes (Early Colonial) motif, but it is not clear whether or not this motif can be clearly attributed to the Late Pacajes period at Pukara de Khonkho. On the other manifestation of the lip tab (represented on 32% [n=9] of the bowls with lip tab designs) the tabs are somewhat shorter and wrap completely around the lip of the bowl. The lip tab motif was not common and was somewhat restricted in its distribution, occurring primarily (but in very low quantities) associated with the high density "Workshop" structures on the main face, although it also appeared associated with a high density storage structure on the east face.[317] In addition, one sherd with the triple lip tab motif was associated with the burial on the eastern side of the site. Overall bowls with the lip tab motif are of average size, averaging 15.4 cm (SD=2.2) at the rim and 5 cm at the base. Lips are uniformly rounded/tapered, but there were not enough base fragments to record base shape. In terms of production (firing, surface treatment, etc.), bowls with lip tabs differ only slightly from the overall bowl average, although inclusions tend to include

[317] Bowls with the lip tab motif were found associated with U4.3, U4.4, U5.1, U6.1, and U6.7.

more sand and less mica, and 100% (n=28) of all of these bowls are lightly – heavily burnished, inside and out.

Thick Motifs

These possibly Inca period motifs are recognized as thick colored in geometric shapes (often circular or oval), which have not previously been noted on Early Pacajes forms, but which are more common on Inca-Pacajes forms. The motif is not common, but does appear in low quantities across the site, associated primarily with Workshop and Storage/Cooking structures on the main face, although it is also found associated with one High Density Storage structure, as well as one structure on the West face.[318] Overall, bowls with this designs are smaller at the rim than average, averaging 13.7 cm (SD=3.7), but measure an average of 6 cm at the base. Rims are mostly rounded/tapered, but an everted sample was also noted, while the only recorded bases are flat. In terms of production, however, these bowls differed little from the average, although they were more likely to have more (and slightly coarser) inclusions of sand and mica. They were also more likely to have a burnished interior (96%; n=27), although their exterior surface treatment fell within the average.

Small Symbols

Among the least common motifs present at the site were a few small symbols that appeared rarely on a few bowls, representing 2% (n=13) of all decorated sherds (3% by weight). The most common of these symbols is the plus sign (+), appearing on 92%

[318] They were not found on the East face nor associated with any "Ritual" or "Domestic" structures. Structures with the possibly Inca thick designs included U4.3, U4.4, U4.5, U4.6, U6.1, U6.2, and U6.3.

(n=12) of bowls with these motifs. The other small symbol is the number sign (#), but is significantly rarer, occurring on only one example. The small symbol motifs are extremely rare, only appearing in a few structures on the fourth, fifth, and sixth terraces of the east and main faces,[319] and they are not associated with any ritual or cooking/storage structures. Overall, bowls with these motifs are somewhat smaller than average, measuring 13.9 cm at the lip (SD=2.2) and approximately 4 cm at the base. Rims are uniformly rounded/tapered, while the few bases that are recorded are flat. In terms of production, there was little difference from the average, except that all bowls with these motifs demonstrated interior and exterior medium-heavy burnishing, and were slightly more likely to have exterior and/or interior sooting.

Cross-hatching

The final decorative motif recorded on bowls at the Pukara de Khonkho is far more common on small jars (discussed below) but only appears on 1% (n=5) of all bowl sherds from the site (3% by weight). Bowls with cross-hatching were found associated only with two structures,[320] both "Workshop" structures on the main face of the Pukara de Khonkho. Overall, bowls with these decorations are larger than normal, averaging approximately 17.8 cm (SD=3.8) at the lip and 7 cm at the base. In terms of production, the few bowls that were identified with these motifs differed little from the average, being primarily compact, oxidized vessels with medium quantities of fine sand and mica inclusions and light – heavy interior and exterior burnish accompanied by reddish slip.

[319] The small symbol motif was associated with U4.2, U4.4, U5.1, and U6.1.
[320] U4.4 and U6.1

Small Jar Motifs

Wavy Lines Motifs

The most common variations of this motif on small jars were the simple lace and the filled lace motifs, each representing approximately 32% (n=20) of all sherds decorated with this motif.[321] The next most common variation was the simple wavy line, representing approximately 19% (n=12) of small jar shreds utilizing this motif. In addition, a couple of other variations occurred on only one or two examples, including the lace motif filled with cross-hatching decoration and the interconnected wavy line. Small jars with these motifs were found associated with all structure types with the exception of the empty "ritual" structures, and were found on the main and the western faces on Terraces 3, 4, 6, and below. The wavy line/lace motif was exclusively associated with Type 1 small jars (carinated jars), most of which appeared to be of the smaller variation, measuring an average of 10.2 cm at the rim and 3.5 cm at the base.

Circular Motifs

The most common variation of this motif on small jars was the filled half circle (representing 51% [n=21] of the examples), which often appeared on the interior lip of Type 1 small jars, but could also be found on the exterior surface. The next most common was the simple circle,[322] appearing on 39% (n=16) of the samples with this motif, which was usually found on the exterior surface of Type1 jars, sometimes in combination with the filled half circle variation. In addition, a spiral design was noted on

[321] While the simple lace motif was common on bowls, the filled lace motif was very rare.
[322] Note: This design, which has been associated with the Umasuyu style, is much more common on small jars than it is on bowls at the Pukara de Khonkho.

a few sherds. These designs were noted exclusively on Type 1 small jars, and could appear on the interior or exterior of the sherd. The jars tended to be of the large variety, although smaller jars with these designs were also noted. The average rim diameter was 12.7 cm, while the base diameter measured an average of 5 cm. Small jars with this motif were found associated with Workshop and Cooking/Storage structures on the main and western faces of the site on Terraces 4, 6, and below.[323]

Single Line Motifs

On these sherds, the most common design (representing 69% [n=18] of this motif) is the simple single line painted around the neck of the vessel.[324] The remaining 31% (n=8) of the examples are composed of the zigzag motif. These designs most often appear on the exterior of the small jars, but can appear on vessels that also have interior decoration along the lip. The motifs were primarily noted on Type 1 small jars, but the zig-zag variation was also noted on at least one example of a Type 2 jar. Both small and large varieties of Type 1 small jars were represented, with the average rim diameter measuring 11.8 cm, and the average base diameter measuring 5 cm. Vessels with these decorations were noted spread across the site, associated with all types of structures except for the empty "ritual" structures. They were found on all three faces of occupation, and on Terrace 3 and below.[325]

[323] Vessels with this motif were associated with U4.3, U4.4, U4.6, U6.1, U7.2, and Ry 2.1
[324] Note: This variation does not appear on bowls.
[325] Vessels with these motifs were associated with U3.1, U4.3, U4.4, U4.6, U5.1, U6.1, U6.2, U7.1, and U7.2

Lip Tab Motifs

Of the small jars with the lip tab motif, slightly more than half (54%; n=13) took the form of the triple lip tab, which in bowls has been identified as a Late Pacajes style. On the remainder (46%; n=11), the tabs were painted nearly continually along the lip of the vessel. Unfortunately, it was not always possible to identify vessel type on small jars with this motif, but where it was possible, it appears to always have been painted on Type 1 small jars. The design appears to have been utilized on both the small and the large variations of the jars; the average rim diameter measures 11.4 cm in diameter, but there were no base fragments identified with these motifs. Small jars with the lip tab motifs were found across the site, on the main and eastern faces of occupation on terraces 4, 5, and 6. They were associated with all types of structures (with the exception of domestic structures and with empty ritual structures) as well as with the eastern burials.[326]

Parallel Lines Motifs

These motifs could take the form of either long parallel lines or parallel zig-zags, generally appearing on the exterior surface of the small jars. Although types could not be clearly assigned to all sherds demonstrating this motif, it was noted on both Type 1 carinated small jars and at least one Type 3 small pitcher.[327] Of the Type 1 jars, both the large and the small variations were represented, with an average rim diameter of 11.5 cm. The Type 3 pitcher fell within the normal range, measuring 5 cm at the rim and 5 cm at the base. Jars with these motifs were somewhat less common, appearing only on the

[326] Small jars with these motifs were associated with U 4.1, U4.4, U5.1, U6.1, U6.7 and Ry 2.1
[327] The small pitcher demonstrated a parallel zig-zag.

main face on Terrace 4 and below Terrace 6, and were associated with Workshop, Cooking/Storage, and High Density Storage structures.[328]

Cross-hatching Motifs

In addition to the simple cross-hatching variation that occasionally appeared on the bowls, two new cross-hatching variations were identified on small jars – the filled in lace variation, and the filled triangle variation. All of these variations were approximately equally represented at the site. Cross-hatching appeared exclusively on Type 1 small jars, usually on the larger size, although it could appear on the smaller size as well. The average rim diameter of small jars with cross-hatching motifs was 13 cm, and the average diameter of the base was 4 cm. These jars were only associated with the three workshop structures on the fourth and sixth terraces of the main face of the site.[329]

Pukara Motifs

Unlike the "pukara" designs present on bowls, only two variations manifested themselves on small jars – the simple 'pukara' motif and the filled triangle. Of these, the filled triangle motif (which did not appear on any bowls) was much more common, appearing on almost all of the examples with this motif. The pukara motifs were noted exclusively on Type 1 small jars, primarily on the larger variety. The average rim diameter measured 13.4 cm, while the average base measured 5 cm. Small jars with this design were primarily associated with the three Workshop structures on the Terraces 4

[328] Small jars with these motifs were associated with U4.1, U4.3, U4.4, and U7.2.
[329] Small jars with cross-hatching motifs were associated with U4.3, U4.4, and U6.1.

and 6 of the main face of the site, but were also associated with a cooking/storage structure below the major terraces.[330]

Thick Motifs

In addition to the thick unidentified designs present in small quantities on bowls, one example of clearly Inca polychrome painting was also noted on one of the small jars at Pukara de Khonkho. It was difficult to definitively identify the type of small jar that these motifs were found on, but they appeared to primarily appear on the common Type 1 small jar. The average rim diameter of pieces with this motif measured 7.5 cm (SD=2.1), but no base sherds with the thick motif were identified. Small jars with this design were only found on Terraces 6 or below on the main face, but were associated with all structure types except for the large, empty "Ritual" structures on the upper terraces.

Ladder Motifs

Two varieties of ladder design were present on small jars; the most common is the "spores" design, but the regular ladder also appears on one example. The ladder motifs are found exclusively on Type 1 small jars. The average rim diameter of pieces with this motif measured an average of 9 cm (SD=1.4), while bases measured an average of 5.5 cm (SD=2.1). Small jars with this design are found on the lower terraces (Terraces 4, 6, and below) of the main and western faces, and were associated with Workshop, Domestic, and Cooking/Storage structures.

[330] Small jars with "pukara" motifs were associated with U4.3, U4.4, U61, and U7.2.

Small Symbol Motifs

These motifs are actually only represented on two examples of small jars from the Pukara de Khonkho; one has a "+" design, while the other has a "#" design. It was not possible to identify small jar type for either of these examples. The only lip fragment present measures 15 cm in diameter. The two samples were found in two different Cooking/Storage structures on the main face of Terraces 4 and 6.

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