Title

Labor under the Sun and the Son: Landscapes of Control and Resistance at Inka and Spanish Colonial Pomacocha, Ayacucho, Peru

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Labor under the Sun and the Son: Landscapes of Control and Resistance at Inka and Spanish Colonial Pomacocha, Ayacucho, Peru

By

Di Hu

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University of California, Berkeley

Committee in charge:

Professor Christine Hastorf, Chair

Professor Kent G. Lightfoot

Professor M. Steven Shackley

Professor Margaret Chowning

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Abstract

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Abstract:

Why do the oppressed not rebel, especially when they outnumber their oppressors? What are the social conditions for armed rebellion? Should we be focusing on armed rebellion rather than other kinds of resistance? This dissertation examines these general questions about the nature of social movements in the context of Spanish colonialism. Specifically, it unpacks the long term social conditions that enabled the conjuncture of local armed revolts and regional-scale rebellions in the late colonial period (late eighteenth/early nineteenth century) in Peru through a combination of archaeological and historical evidence. The primary case study is a village called Pomacocha, located in Vilcashuamán province in the modern region of Ayacucho, Peru.

By putting an important case study "under the microscope," we can examine how local social conditions influenced regional social conditions for revolt and vice versa. Pomacocha was intensely affected by both Inka and Spanish colonialism and provides rare insight into the lives of the people whose labor sustained the colonial regimes. It began as a transplanted colony of agriculturalists (*mitmaqkuna*) to supply food for the nearby Inka palace and the Inka provincial capital of Vilcashuamán (Willka Wamán). After the Spanish conquest, the agricultural settlement at Pomacocha was abandoned. Later, an *hacienda-obraje* was established and a new native community sprang up around it. The area became a politically and economically important zone for the Spaniards. How did the materiality of social relations inform strategies of resistance by exploited laborers in the Andean village of Pomacocha? Historical documents attest to the poor working conditions and abuses at the textile workshop of Pomacocha during the Spanish colonial period, but no significant armed uprising occurred until after the Tupac Amaru II rebellion of 1781. To understand and contextualize the short-term and long-term causes of the late colonial upheaval, I analyze the long-term evolution of strategies of control and resistance at Pomacocha, starting with the Inka period. I combine archival research, archaeological excavations and surveys, analysis of material

culture, surname analysis of censuses, and space syntax analysis to show that strategies of state control and bottom-up resistance coevolved from the Inka period, and that this coevolution resulted in a social landscape conducive to alliances across social groups in the late colonial period.

There has been little archaeological work aimed at understanding the relationship between forms of resistance and the materiality of social relationships of coerced laborers in the Inka and Spanish colonial periods. By understanding the effect of Inka and Spanish colonial institutions of labor on identity and social cohesion, we gain a better understanding of the motivations, enabling social conditions, and strategies of resistance to such institutions. By taking a long-term view of how the workers of a single community negotiated strategies of control of labor, my dissertation fleshes out a typical case study of the interplay among local motivations and wider social context for general rebellion in the late eighteenth and early nineteenth centuries.

Dedication

To my parents, Adam, and the pueblo of Pomacocha

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Acknowledgments

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Last but not least, I am grateful to Adam for his dedication, loyalty, ethics, generosity and compassion over the past twelve years, especially during the course of writing this dissertation. He first introduced me to the Andes, and I have been in love ever since.

1 Introduction

mananachi yuyariuanquicho	Perhaps you no longer remember me
cay sancaypi	In this prison of mine
poma/ atoc micouaptin	Where the puma-fox eat me
cay pinaspi	In this captivity
uichicasca	Separated,
quicasca	Out of reach,
tiapti	As I remain
palla	Gathered

-Excerpt from a Quechua song transcribed in early seventeenth century by Felipe Guamán Poma de Ayala (translation modified from Manheim 1991: 133).

[T]he makeup of identity itself grows elusive to me, and in its variousness slips away from state manipulation. I remember how a woman cooks her pilau with quince, as her mother did. How her neighbour arranges the photographs of her grandparents on the carpeted wall, just so. The flutter of her father's hand to the heart, in greeting. I remember the way laughter separates us, like a private language. How bread is shared, and water splashed from a ewer over the hands. How babies are eased to sleep in the cradle, and what is sung to them.

-Colin Thubron (2007: 202) from "Shadow of the Silk Road"

1.1 Historical context of coordinated resistance in Spanish colonial Perú

I investigate a Spanish colonial community in highland Ayacucho, Peru called Pomacocha. Pomacocha was the site of an important *hacienda* and *obraje*, or textile workshop that at its height employed more than one hundred workers and sold textiles all over the Andes. The textile workers were from diverse castes: *indio*, *mestizo*, poor *español,* and possibly *mulato* and *negro*. Individuals hailing from different native Andean ethnic groups were subsumed under the term *indio*. Labor at Pomacocha was on a continuum of coercion: from slave and prison labor on one end to debt slavery on the other. Administrators were Spaniards and overseers (*mayordomos*) were generally *mestizos*. The *hacienda* component of Pomacocha began in the late sixteenth century, and the *obraje* began to function in the 1680s, a century later. Pomacocha did not see armed resistance by its workers until the 1780s, after which armed forms of resistance became common. The period of regionally coordinated revolts and rebellions (1770s-1820s) ended with the wars of South American independence, in which Pomacocha played a role. Rebel forces usurped the *obraje* of Pomacocha and drew its fighters from the immediate area. The historical pattern of resistance at Pomacocha mirrored the wider pattern of resistance in the Andes during the colonial period, where we see a sharp rise in the number of local revolts and regionally-coordinated armed rebellions and uprisings in the last quarter of the eighteenth century (Figure 1.2). The suppression of the Tupac Amaru II rebellion and other co-occurring regional rebellions such as that of Tupac Katari in Bolivia did not mark the beginning of a peaceful era: armed resistance, especially ones that involved inter-caste and interregional alliances, continued with frequency up to the wars of independence (Nuria i Vila 1996). To understand the conditions that led to the late colonial armed resistance against the Pomacocha *obraje* and Spanish colonial institutions in general, my dissertation examines the long-term manifestations of strategies of control and resistance vis-à-vis the materiality of social relations over the landscape. Because many forms of subconscious and non-violent resistance enable the kinds of alliances necessary for armed rebellion, this dissertation does not elevate armed resistance above other kinds of resistance.

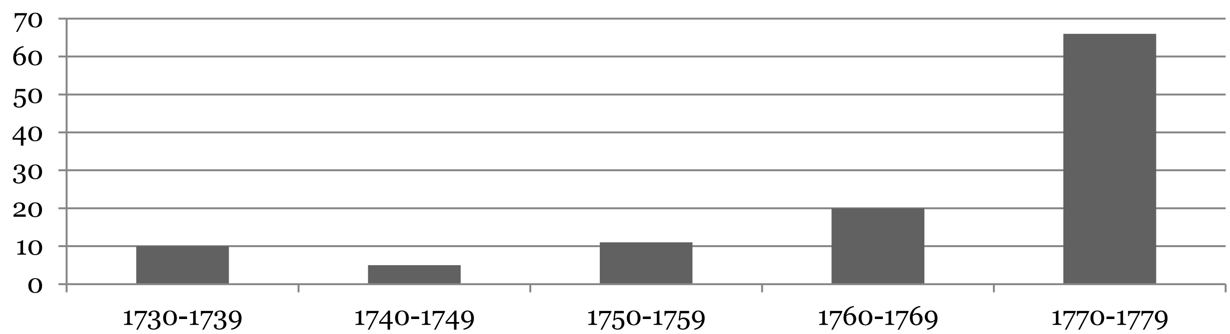

Figure 1.1: The number of revolts and rebellions in eighteenth century Andes by decade before the Tupac Amaru II rebellion in 1780-1781 (adapted from O'Phelan 1985: 284-298).

Important cultural changes were occurring during the same time that the *obraje* of Pomacocha was active. During the mid to late colonial period (A.D. 1650-1824) in the province of Vilcashuamán, Ayacucho, the use of Inka and pre-Inka era ethnonyms declined in historical records. Other historical documents suggest that such a decline may track changes in cultural practices. For example, the chronicler Bernabé Cobo mentioned that by the mid seventeenth century, people had largely stopped wearing headdresses signifying ethnic identity (Cobo 1979: 197 [1653]). While the historical literature emphasizes the importance of migration and loss of traditional ethnic lands in the decline of regional ethnic cohesion (e.g., Andrien 2001; Powers 1995; Stavig 1999), we still do not have a clear understanding of how the daily life of the native workers changed through the colonial era. Specifically, we do not understand how social cohesion and cooperation on a day-to-day level changed as a direct result of Spanish labor regimes, especially *obrajes*, or textile workshops, which were a major part of the colonial economy. Thus far, literature on Spanish colonial textile workshops has focused on how these workshops have contributed to the evolution of economic superstructures but is limited in addressing the changes in the materiality of everyday social relations (Andrien 1990; Borchart de Moreno 1995; Cushner 1982; Escandell-Tur 1997; Hurtado Ames 2006; Miño Grijalva 1993, 1998; Money 1983; Salas 1979, 1998a, 1998b; Salvucci 1987; Silva 1964).

Did the labor organization regimes imposed by the Spaniards also play a role in the decline of former ethnic cultural practices and were social tensions maintained or newly created by the colonial situation? How did such changes inform the character of resistance taken by the workers? This dissertation contextualizes the armed forms of resistance in the long-term evolution of social cohesion and resistance (Scott 2009: 248). The long-term processes that underlie and enable the forceful acts of resistance include materiality of social relations across the landscape, evolution of ritual practices and horizons, and the development of political consciousness among different castes.

My dissertation is the first archaeological investigation of a *mitmaqkuna* settlement turned *obraje*. Both the *mitmaq* and *obraje* were critically important state institutions facilitating social control, and there is almost no archaeological evidence of what the day-to-day experience was like for the laborers embedded in each institution. One expects that in economically and politically peripheral areas to the state, there may be much continuity and autonomy in daily life, but in core areas, archaeological evidence of changes in daily life of native Andeans often reveal narratives not evident in the historic record (e.g., Jamieson 2000; Jamieson and Sayre 2010; Van Buren and Presta 2010; Van Buren and Weaver 2012; Weaver 2008, 2015).

To assess the impact of the Spanish colonial textile workshop on the daily lives and social cohesion of the workers, this dissertation traces the long-term relationship among landscape, daily life, and ritual before, during, and after the height of the Pomacocha textile workshop (1460-1840 CE). Because Pomacocha was always a labor community, it is an ideal site to understand how workers negotiated the different labor regimes through time. Through archival research and archaeological excavations of a Late Horizon *mitmaqkuna* settlement and the Spanish colonial *obraje* in Pomacocha, this dissertation investigates how changing social relations informed strategies of resistance in Pomacocha.

The wider geographic context is the Spanish colonial province of Vilcashuamán, which is comprised roughly of the modern Peruvian provinces of Vilcashuamán, Cangallo, Huanca Sancos, and Victor Fajardo (Figure 1.2). The Inka province of Vilcashuamán, with its capital at Vilcashuamán, was larger than the Spanish colonial province of Vilcashuamán, because it extended northward all the way up to Acostambo, south of the Xauxa valley, westward toward Huaytará, and eastward toward Uramarca [Uranmarca] (Damian de la Bandera 1881 [1557]: 100; Santillana 2012: 53-54). Recent research on Inka and early Spanish colonial native communities suggests that bottom-up community dynamics directly influenced and limited state policies of control (Wernke 2007, 2014). The archaeological sites in the community of Pomacocha present ideal case studies to understand the range of materiality in social relations and daily life under three diachronically distinct labor regimes: the Inka-period *mitmaqkuna* system (ca. 1460-1532 AD), the Spanish colonial *hacienda-obraje* (ca. 1570-1821 CE), and the early Republican-period *hacienda* (ca. 1821-1840 CE).

Figure 1.2: Approximate extent of the Spanish colonial province of Vilcashuamán.

The case study of Pomacocha reveals interplay of labor, landscape, and identity that influenced the flavor of resistance carried out by its workers. In short, the evolving materiality of social relations mirrored the active forms of resistance taken by the workers. I adopt Jones' (2004:30) formulation of materiality: "In essence, the notion of materiality encompasses the view that material or physical components of the environment and the social practices enacted in that environment are mutually reinforcing." Under the Inka, ethnic groups were segregated and isolated to maintain political and economic control (Costin 2001: 241; D'Altroy 1992; Ogburn 2008). Part of this policy was to move some ethnic communities away from their homelands into *mitmaqkuna* colonies elsewhere to work for the Inka (Ogburn 2008: 292). Later, the Spanish Pomacocha *obraje* drew labor from the local *mitimaqkuna* population, native Andean labor from other communities, possibly African slaves, and poor wage laborers (Salas 1998a). The Spanish colonial administrative system tended to lump the diverse indigenous groups under "indio" (Ogburn 2008) while at the same time taxing "Indians" by their ethnic *repartimiento* (labor tax group), creating pressure for people to flee their natal communities (Powers 1995, Saignes 1995). The mass migration, however, did not in reality create a homogenous and fragmented population. Migration occurred in cycles designed to lessen the burden of colonial state demands and strengthened new interethnic and inter-caste alliances and kinship networks over the larger landscape

(Ramírez 1995; Saignes 1995). *Obrajes* such as the one at Pomacocha were one of the main engines in mass migration and social mixing, and unpacking how these processes occurred at the scale of daily life is crucial to understand the long-term social innovations that enabled armed resistance.

Under both the Inka and the Spanish, the area around the provincial capital of Vilcashuamán saw deep state penetration in the form of political, economic, and social reorganization programs. The subject populace under both the Inka and the Spanish in the Vilcashuamán area was intensely exploited, particularly in a place such as Pomacocha. Exploitation is defined as a "one-sided bargain" between rulers and their subject populations that results in the systematic accumulation of goods and labor in favor of the rulers (Spalding 1984: 125). Exploitation is reified through the mechanisms of power: coercion, or physical force or threat thereof, material incentives, and normative, value-based appeals (Etzioni 1961). In effective systems of exploitation, material incentives and normative, value-based appeals do most of the "work."

While scholars have moved away from equating high degrees of coercion in labor with the lack of agency in resistance (Stern 1995), there is still an assumption that as an institution becomes more coercive, the less potent the resistance can be, that is, the weapons of the weak are weak weapons (Scott 1985). Stern (1995: 77) states, "Aside from forced participation, almost always on highly unfavorable terms, native Andean relations with the market included a subtle and diverse range of responses." While forced participation does correlate with more exploitation, it does not, however, decrease the potency of resistance. Some of the most violent actions during the armed revolts and regional rebellions have occurred against *obrajes* in particular. I will argue that in the case of Pomacocha and similar labor institutions, the *more* coercive and exploitative an institution is, the *more consequential the strategies of resistance in the long run*. I show how "weapons of the weak" were not merely to express non-compliance, but rather crucial in the long-term formulation of social networks and shared cultural practices and ritual language necessary, or "mobilizing networks," for regional armed rebellion. In the "mobilizing structures" framework, scholars do not assume that social movements begin from scratch but rather build on previous networks and practices (McAdam *et al.* 1996).

1.2 Resistance and identity

Given's (2004: 11) spectrum of resistance distinguished different kinds of resistance: on one end were forms of armed resistance and on the other end were "unconscious patterns of everyday behavior which do not quite add up to what the rulers expect of their subjects" (Figure 1.4). Multiple forms of resistance can be in play at the same time. Coordinated and sustained resistance requires both a political consciousness that rallies large numbers of people and a common set of myths or cultural practices from which to draw the political consciousness (Tilly 2005: 144). Thus, to understand the evolution of colonial-era native Andean rebellions, one must understand the long term changes in identity and social cohesion (Spalding 1984: 239-269; Stern 1987a: 11-

18). Because many of the subconscious and non-violent forms of resistance are invisible in the archival record, we need to look at multiple lines of evidence to understand the longue-dureé of resistance during the history of Pomacocha.

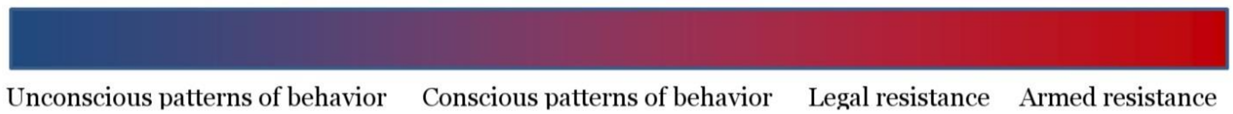

Figure 1.3: Spectrum of resistance adapted from Given (2004: 11).

The fluidity of ethnogenesis is a reflection of strategies of resistance against static, legally prescribed identities that facilitate state control (Scott 2009). On the other hand, ethnogenesis can also legitimize institutionalized inequalities, especially under the state (Hu 2013). This dissertation moves beyond privileging the armed forms of resistance by contextualizing them in the long-term evolution of social identity and resistance (Scott 2009: 248). My main argument is that the forms of resistance taken by the laborers of Pomacocha over time were shaped by the character of social relationships among different ethnic groups or castes over the landscape. The social relationship with landscape, in turn, was informed by previous forms of control and resistance. The main hypothesis is that, when a state or institution pursued a divide-and-conquer approach (interventionist strategies of control that sowed mistrust and increased divisions among social groups), armed resistance was more likely to arise when ritual practices and movement over the landscape were relatively unrestricted, and inter-ethnic and inter-caste alliances thus could form in opposition. When these conditions were not met, other forms of resistance were nevertheless active and played important roles in the long-term formulation of common ritual practices and regional social cohesion among the disenfranchised.

Certain kinds of resistance are more visible in different types of evidence; for example, armed revolt or rebellion is often visible in the written record, whereas many forms of subconscious resistance, for instance, foodways, are more visible in the archaeological record. Using multiple lines of evidence can shed light on more portions of the resistance spectrum. I will use a variety of methods and source material to support my arguments. The lines of evidence I will use include the archival record, demographic analyses, analyses of the artifacts recovered during excavations, architectural analysis, and landscape analysis. These lines of evidence are used to interpret the character of social relationships to the landscape, the nature of social cohesion, migration, foodways, ritual practices, nature of exploitation at the *obraje* of Pomacocha, the organization of labor at Pomacocha, and instances of armed or forceful revolt at Pomacocha. Because of the historically contingent nature of control and resistance at Pomacocha, I could not justify organizing my dissertation into chapters solely dedicated to the analysis of one type of evidence, for example, lithics. Furthermore, the multiple lines of evidence will intersect in differing ways for the different time periods, and some lines of evidence are missing or underrepresented for certain time periods, making it difficult to compartmentalize the analysis of each type of evidence. Instead, I found that I needed to adopt a chronological and narrative approach to capture the historical contingency of control and resistance. The standard analyses of each artifact type, however, are included in the appendices, but do not form a part of the narrative argument.

1.3 Structure of the dissertation and chapter overview

The structure of the dissertation has four parts. The first part, consisting of chapters one through three, introduces the main research questions, arguments, relevant debates in literature, and methodologies used in the dissertation. Chapter two reviews themes relevant to the dissertation: the intersection of Andean labor organization and identity change, Inka and Spanish labor regimes, the role of *obrajes* in the development of European capitalism, and the long-term and proximate causes for the late colonial Andean rebellions. I show how the dissertation intervenes in the debates of each theme. Chapter three reviews the methodologies used in gathering and analyzing the evidence.

The second part, consisting of chapters four through seven, unpacks the archaeological and ethnohistoric evidence of Inka state policies of social control in the Vilcashuamán area, particularly at a *mitmaqkuna* settlement in Pomacocha called Yanawilka. Chapter four presents the Inka conquest and consolidation of Vilcashuamán and contextualizes the founding of Yanawilka as a *mitmaqkuna* settlement early on. Chapter five analyzes the spatial organization of Yanawilka and summarizes the key findings of targeted excavations at the site. A general overview of daily life at Yanawilka is fleshed out. Chapter six is a geochemical analysis of the obsidian artifacts recovered at Yanawilka that gives clues to regional obsidian trade networks, restrictedness of interregional traffic, and internal redistributive patterns on-site. Chapter seven is comprised of the results of the laboratory analysis of the lithic, micro- and macro-botanical, faunal, and ceramic remains recovered in excavations at Yanawilka. The understanding of daily life and social cohesion at Yanawilka is enriched through these analyses.

The third part, consisting of chapters eight through eleven, unpacks the archaeological, archival, and historical evidence of Spanish state control and bottom-up evolution of resistance at Pomacocha and the Spanish colonial province of Vilcashuamán. The evolution of control and resistance at Pomacocha was understandably a non-linear affair, and one cannot trace overall trends of conditions becoming better or worse for the workers. The many reversals in workers' fortunes and the numerous individuals involved in the politics at Pomacocha can make it bit difficult for the reader to follow the narrative at times, so I include a timeline of the major events and people of Pomacocha for reference (Figure 1.4). Chapter eight is a historical account of how the people of Yanawilka and their descendants experienced Spanish colonialism before the functional establishment of the *obraje* in 1681. Chapter eight chronicles the local involvement in the Taki Onqoy rebellion, the loss of the lands of Pomacocha of the native Andeans to the Spanish, the demographic collapse, and the establishment of a *hacienda* at Pomacocha and its environs. Chapter nine examines the establishment of an *obraje* community at Pomacocha and community dynamics during the height of profitability (1690-1760) through architectural, demographic, and historical lenses. Chapter ten examines the historical evidence of forceful revolts and coordinated resistance at Pomacocha during the decline of the *obraje* (1760-1840), showing how each historical incidence of forceful revolt at Pomacocha was underpinned by a long-term evolution of strategies of resistance. Chapter eleven examines daily life at Pomacocha through analyses of micro- and macro-botanical, ceramic, faunal, and lithic remains recovered from excavations in the *obraje* that represented daily life at the *obraje* at the height of profitability. Chapter eleven also briefly considers architectural and archaeological evidence from a late colonial/ early Republican residential neighborhood in Pomacocha called Molinopata, when workers generally no longer lived in the *obraje*.

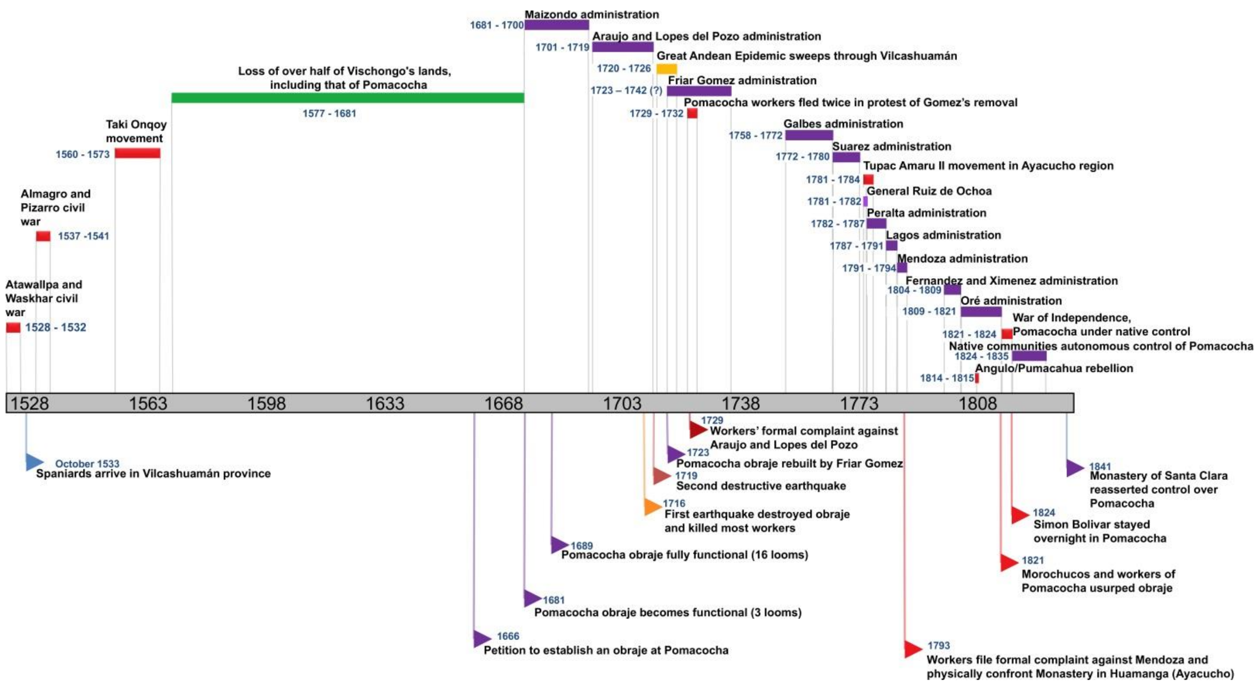

Figure 1.4: Timeline of major events and people related to the community of Pomacocha.

Finally, the fourth part, the conclusion, synthesizes the evidence from all preceding chapters to argue that strategies of control and resistance were created, reified, and mitigated in a historically contingent feedback loop. The conclusion argues that the dissertation contributed to the understanding of the more marginalized members of society and their roles in shaping the colonial situation, both Inka and Spanish.

2 Theoretical framework and previous research

This chapter reviews three main debates that guide the dissertation. The aim is to bring together the dissertation's themes of labor, identity, and resistance in dialogue with one another. The three themes can be summed through the following questions: 1) How did labor organization and transformation of identity intersect with each other from the late pre-Hispanic to Spanish colonial eras in the Andes? Where does Pomacocha fit in? 2) Did *obrajes* such as the one at Pomacocha operate under capitalist logic? What role, if any, did *obrajes* play in the rise of capitalism? 3) What is the relationship between the proximate and long-term social and cultural causes of the late eighteenth century Andean revolts and rebellions? How can the case study of Pomacocha contribute to our understanding of the long-term evolution of resistance? After reviewing each theme, I argue that to understand the late colonial revolts and rebellions, we must understand the long-term historical trajectories of labor organization. The organization of labor is instrumental in shaping social mobilization and identity.

2.1 Labor organization reorganization in the late pre-Hispanic and Spanish colonial Andes

Scholars have criticized the academic analytical divide between "history" and "pre-history" (e.g., Lightfoot 1995). This section will review archaeological case studies of labor organization in Andean societies from the late pre-Hispanic to the Spanish colonial eras and show how Pomacocha fits in. This section shows that state policies of labor reorganization had direct antecedents. For example, polities like Chimú may have inspired Inka labor institutions and the Inka labor institutions in turn provided an existing structure for Spanish labor institutions. "Labor" is defined as the relationship between the social and material in the production, distribution, and manipulation of material items (Silliman 2001: 80). This definition of labor is derived from Marx, who "drew a distinction between work and labor" where work is purely economic activity focused on energy maximization and labor is a social phenomenon where inter-human relationships are the most important (Wolf 1982: 74). One of the common definitions of the *ayllu,* the basic kin unit of many parts of the Andes, is "those who work together." Because identity and labor are so intertwined in the Andes, understanding labor is to understand the production of social relationships (Costin 1998b; Hendon 1996; Marx 1904 [1859]: 268).

2.1.1 Late Intermediate Period (A.D. 1100-1476) to Late Horizon (1476-1534) transition

The Late Intermediate Period (LIP) was characterized by regional polities of varying sizes such as the Sausa and Wanka in the central highlands and the Chimú of the north coast (D'Altroy and Hastorf 2001; Parsons and Hastings 1988). When the

Inkas in the Late Horizon (LH) conquered the two areas, a short-lived but profound period of domestic labor reorganization occurred. The Inkas instituted the *mit'a* or the corvée labor tax system, the *mitmaq* system where groups of people would be relocated near resources to either farm or craft for the Inkas, a tribute collection system, a *yanakuna* system where the retainers were taken from various ethnic groups and raised by the Inka, and an *aqllakuna* chosen women system to weave for the state and the Inka sun god Inti (Costin 1993; D'Altroy 1992, 2014; Julien 1982; Morris 1982, 1988; Murra 1975, 1980, 1982; Pease 1982; Rowe 1982; Watchtel 1982). To contextualize *obrajes* in the broader historical transformations of labor organization, this section will compare archaeological case studies of the LIP Chimú at Chan Chan and Pampa de los Burros, the LIP Sausa/Wanka, and the Inka *aqllakuna* and *mitmaq* labor institutions.

Topic (1982: 166) argued that the Chimú at Chan Chan was a caste-like society, where the different status groups were based on differential access to and control over labor, and employed a form of corvée labor. The residential blocks of the working class were probably populated by individual, but closely related families (Topic 1982: 168-169). Workshops, interpreted as communal workspace, were located in the same residential blocks and shared by multiple residential houses (Topic 1982: 155). The spatial division by elevation between the residential blocks and the rooms-on-a-platform complexes suggests another social division between the residential block lower-class proletariat and the rooms-on-a-platform upper-class proletariat (Topic 1990). The spatial organization of Chan Chan was underpinned by nested divisions at all levels of society, from the scale of within the household to societal, suggesting highly prescribed occupational roles based on status, age, ethnicity, and gender (Bawden 1990: 165; Topic 1982, 1990). Topic summarized the endogamy-leaning caste-like hierarchies as a horizontally-integrated quadrapartite: the royal class in the ciudadelas, the upper-class and lower-class proletariat, and the rural populace providing food (Topic 1990: 164-165). A caste-like division of society was also echoed in the creation myth of the Chimú (Topic 1982: 174).

Further away from Chan Chan's heartland at Pampa de Burros in the Lambayeque valley, labor organization seemed to be less caste-like. Rather, Pampa de los Burros had household economies multiplied many times (Sandweiss 1992: 15; Tschauner 2006: 190). There was little evidence of supra-household coordination and top-down management, unlike the top-down bureaucratic model at Chan Chan (Moore 1996: 205). The pottery producing households at Pampa de Los Burros were specialized at the household level and were able to maintain high output, both for utilitarian domestic consumption and for exchange (Tschauner *et al.* 1994; Tschauner 2006). All stages of ceramic production, including the making of the tools, took place within the household, which is different than at Chan Chan, where workshops would specialize in different production stages. Each Pampa de Los Burros household seemed independent in the production of crafts, and there was little evidence for strictly and consistently prescribed tasks based on gender, space, and age (Tschauner *et al.* 1994). Specialization was situational and responded to local social relations and in the context of local demand (Tschauner 2006: 191). An intriguing parallel of urban Chimú castes being defined by work occupation is the Inka practice of defining census categories by what the particular census group is able to do (Costin 1998a). Many archaeologists suspect that the Inkas may have been inspired by the Chimú forms of labor organization, especially in the systems of *mitmaqkuna* colonies, *aqllakuna* women and *yanakuna* retainers (e.g., Day 1982; Conrad 1982; S. Pozorski 1982; T. Pozorski 1982; Topic 1982).

In the late 1970s and 1980s, a multi-disciplinary team led by Tim Earle, Terence D'Altroy, Christine Hastorf, and Cathy Scott carried out extensive archaeological research in the Upper Mantaro Valley on the Sausa ethnic group. The primary goals of the research were to understand the origins of social stratification and inequality before and during the Inka conquest (Earle *et al.* 1987; Hastorf 1993). In general, it seems that the Inka conquest and mandatory corvée labor exacerbated materialized status and gender differences (D'Altroy and Hastorf 2001). Over time, corvée labor became increasingly replaced with labor in the form of production enclaves staffed by retainers (*yanakuna*) and occupationally-specialized ethnic colonists (*mitmaqkuna*) (D'Altroy 1992, 2001a, 2001b, 2001c; Murra 1980 [1956]). This shift toward retainer labor allowed the Inkas to increase the control of labor without local non-Inka elite mediation (D'Altroy 1992: 178). Although household production seemed to increase among both the elite and commoner households during the Inka period to satisfy tribute demands, there was little qualitative change in domestic labor organization, as production was still centered on the patio-group household and community-level specialization (Costin 2001; D'Altroy 2001d; Hastorf 2001a, 2001b). The domestic mode of production seemed to have survived intact during the Inka period underneath the increased tribute and production demands of the state (D'Altroy 2001d: 335).

Extensive excavations at Huánuco Pampa headed by Craig Morris in the 1960s, 1970s and 1980s included the excavation of a probable *aqllawasi*, or house of the chosen women in Zone 5 of the site (Morris 1982, 1985, 1992; Morris and Thompson 1985). This was the first case of archaeologically identifying an aqllawasi as described in various ethnohistorical documents. According to the ethnohistorical documents, the *aqllakuna* were "chosen women" selected when young by the Inka to weave and brew *chicha* corn beer (Morris 1985: 70). Guaman Poma and Bernabé Cobo described the *aqllawasi*, or the house of the chosen women, as a place where the aqllakuna were taught by the priestesses of the Sun called *mamakuna* to weave for the Sun and the Inka. The *aqllakuna* would also be given as gifts to subject lords. The probable *aqllawasi* compound was rigorously planned and characterized by a trapezoidal outer wall, barracks-like fifty residential/work buildings, thousands of large ceramic jars for the storage and production of *chicha*, large numbers of spindle whorls, tightly controlled access points and narrow door, and domestic refuse. The standardized buildings served both as residences and workshops (Morris 1985: 70). The *aqllawasi* features show that the Inkas coopted domestic food and textile production and consumption into the state-oriented realm (Nash 2009: 236). At Pachacamac, the analysis of textiles and other objects used and produced by the *aqllakuna* reveal that the *aqllakuna* were probably not highly controlled in their cultural preferences and social interactions within the compound even as the products they produced for the Inka were highly standardized (Tiballi 2010).

Royal estates, such as Machu Picchu, had *yanakuna* retainers for production of food and items necessary for a royal household (Burger and Salazar 2004; Niles 2004). Why did the Inka establish the *aqllawasi* and royal estate system? In addition to the military and political strategic advantages, Niles (2004: 50) noted that the primary reason was due to the need for land holdings and production capacities to support a royal son. The dead kings owned vast stretches of productive land and large numbers of retainers for their maintenance, leaving little for their descendants. This drove the sons, who had power but not wealth, to acquire property and labor so that they may also live well in their lifetimes and after they pass (Niles 2004: 50). The *aqllakuna* served the Inka ruler personally by providing fine textiles and labor for state feasting events to extend the political and economic indebtedness of Inka subjects.

The *mitmaq*, or resettlement policy of the Inka, affected the Andean social landscape more than any other state policy (D'Altroy 2014: 373). The *mitmaqkuna* were people transplanted from their original homeland by the Inka to control rebellious areas and to meet state economic demands (D'Altroy 1992: 188; Rowe 1946: 269-270). The Inka fragmented the political landscape by resettling small groups of people from different political and ethnic loyalties together in the same area as a form of divide-and-control (Cieza de León 1959: 56-63 [1553]; D'Altroy 2014: 373-375: Lorandi 1986). Approximately a quarter to a third of the population was resettled (D'Altroy 2014: 373). The *mitmaqkuna* were often resented by the local populace because the Inka gave them rights to fertile agricultural lands at the expense of the locals (D'Altroy 2014: 374-375), and the resentment sometimes has persisted into the present day in, for example, Jauja (Hastorf, personal communication 2015). Cieza de León, a reliable chronicler (Rowe 1946: 195), wrote:

> [T]hese *mitimaes* were ordered by the Incas to be always obedient to what their governors and captains ordered, so that if the natives should rebel, and they supported the governor, the natives would be punished and reduced to the service of the Incas. Likewise, if the *mitimaes* stirred up disorder, they were put down by the natives… And from the lands and provinces which had been peaceful and friendly for a long time, and had shown their disposition to serve him, the Inca ordered an equal number or more to pass over to the newly won lands and settle among the Indians that had been subdued, where they took charge of the aforementioned matters, and brought them to a knowledge of order and polity. Thus, the former departing, and the latter entering, and with the governors and representatives appointed, everything would be safe…
>
> As the Incas were aware of how reluctant peoples are to leave their native land and the surroundings they know, in order that they should cheerfully accept this exile, they treated these people with special consideration; to many they

> gave arm bands of gold and silver, and clothing of wool, and feathers, and women, and they enjoyed other privileges. And among them there were spies who were always listening to what the natives talked about and planned, and this they reported to the Lord-Inca's official, or went quickly to Cuzco to inform the Inca. In this way, all was quiet, and the *mitimaes* feared the natives, and the natives feared the *mitimaes*, and all occupied themselves only in obeying and serving. If among the one or the others there were mutinies or conspiracies or plotting, they were severely punished, for some of the Incas were vengeful and mercilessly meted out punishments of great cruelty [Cieza de León 1959: 57, 60-61 (1553)].

Cieza de León categorized the three main types of *mitmaqkuna* as: 1) those brought into a newly conquered area for economic and security purposes, 2) those brought to settle along hostile frontiers in garrisons for serving military purposes, and 3) those brought to settle newly secured, but previously unpopulated areas for agricultural and pastoral activities. The Inka made special care to resettle people into climates similar to the one of their homeland (Cieza de León 1959: 60-62 [1553]). Ethnohistorical sources say that the *mitmaqkuna*, like other subjugated groups, were required to wear distinctive dress, especially headgear, to maintain ethnic distinctiveness (Cobo 1979 [1653]: 196).

Despite extensive discussion in ethnohistorical sources and its overall importance to the Inka state, the *mitmaq* system is the least studied archaeologically of all the Inka labor institutions. We know little of the domestic daily lives of these colonists, even in the ethnohistorical record despite their prevalence in the Inka Empire (Haun and Cock Carrasco 2010). Although considered the most reliable chronicler, Cieza de León (1959: 82-83) had strong biases against the narratives of the common folk: "These Indians tell things in many different ways. But I always follow the best opinion, that of the oldest and best informed of them, who are nobles, for what the common folk tell cannot be considered the truth just because they say it is." Because of this bias, he often spoke highly of the Inkas and emphasized how much most of their subjects were in awe of them. We do not have commoners' histories of the Inka from shortly after the Spanish conquest. Therefore, archaeology becomes crucial to shed light on the daily lives of Inka subjects. A possible Lupaqa *mitmaqkuna* colony with an Inka administrative core was located at Sama Grande on the south coast of Perú (Trimborn *et al.* 1975; Trimborn 1981), but the identification is inconclusive due to a lack of biological evidence and domestic excavations (Covey 2000: 128). Another possible *mitmaqkuna* settlement identified through the archaeological record is at Cerro del Inga in Chile (Rossen *et al.* 2010). Cerro del Inga could have been an example of the second type of *mitmaqkuna* settlement described by Cieza de León, a garrison, because it was located near the hostile southern frontier of the Inka empire and was fortified. Unfortunately, while ethnohistoric sources say that *mitmaqkuna* were in the area, they do not directly identify the Cerro del Inga site as *mitmaqkuna* settlement (*ibid*: 19). Rossen *et al.* (2010) demonstrate how foodways can be an important locus of state control/consolidation as well as local resistance. Specifically, they hypothesize that quinoa intensification was part of Inka policy of control and consolidation, because quinoa was a primary staple of Inka heartland. The bright red and yellow quinoa fields would have spectacularly transformed the local landscapes (*ibid:* 40). At the site of Pueblo Viejo-*Pucara* in the coastal Lurín Valley, Peru, new hybridized ceramic styles and foreign architectural canon similar to that of Huarochirí in the highlands suggest that this site was a *mitmaqkuna* settlement (Makowski 2002; Makowski and Vega Centeno A. 2004). If Pueblo Viejo-*Pucara* was indeed a *mitmaqkuna* settlement, then the prevalence of prestige items such as spondylus, precious metals and fine pottery suggest that its inhabitants had an elevated status (*ibid*).

The best-known *mitmaqkuna* colony is Milliraya near the northern shore of Lake Titicaca (D'Altroy 2014: 429-431; Spurling 1992). Both ethnohistoric and archaeological evidence (surface survey) strongly support Milliraya being a *mitmaqkuna* colony dedicated to weaving and pottery (Spurling 1992). Milliraya was a community of over one thousand potters and weavers transplanted from local communities, rather than from afar as was often the case. The artisans were from different *ayllus* and were administered on-site by two overseers and officials representing the different *ayllus*, but no state officials were resident on-site (Spurling 1992: 386). Spurling argued that by having relative outsiders as administrators, the Inka state "avoided the possibility of collusion between the artisans and officials" (*ibid*). Although we have valuable archaeological and historical evidence of political organization and production at Milliraya, information on domestic daily life is still lacking. The "divide-and-control" policies common among colonial and imperial states found a particular expression with the Inka state. Instead of simply dividing the populace to sow mistrust among groups, the Inka divided, relocated, and controlled a significant portion of the total subject population. Such reorganization of social landscape limited the possibility of political alliances among groups, thereby encouraging social landscapes of distrust, resentment, and ethnic fragmentation. Although the Inka generally resorted to indirect methods of control to bring about these new social landscapes (material incentives and normative appeals), there was always the threat of overwhelming military force.

Identifying *mitmaqkuna* settlements archaeologically is difficult for several reasons (Alconini and Malpass 2010: 281, 293-295; D'Altroy 2014: 376-377). First, it is difficult to determine whether a settlement was composed of non-locals solely from the archaeological record. Non-local artifacts, especially ceramics, do not prove that the inhabitants are not from the area (Van Buren and Presta 2010: 187). Second, even when one can prove the inhabitants were not locals, for example from strontium isotope or biodistance evidence (e.g., Andrushko *et al.* 2006, 2009; Bethard 2013; Haun and Cock Carrasco 2010; Turner *et al.* 2009), it is difficult to distinguish the various reasons for the migration, whether imperially sanctioned or locally motivated. Third, *mitmaqkuna* often settled in an area for multiple generations, so it would be even more difficult after the first generation to distinguish artefactually and isotopically the *mitmaqkuna* from their neighbors. Fourth, the distinction between local resettlement (i.e., from hilltops to valleys) and long-distance resettlement (most often associated with the *mitmaq* policy) is fuzzy. Although culturally hybridized architecture, foodways, and material culture can be supportive of the identification of *mitmaqkuna* colonies (e.g., Makowski and Vega Centeno A. 2004; Marcus and Silva 1988), cultural hybridity by itself cannot be used as proof.

One way to identify *mitmaqkuna* settlements is to study areas, such as most areas of the Inka province of Vilcashuamán, where the original population was completely depopulated by the Inka and then settled with transplanted *mitmaqkuna* populations (Valdez and Vivanco 1994). With this logic, all non-Inka settlements from the Late Horizon in that area should be *mitmaqkuna* settlements.[1] Because this information comes from from ethnohistoric sources, we must employ other lines of evidence to corroborate the identification of a *mitmaqkuna* settlement. This dissertation, therefore, makes an important contribution to identifying and understanding *mitmaqkuna* settlements. Multiple lines of evidence converge to show that the site of Yanawilka in Pomacocha was a Condes *mitmaqkuna* settlement: early ethnohistoric accounts that emphasize the complete depopulation of local inhabitants in the Late Horizon and their replacement by *mitmaqkuna*, land titles show that Yanawilka belonged to the Condes *mitmaqkuna* of Vischongo, a neighboring community, in the early Spanish colonial period, ED-XRF analysis of the chemical composition of obsidian artifacts that show links to the Condes homeland in the Arequipa/Chumbivilcas area, ceramic evidence showing both Inka and non-Inka influences, non-Inka domestic architecture, and unusual settlement organization lacking an Inka administrative core. Each line of evidence will be discussed in further detail in the following chapters. The excavations at Yanawilka provide an unprecedented archaeological view of *mitmaqkuna* domestic labor organization and how they accommodated to a new homeland. Were Inka divide-and-control policies as effective as the ethnohistorical sources make them out to be? How intrusive were the Inka in *mitmaqkuna* daily life and labor organization? Did the inhabitants of Yanawilka enjoy an elevated status?

2.1.2 Spanish colonial period (1532-1824)

Colonial era labor organization was diverse depending on location and time period. Architecture, technology, and labor organization reveal influences from Andean, Islamic, and Spanish medieval regionalisms (Smith 1997). Household self-sufficiency still continued even under high-stress conditions such as working in mines and participating in other kinds of tribute labor far away from home; through it all, the family often remained together (Weaver 2008). Inka *mit'a* labor transformed into the colonial *mita* labor tribute system and coexisted with the rise of wage labor in mines, *hacienda*s and *obrajes* textile workshops (Salas 1998a; Stern 1993; Urrutia 2014). This section will review archaeological investigations of the two major colonial industries most relevant to *obrajes*: agriculture and textile production. If the Spaniards adopted Inka naming conventions for the *mitmaqkuna* (mitimaes), *yanakuna* (yanacona), and

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[1] This does not mean that sites with an identifiable Inka administrative core, like at Huánuco Pampa, are precluded from having *mitmaqkuna* colonists.

mit'a (*mita*), does this mean that agriculture and textile production in the colonial period shared the same labor organization logic as their Inka counterparts?

Domestic industries, such as textiles, coca, mining and metalworking, wine and brandy, and food production burgeoned in the colonial period (Chatfield 2007; de France 1996, 2003; Smith 1997; Urrutia 2014; Van Buren and Mills 2005). Nevertheless, the labor organization of such industries is not well understood archaeologically. Extant evidence shows major restructuring of native labor organization. Excavations in Moquegua showed that labor organization of wine and brandy production in Moquegua was purely based on Spanish and Roman principles of wine-making (Rice 1994, 1996, 1997; Rice and Smith 1989; Rice and Van Beck 1993). Starting in the 1570s, the *reducciones* (policy of aggregating native settlements for ease of control), religious indoctrination and taxation led to profound disruptions in agricultural production and native social structures (Wernke 2013). The tribute tax paid in cash and kind also disrupted native foodways. In the Colca Valley in the late sixteenth and early seventeenth centuries, census or *visita* records show that thirty percent of households had caloric shortfalls based on their agricultural holdings. The inequality existed even when communities were producing an overall surplus for the state (Wernke and Whitmore 2009). In colonial Ecuador, and likely elsewhere in the Andes, a primary native staple shifted from quinoa to barley for two main reasons (Jamieson and Sayre 2010). The first is that quinoa, while more nutritious, is more labor intensive, and with the heavy Spanish taxation and labor responsibilities, people shifted to less labor intensive foods. The second reason is that the tribute demand was in the form of barley, and because the barley planting/harvesting cycle overlapped with that of quinoa, quinoa was replaced.

This dissertation, which looks at the long-term trajectory of the *mitmaq* system as well as textile production, is the ideal case study to compare Inka and Spanish labor regimes. Did Spanish colonial labor reorganization represent a radical break from earlier Inka policies? There are several levels at which labor reorganization can happen, and each level was informed by strategies of resistance. On one level, highly intrusive labor regimes such as *obrajes* did reorganize the daily lives of their native workers. The intrusion, partly manifested in the creation and maintenance of cultural and labor distinctiveness of the Spanish colonial castes, was resisted in domestic labor organization in various ways. On another level, taking a more general view of historical trajectories, Spanish labor regimes mirror the historic trajectory of Inka labor regimes. Both types of labor regimes undermined ethno-political networks over the landscape, whether intentionally, as with the *mitmaq* system, or unintentionally, as with the pervasive migrations in the colonial period. Both trajectories show a progression from community autonomy, to dependent communities on state labor institutions, and finally to permanent peonage on the sites of labor in the form of the *yanakuna* system. Despite these similarities, I argue that the mid- to late colonial Spanish economy provided dynamic spaces for the formulation of new regional identities and civil society-based alliances over the landscape, which the Inka were more successful at mitigating. A major locus of the reification and contestation of labor exploitation was the transformation of identity in both Inka and Spanish colonial periods. In future chapters, I unpack how the reformulation of identities by state and civil society underpinned the evolution of resistance at Pomacocha and elsewhere in the Andes.

2.2 *Obrajes* and the rise of capitalism

What role, if any, did *obrajes* play in the rise of capitalism? To some, *obrajes* operated under capitalist logic, were the direct predecessors of industrial factories, or created the social conditions suitable for capitalism (e.g., Cushner 1982; Chávez 1936; Salas 1998a; Tutino 2011). Others argue that *obrajes*' inefficiency and reliance on coercion precluded them from providing the framework for later industrial factories (e.g., Miño Grijalva 1993, 1999; Salvucci 1987). Thus, *obrajes* represented an economic evolutionary dead end parallel to, and not part of, the development of capitalistic factories. More generally, the role that colonial Latin American economies played in the rise of capitalism, both local and European, has been hotly debated (e.g., Assadourian 1973, 1982; Larson 1988; Salvucci 1987; Spalding 1984; Stern 1985, 1988, 1993 Tutino 2011). To resolve this debate, one needs a clear definition of capitalism and a long-term view of its development. In this section, I outline the two main strands of thought in defining capitalism, from which a working definition of capitalism for the dissertation is created. I then introduce one of the themes of the dissertation, which is the *obraje*'s contribution to the development of capitalism. I argue that while the *obrajes* themselves did not operate under capitalist logic, the social changes brought about by *obrajes* and the methods of social control developed in them created favorable conditions for the rise of capitalism.

Two strands of thought about capitalism common to most discussions about colonial Latin American economies stem from Karl Marx and Fernand Braudel. By examining how capitalism is distinguished from other economic logic and how it affects the domestic mode of production, a clearer definition of capitalism is formulated. Marx sees the capitalistic mode of production as distinguished by three main traits. First, the primary goal of the capitalistic mode of production is the maximization of profit ("extract the greatest possible amount of surplus-value") in which monetary profit is reinvested in more monetary profit (Marx 1909: 363, 1964: 67). Non-capitalistic economies still value profit, but for the ends of "enjoyment" rather than as an end in itself (Marx 1909: 84). The second main trait is that the capitalistic mode of production alienates the laborer from the means of production such as equipment, infrastructure, land, property, and cooperation with other laborers (*ibid*: 365). The result is that the laborer becomes stripped of all social identity except for their labor-value as a "worker" (*ibid*: 68). The third main trait is how capital concentrates labor and the means of production in one place and breaks down the productive process into smaller successive steps, turning the skill laborers into free unskilled laborers (*ibid*: 111-115). The result is a "productive mechanism whose parts are human beings" and traditional productive operations are changed into "disconnected, isolated ones, carried on side by side" (*ibid*:

370-371). The capitalistic division of labor confers certain advantages, such as maximum profitability, and once established, begins to overtake other modes of production (Marx 1964: 117). Once people are alienated from their means of production, fewer and fewer economically viable choices remain for laborers, and they willingly enter a free wage relationship with the capitalist (*ibid*: 110-118). Capitalism therefore creates a world where laborers enter relationships of domination by the capitalist and come to depend on their exploiters. Their labor only increases their own impoverishment and the enrichment of capitalists (Marx 1964: 110), and as the laborers lose more control over the means of production, the capitalists increase their social productive power of labor (Marx 1909: 400).

To Braudel, capitalism was a process that accelerated beginning in the fifteenth century. Braudel emphasized the role that the state played in the triumph of capitalism (Braudel 1977: 63). Unlike Marx, Braudel did not see capitalism as characterized by any one type of production, such as domestic economies versus manufactories. Rather, capitalists are characterized by predatory adaptability in inserting capital in a variety of enterprises, depending on opportunity to make profit (*ibid*: 47, 59, 61). While capitalism often did result in increased specialization and division of labor, it was not the aim of capitalists to restructure labor organization for its own sake (*ibid*: 59-61). The capitalists at every turn aimed to monopolize access to capital, often with the state's collusion, and long-distance trade was the preferred manner of avoiding the rules of market regulation that were favorable to competition (*ibid*: 50-58, 113-114). Capitalists did not create hierarchy, but capitalism flourished in areas where social hierarchies were strong, often because of the presence of cheap labor (*ibid*: 74-75, 92-93). Braudel's emphasis on long-term processes of how capitalism encroached on daily market relations, eroded viability of alternative economies, and reinforced hierarchies is applicable to the study of colonial Latin America's contribution to the rise of capitalism, even if production was not strictly capitalistic in the Marxist sense (Tutino 2011: 12).

The biggest problem with these characterizations of capitalism is that they do not emphasize the active role of the workers themselves in the creation of or resistance against landscapes of capitalism (Herod 1997). Capitalism is assumed to overpower all competing ideologies and economic practices once established. Capitalists are seen as active and dynamic, whereas laborers, domestic economies, and daily markets are conservative and reactionary. Laborers, domestic economies, and daily markets are abstract units that "receive" the changes brought by capitalism rather than possessing dynamism of their own (*ibid*: 16-17). Archaeologists and historians, however, recognized the active roles that indigenous peoples and workers played in shaping landscapes of capitalism. By recognizing the active roles that the "exploited" played, scholars moved beyond a Euro-centrist view of the development of capitalism (e.g., Assadourian 1982: 136; Feierman 1995: 43; Pezzarossi 2015; Stern 1988: 870-871; Weismantel and Eisenman 1998: 124), emphasized ecological changes (Lightfoot *et al.* 2013; Spalding 1984), engaged with the spatial reification of or resistance against capitalism in landscape and architecture (Given 2004; Foucault 1995; Leone 1995; Scott 1985, 1998, 2009), and stressed internal differentiation and alliances among different classes, which often engendered new identities (e.g., Bell 2005; Hu 2013; Scott 2009; Stavig 1999; Stern 1993). The fact that major thinkers of capitalism emphasize different long-term processes that have contributed to the rise of capitalism suggests that capitalism evolved differently over space and time. Even Marx admitted that plantation slavery was an anomaly in a global capitalist system (Marx 1964: 119). A more useful orientation in defining capitalism is through the effects on subject populations, rather than based on traits (Pezzarossi 2015).

I define capitalism from the perspective of what happens to the social landscape. By social landscape, I mean the context in which humans survive, cognize the world, act, and make meaning (Hu 2011: 81). The context itself is created and modified over many generations of human interaction (Contreras 2010; Spalding 1984: 298). On one level, the social landscape is how humans organize themselves over the physical landscape that they helped create: how they produce food, how they ensure access to a variety of resources critical to biological and social reproduction, how their kin are distributed across the landscape, how they organize ritual circuits, and how they manage political alliances. At this level, capitalistic effects to the social landscape include the ecological separation of the laborer from the soil (Marx 1909), which in turn breaks down the local moral economies of households (Weber 1961, 1978; Wolf 1969). In the place of an ecologically embedded network of household economies and daily market exchange, a landscape of politically and economically un-imbedded individuals enter into subordinate relations with capitalists as individuals and not as groups (Marx 1909, 1964). Braudel's concept of capitalism as a "countermarket" becomes relevant in understanding the type of social landscapes (i.e., household and community subsistence agriculture and market exchange) that is resistant to capitalism (Braudel 1977). The dissolution of local moral economies has profound implications for identity transformation, as social relations are reorganized. According to Weber, the household moves from being a locus of production to consumption, and the individual's cultural values come increasingly from outside the household economy (1978: 375). Marx's (1909) theory of alienation also shows how capitalism can instrumentalize and commodify identity, making it less relevant to local culture and politics and more tied to capitalistic production.

On another level, the social landscape is also the spatial structuring of daily activities through architecture and settlement planning. Foucault (1995) presented a cogent argument about the co-dependent rise of capitalism, social engineering of docile bodies, and the increasingly pervasive prison logic in society. Capitalism is undergirded by innovations in methods of social control that engineer a docile, alienated workforce, such as panoptic, enclosed, and segregated settlement planning and architectural design (Foucault 1995; Leone 1995). Such methods of control and social engineering preceded the rise of capitalism, but according to Foucault, only with the Enlightenment did such techniques of the body begin to pervade all aspects of society and reinforce one another (Foucault 1995: 224). Weber (1948: 331-357) argued that capitalism was characterized by an increasing "rationalization" of different spheres of life: instrumental rationalization as means-end rationality, e.g., efficiency in production and bureaucracy, and value rationalization as systematizing and elaborating worldviews and practices in general. Braudel, Foucault, Marx, and Weber all argue that capitalism gains currency when all spheres of life begin to operate with capitalistic logic, each sphere reinforcing the others. Conversely, capitalistic effects to the social landscape are contested in multiple spheres of life. Social landscapes could be conducive or resistant to capitalism. This dissertation puts the social landscape at the fore of analysis and, by doing so, the narrative becomes more sensitive to local variation.

Returning to the question of whether *obrajes* represented the direct precursors to capitalistic industrial factories, it is clear that *obrajes* and industrial factories did not share the same rationale (Salvucci 1987: 38-52). Though the economic activity of *obrajes* focused on the accumulation of profit, *obrajes* had to rely on the coercive power of the state to secure labor not on a free labor market (*ibid*: 42-43, 114). Scholars of Latin America generally agree that the colonial economy, because of heavy reliance on coercion, was not capitalism in the strict Marxist sense of being based on free wage labor (Stern 1985: 5-6, 1993: 220). Most scholars would agree that colonial Latin America had its own forms of capitalism, based on commercial capitalism[2] aided by coercion and state collusion in monopolistic tendencies (Guardino and Walker 1992: 14-15; Stern 1993: 37). This view of "colonial capitalism" is more consistent with Braudel's conception of capitalism. Colonial Latin American economies were characterized by internal opposing tendencies (Larson 1998; Patch 2013; Salvucci 1987; Spalding 1984; Stern 1993; Tutino 2011). Such contradictions resulted from the articulation of coexisting modes of production (social landscapes), each with their own historical development and internal logic (Guardino and Walker 1992: 18; Stern 1985: 6-7).

I argue in future chapters that while *obrajes* like the one at Pomacocha did not operate under the logic of industrial capitalism, they were loci of articulation and contestation among several social landscapes. Some of the social developments at *obrajes* were recognizably capitalistic, whereas others worked against capitalistic effects on the social landscape. The conflicting social landscapes surrounding *obrajes* manifested most clearly in the evolution of strategies of control and resistance.

2.3 Causes of the great Andean rebellions of the late eighteenth century

The Andes, especially Lower and Upper Peru (present day Peru and Bolivia) saw an increase of revolts and rebellions after 1770 (O' Phelan 1985: Appendix A). Scholars have debated the relative importance of several proximate and long-term causes of the increase in revolts and rebellions (Ramirez 2009: 815-816). Some see changes in economic policies, such as new censuses and Bourbon economic reforms that resulted in

[2] Commercial capitalism is "understood as buying (or producing) cheap to sell dear" and is based on the production and sale of commodities (Stern 1993: 37).

more economic burdens across several castes, as key drivers of revolts and rebellions (e.g., Golte 1980; O'Phelan 1985; Stavig 1999). Those leaning toward historical anthropology argue that instead of solely being the result of proximate economic causes, the great Andean rebellions of the eighteenth centuries were a result of a continuous process of adaptation and resistance by part of the Andean peasants, and that local culture-history is important to understanding the forms of resistance taken (McFarlane 1995; Stern 1987a: 18). Others emphasize the ongoing imagination of a pan-Andean utopia (Flores 1987). In opposition to the narrative of the indigenous Andean rebels as essentially passive or conservative until they react to unfavorable economic policies, some scholars emphasize that the late colonial Andean rebellions of the 1780s were part of a longer trend of increasing political activism and conflict in and among indigenous communities (e.g., Garrett 2005; Serulnikov 2010; Stern 1987a; Thomson 2002).

The social landscape itself is composed of different realms, such as the legal, political, and religious, and can often be contradictory. When such contradictions occur, people often become conscious of them and "fight it out" (Marx *et al.* 1970 [1859]: 53). Such contradictions, for example, occurred between the state and church and were often the proximate causes of revolts (O' Phelan 1985). Social landscapes were linked to resistance:

> There is a need within existing literature to also link religion, along with gender, race, and class, to both daily resistance strategies and larger revolts and rebellions of nonelite groups in Latin America. Numerous examples exist of nonelites constructing and using religious symbols and rhetoric to resist very serious changes going on around them, such as the transition to capitalism or structural changes in state power [Few 1995: 633].

The various causes of revolts and rebellions in the late colonial Andes operate at various time and spatial horizons. This dissertation examines the causes of resistance at different time scales for Pomacocha and shows how the workers at Pomacocha and elsewhere in the province of Vilcashuamán actively reshaped their political and social horizons (Braudel 1978; Stern 1987a).

The following chapters will examine long-term, medium-term (or conjunctural), and short-term conditions and causes for resistance at Pomacocha. The medium- and long-term conditions and causes generally involve wider social developments in colonial society, whereas the short-term conditions and causes tend to be more localized. The long-term conditions that framed resistance are explored in the evolution of foodways and food access, demography, daily life labor organization, legally prescribed versus bottom-up social identity, architecture, and relationship to the landscape. The medium-term conditions were changes in economic policy, in law, census-taking and labor/tax-evading practices, epidemics, and ideological platforms. The short-term conditions were most specific to Pomacocha and include changes in administration, local politics, and temporary alliances. Although I split the causes and conditions into three general time scales for clarity, the division is somewhat arbitrary because all the causes and conditions are interconnected. The short-term conditions are shaped by medium and long-term conditions and, in turn, shape future medium and long-term conditions. By dwelling on the revolts and rebellions of the short-term time scale, we miss equally, if not more, important processes of resistance such as strategic migration and identity transformation (Scott 2009: 284). Furthermore, processes of control, such as accommodation, internalization, and assimilation are often overlooked in discussions of revolts and rebellions. This dissertation will show how the strategies of resistance and control shaped one another. One implication of this framework is that there is no "essential" or "timeless" Andean peasant that reacts to challenges to "traditional" ways of life (Stern 1987a); the very act of resistance or working under controlling processes changes social landscapes. The informal structure of daily life plays a pivotal role in mobilizing movements (McCarthy 1996).

2.4 Conclusion: Labor, identity, and resistance at Pomacocha

Social landscapes are palimpsests, and new social landscapes never completely erase the old. Economic systems are accumulative and incorporative (Hirth and Pillsbury 2013: 642), as are value systems and identity. Inka state reorganization of daily labor provided some structure for Spanish control and extraction of subject populations. Other pre-Hispanic forms of production and distribution also continued to develop in articulation with new European forms. While the colonial economies were not industrial capitalism, certain developments did contribute to necessary preconditions of capitalism, such as the breakdown of Andean rural communities into wealthy peasant sector and the landless dispossessed (Spalding 1984: 299; Stern 1993: 36-37). In the following chapters, this dissertation shows how the state policies of control and extraction also inspired long term agendas of resistance that centered on legal challenges and non-conforming to ethno-economic categories and juridical boundaries. In short, workers at places like Pomacocha actively challenged the Spanish identity categories that were built on divide-and-control. The late colonial forceful revolts at Pomacocha and elsewhere in the Andes are glimpses of the social landscape that was created through these long term processes of accommodation and resistance.

This dissertation shows how the reformulation of identity, labor, and relationship to the landscape at Pomacocha resulted in both effective methods of control as well as resistance. A unique contribution of this dissertation is a long-term archaeological and historical view of control and resistance in one community. The methods of control were part of the evolution of capitalism. By examining the social changes in a community with heavy penetration of the colonial economy, this dissertation offers a view of how capitalism evolved and was resisted at the local scale. The dissertation will demonstrate how different actors created social landscapes that were more or less conducive to certain acts of control or resistance. With this view, "oppressors" could create conditions more conducive to the downfall of an oppressive system and the "oppressed" could reify conditions conducive to exploitation (e.g., Voss 2008). Furthermore, inter-caste and inter-ethnic alliances, and even the rejection of ethnic identification, often underpinned resistance strategies. The dichotomy between the native “oppressed” and the European “oppressors” is not useful to understanding the conditions and motivations behind resistance. By taking a close look at the particular historical realities of how people interacted with each other, rather than assuming the dynamics of ethnic or other identity (Salomon 2002), we can understand how the co-evolution of labor, identity, and resistance at Pomacocha enabled unexpected, and often creative, cultural and political reformulation.

3 Methodology

My dissertation uses archaeological, archival, and spatial syntax methodologies. The methodologies provide multiple frames of reference on the same phenomena, which enables multiple narratives to emerge. In this chapter, I briefly describe the methodologies used. These methodologies include mapping (geological survey, geophysical survey, and aerial photography), archaeological excavations, laboratory analysis of archaeological remains, archival research, and spatial syntax (or space syntax). They were employed to understand the spatial organization of social relations in enclosed spaces and over the landscape. Thus, the social and historical context and conditions for resistance could be examined through multiple lines of evidence. These multiple lines of evidence allow us to examine the relationship among attitudes about social relations (i.e., about race, caste, gender and ethnicity) and the manifestations of the social relations (i.e., architectural design, cultural exchange, economic and ritual networks, and the spatial organization of daily labor).

3.1 Survey and mapping

The primary objectives of survey and mapping were to record the spatial organization of the sites of Yanawilka and the *obraje* and to understand their surrounding landscape. In five field seasons from the summer of 2009 to the summer of 2013, the project carried out 1) a survey to map the extent of obsidian sources, 2) a geophysical survey using a magnetometer inside the *obraje*, 3) the acquisition of aerial photography through the Instituto Geográfico Nacional Perú and through balloon aerial photography, and 4) mapping of extant architecture, surface artifacts, and topography of Yanawilka and the *obraje*.

3.1.1 Obsidian source survey

In the summer of 2009, a new primary source of obsidian was discovered by the team in the immediate vicinity of Lake Pomacocha, which is located northwest of the community of Pomacocha (Figure 3.1). The primary source consists of small marekanites (nodules) of obsidian ranging from less than a centimeter to a maximum of about three centimeters in diameter (Figure 3.2). The marekanites were embedded in a perlitic matrix and were only visible in the road or path cuts near Lake Pomacocha (Figure 3.3). Obsidian hydrates into perlite in reaction with water over several million years, and marekanites are the un-hydrated remnants (Shackley 2005: 185). Due to their small size, it was uncertain at the time of discovery whether they were used for tools. Because they are the glassiest and therefore are a potential high quality media for tool production, however, their small size does not automatically preclude them from tool manufacture, in particular utilizing bipolar reduction (Shackley 2005).

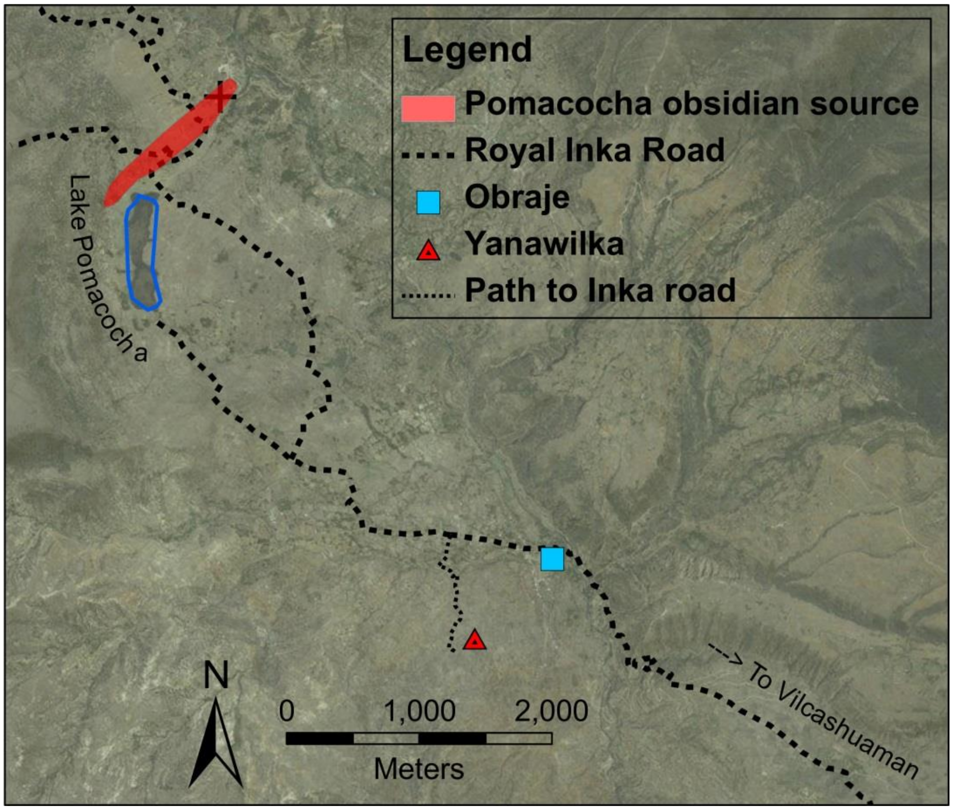

Figure 3.1: Location of the primary source of the Pomacocha obsidian type (red swatch).

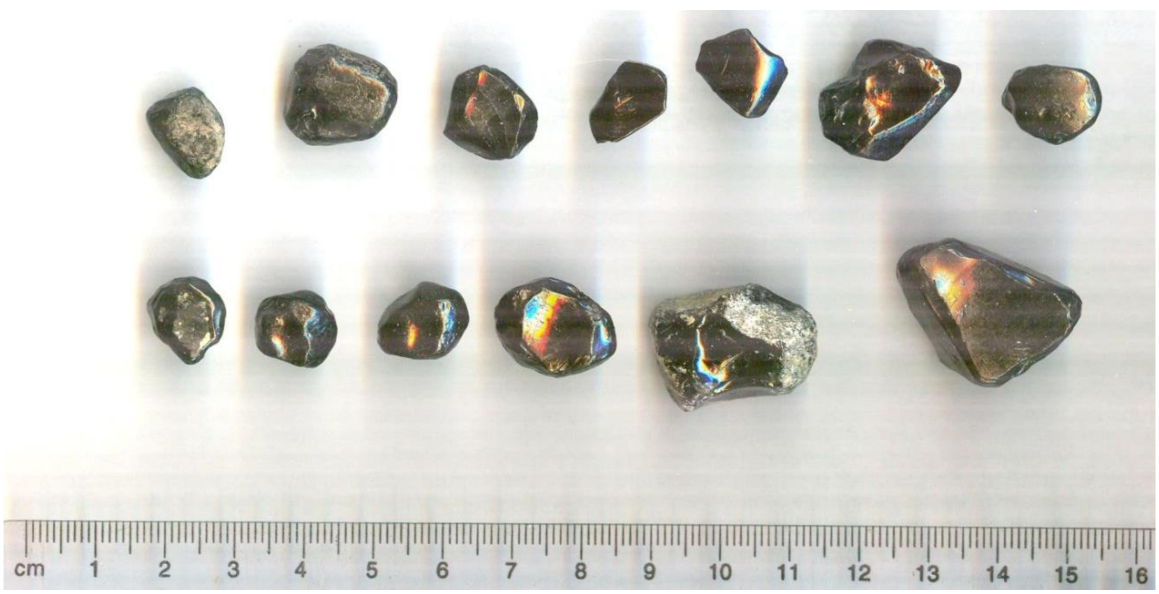

Figure 3.2: Obsidian nodules from the Pomacocha source.

Figure 3.3: A 2cm-wide marekanite embedded in a perlitic matrix at the Pomacocha source.

Because the marekanites were only visible in the road cuts, the Pomacocha primary source may be geographically more extensive, and future primary source survey could ascertain its true extent. In 2006, when I visited Cerro Pillucho, I also noticed some marekanites embedded in the matrix of the mountain. Cerro Pillucho is a magmatic upthrust and was probably part of the same volcanic event as Pomacocha. Edison Mendoza also found nodules around Cerro Pillucho in his archaeological surveys (Mendoza 2010). The Vischongo and Pampas Rivers then divided the obsidian source, which could mean an extensive secondary distribution for these small marekanites. The eastern shore of Lake Pomacocha is also the source of andesite for the Inka royal estate (now called Intihuatana) at the same location (Huamani 2005: 140-141).

To determine the distribution of the marekanites in the present-day community of Pomacocha, the team carried out a seven-day geological survey in the summer of 2010. The survey team consisted of anthropologist Sergio Canchari and me. Due to the stone, cactus, maguey and mud-brick walls that divided the community into agricultural parcels of land (*chacras*), long transects were impractical. The strategy was to survey each *chacra* in sequence. We walked transects with approximately five meters of separation between transects. A GPS point was then taken in the middle of each *chacra* that contained marekanites and the number of marekanites was recorded. The marekanites were then returned to their respective *chacras*. Results of the survey showed that the marekanites were only present in one area of Pomacocha (Figure 3.4). Subsequent ED-XRF analysis of the marekanites shows that the Pomacocha source is most geochemically similar to the Puzolana source located 50 kilometers away (chapter six). With the analysis of the obsidian tools found during excavations, the Pomacocha source is confirmed as a new, but very minor, archaeological source of obsidian.

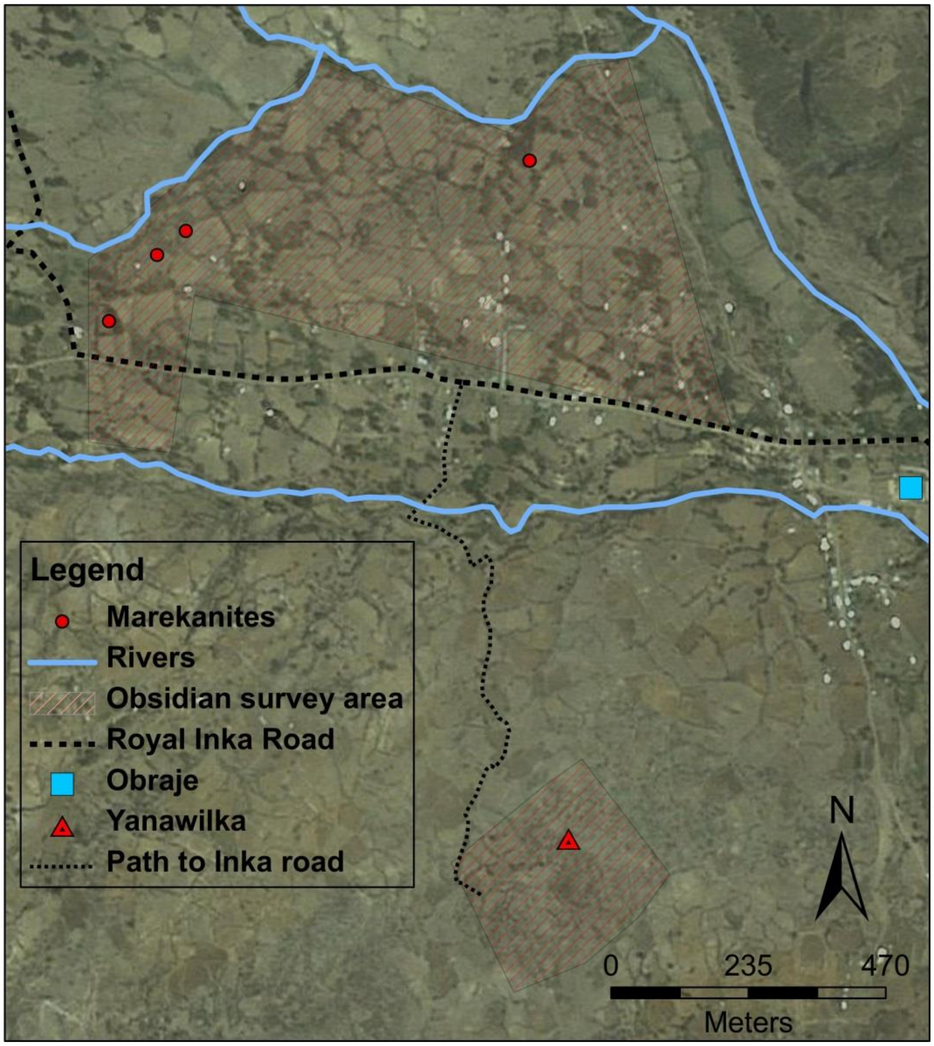

Figure 3.4: Pomacocha obsidian survey showing were marekanites were found on the surface. They are associated with the northernmost two rivers, which originate from Lake Pomacocha.

3.1.2 Magnetometry geophysical survey of *obraje*

In the summer of 2010, the project carried out a geophysical survey over the course of a week inside the *obraje* and the colonial plaza using the G-858 MagMapper magnetometer. The purpose was to pinpoint potential areas to excavate, ensuring minimal subsurface disturbance (Lightfoot 2006, 2008: 220-221). The first survey block (A) measured 25 meters by 13 meters (325 m^2), the second survey block (B) measured 25 meters by 34 meters (850 m^2), and the third survey (C) block measured 40 meters by 21 meters (840 m^2) (Figure 3.5). Survey blocks A and B had 0.5 meters between survey lines, and survey block C had a separation of 1 meter. Reference readings were taken every 5 meters of each survey line. The operators of the G-858 MagMapper magnetometer were Adam Webb and Ruben Cisneros, and Di Hu and Sergio Canchari supervised the surveys. The supervisors were in charge of keeping a steady beat to guide the even pacing of the operator/surveyor. A total of 2015 square meters were surveyed. The team decided that taking reference readings any more frequently would result in an uneven walking pace. Due to local magnetic field disturbances that are most powerful during the day time, most of the surveying was done in the late afternoon or early evening (G-858 Operator's Manual: 87). The user manual was closely followed and special attention was paid to even pacing during the walking of the survey lines and the proper orientation of the cesium censors (*ibid*: 2, 13, 78). The features visible in the magnetometry survey of inside the *obraje* were later revealed to be wall foundations.

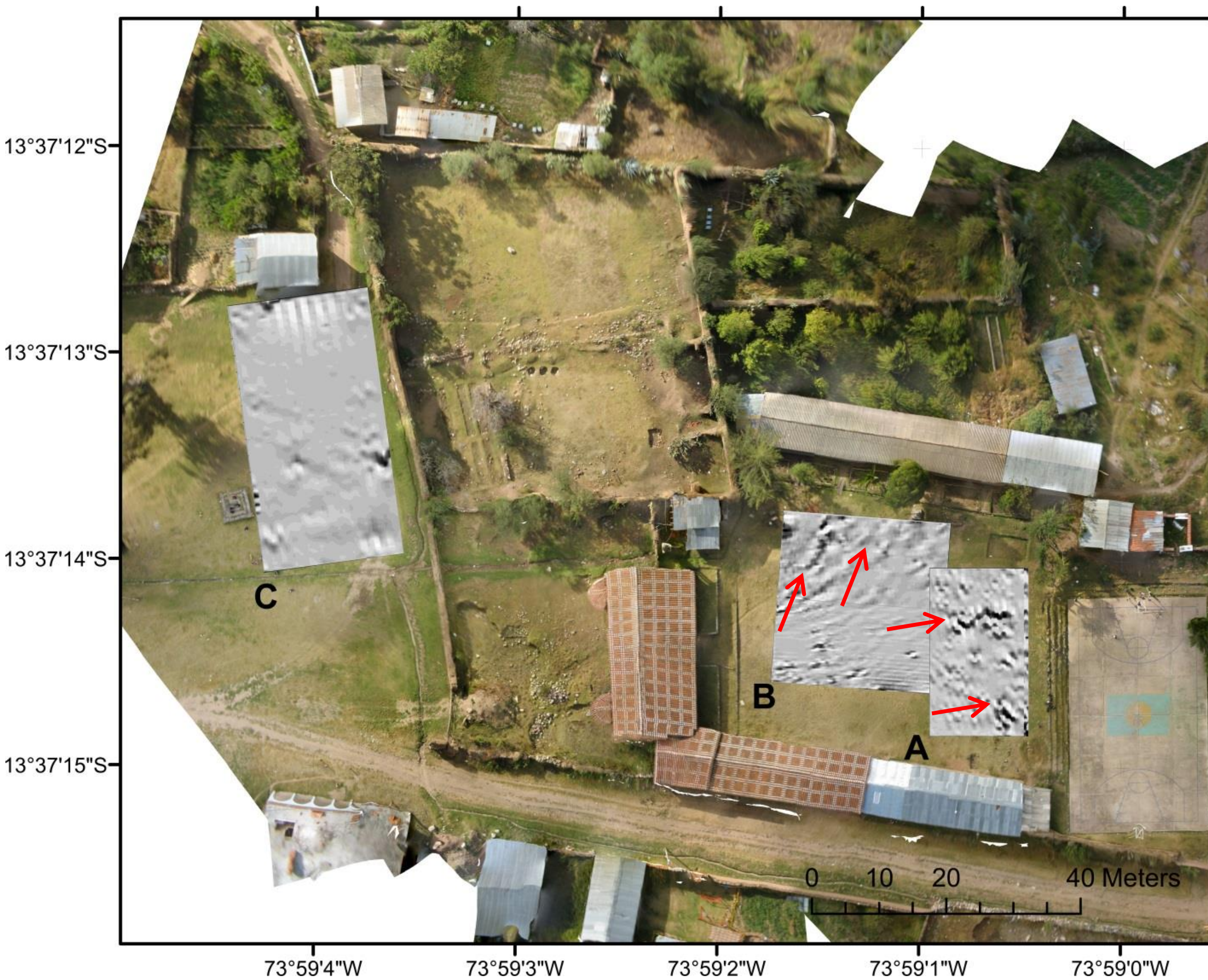

Figure 3.5: Magnetometry survey of the principal patio (blocks A and B) and colonial plaza (block C). Pronounced linear features inside the *obraje* were confirmed to be wall foundations in excavations.

3.1.3 Balloon aerial photography and mapping

The general mapping strategy for Yanawilka and the *obraje* was to map features and general topography using a combination of a total station, a laser rangefinder, and aerial photography. At least two different methods were used at each area to gain a more comprehensive and accurate map. The data was then integrated into one GIS (Geographic Information System) in ArcMap 10.0 for subsequent geospatial analyses (chapters five and nine).

Aerial photographs of Pomacocha and its environs taken by the Servicio Aerográfico Nacional on June 16th, 1962 were acquired from the Instituto Geográfico Nacional of Peru in the summer of 2009**.** These photographs were taken only months before the community had forcibly dispossessed the *hacienda* from the long-term owners the nuns of Santa Clara of Huamanga and occupied it (Chuchón 2006: 33). The photographs were useful in the reconstruction of the *obraje* because many of the walls and rooms that had existed were demolished in the following decades. Because the workers of Pomacocha did not own the land they worked and therefore were not allowed to change the boundaries of the field parcels, the 1962 aerial photographs provide a fairly accurate view of colonial period field boundaries. After 1962, some fields were consolidated and roads created; however, more than ninety percent of the current boundaries of the fields remained practically the same as the 1962 boundaries. For this reason, they are also useful in the reconstruction of Yanawilka, as some ancient paths visible in the photographs are now destroyed by the consolidation of fields.

Additional aerial photographs were acquired through balloon aerial mapping during the summer of 2013. With a balloon aerial mapping kit purchased from the Public Lab (http://store.publiclab.org/products/balloon-mapping-kit) and a Canon Powershot A710 selected for its light weight and quality lens, a team consisting of Di Hu, Walter Najarro, and Adam Webb took around 1000 aerial photos of Yanawilka and the *obraje*. More than 300 photos were high enough quality to use in 3-d topographic mapping using Agisoft Photoscan Pro. Reference points taken with a Sokkia total station (described in the next section) served as georeference points for accurate photogrammetry.

In three field seasons from 2010 to 2012, the project used a Sokkia SET 530r3 total station and a Laser Technology TruPulse 360B laser rangefinder. Reflective mirror targets were used with both mapping devices. The Sokkia total station had sub-centimeter accuracy under field conditions. As a handheld device shooting a high quality target, the TruPulse 360 has a +/- 30cm accuracy with a range of 1000m according to the user manual. With the use of a tripod and a mirror target, however, a field test of 575 measurements compared to measurements with a 25 meter tape showed an average error of 4.8 cm with a standard deviation of 4.1cm. The vast majority (91%) of the errors was 10cm or less, and there was no correlation between distance and error, meaning that accuracy was not compromised over greater distances. Additional spot checking of accuracy of greater distances confirmed that error did not significantly increase. Due to the slight unevenness of the ground over which the measuring tape was laid, the true accuracy of the rangefinder may be even better if tested under more ideal conditions. Although the Sokkia total station was more accurate, it was also much slower and more cumbersome than the TruPulse laser rangefinder. The ability of the TruPulse laser rangefinder to communicate with a handheld Juno GPS allowed for real-time updates of mapping progress. The TruPulse laser rangefinder is ideal for efficient and reasonably accurate site-scale mapping.

The *obraje* was mapped using the TruPulse 360B laser rangefinder and tape measures. The reference points were recorded using a GeoXH handheld differential GPS unit. Yanawilka's site features were mapped using the TruPulse 360B laser rangefinder (2046 points recorded). The topography was recorded with the Sokkia total station (2301 points recorded) and photogrammetry of the balloon aerial photos. The site datum and key features were also recorded in the GeoXH GPS unit. Detailed descriptions of the spatial structure of Yanawilka and the *obraje* are given in their respective chapters (chapters five and nine).

3.2 Excavations

The project carried out excavations in October and November of 2011 in three areas in Pomacocha: the *mitmaqkuna* settlement called Yanawilka (Sector Y), the *obraje* (Sector O), and the late colonial/Republican period residential area called Molinopata (Sector M) (Figure 3.6). Because the focus of this dissertation is the late pre-Hispanic to late colonial periods, I will not discuss the results of excavations at Molinopata in detail because the contexts were very disturbed and mostly had late Republican artifacts. In chapter eleven, however, I will briefly discuss the architecture of the domestic structures in Molinopata, which partially dated to the late colonial period. At Yanawilka (Sector Y) and the *obraje* (Sector O), the team excavated a total of 80 square meters down to sterile in all units. Each cultural context was given its own locus. At Yanawilka where some of the loci were extensive, the locus was divided into west and east sides. A quarter inch screen was used to screen all dirt, and a 1/8" geological sieve was used to sift 15L of the backfill every two hours to make sure that small artifacts were not systematically missed. In Sector Y, four units were opened in four domestic structures (see chapter five). The first unit (Y1) measured 5x4 meters, the second unit (Y2) measured 5x3 meters, the third unit (Y3) measured 4x4 meters, and the fourth unit (Y4) measured 5x4 meters, bringing the total area excavated in Yanawilka to 71 square meters. In Sector O, six units were opened in the *obraje,* four of which measured 1x1 meters, one of which measured 2x1 meters, and one of which was "L" shaped and measured three square meters (see chapter eleven).

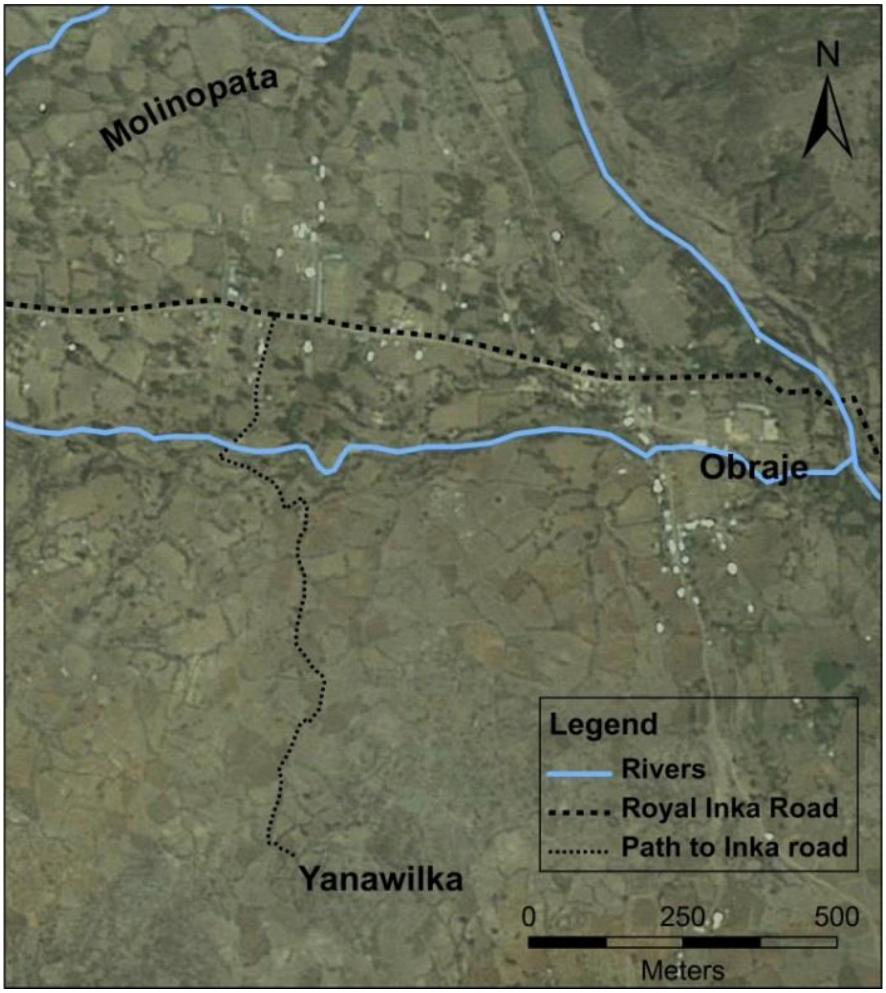

Figure 3.6: Sectors of the community of Pomacocha where excavations took place.

3.3 Laboratory analysis

Excavations at Yanawilka and the *obraje* yielded ceramics, roof tiles, botanical and faunal remains, and lithics. In 2012, the project carried out a total of five months of lab analysis. For the ceramics, the project adopted an attribute analysis strategy and analyzed all the ceramics (Smith 1979). Some of the attributes recorded were rim diameter, oxidation/reduction, color, surface treatment, mica inclusions, and wipe direction (see chapter seven). In total, 6652 ceramic sherds and one complete vessel were analyzed from Late Horizon Yanawilka and the Spanish colonial *obraje*. In the *obraje*, 7665 pieces of roof tiles were analyzed by their size grade, thickness, and presence of burn marks.

An attribute analysis strategy was adopted for the lithics, avoiding some of the problems in lithic analysis associated with inconsistent use of terminology among lithic analysts, for example, the "triple cortext" typology of primary, secondary and tertiary flakes (Andrefsky 2005: 86, 115; Sullivan and Rozen 1985; Shott 1994). The attributes I chose left little to inter-researcher interpretation. For example, either a flake had or did not have dorsal cortext, rather than trying to quantify the percentage (Appendix A). The lithic analysis strategy was adapted and streamlined from Matthew Bandy's Taraco Archaeological Project's lithic coding sheet. Although most adopt a typological approach to lithic analysis, arguing that an attribute strategy is too time consuming (Andrefsky 2005: 114), my experience with a streamlined attribute analysis shows that it can be less time consuming due to consistency in defining the attributes as well as be more informative. During my tenure with the Taraco Archaeological Project, I was able to analyze more than one thousand lithics a week using this attribute analysis strategy. Debitage is even faster to analyze, and I can comfortably analyze three to four hundred pieces of debitage each day.

The lithics were divided into: angular debris, flakes, flake tools, cores, core tools, groundstone, bifaces, projectile point, and other tools**.** Each lithic type had a number of attributes recorded. In total, 763 lithics were analyzed and photographed. To understand changing networks of obsidian procurement through time, 123 obsidian artifacts from Pomacocha (Yanawilka, the *obraje*, and Molinopata) were analyzed for chemical composition using the Quant'X ED-XRF machine of the Department of Earth and Planetary Sciences of the University of California, Berkeley. Thirty-two of the lithics (groundstone and flake tools) underwent phytolith and starch-grain analysis by Victor Vásquez of ARQUEOBIOS of the University of Trujillo. Further starch grain and phytolith analysis of 31 obsidian artifacts was completed in July to December 2014. Rob Cuthrell of the University of California did the manual wash, sonication, and mounting of the starch and phytolith-containing solutions, and Victor Vásquez identified the starch grains (no phytoliths were found). The starch grain analysis results are presented in section 7.1.2 and 11.4.1. To date, this research project represents the largest starch grain analysis of Late Horizon lithics.

Sediment samples from 46 distinct contexts totaling 145 liters underwent flotation to recover macro-botanical remains (with a 1mm heavy-fraction mesh) (Appendix B). Out of the 145 liters floated, 122.8 liters had archaeological remains. The botanical remains (both heavy and light fraction) were sent to ARQUEOBIOS of the University of Trujillo to be identified. A total of 178 botanical remains, both modern and archaeological, were recovered from the flotation of 145 liters of sediment. However, because only a total of two archaeological carbonized seeds were recovered from the pre-Hispanic site of Yanawilka, the recovery of phytolith and starch grains from lithics was deemed a fruitful alternative to recovering ancient botanical use. The sediment was processed through a flotation machine that had a running source of water from a faucet (Figure 7.10). The flotation machine was a SMAP-style machine (Shell Mound Archaeological Project) (Watson 1976). A 1mm mesh was used to collect the heavy fraction, and the light fraction was collected in a fine chiffon fabric. The machine was tested with 100 modern carbonized quinoa seeds in two liters of similar (sterile) sediment and yielded a 97% recovery rate (Wagner 1982). The light and heavy fractions that had archaeological remains were then sent to Víctor Vásquez of ARQUEOBIOS and the University of Trujillo in Peru for identification and analysis.

Figure 3.7: Flotation machine used to recover botanical remains.

Initial laboratory analysis of the faunal remains from screened Yanawilka and the *obraje* included recording of the masses, presence of burnt areas, and completeness of 1467 bones. They were subsequently analyzed by zooarchaeologist Teresa Rosales Tham of ARQUEOBIOS for presence of cut marks, species and skeletal element identification, MNE, MNI and measurements (Appendix C). All bones that had positive species identification were individually photographed, and all bones were photographed by locus. The results of the faunal analysis are presented in section 7.3 and 11.3.4.

3.4 Archival research

From the summer of 2008 to the summer of 2016, I conducted ten months of full-time archival research on *obrajes* and revolts, particularly those in the province of Vilcashuamán. The topics I searched for included how the *obrajes* led to the loss of fertile community lands, what complaints and revolts surrounded *obrajes*, how the *obrajes* functioned on a day-to-day basis, what the architecture of the *obrajes* was, what the economic networks of the *obrajes* were, Spanish attitudes about the workers of the *obrajes*, and demographic information of the *obraje* workers. The documents, in the form of land title histories, account books, rental contracts of the *obrajes*, census and tax records, and complaints about the mistreatment in *obrajes,* provide important clues to understanding the history of resistance at Pomacocha. Most of the documents hail from the seventeenth and eighteenth centuries. I visited a total of eleven archives in England, Peru, Spain, and the United States. The archives I visited in Peru are the Biblioteca Nacional del Perú (BNP), the Archivo General de la Nación (AGN), the

Archivo Arzobispal de Lima (AAL), the Archivo de San Francisco (ASF), the Archivo Regional del Cusco (ARC), the Archivo Regional de Ayacucho (ARAY), the Archivo Arzobispal de Ayacucho (AAA), and the Ministerio de Agricultura de Ayacucho (MAA). In the United States, I visited the Bancroft Library (BANC), in England I visited the British Library (BL), and in Spain, I visited the Archivo General de Indias (AGI). I took notes and transcribed key passages or documents with Microsoft OneNote. The transcriptions were either double checked on-site, photocopied, or photographed.

In the analysis of these documents, much attention was paid to how and for what purpose these documents were created. Census records, in the form of *padrones*, were checked for internal consistency (e.g., age distribution) as well as against other coeval documents containing information about the identities of the workers at Pomacocha. The censuses contain many irregularities that reveal the contested nature of colonial taxation (Evans 1981; Pearce 2001), with different actors all striving to maximize exploitation of the tributary population for their own gain or trying to escape from tax/labor obligations. Many of the attitudes about race, caste, and ethnicity expressed in the documents were customary language used to maximize success for the claimant and may not have accurately reflected the nuances of the claimant's personal attitude (O'Toole 2012). Recognizing that these documents were ultimately a reflection of different political agendas and follow certain legal customs (Burns 2010), multiple sources from different authors on the same phenomenon and multiple analysis methods are used to assess the power struggles and resistance strategies hinted at by the documents. Following the methodological advances of the *Annales* school, by analyzing the accumulation of economic and demographic data, we are able to see "systematic patterns of societal change that the writers themselves could hardly see (Salomon and Grosboll 2011: 49)."

3.5 Spatial syntax of architecture

Bill Hillier and Julienne Hanson's work on understanding spatial syntax (or space syntax) in the social logic of space is particularly appropriate for analyzing the capacity for social integration in Yanawilka and the architecture of control of *obrajes* (Hillier and Hanson 1984; Hillier 1996; Hanson 1998). They describe a number of ways to quantify and systematize the social nature of different spatial configurations. They show, for example, how city and architectural plans can be analyzed to understand the degree of social integration or segregation. Such quantification and systematization can even help us identify patterns in tension with the stated ideals of a society (Hillier and Hanson 1984: 48). Although the use of spatial syntax methods is increasingly popular in archaeology, archaeologists have been careful not to assume *a priori* that certain spatial configurations necessarily reflect "ideal" configurations of social interaction (Jamieson 2000: 62). For Yanawilka, an analysis of the connectivity and integration of Yanawilka's reveal important aspects of community organization. For the *obraje*, spatial syntax methods clarify the availability of opportunities for social cooperation among the workers in the Pomacocha *obraje*. Conversely, the efficiency of restriction or control of the availability of opportunities for social cooperation, for example, in shutting certain doors, can also be analyzed.

The three primary spatial syntax methods I use are axial lines, isovists, and justified permeability graphs (Hillier and Hanson 1984; Hillier 1996; Hanson 1998). Axial lines combined with analyses of integration and connectivity can help us understand which areas were most trafficked and how easily avenues of movement can be restricted. An isovist of an observation point is simply what is visible from that point. An area of high visibility means that many isovists converge in that particular area; public areas tend to have higher visibility than private areas. Isovists can thus help us understand surveillance. Justified graphs show the overall topology and access pattern of a building, which can then be used to assess the degree of integration or segregation. Combined with archaeological and archival evidence, I will show how the *obraje* of Pomacocha functioned like a Foucauldian prison. The two software programs I use to carry out these analyses are AGRAPH developed by Bendik Manum, Espen Rusten and Paul Benze and DepthMap developed by Alasdair Turner and Tasos Varoudis. AGRAPH is used to create the justified permeability graphs, and DepthMap is used to explore the relationships among spatial depth, axial lines, connectivity, integration, and visibility (isovists). The axial line maps generated by DepthMap were manually cleaned to remove inconsistencies.

4 Conquest and consolidation of Vilcashuamán: Historical context of Yanawilka

Who were the inhabitants of Yanawilka, and how and when did they arrive? I argue that the inhabitants of Yanawilka were a group identified by the Inka as the Condes, who probably originated from the Arequipa region to the south. Ethnohistorical evidence strongly supports that a group called the Condes lived at Yanwilka. They were not the original inhabitants of the area, but were transplanted by the Inka as a part of a long-distance *mitmaq* resettlement program. The Pampas River Basin forms the core of the Inka province of Vilcashuamán. In this chapter, I review 1) the ethnohistorical and archaeological evidence on the social landscape of the Vilcashuamán area before the Inka, 2) the Inka conquest of Vilcashuamán, 3) the *mitmaq* resettlement policy implemented in the province of Vilcashuamán, and 4) the archaeological and ethnohistorical evidence for the Condes identity of the *mitmaqkuna* inhabitants of Yanawilka.

4.1 Social landscape of the Vilcashuamán area shortly before Inka conquest

The Pampas River valley, in which the town of Vilcashuamán is located, was an area inhabited by several ethnic groups: the Soras, Lucanas, Chankas[3], and the native Tanquihuas in the Late Intermediate Period (1000-1450CE). In this section, I focus on the core Vilcashuamán area, which is approximately inside the borders of the modern province of Vilcashuamán. The Tanquihuas were the only native inhabitants of the core area of Vilcashuamán to remain after Inka conquest (Carabajal 1965 [1586]: 219). From evidence in chronicles concerning the origin and history of the Chanka groups, historian Lorenzo Huertas argued that the Chankas conquered the native Tanquihuas during their expansion from Huancavelica (Huertas 1983: x). The Tanquihuas were not part of the 'Chanka Confederation' and were the only group allowed to stay in the core of the Vilcashuamán province (Carabajal 1965 [1586]: 219). Unfortunately, the chronicles of Inka history do not specifically mention the Tanquihua. What we know about them comes from Spanish colonial documents (e.g., Salas 1998a; Zuidema 1966).The chronicles describe how the Chanka groups migrated from Lake Choclococha, in the modern region of Huancavelica, and conquered lands until they reached the Quechua groups in Andahuaylas during the Late Intermediate Period (Cieza de León 1984 [1553]: second part, chapter 37; Duviols 1967: 20; Garcilaso de la Vega 1989 [1609]: 218) (Figure 4.1). Because the Tanquihua were native to the core Vilcashuamán area, it is

[3] The Uillca (Willka or Vilcas), according to the Garcilaso de la Vega, were the Chankas who lived in the Vilcashuamán area, and were also called the Hancohuallo. Hancohuallo was the name of their captain in their rebellion against the Inkas. Other Chanka groups were called Utunsulla and Uramarca (Garcilaso de la Vega 1989: 218-219).

possible that the Chanka and Soras groups may have dispossessed some of the Tanquihua of their land. The villages of Vilcashuamán province often fought with each other over land before the Inka conquest (Carabajal 1965 [1586]: 207). Given that the Vilcashuamán area is of utmost geopolitical importance due to its central location, access to resources, ritual importance and overall defensibility (surrounded on three sides with high mountains and deep river canyons), the characterizations in ethnohistorical sources that speak of the Late Intermediate Period in the area as conflict-ridden are probably correct. The historical particulars, however, remain hotly debated.

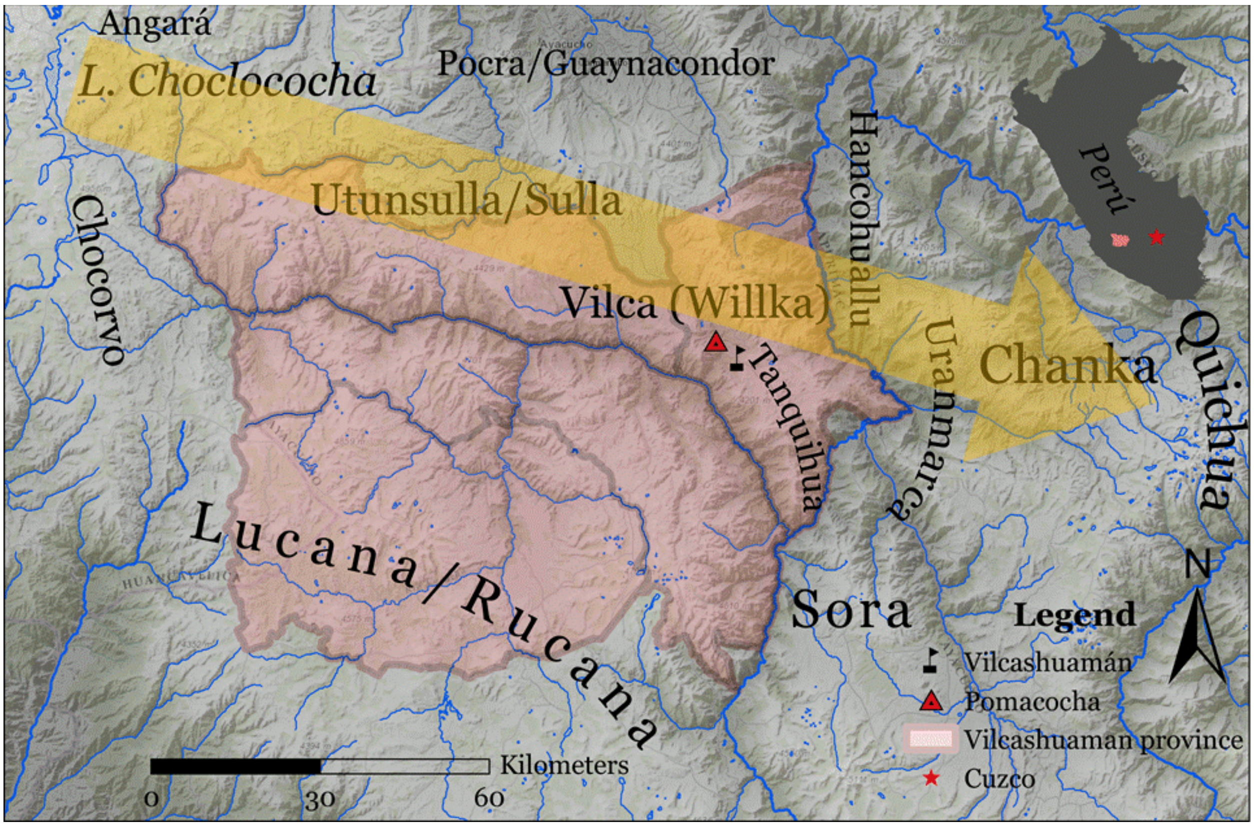

Figure 4.1: Conquest path of the Chanka groups according to historical accounts (yellow arrow). Locations of Late Intermediate Period ethnic groups provided as reference, as no area was ethnically homogenous (after Bauer *et al.* 2010: Figure 2.1 and Rowe 1946: map 3). Vilcashuamán provincial boundaries are of the Spanish colonial period.

The LIP political landscape of the core Vilcashuamán area, as elsewhere in the Andes, was fluid. Alliances among groups for raiding and protection from raiding would have been common. Unfortunately, there are no published systematic surveys of LIP sites in the core Vilcashuamán area (modern province of Vilcashuamán). Most archaeological work of LIP sites in the modern province of Vilcashuamán are published in 'grey' literature consisting of manuscripts and theses. Non-systematic archaeological surveys of LIP sites have been carried out in the modern province of Vilcashuamán include the Pomacocha/Vischongo valley (Huamani 1998; 2005), the immediate environs of the town of Vilcashuamán (Chahud Gutiérrez 1966), around Ocros (Bolívar Huamaní 2010; García Reyes 2009), around Concepción (Ochante 2001), around Cocha-Huambalpa (Vaquerizo 2003), around Pillucho (Mendoza 2010), near Pujas (Castro Jáuregui 2007) and the Carhuanca area (Candía Delgadillo 1996). Overall, the picture that emerges of the LIP social landscape in the core Vilcashuamán province is largely consistent with ethnohistorical sources that stress a competitive social landscape with frequent conflict, at least in the latter part of the LIP (1350-1450 CE).

Although our current archaeological knowledge of the core Vilcashuamán area in the LIP does not permit systematic evaluation of interaction between sites, we do have a general idea of settlement patterns. The prevalence of *pucaras*, or hillforts, in the LIP shows that conflict and threat thereof was a part of daily life in the core Vilcashuamán area. An aerial survey revealed that there were at least twenty-eight *pucaras* in the core Vilcashuamán area (Figure 4.2). They were located in high positions overlooking major river valleys. They range from 3540 to 4066 masl in elevation, averaging 3787 masl. The core Vilcashuamán area had a high density of *pucaras* in the LIP with 2.3 *pucaras* every one hundred square kilometers. There are three hillforts in close proximity to where Yanawilka was later settled: San Lorenzo, Pillucho moqo, and Pillucho.

Some of these hillforts, such as Pillucho and Punta Orqo, had earlier occupations and were then resettled in the LIP (Candia Delgadillo 1996; Chahud Gutiérrez 1966). Often, especially in the northeast part of the modern province of Vilcashuamán, several hillforts cluster together to occupy an extended ridge. The prevalence of *pucaras* is also consistent with archaeological research carried out and published in neighboring areas such as the area around Andahuaylas (Bauer and Kellett 2010; Bauer *et al.* 2010; Grossman 1983; Amorín Garibay and Alarcón Gutiérrez 2001), Chicha/Soras Valley (Meddens 1981, 1985, 1991), Qaracha river basin (Bolivar Huamaní 2010; Chávez Alarcón 1989; Gutiérrez Correa 2009; Valdez and Vivanco 1994), Huanca Sancos/Vilcanchos area (Arango Claudio 2010; Huamán Cuba 2011), and the Sondondo Valley (Schreiber 1987, 1992, 1993). A competitive social landscape was the norm in the Andes during the LIP, possibly due to environmental constraints and increasing populations (Arkush 2008; Arkush and Tung 2013; Bauer *et al.* 2010; Covey 2008; Kellett 2013; Thompson and Davis 2014).

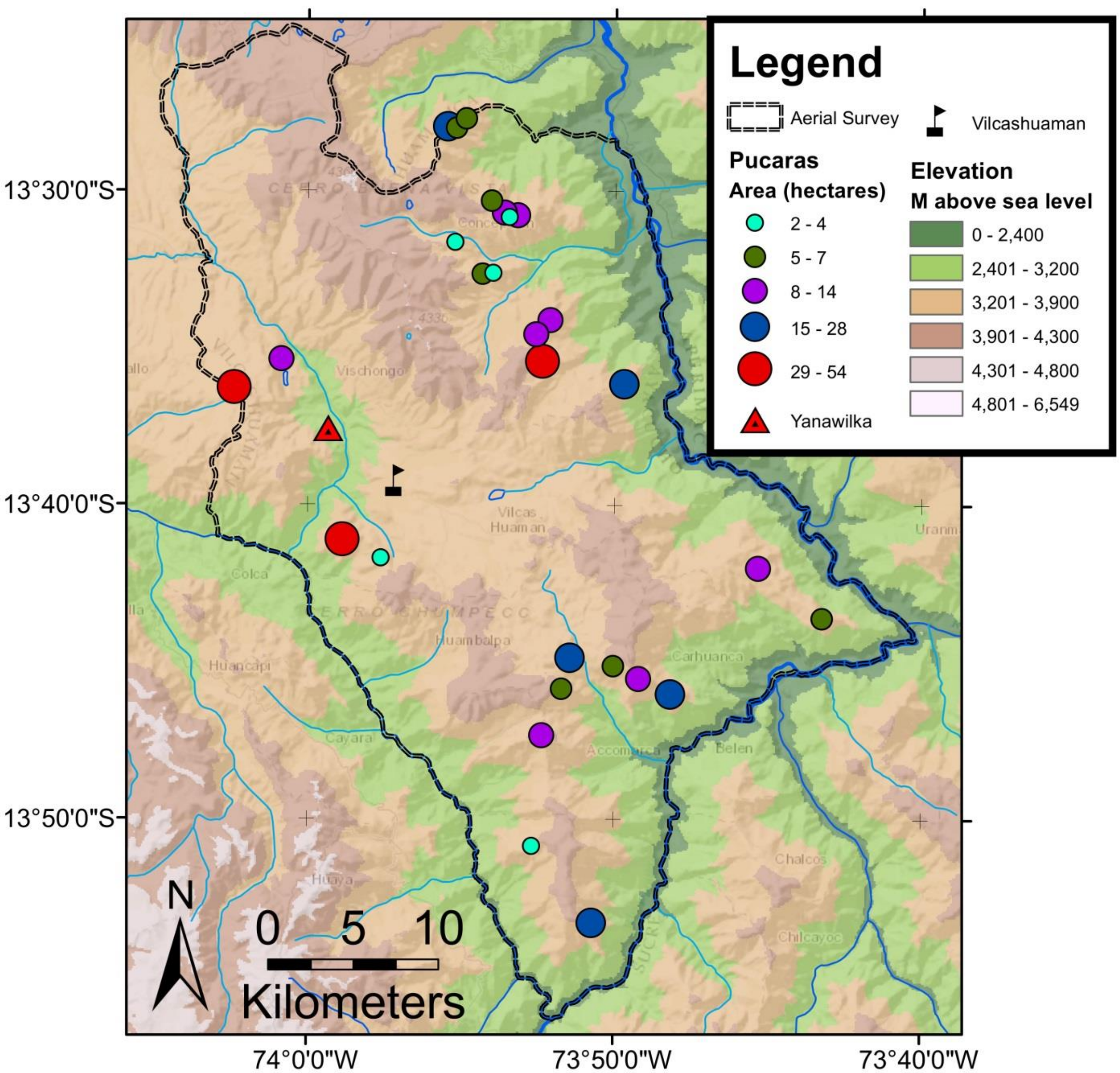

Figure 4.2: Location and areas of Late Intermediate period *pucaras* in the core Vilcashuamán area (modern province of Vilcashuamán) identified through aerial survey.

4.2 Inka conquest of Vilcashuamán province

Chroniclers differ on which Inka emperor was responsible for the conquest of the Vilcashuamán core area, but most reliable accounts suggest that it was Pachakuti (Rowe 1945, 1946). The chroniclers do agree, however, that the Vilcashuamán area was conquered after the defeat of the Andahuaylas Chankas and that the inhabitants of the area generally put up fierce resistance (Cieza de León 1984 [1553]: chapter 47; Garcilaso de la Vega 1989: 218-219; Pachacuti Yamqui 1879 [1613]: 273). The Condes were one of the groups who formed part of the Inka armies' campaigns in the Vilcashuamán area (Cieza de León 1984 [1553]: second part, chapters 34, 36, 47, 48). Radiocarbon dates from a Lucanas site Pulapuco show that the Late Horizon began no later than 1470 CE in the Ayacucho region, which is consistent with Pachacuti being responsible for conquest of the region[4] (Abraham 2010: 182). I will not give a more detailed treatment of ethnohistoric narratives of Inka-Chanka origins and early conflicts because others have done an exhaustive job (e.g., Bauer *et al.* 2010). I will, however, discuss some particularities in the early (sixteenth century) ethnohistoric record regarding the Inka conquest of Vilcashuamán. Of interest is Cieza de León's account of a rocky fortress close to the Vilcas (Pampas) river where diverse groups of people from the whole region flocked to resist Inka conquest. Chronologically, this event happened after the conquest of the Andahuayals Chankas and during the conquest of the Soras, which is well-sumarized elsewhere (see Meddens and Vivanco 2005; Meddens and Schreiber 2010). The Soras people fled to the rocky fortress after they were defeated in battle against the Inka:

> Those who escaped being killed or taken prisoner returned howling and lamenting to their village, and removing such of their possessions as they could, and their women, they abandoned it and took refuge, so it is told, on a high peak close to the Vilcas River, where around the summit there were many caves and a spring of water. Many men and their women withdrew to this stronghold, providing themselves with all the supplies they could gather. And not only the Soras took refuge on this peak, but others from the region of Huamanga and the Vilcas River and other parts joined them, horrified at the thought that the Inca wished to make himself sole ruler of people [Cieza de León 1959 [1553]: 231].

Carabajal (1965 [1586]: 216) described the fortress thus:

> There is in the old pueblo of Vilcas and one league from the said pueblo a well-made fortress, which used to habitually serve as a fastness when it was a frontier of the Incas, although now it is partially ruined. [5]

Cieza de León described the people of the Vilcashuamán area as willful and warlike, and the defenders only submitted after food ran out:

> Formerly they were indomitable and so warlike that the Incas had great trouble conquering them. So much trouble, indeed, that they say that during the reign of Pachacuti, after he had defeated the Soras and Rucanas, provinces where the people were sturdy, and which also came under the juridiction of this city, a large

[4] Following Rowe's (1946: 203) chronology. Thupa Inka may have been in charge of the army, but Pachacuti was in power before 1471 CE.

[5] Original: "Hay en el pueblo viejo de Vilcas, questá una legua deste dicho pueblo, una fortaleza de cantería bien labrada, que solia servir de fuerte cuando era frontera de los ingas, aunque agora está deshecha una parte della "

> force of Indians fortified themselves on a high cliff, and there were bitter fights before they were conquered.... For, rather than give up their freedom and become slaves of the tyrant, they paid no heed to the hunger they underwent and the repeated attacks they suffered. Whereupon Pachacuti, ambitious to dominate them and eager not to suffer in his reputation, besieged them and put them to great hardship for over two years, until finally, after holding out as long as they could, they surrendered to him [*ibid*: 125].

The fate of the defenders was uncertain, because Cieza said that there were conflicting accounts. Some natives said that the Inka [Pachakuti] spared them and provided provisions for their journey home; others said that the Inka killed them all (*ibid*: 129). The story about the rocky fortress near the Vilcas River is also repeated by Cobo (1979 [1653]: 138) and possibly illustrated by Guamán Poma (Figure 4.3).

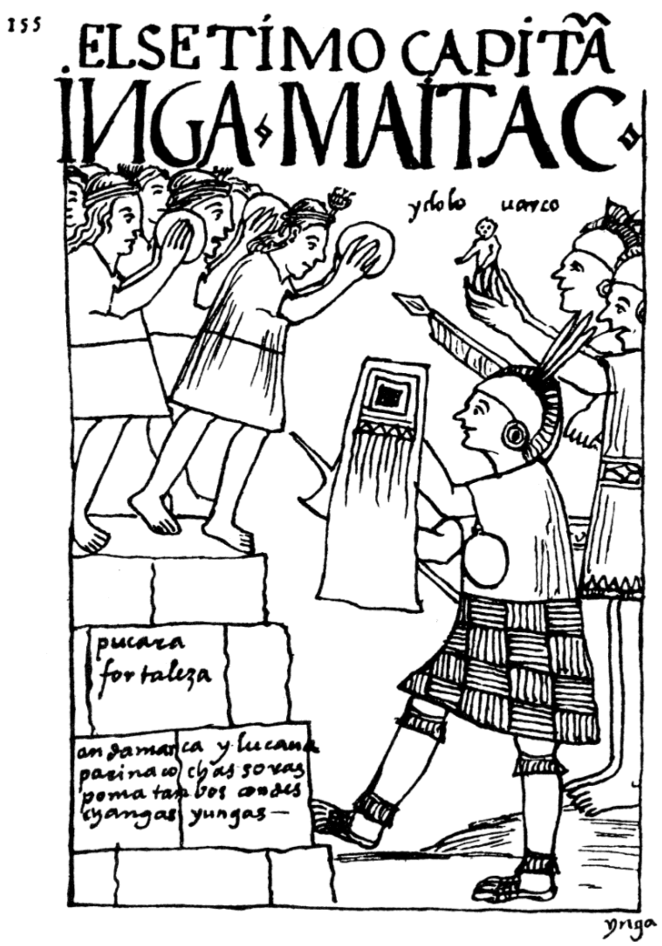

Figure 4.3: Inkas besieging a fortress, possibly the one described by Cieza de Léon. The defenders are "andamarca y lucanas/ parinacochas soras/ poma tambos condes / changas yungas." Guaman Poma 1980 [1615]: 155.

Not everyone in the Vilcashuamán area was hostile to the Inka. During the siege on the rocky fortress, some locals allied with the Inka:

> [A]s the Inca strongly desired to have those who had taken refuge in the rocks in his power, he proceeded with his troops until he came to the Vilcas River. Many of those of the region, when they knew that he had arrived, came to see him and do him homage, and make a pact of friendship with him, and at his behest they began to build lodgings and large buildings in what we now call Vilcas… [Cieza de León 1959 [1553]: 128].

Athough Cieza de León does not name who the people who allied themselves with the Inka, the Tanquihua may have numbered among them since they were the only indigenous group not expelled from the core Vilcashuamán area (Carabajal 1965 [1586]: 219).

Pillucho is the probable hillfort described by Cieza de León as the place of refuge for the various ethnic groups in the region such as the Lucanas, Soras, and Chankas (Cieza de León 1984: first part, 138-139). Pillucho is the largest *pucara* in the core Vilcashuamán area; Von Hagen (Cieza de León 1959: 125) identified it as the famous fortress one league from the town of Vilcashuamán described by Cieza de León as the site of refuge that many different ethnic groups had fled to during Inka conquest. Von Hagen is probably correct, as Pillucho is not only the largest *pucara* in the area, it is also the correct distancefrom Vilcashuamán (approximately 8km by foot, close to the one league distance described in the Relaciones Geográficas). At the top of Pillucho are collapsed defensive walls, hundreds of circular foundations, a rectangular foundation, and six relatively well-preserved *chullpas* or above-ground circular funerary structures (Chahud Gutiérrez 1966; Mendoza 2010). The choice to defend themselves atop Pillucho by many ethnic groups was probably because of the prime location and constitution of the fortress. Pillucho is protected on three sides by deep river canyons and is only accessible by a narrow and precarious route on the north side (Chahud Gutiérrez 1966:9; Mendoza 2010: 131). The hill can serve as a natural fortress even without walls because of the rocky cliffs that are its slopes. Furthermore, Pillucho has a natural spring and many caves around the top (Cieza de León 1959: 231). The spring was crucial to hold against the sieges, and caves were sacred places for the ethnic groups of the area in the LIP, as they often interred their dead inside them. On the slopes of Pillucho are extensive agricultural terraces that would have ensured proximate food supply (Figure 4.4). The features of Pillucho are consistent with Cieza de León's descriptions, and it is the only *pucara* clearly visible from the royal Inka road and the town of Vilcashuamán (Figure 4.5). Being the largest *pucara* in the core Vilcashuamán area, it would have accommodated the large numbers of defenders described in the ethnohistoric documents. The next largest pucara, San Lorenzo, was not visible from Vilcashuamán and is not next to the Vilcas (Pampas) river, as Pillucho was.

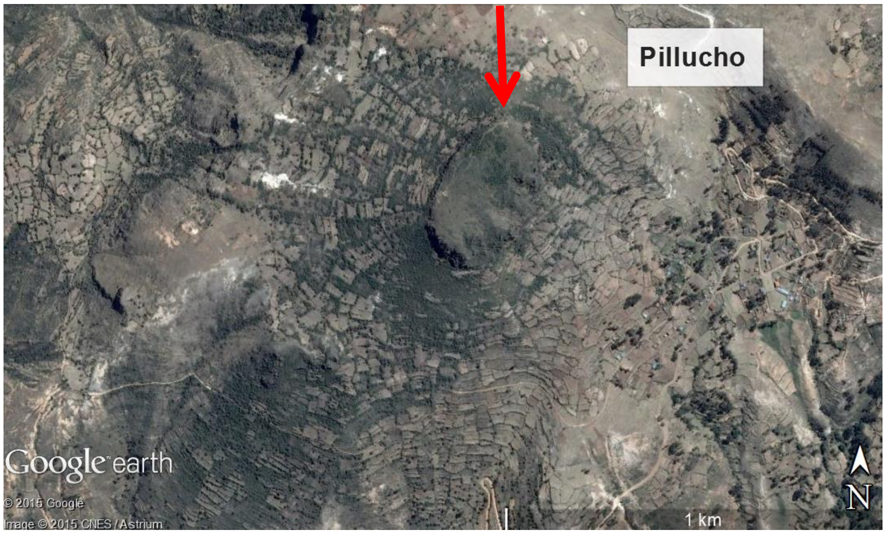

Figure 4.4: Aerial view of Cerro Pillucho (or Qatun Urqu Pata), a magmatic upthrust with an extensive Late Intermediate Period settlement on top. The only access point was a steep narrow path on the north side (red arrow). Note the extensive field system surrounding Pillucho.

Figure 4.5: View of Pillucho (red arrow) from the Inka plaza of Vilcashuamán.

Recent archaeological research has questioned the historical veracity of narratives of Inka conquest and of Chanka history, because there is no evidence that the Inkas kept track of the linear passing of years and the chronicles were not told or recorded in a political vacuum (Bauer 1992; Bauer *et al.* 2010; Kurin 2012: 54). The Inka may have exaggerated the existential threat that the Chanka posed, for example (Bauer *et al.* 2010; Meddens and Vivanco 2005). Even Cieza de León made note of competing accounts of the same events and had to use his judgment on which accounts to believe (e.g. Cieza de León 1959 [1553]: 129). The narratives, as with any written text, need to be evaluated as political readings of history, and as such, are valuable as indicators of factionalism (see Julien 2000). Furthermore, Andean understandings of history emphasize relevance to the present, and past events are reconceptualized and reenacted in contemporary concerns and social interactions (D'Altroy 2014: 15-16, Salomon 1991: 11). History itself was inextricably woven into social relationships with the landscape, as evidenced by the Andean emphasis of particular places as origins or instantiations of historical truths. Their histories emphasized materiality, where the "world was a constant series of space-times that people both lived in and influenced" (D'Altroy 2014: 132). Especially fruitful are approaches that compare mythical history to chronological history (e.g., Salomon 1998).

Fundamentally, scholars are divided on whether the ethnohistoric histories are mythical "templates" that generally have little bearing on historical reality (Bauer *et al.* 2010; Urton 1990, 1999; Zuidema 1982; Salomon 1998) and those who believe that the ethnohistoric narratives, especially when there are few contradictions, are representations of chronological realities (e.g., González Carré 1992; Huertas 1983; Pärssinen 1992; Rowe 1946). While the chronicles may or may not portray historical "truths" in the sense of the modern Western canon, they certainly provide evidence for conceptualizations of social order (Bauer *et al.* 2010: 9). The Chanka groups were portrayed in chronicles as having a range of leaders with differing political opinions, acting together only after consensus. For example, when the Inka asked the Chankas to submit, the Chanka leaders gathered to discuss the issue and were divided in two factions:

> Some said it was right that they should accept the Inca as their lord since he was the child of the Sun. Others, including the descendants of the lion, said on the contrary that they should not accept any foreign domination when they themselves were lords of so many subjects and children of a lion…The Chancas occupied many days in their dispute, at times tending to submit and at times to resist, without reaching agreement [Garcilaso de la Vega 1989: 233].

Recent archaeological research has shown significant intra-group violence among the Chanka communities, a pattern that persisted into the historic era (Kurin 2012).

Despite the many inconsistencies among the chronicles regarding the Inka conquest of the Chankas and the Vilcashuamán core area, it is unlikely that the histories were invented wholesale (D'Altroy 2014*:* 91-101). A sketch of the expansion of the Inka empire may be possible through the chronicles, but certain details, especially ones that differ from account to account, are impossible to verify (*ibid*: 92). My view is that the "sketch" of Inka expansion can be tested through the archaeological record. For example, the core Vilcashuamán area may have had groups that were organized enough to pose a serious threat to the Inka. Bauer *et al.* (2010: 91) argued that the ethnohistoric narratives emphasizing the sophistication of Chanka society were false, because the Chanka settlement pattern, with multiple centers and smaller settlements than those in Cuzco, demonstrated little "ethnic integration, class formation, and the development of a regional political hierarchy during the Late Intermediate Period." The hilltop and ridgetop settlements (*pucara*) in the core Vilcashuamán area, however, were much larger overall than those in Andahuaylas: seven out of twenty-eight *pucaras* in the core Vilcashuamán area were larger than 15ha, and the largest two, Pillucho and San Lorenzo, were, conservatively estimated, around 50ha in area (Figure 4.6). Although larger than hilltop and ridgetop settlements in Andahuaylas, those in the Vilcashuamán core area do not demonstrate a centralized hierarchy due to the presence of multiple, comparably large settlements. Therefore, the LIP groups in the core Vilcashuamán area, like other highland Andean areas, were not as politically integrated as Cuzco (Bauer *et al*. 2010; Bauer and Kellett 2010).

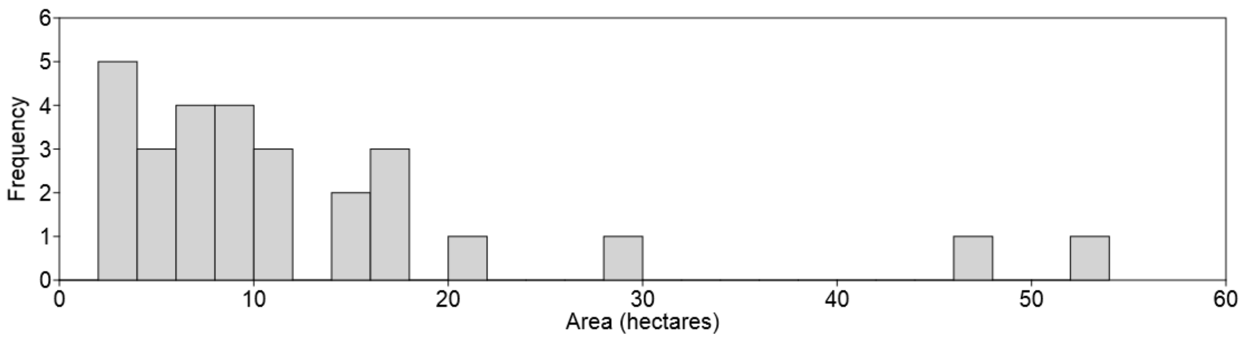

Figure 4.6: Histogram of *pucara* fortified hilltop/ridgetop sites' areas in core Vilcashuamán area.

According to the chronicles, the core Vilcashuamán area was conquered by the Chanka groups before they reached Andahuaylas. To judge whether the Chankas were relative latecomers to the Andahuaylas region (per Spanish colonial era narratives), or were indigenous to Andahuaylas (Bauer *et al*. 2010), more archaeological research is needed in the core Vilcashuamán area to understand the evolution of the social landscape prior to Inka conquest. My view is that while the ethnohistoric narratives undoubtedly can be read as mythical templates that organize and make sense of contemporary social relations, they also have a chronological component. The chronological information in ethnohistoric narratives was likely embedded in the geographic particulars of each narrative. For example, Ortman (2012) demonstrated how migration was a metaphor for going back in time for the Tewa.

4.3 Consolidation and establishment of *mitmaqkuna* colonies

Because the original ethnic groups of Vilcashuamán put up fierce resistance against the Inka, the Inka depopulated all groups as punishment and for better consolidation of control; the exception was an ethnic group called the Tanquihua (Carabajal 1965 [1586]: 219). The *mitmaqkuna* of Vilcashuamán came from nearly a dozen different ethnic groups from all over the empire, and Vilcashuamán province was one of the most heavily affected by the *mitmaq* resettlement program in the Inka empire (*ibid*: 25). The Inka province of Vilcashuamán was perhaps the first to have large-scale and long-distance resettlement in response to the long and difficult conquest of the

Chankas: "His first action was to promulgate laws that seemed necessary to prevent the recurrence of any risings similar to those of the past. To the Chanca [Chanka] provinces he sent people whom they called migrants [*mitmaqkuna*] (Garcilaso de la Vega 1989 [1609]: 303)." Almost all the *mitmaqkuna* resettled into Vilcashuamán province were groups the Inka considered allies; the exception were the Cañaris from Ecuador (Salas 2002: 65-73). Additionally, the Inka mandated that the locals worship Inka deities. At the same time, they destroyed the stone *huacas*[6] of the locals (Carabajal 1965 [1586]: 218). The Inka heavily invested in remaking the social and ritual landscape of Vilcashuamán (Santillana 2012). By creating a fragmented and docile social landscape, the geopolitically strategic core Vilcashuamán area was secured.

The Inka intimately studied local landscapes to implement effective strategies of control and consolidation. Sarmiento de Gamboa (2010 [1572]: 119-120) explained:

> [T]hey obeyed so long as they felt the force compelling them, and, as soon as they were a little free from that fear, they presently rebelled and resumed their liberty. Then the Inca was obliged to conquer them again. Turning many things in his mind, and seeking for remedies, how he could settle once for all the numerous provinces he had conquered, at last he hit upon a plan which, although adapted to the object he sought to attain, and coloured with some appearance of generosity, was really the worst tyranny he perpetrated. He ordered visitors to go through all the subdued provinces, with orders to measure and survey them, and to bring him models of the natural features in clay... The models and reports were brought before the Inca. He examined them and considered the mountainous fastnesses and the plains...He then began to demolish the fastnesses and to have their inhabitants moved to plain country, and those of the plains were moved to mountainous regions, so far from each other, and each so far from their native country, that they could not return to it. Next the Inca ordered the visitors to go and do with the people what they had seen him do with the models.

Here, we have an Andean example of a state program of "legibility," where non-state spaces are transformed into controllable spaces through the reconfiguration of social and geographical landscapes (Scott 1998, 2009).

Although Pachakuti was emperor during the conquest of Vilcashuamán, his sons Qhapaq Yupanki and Thupa Inka were the ones in charge of the military operations (Toledo 1920 [1570]: 118-122). Qhapaq Yupanki died shortly after the conquest of Vilcashuamán, and Vilcashuamán became Thupa Inka's project of consolidation (*ibid*; Carabajal 1965 [1586]). The Inkas transformed the town of Vilcashuamán into an important provincial center and considered it the geographical center of their empire

[6] *Huacas* were regional creator-animator deities that usually had a physical manifestation on the landscape: outcroppings, mountaintops, and large boulders (Lau 2008: 1031). To Mills (1997: 43), a *huaca* was an "embodiment… and reinterpretation of a long cultural past." *Huacas* were active, permanent beings that a group of people looked to, thereby unifying them.

(Calancha 1974 [1638], book 1: 224; Cieza de León 1984: first part, 252; Julien 1993: 225; Rowe 1946: 188; Sarmiento de Gamboa 2010: 175). This assessment is supported by a network analysis of Inka roads, which showed that Cuzco and Vilcashuamán enjoyed the highest relative centrality, and that Vilcashuamán had an even higher degree centrality than Cuzco (Jenkins 2001: 665, 668). The town of Vilcashuamán during this period had a population around ten thousand, and its plaza could accommodate twenty thousand people (Carabajal 1965 [1586]: 218; Santillana 2012: 315). The town of Vilcashuamán was provisioned by thirty thousand people (Carabajal 1965 [1586]: 218). During the Late Horizon, Vilcashuamán's jurisdiction included parts of the modern regions of Andahuaylas, Ayacucho, Junín, and Huancavelica (Huertas 1983; Santillana 2012). The 1586 census of Viceroy Toledo registered 36,000 tributaries (male heads of family), which was roughly extrapolated to 72,000 in the Late Horizon (Huertas 1983: xv). According to the 1586 declaration of *kuraka* Teófilo Willka of Wankaraylla (Huancaraylla), the population of the Inka province of Vilcashuamán was 400,000 people (Yaranga Valderrama 1995: 244). Vilcashuamán's importance was also underscored by the fact that Thupa Inka's firstborn son, Amaru Thupa, was born in nearby Pomacocha (Pachacuti Yamqui 1879 [1613]: 276).

4.4 Identification of Yanawilka as a *mitmaqkuna* colony

Yanawilka was likely exclusively a Late Horizon *mitmaqkuna* colony. I will show that Yanwilka was *not* a pre-Inka site that continued to be inhabited after the arrival of the Inka. Ethnohistoric evidence shows that the area surrounding Yanawilka was settled by *mitmaqkuna* identified as the Condes (Carabajal 1965 [1586]; Piel 1995; Salas 1998a; Santillana 2012).[7] They spoke Quechua (Carabajal 1965 [1586]: 217; Salas 2002: 64). The Tanquihuas, the only original inhabitants allowed to stay in the area, were the Condes' closest neighbors, and judging from the early colonial documents regarding competing land claims, shared the use of much land (Figure 4.7). In the early Spanish colonial period, before the 1570s, Yanawilka belonged to the Condes community of Vischongo (Appendix D; Piel 1995), which also supports that the Condes settled Yanawilka during the Late Horizon. In the land titles of Pomacocha, "Yanavilca" is listed as one of the boundary markers of the former "patrimonio de los Incas," and the Condes of Vischongo had claimed it as their own (Appendix D: 6-8, 13-15). There were no Tanquihua claims on Yanawilka in the colonial period, and given its proximity and well documented history with Vischongo, Yanawilka was almost certainly inhabited by Condes *mitmaqkuna*, who were probably originally from the Arequipa region to the south. Yanawilka was appropriated from the Condes of Vischongo under the pretext that Yanawilka belonged to the Inka and therefore should now belong to the Spaniards (Salas 1998a: 120-121; Appendix D: 7-8).

[7] Notario Aparicio F. Medina Ayala [NMA], Ayacucho, Copia certificada del título de la comunidad campesina de Vischongo, Título de comunidades campesinas, 1648.

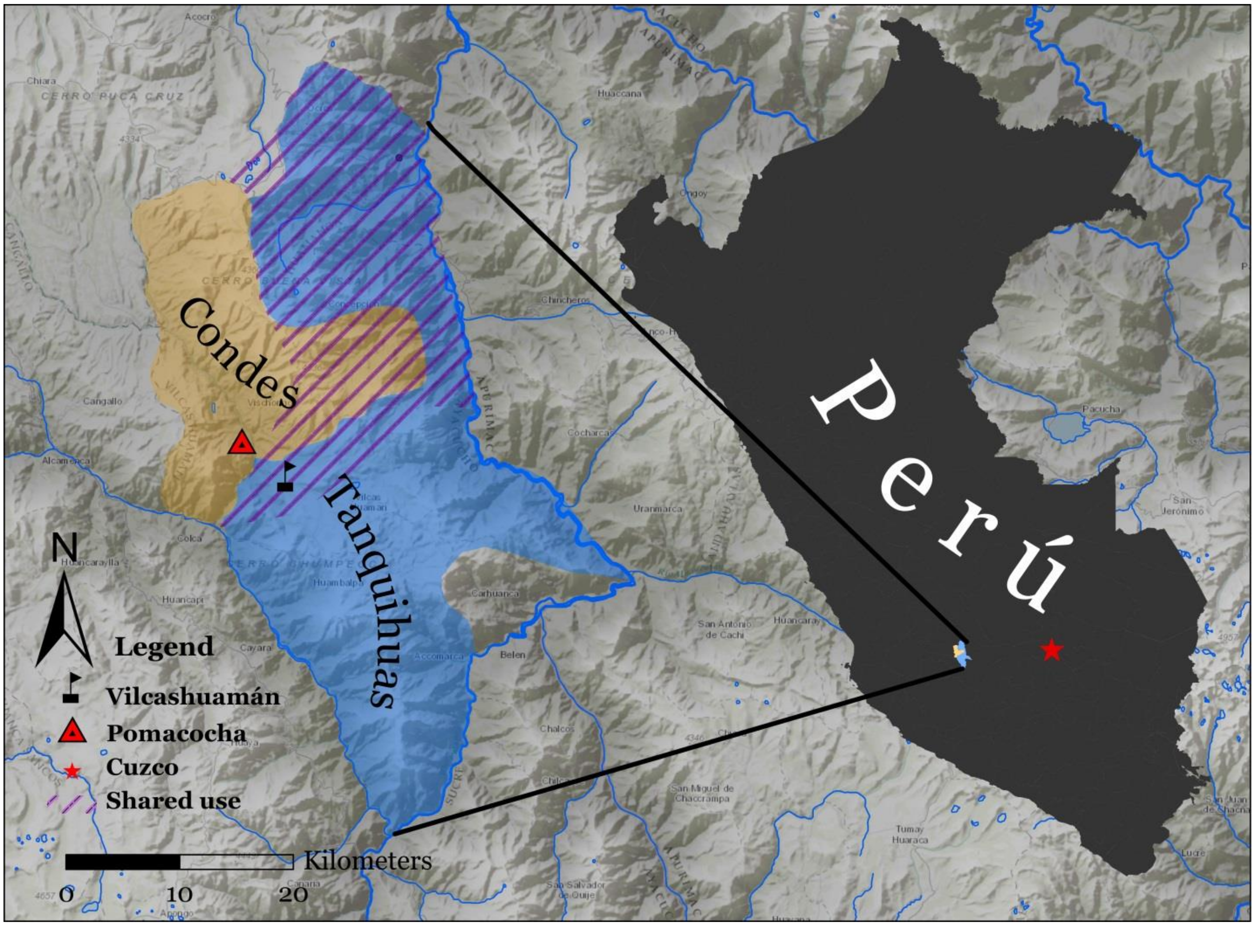

Figure 4.7: Map of the Condes' core area in the Inka province of Vilcashuamán. The Condes and the Tanquihuas shared the use of many lands (area in purple hashed lines).

4.4.1 Radiocarbon evidence of the Inka mitmaq program in Vilcashuamán

Radiocarbon dating is important to understand the chronology of the Inka conquest of Vilcashuamán and the establishment of the *mitmaq* system in the area. Radiocarbon and artefactual evidence show that Yanawilka was settled in the Late Horizon (1450-1532 CE) after the Inka conquest of the Vilcashuamán region. Diagnostic Inka ceramic sherds were found in both survey and excavations at Yanawilka. Nine charcoal samples from small twigs recovered in excavations at Yanawilka were AMS radiocarbon dated (Table 4.1). One sample was processed by Beta Analytics. Eight additional samples were processed by John Southon and the W.M. Keck Carbon Cycle Accelerator Mass Spectrometer at UC Irvine, and the error ranges, at ±15 years, are some of the tightest for the pre-Hispanic Andes. The results were calibrated using OxCal 4.2.4 (Bronk Ramsey *et al.* 2013) with both the IntCal13 and ShCal13 curves (Reimer *et al.* 2013; Hogg *et al.* 2013). For the Ayacucho region, the northern hemisphere curve (Intcal) yields more accurate results because the ITCZ (Intertropical Convergence Zone) shifts southward to the Andes (but above Bolivia), causing much of the CO_2 absorbed by Andean plants to represent the northern hemisphere (Finucane *et al.* 2007; MacCormac *et al.* 2004; Ogburn 2012). The dates were then modelled using Bayesian statistics and stratigraphic information in OxCal (Figure 4.8). The median dates for IntCal13 are about 10-20 years older than for ShCal13. The modelled dates for IntCal13 have better agreement overall than for ShCal13, which supports IntCal13 being a more appropriate curve for the Ayacucho region.

Table 4.1: Calibrated AMS radiocarbon dates from Yanawilka, unmodelled.

Lab code #	Unit	Locus	C^{14} age (BP)	cal CE 1σ (IntCal13)	cal CE 2σ (IntCal13)	cal CE 1σ (SHCal13)	cal CE 2σ (SHCal13)
Beta-400050	Y1	4E	380±30	1451-1618	1446-1632	1486-1624	1464-1630
UCIAMS-158343	Y1	2E	305±15	1524-1643	1520-1646	1629-1654	1512-1662
UCIAMS-158344	Y1	3E	370±15	1465-1617	1452-1623	1501-1625	1493-1630
UCIAMS-158345	Y1	4W	370±15	1465-1617	1452-1623	1501-1625	1493-1630
UCIAMS-158346	Y2	3E	385±15	1455-1485	1448-1617	1484-1623	1464-1626
UCIAMS-158347	Y1	2W	325±15	1518-1635	1494-1641	1515-1646	1509-1649
UCIAMS-158348	Y3	2E	385±15	1455-1485	1448-1617	1484-1623	1464-1626
UCIAMS-158349	Y3	3W	485±15	1424-1439	1417-1444	1441-1454	1433-1459
UCIAMS-158350	Y4	4W	1870±15	84-208	81-215	141-223	129-236

The modelled dates are based on the assumption that charcoal from deeper contexts should be older, and that samples from the same context should be comparable in age. Another assumption is that the dates are not any younger than 1534 CE. The Spanish landed in the northern Andes in 1532 CE and reached Vilcashuamán on October 29th, 1533 (Von Hagen 1976: 69). A Spanish colonial occupation of Yanawilka is unlikely because the shallow stratigraphy supports a short occupation and the absence of colonial ecofacts and artifacts do not support an early Spanish colonial occupation of Yanawilka. Wheat, pigs, sheep, and chickens for example, were adopted within the first generation of the Spanish conquest (Cieza de León 1709: 67-68; Espinoza Soriano 1975; Galdós Ramírez 1975; Garcilaso de la Vega 1989: 585; Helmer 1955; La Gama 1974; Ramírez Velarde 1970; Rostworowski 2005; Stern 1993), but no evidence of those foods were found at Yanawilka as they were in other early colonial sites such as in the Mantaro region (Russell 1988: 125-126) or Lucanas region (Abraham 2010). Yanawilka was most likely abandoned shortly before the arrival of the Spaniards.

The immediate area surrounding Yanawilka (Pomacocha) was severely and continuously contested militarily beginning from the Inka civil war between brothers Atawallpa and Waskhar (1528-1532 CE) to the Almagro-Pizzaro civil war (1537-1541 CE) (Cieza de León 1984: third part, 196-233; fourth part, volume 2; Cobo 1979: 166; Pachacuti Yamqui 1879: 315; Sarmiento de Gamboa 2010: 175). There were no defensive walls or ditches around Yanawilka. Due to the non-defensive location of Yanawilka and its proximity to the main Inka highway and Vilcashuamán, it would not have been safe to remain there during the bloody struggles. Similarly, the *mitmaqkuna* settlement of

Milliraya collapsed and was abandoned with the defeat of the Inka Empire (Spurling 1992: 187). In addition to the lack of Spanish colonial artifacts and ecofacts, there was also no Spanish colonial architecture.

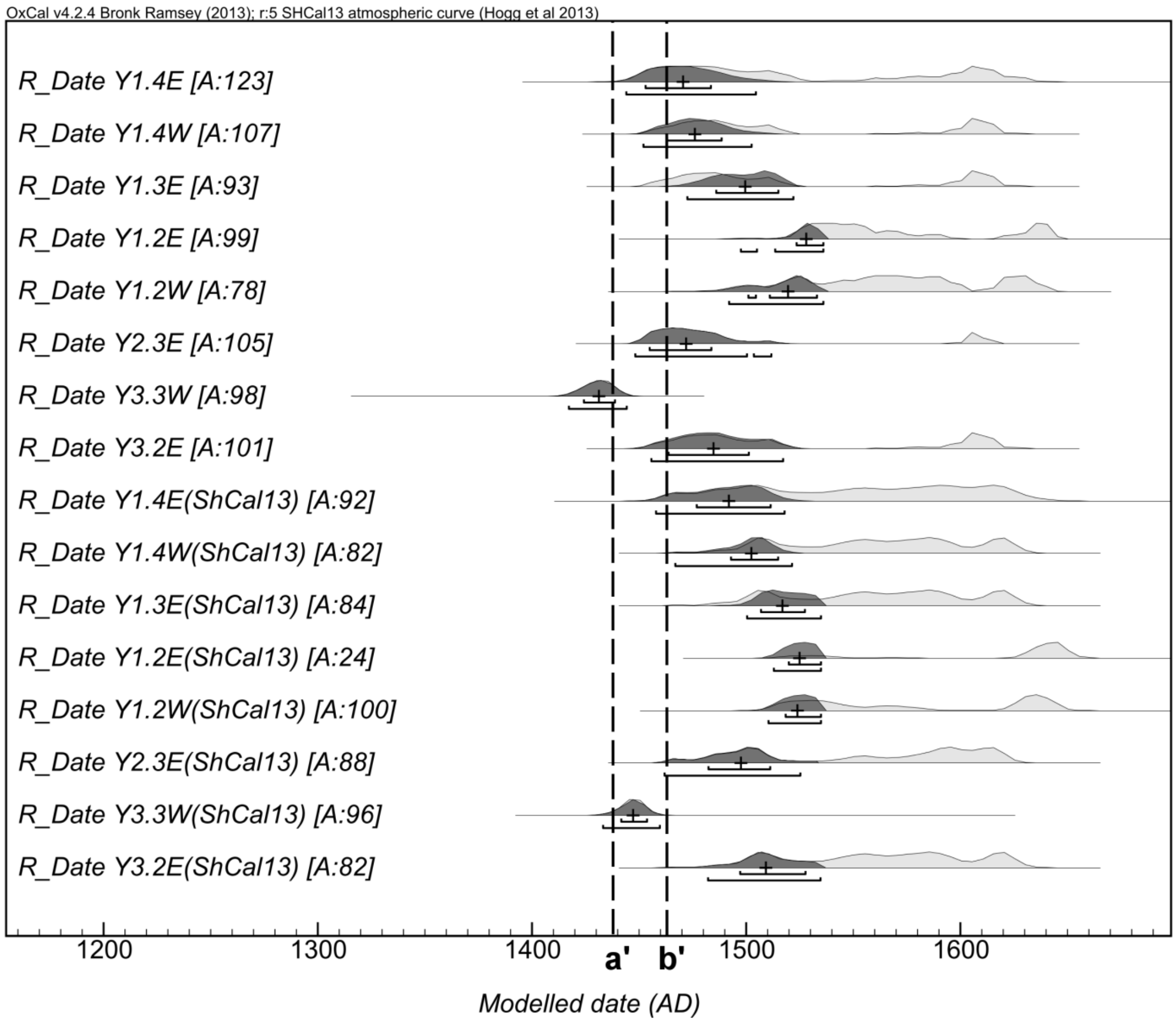

Figure 4.8: Modelled AMS radiocarbon dates from Yanawilka. Modelling parameters include stratigraphic information and a 1534 CE cutoff. Dark grey is modelled ranges, light grey is unmodelled ranges. Dashed line a' is 1438 CE, the traditional date of Pachakuti's initiation of Inka imperial expansion. Dashed line b' is 1463 CE, the traditional date of Thupa Inka's ascension to the throne (Cabello Balboa 1945; Rowe 1944, 1945, 1946).

If we follow Rowe's chronology (1946: 203), Yanawilka was probably first settled sometime during Pachakuti's reign. The earliest date from Yanawilka is consistent with Pachakuti being widely credited as the originator of the *mitmaq* policy. The earliest and most reliable date from Yanawilka is from the floor of Y3 (Locus 3W). At the 68.2% confidence interval, the modelled date ranges from 1424-1438 CE (IntCal13) or 1441-1453 CE (ShCal13). At the 95.4% confidence interval, this date ranges from 1417-1444

CE (IntCal13) or 1433-1459 (ShCal13). Although it is possible that the charcoal from the floor of Y3 (Locus 3W) is from older wood, this is unlikely given that the charcoal was from a twig, and if the *mitmaqkuna* were transplanted there, the wood must have been gathered after migration. Therefore, the wood should not have been dead for more than a few years before it was collected for fuel. We can treat this date as the beginning of Yanawilka as a *mitmaqkuna* colony.

According to the traditional Rowe chronology, which is based on Cabello Balboa, Pachakuti's imperial conquests began in 1438 CE (Ogburn 2012: 220). Depending on the calibration curve, the earliest date from Yanawilka is consistent with both the traditional chronology of the beginning of Inka imperial expansion (1438 CE) and the hypothesis that Inka imperial expansion occurred earlier than previously thought (e.g., Abraham 2010; D'Altroy *et al.* 2007; Ogburn 2012; Williams and D'Altroy 1998; Schiappacasse 1999). If the traditional chronology is correct, that implies that Pachakuti conquered the Vilcashuamán area early in his campaigns (which is consistent with the chronicles) and that the *mitmaq* policy in the Vilcashuamán area was established sometime in the 1440s or 1450s. If, however, the hypothesis that Pachakuti's conquests began before 1438 CE is correct, then we must accept that the traditional start date for Inka imperial expansion should be revised to an earlier date (Ogburn 2012). Because Inka historical narration was likely geographically, rather than strictly chronologically, ordered, the chronological history of Inka expansion should rely on accurate radiocarbon dating (*ibid*). With the ever increasing accuracy of AMS radiocarbon dating methods as well as better calibration curves, we can expect to gain a better grasp of the absolute chronology of Inka imperial expansion and evolving tactics of state consolidation.

Although the structures of Y1, Y2, and Y3 were all actively occupied or used at the same time, Y3 may have been established earlier than Y1 nd Y2. The median dates (IntCal13: 1470 CE, 1476 CE, 1471 CE) for the samples from the original floors of Y1 (Loci 4E and 4W) and Y2 (Locus 3E) are consistently younger than the median date (IntCal13: 1431 CE) of the sample from Y3's original floor (Locus 3W). In fact, the 95.4% confidence intervals do not overlap for the dates from the floors of Y3 compared to Y1 and Y2. Ethnohistoric sources emphasize Pachakuti's, Thupa Inka's and Wayna Qhapaq's ongoing *mitmaq* agendas (Betanzos 1996: 170; Cieza de León 1959: 66-67; Sarmiento de Gamboa 2010: 119-120, 146), and *mitmaqkuna* colonies may have increased their population through absorbing new migrants and/or developing larger families over time. Yanawilka was most likely occupied for at least three generations, which would allow a lot of dynamism in its evolution. Future excavations and radiocarbon dating at Yanawilka can clarify its settlement growth and abandonment history.

4.5 Conclusion

The Inka conquest of Vilcashuamán may have provided the Inka with the template of the *mitmaq* resettlement policy: conquest, division, and relocation. The Inka mostly employed indirect rule, using divided social landscapes to maintain mistrust among groups and depopulating geographically advantageous hillforts to mitigate the need for costly suppression of rebellions. Even for "friendly" groups like the Condes, resettlement was nevertheless jarring. Because the *pacarinas*, or origin places, and sacred sites were embedded in their home landscapes, long-distance resettlement would have not only disrupted traditional pilgrimage and trade networks, it would have also meant a dramatic reconfiguration of the transplanted groups' identity and history. The division of groups into smaller units and resettlement far from home represented a "pachakuti" or world reconfiguration for those affected. Although favored *mitmaqkuna* groups were given access to fertile lands, they were surrounded by hostile groups or strangers and became dependent on Inka generosity for basic survival. In the rest of the dissertation, I will argue that despite their "elevated" status, the *mitmaqkuna*, at least the ones at Yanawilka, were economically marginalized and socially isolated on the regional scale. The Inka were known for masking exploitation under the veneer of generosity, and certain individuals were socially elevated while others bore the brunt of producing for the state (D'Altroy and Hastorf 2001; Hastorf 1990, 1991, 1993). Therefore, although the *mitmaqkuna* of Yanawilka may have had access to fertile lands and certain individuals may have enjoyed elevated status, overall, they had less economic freedom than before resettlement.

5 The Mitmaqkuna Settlement of Yanawilka

In this chapter, I describe the spatial organization of daily life at the settlement of Yanawilka. Through analysis of settlement organization, topography, artifact survey, and excavations of four domestic structures, this chapter provides insights into social organization at Yanawilka. Questions that guide this chapter are:

1) How was the domestic settlement of Yanawilka spatially organized? What was the local landscape, and where was the settlement positioned in relation to nearby important Inka sites? How did the inhabitants modify the natural topography of their settlement? How many inhabitants were at Yanawilka?
2) What was daily life like at Yanawilka? How did social organization inform the spatial organization of the settlement? What daily tasks did the inhabitants carry out? How did ritual manifest in the choices the inhabitants made in the modification of the local topography? What evidence of Inka presence was there at Yanawilka?

By answering these questions, we gain a better understanding of the character of state control over daily life at Yanawilka. I argue that the Inka employed indirect control at Yanawilka, and there was no appreciable control over most productive activities at Yanawilka. The inhabitants, who were transplanted *mitmaqkuna* from the Condes ethnic group, mostly produced for themselves. The Inka had minimal presence on site in regards to diagnostic artifacts and Inka architecture. The settlement was most likely organized along the inhabitants' preferences, but there may have been Inka input in Yanawilka's location and spatial organization, which encouraged social division and hierarchy. The close proximity of the Yanawilka settlement to the royal Inka highway suggests that traffic outside of the settlement was easily controlled. The lack of defensive walls and a militarily disadvantageous settlement location are consistent with Inka policy of resettlement to neutralize military threat (Acuto 2012).

5.1 Landscape and settlement location of Yanawilka

Yanawilka is approximately 3050-3090 meters above sea level in the *quechua* (2400-3200 masl) ecological zone (Cama Salazar and Paucarima Cerón 2005: 26-28; Pulgar Vidal 1946; Tapia 1996). Located in the fertile and warm Pomacocha/Vischongo valley, Yanawilka had easy access to five major ecological zones: *yunga fluvial* (1900-2400 masl), *quechua* (2400-3200 masl), *suni* (3200-3600 masl), *puna* (3600-4300 masl) and high *puna* (4300-4800 masl) (*ibid*) (see Figure 4.2). Originally developed by Pulgar Vidal, the ecological zones' elevation ranges vary from place to place in the Andes. In the *quechua* zone, a wide variety of foods can be grown: maize, beans, garden vegetables, quinoa, cañihua, potato, ulluco, oca, mashwa, and tarwi (Hastorf 1993).

Vilcashuamán was described in the *Relaciones Geográficas de Indias* (RGI) as a fertile, mountainous region abounding with "pasture, fruits and food" (Carabajal 1965:

146 [1586]). The important plant foods listed in the RGI for the Vilcashuamán area were cassava (*Manihot esculenta*), common beans (*Phaseolus vulgaris*), maize, oca, olluco potatoes, papas, quinoa, tarwi (*Lupinus mutabilis*), and sweet potatoes (*Batatas* sp.). Important faunal foods were deer, guanacos, guinea pigs, vicuñas, and viscachas (*ibid*: 147). Prickly pear (*Opuntia* sp.) and *molle* (*Schinus molle*) trees also abound at Yanawilka and environs. Local native fauna at the time included Andean cats, camelids, deer, foxes, pumas, skunks, vizcachas, native birds, frogs, toads, and snakes (Cama Salazar and Paucarima Cerón 2005: 46-47). Local geology is composed of colluvial deposits (sedimentary clastic and calciferous rocks) and volcanic rocks (Cama Salazar and Paucarima Cerón 2005: 19-21).

Although there was no clear Inka architecture at Yanawilka itself, its local landscape was dotted with Inka installations (Figure 5.1). The closest Inka architecture or engineering included the royal Inka road (700 meters away by foot) and a probable Inka site in the Spanish colonial plaza and *obraje* (900 meters away by foot). The Spanish colonial plaza has a canal that probably dates to the Inka period (Von Hagen 1955: 155) and the principal patio of the *obraje* is not quadrangular, like Spanish plazas, but trapezoidal, which was Inka architectural canon (Figure 5.2). The Spanish colonial plaza is littered with reused Inka masonry, most notably the standing stone cross. The principal patio of the *obraje* also has reused Inka masonry (Figure 5.3). The canal also runs through the principal patio of the *obraje*, aligning with one of the trapezoidal sides. Yanawilka is between two major Inka sites of Pumaqocha-Intihuatana (2.6 km to the periphery and 4.5 km to the palace by foot) and the provincial capital of Vilcashuamán (5.2 km by foot). Both Pumaqocha-Intihuatana and Vilcashuamán have extensive storage units or *qolqas* for food and other supplies (Huamani 1998, 2005; Santillana 2012). Yanawilka's location was ideal for the *mitmaqkuna* to regularly provision the Inka state installations, and the Condes *mitmaqkuna* in Vilcashuamán province were also tasked with being *chaskis* (message runners), and some continued in this role into the Spanish colonial period.[8] Yanawilka was distant enough from the Inka settlements and small enough to not pose a significant danger of surprise rebellion.

[8] Archivo General de la Nación (Lima) n/d,Padrón de los indios tributarios de la provincial de Vilcas-huaman, obispado de Huamanga, en que se comprenden todos los pueblos, ayllos, estancias, obrajes y haciendas de la dicha provincia. [1729] Legajo 14, Cuaderno 248, Der. Ind. See also Biblioteca Nacional del Perú (Lima) 1719 Copia de la Numeración de Yndios hecha en la provincial de Vilcasguaman. 1719. C1924.

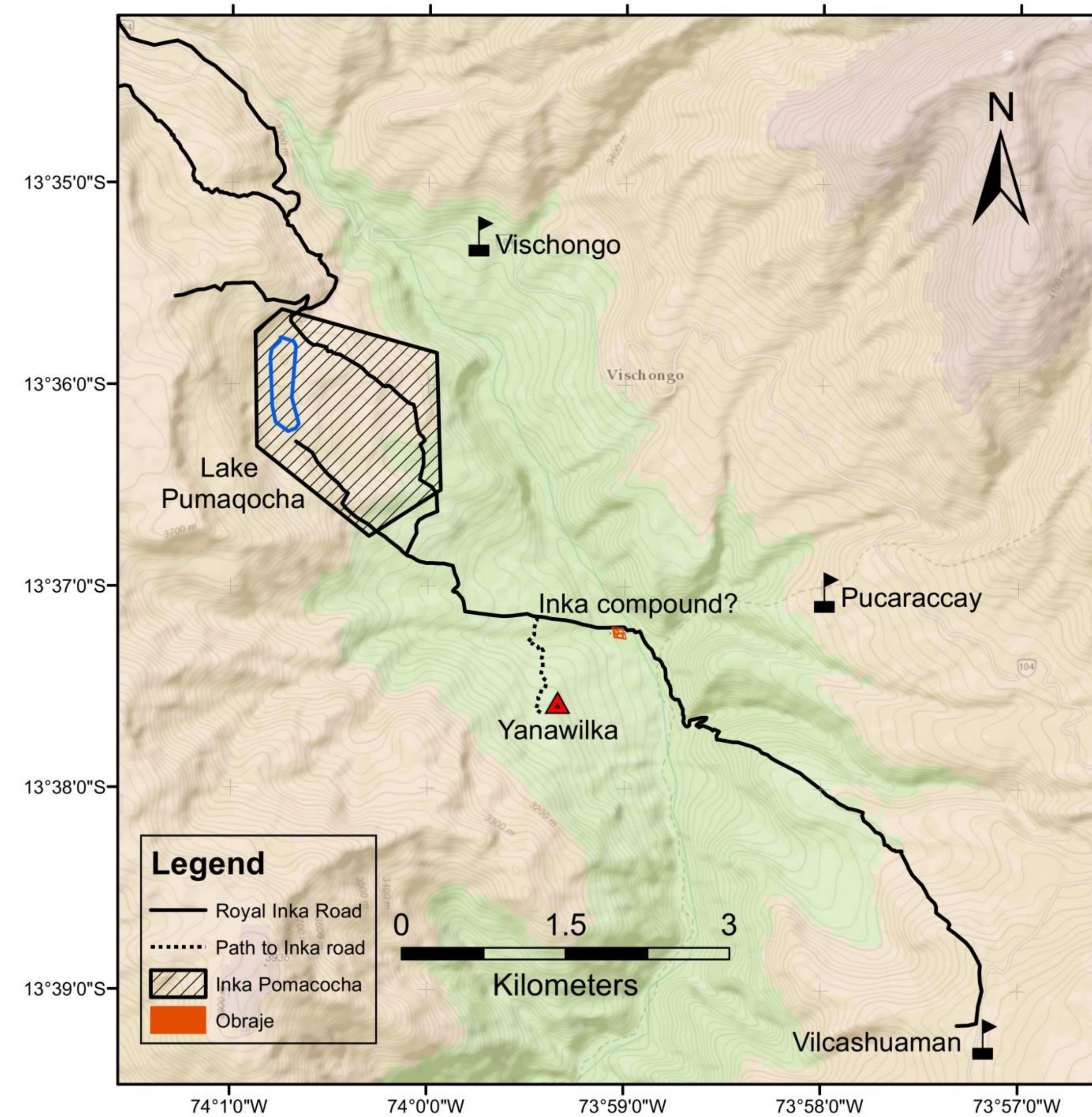

Figure 5.1: Major Inka sites in Yanawilka's local landscape. Vischongo was a large *mitmaqkuna* settlement. Inka Pomacocha boundaries based on Huamani (1998, 2005) and Santillana 2012.

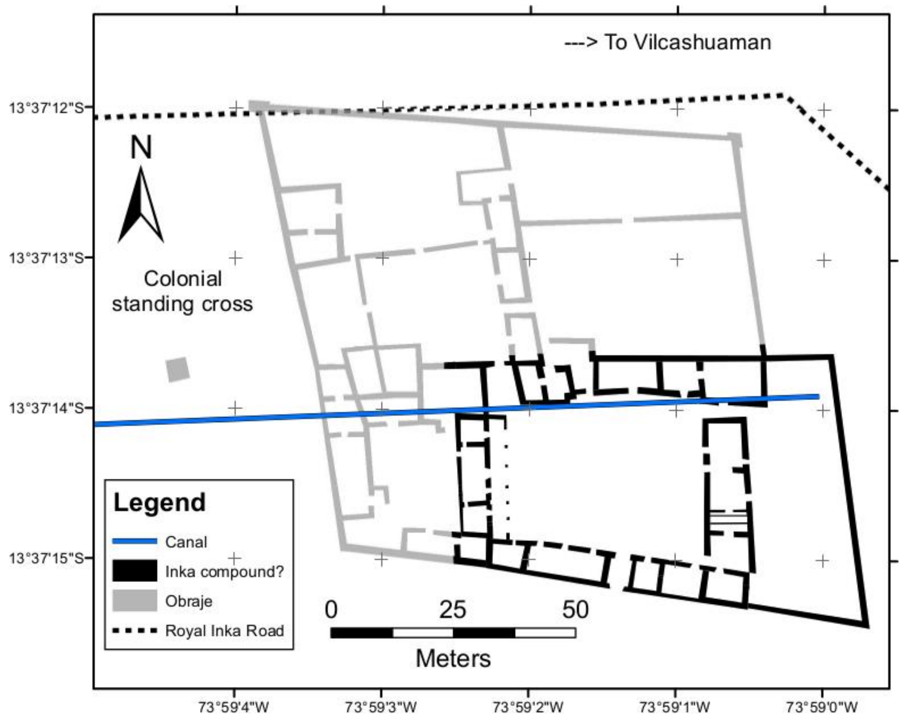

Figure 5.2: Obraje and trapezoidal principal patio of likely Inka origin (highlighted in black).

Figure 5.3: Inka architectural stones reused in the Spanish colonial period. a=Terrace inside the principal patio of the *obraje*. b=Rectangular basin lined with Inka stones inside the principal patio of the *obraje*. c=Spanish colonial standing cross with a three-stepped base made of Inka stones.

Yanawilka was located near several sources of water (Figure 5.4). Site selection did not solely reflect state interests. Yanawilka stood out in the local landscape and had obvious ritual significance. Yanawilka includes two rocky outcrops, each associated with a low hill (Figure 5.5). The toponym "Yanawilka" refers to the more prominent rocky outcrop of the eastern hill. "Yanawilka" in early colonial Quechua referred to a type of priest "black priest" who occupied the lowest tier in the Inka priest hierarchy; "Yanawilka" also signified any person who was old and wise and was an expert in medicinal plants (Hyland 2003: 160-162; Jiménez de la Espada 1879: 163, 182). The western hill and surrounding area go by the toponym "Saqapayoq" or "Sapaqayoq." The hills were where the vast majority of the domestic structures were located. Environmental reasons for this include good drainage during the rainy season and the fact that the hills were not, and still are not, suitable for agriculture. Given the *mitmaqkuna*'s recent resettlement, Yanawilka was an ideal place to settle for ritual and social reasons. The next section will discuss how the topography and features of Yanawilka and the social fabric of the inhabitants reflected, reinforced and modified each other.

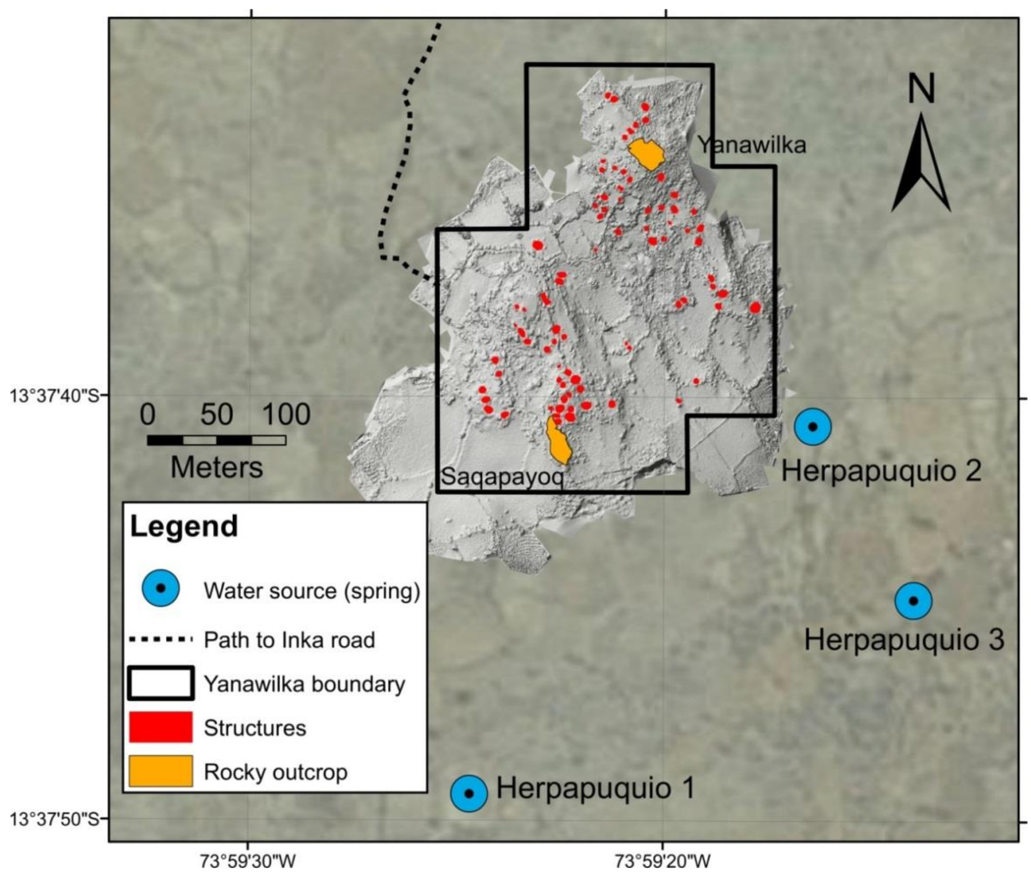

Figure 5.4: Closest sources of water to Yanawilka. All three springs are from the same underground stream. It is possible that the exact locations of the springs changed over the last half millennium, but the underground stream would have remained in roughly the same area.

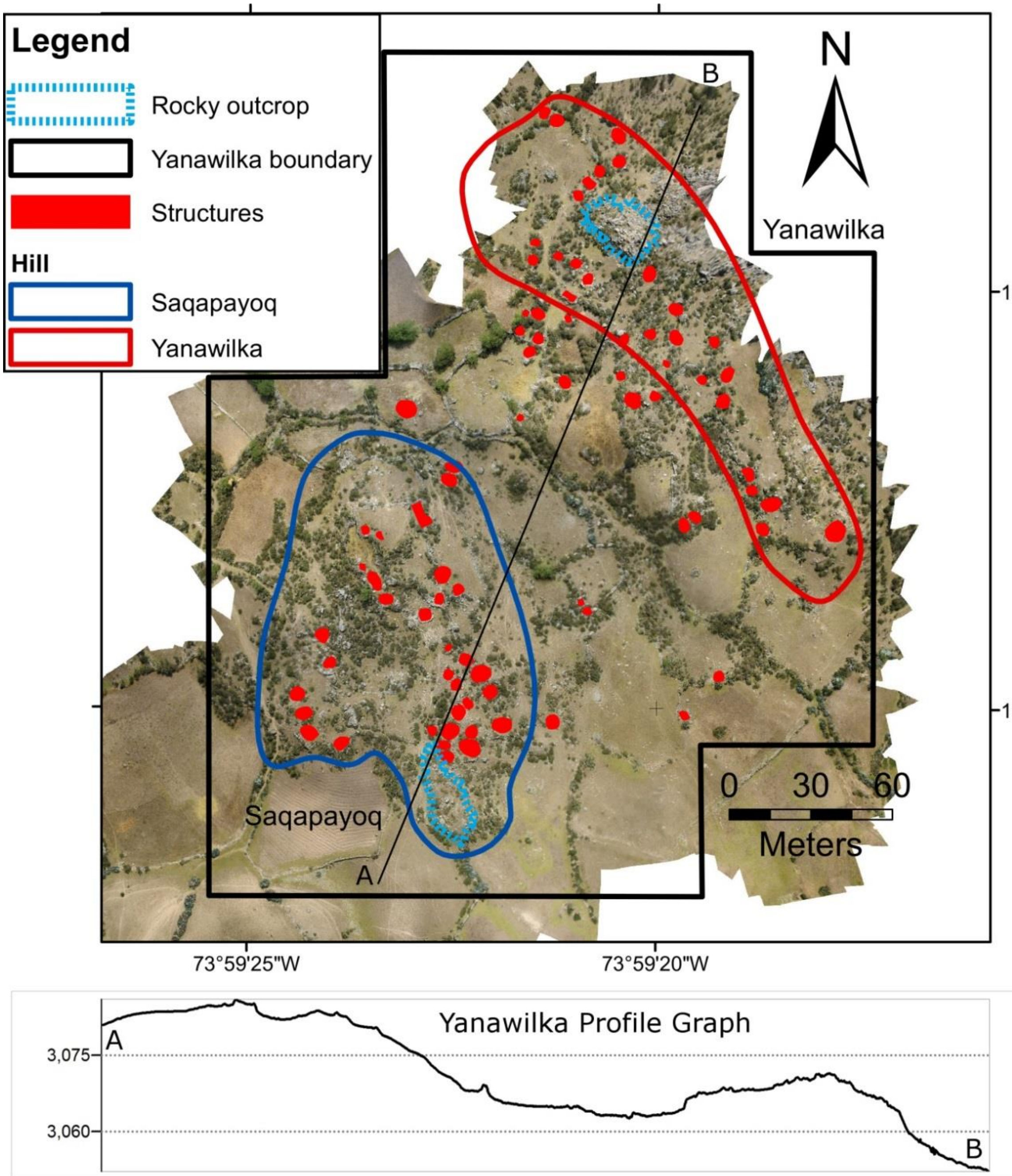

Figure 5.5: Two hills, “Yanawilka” and “Saqapayoq” that comprise the site of Yanawilka. Each hill has a major rocky outcrop.

5.2 Spatial organization, topography, and landscape modification at Yanawilka

The spatial organization and landscape modification of Yanawilka were strongly mediated by ritual and social concerns. In this section, I argue that the choices made by the inhabitants of Yanawilka in settlement location and organization reflected a strong desire to recreate "home" in a foreign land. Their heavy investment in choosing settlement location and landscape modification was consistent with a desire to permanently settle (Figure 5.6). I show how the settlement organization reflected a moiety social structure and was likely a transplant of the social structures that already existed among the inhabitants. The settlement location, spatial organization, and landscape modification not only reflected social ideals of the Condes *mitmaqkuna*, but also reinforced and reproduced their subordinate status to the Inka. Although environmental factors also played into the organization of the settlement, such as drainage and conserving agricultural space, the double-hill topography and prevalence of natural boulders and small caves made Yanawilka a perfect candidate to recreate an idealized home. The settlement location and spatial organization of Yanawilka were consistent with cooperative decision-making between the Condes and their Inka rulers. It was in both the Condes' and Inkas' interest to have the freedom to recreate a sense of home in a foreign land, especially one where the wider social landscape would have isolated the *mitmaqkuna*. Nevertheless, overall, the impact of the spatial organization of social organization at Yanawilka was more favorable to the Inka.

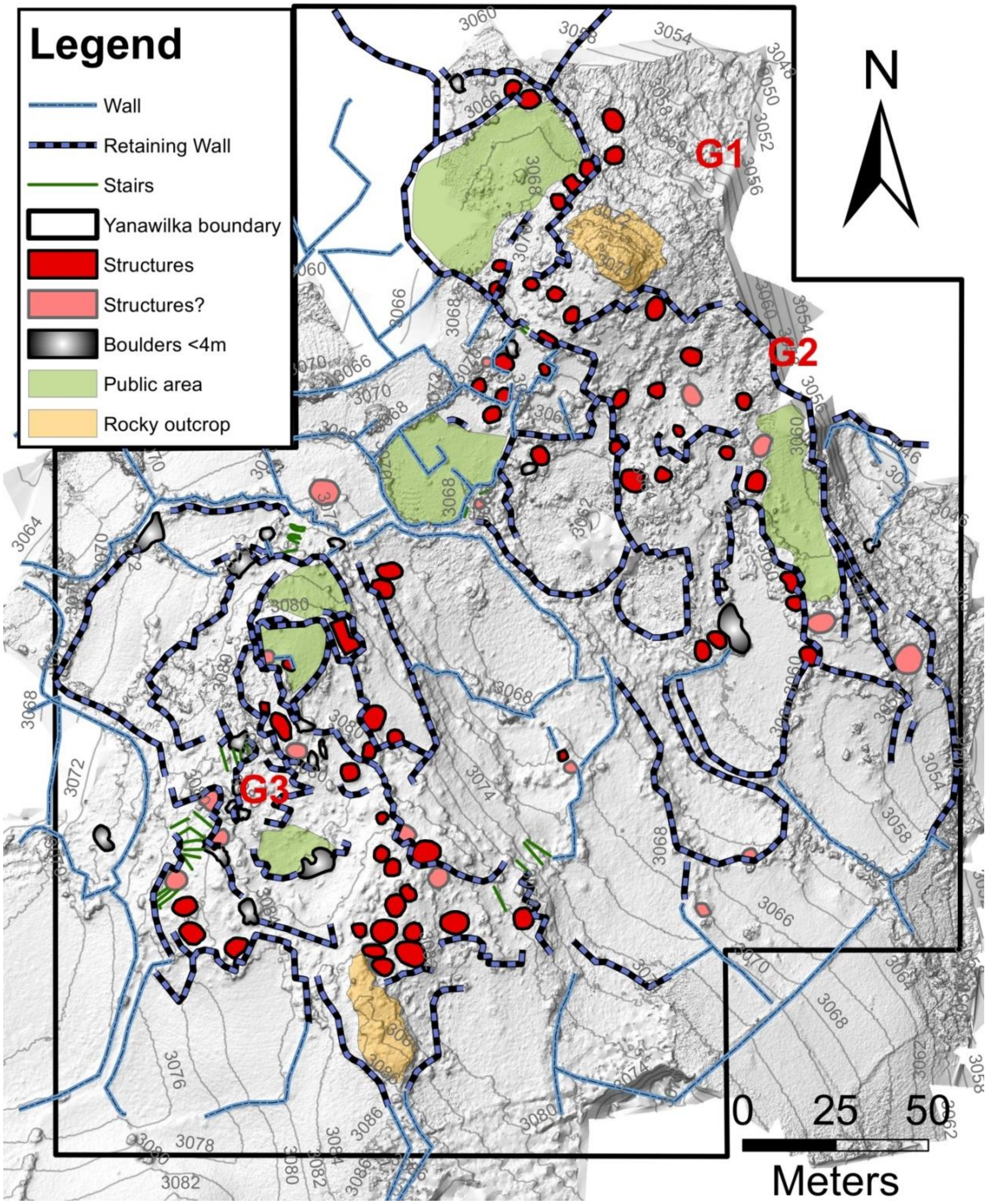

Figure 5.6: Map of the major features of Yanawilka. G1, G2, and G3 refer to small caves with human bone inside.

5.2.1 Methodology

The map and digital elevation model of Yanawilka was accomplished through a combination of total station mapping, laser rangefinder mapping, differential GPS mapping, and photogrammetry of aerial photographs. Agisoft Photoscan Professional 1.1.4.2021 was used to generate orthophotographs and a digital elevation model (DEM) of Yanawilka (Figure 5.7). A Sokkia SET 530r3 total station and a Trimble GeoXH differential GPS unit were used to generate control points for the DEM. The DEM based on photogrammetry had excellence accuracy, accurate to about 5.4cm overall among the four control points. Average X error was 1.1cm, Y error was 5.3cm, and Z error was less than 0.1cm. The DEM was accurate and had high enough resolution to represent structure walls and even contemporary small bundles of hay that were laid on the ground (see Figure 5.7).

As I explained in chapter four, the Yanawilka settlement most likely dates to the Late Horizon. There were no appreciable changes to the boundaries of the agricultural fields surrounding Yanawilka since 1962, when the community of Pomacocha declared their independence from the nuns of Santa Clara of Huamanga. Because the residents of Pomacocha did not own the land they worked, they could not make changes to the boundaries without explicit written permission from the nuns. None of the contracts from the Spanish colonial period onward mentioned any changes in field boundaries, and because the Spanish colonial convention was to describe boundaries, as opposed to drawing maps of them, the toponyms and boundaries had physical permanence. Further evidence of the Late Horizon date of the features of Yanawilka is presented in the subsequent space syntax analysis of paths at Yanawilka. The paths show coherence to the moiety social structure at Yanawilka.

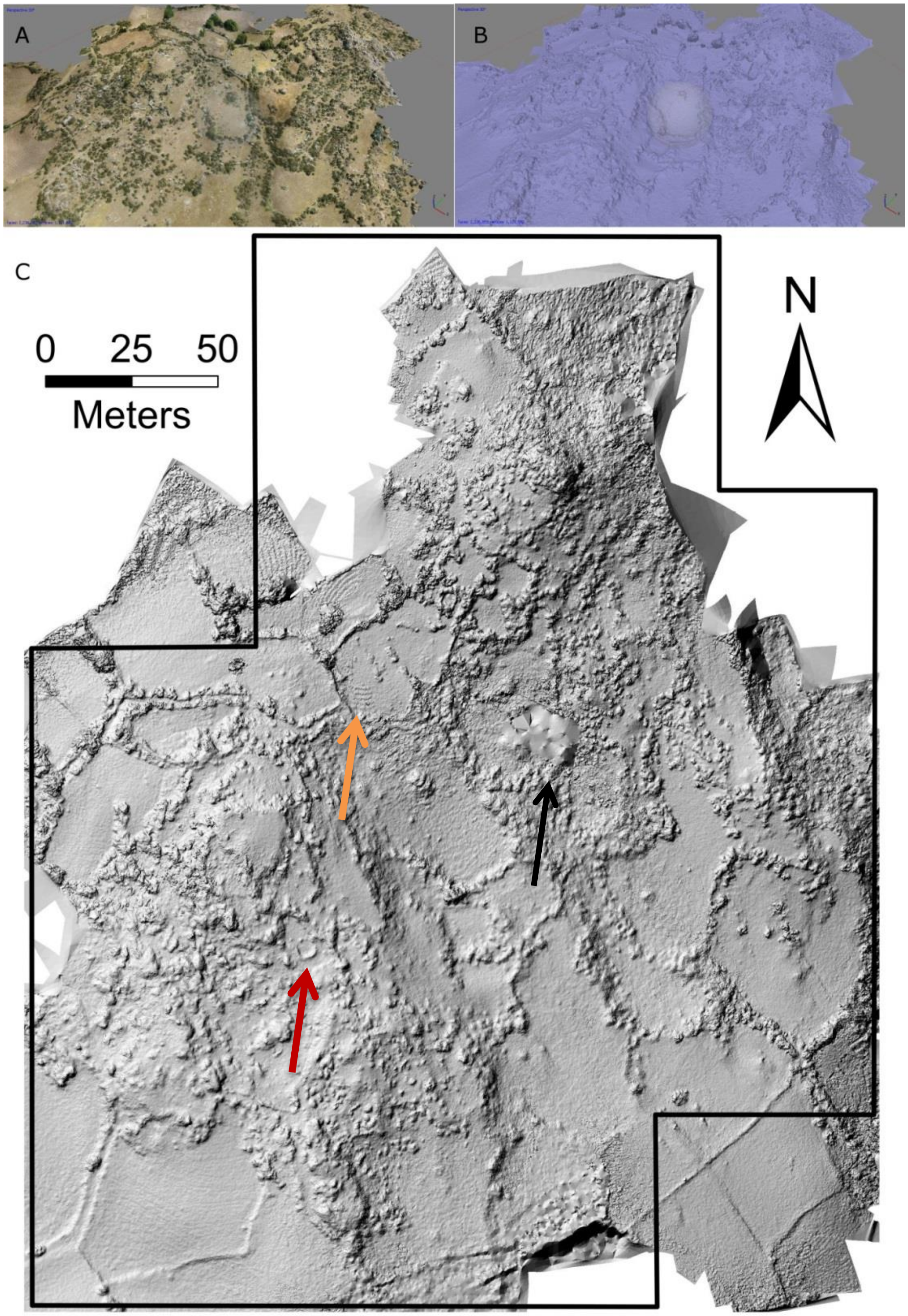

Figure 5.7: A) View of Yanawilka DEM with texture in Agisoft Photoscan. B) View of DEM without texture. C) Birdseye view of DEM without texture in ArcMap. Black arrow points to a closed hole in the DEM.

Yellow arrow points to striations that are small bundles of hay. Red arrow points to an example of a circular structure (Y3), showing the sensitivity of the DEM.

5.2.2 Moiety divisions and beyond

Yanawilka's spatial organization strongly implied a bipartite social division. Moiety organization was common in the ancient Andes, and duality was evident in the beliefs, material culture, and social organization of the Inka and most of their subject populations (Moore 1995; Pärssinen 1992, Zuidema 1982, 1992). In this section, I will present several lines of evidence that support a bipartite moiety division of Yanawilka society. The moiety division in the late pre-Hispanic Andes was referred to in Quechua as "hanan" or upper and "hurin" or lower. Although the "hanan" and "hurin"moiety distinction does not necessarily imply that one moiety has elevated social status (Garcilaso de la Vega 1989 [1609]: 44), I argue that at least at Yanawilka, the upper moiety (Saqapayoq) may have had higher status than the lower moiety (Yanawilka). The upper moiety had larger structures and more investment in landscape modification.

Hanan was associated with the "right" direction and hurin was associated with the "left" direction (*ibid*: 44-45). Hanan Cuzco was higher in elevation than Hurin Cuzco (Ossio Acuña 2015: 122). In the case of Yanawilka, "hanan" and "hurin" were consistent with these directional associations. From the vantage point of the Inka road (north of Yanawilka), the "hanan" moiety is both on the right and higher in elevation than the "hurin" moiety (Figure 5.8). The "hanan" moiety is on the western side and the "hurin" moiety is on the eastern side of the settlement of Yanawilka. The organization into upper and lower moieties of new settlements was part of the Inka policy to imitate Cuzco: "In imitation of this, there was later the same division in all towns, great or small, of our empire, which were divided by wards or lineages, known as *hanan aillu* and *hurin aillu*, the upper and lower lineage, or *hanan suyu* and *hurin suyu*, the upper and lower district" (Garcilaso de la Vega 1989 [1609]: 45).

Figure 5.8: View of Yanawilka from the royal Inka road, looking south. Red arrow is the rocky outcrop called "Yanawilka" and the blue arrow refers to the rocky outcrop of "Saqapayoq."

The structures were in two clusters centered on each hill, and each hill had their own major rocky outcropping as a ritual focus (Figure 5.9). Each cluster of structures was roughly equal in number, with the upper moiety (Saqapayoq) consisting of thirty-five structures and the lower moiety (Yanawilka) consisting of forty structures. Due to the bad preservation of most structures at Yanawilka, not all of the structures identified had certain status as structures. If one only considers non-dubious structures, the upper moiety had twenty-seven structures, and the lower moiety had thirty-five structures. From the number of structures present at Yanawilka, and assuming that all were in use at the same time, and that not all are structures for sleeping, I estimate that Yanawilka had a population of 100 to 200 people. The locations of the rocky outcrops displayed symmetry, being near the opposite ends of the site. A central public area linked the two moieties, and each hill had two public areas. The multiple public areas suggest that there were divisions beyond the basic moiety division. At the community level, people were divided not only by *hanan* and *hurin* moieties, but also by quadripartite "ceque," a system of radiating lines from a center point (Yaranga 1995: 244). In addition to the central public area, Yanawilka had an addition four public areas, which is consistent with a quadripartite division. The rocky outcrops "Saqapayoq" and "Yanawilka" were esteemed by the inhabitants because each had retaining walls around them, as *huacas* often do (e.g., McEwan 2014) (Figure 5.10). There were at least three small caves that served as graves (Figure 5.11). G1 and G2 had human bone on the surface, whereas G3 did not, although it did have ceramics inside. The bones of G3 are most likely interred. The fact that there was not a single grave spot suggests multiple social groups at Yanawilka.

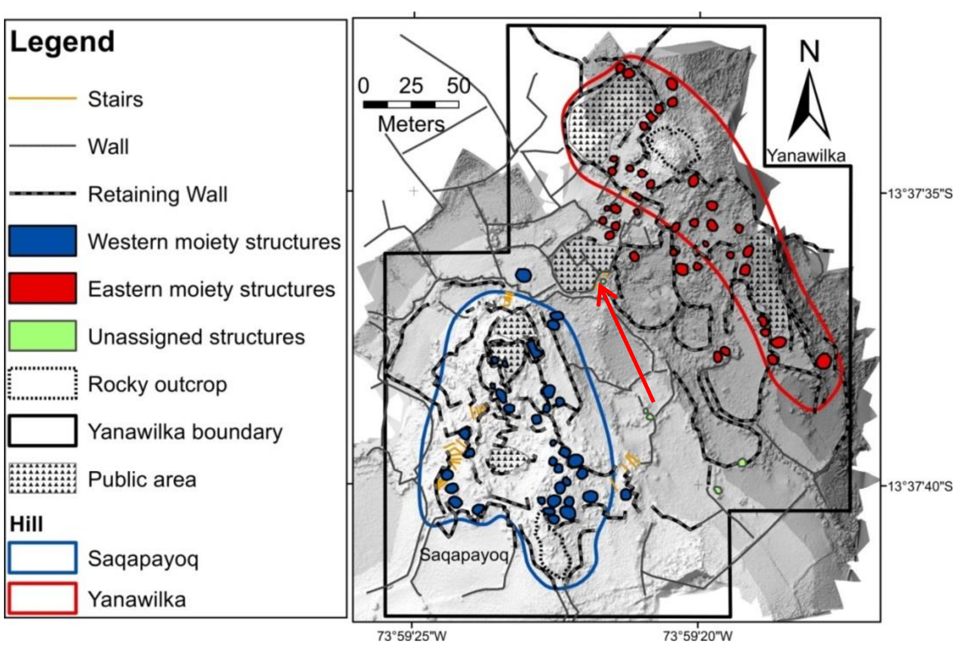

Figure 5.9: The moiety structure of Yanawilka expressed in its topography and settlement organization. Red arrow points to the shared public area linking the two moieties.

Figure 5.10: Rocky outcrop “Saqapayoq.” Vegetation grows on the retaining walls. 5’11” person for scale.

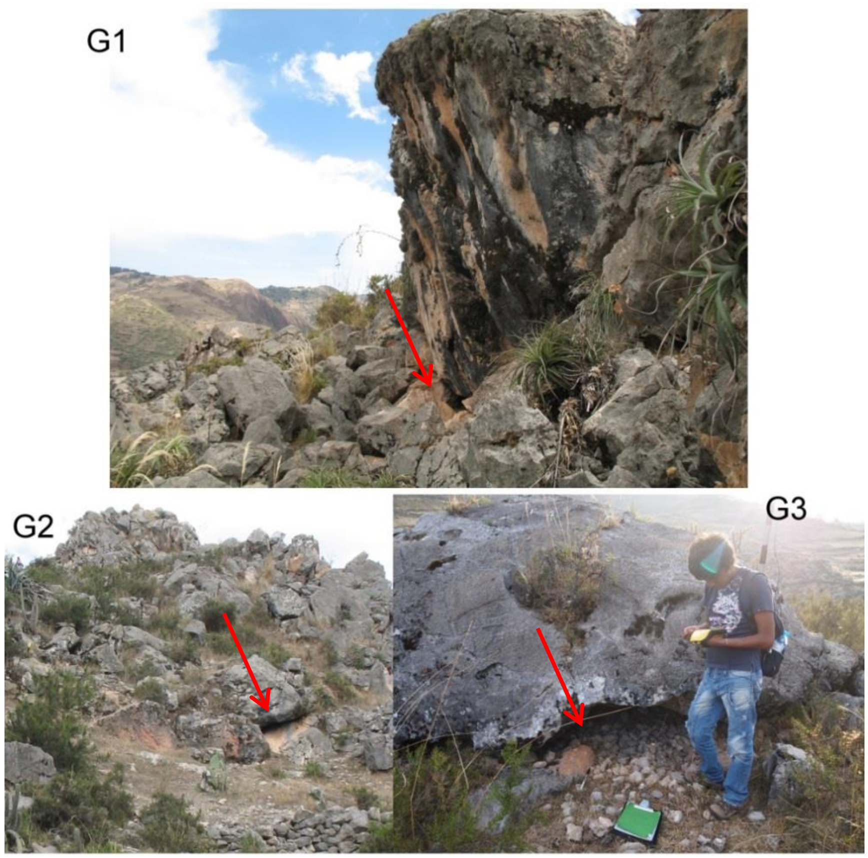

Figure 5.11: Three graves of Yanawilka. Red arrows point to the small caves. G1 and G2 have visible human remains on surface, whereas G3 does not.

Although the two moieties were roughly equal in area and number of structures and displayed great symmetry in spatial organization, there was more landscape modification of the upper moiety (Saqapayoq). Although the absolute lengths of the retaining walls of each moiety were almost exactly the same (1127m upper moiety and 1158m lower moiety), the retaining walls were denser in the upper moiety than in the lower moiety (820 meters/ha versus 719 meters/ha). Retaining walls are identified as walls that kept the slopes stable, with the elevation on one side of the wall higher than the other side (Figure 5.12). Most retaining walls held back no more than a meter of dirt, but the upper moiety's retaining walls tended to be higher than the lower moiety's. There was also significant artificial fill in the upper moiety, especially around the rocky outcrop "Saqapayoq" (Figure 5.13). Furthermore, the area immediately to the northeast of the rocky outcrop "Saqapayoq" had a series of raised pathways that also served as the berms of the semi-subterranean structures of that area. Raised pathways were also present at Late Horizon sites in the Chicha/Soras valley, such as Chiqna Jota (Meddens and Schreiber 2010: 140). The public areas of the upper moiety also showed more labor investment. The southernmost public area was located inside a natural depression in the landscape, but the depression itself was made deeper by excavation. Most likely, the artificial fill of the southern half of the upper moiety came from this depression. A depression also served as a public area in Chiqna Jota (*ibid*).

Figure 5.12: Example of a retaining wall, approximately 70cm in height with artificial fill behind it.

Figure 5.13: Cut in the artificial fill of the upper moiety "Saqapayoq." Scale bar is 15cm.

The upper moiety had stairs, whereas the lower moiety did not. While the upper moiety does have more complicated topography to begin with, which could account for the higher density of retaining walls, the presence of artificial fill and stairs show that more labor hours were spent in the construction of the upper moiety, perhaps due to a longer period of settlement or higher status/better labor mobilization. Despite extensive landscape modification of the entire site, the retaining walls and fill generally respected the natural contours of the topography. The landscape modification served to stabilize or enhance rather than reorder the landscape. The elevated status of the upper moiety is further supported by the fact that its structures are significantly larger overall than the lower moiety's (Figure 5.14; Table 5.1). Only interior areas of the structures were measured, as bad preservation obscured the true outside boundary of the structure walls. Comparing only the non-dubious structures, this difference is highly significant, with a p value of less than 0.01 for all statistical tests. Descriptive statistics only consider the 63 structures that do not have dubious status. As a single population, the interior areas of the structures are not normally distributed (Shapiro-Wilk W: 0.9421, P value: 0.0051). The interior areas of the structures are normally distributed only if we consider two separate populations consisting of the upper and lower moiety. This further reinforces the hypothesis that there was a moiety social structure at Yanawilka.

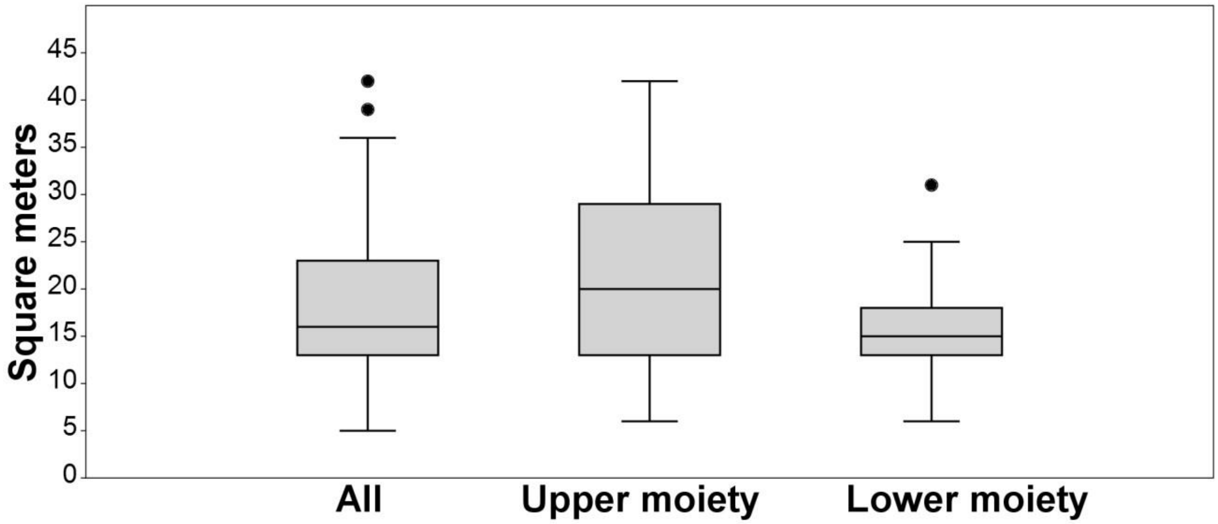

Figure 5.14: Boxplots of the inner areas of Yanawilka structures of non-dubious status.

Table 5.1: Descriptive statistics of the inner areas of Yanawilka structures of non-dubious status. Original interior areas rounded to the nearest square meter.

	Area all structures (m²) N=63	Area upper moiety (m²) N=27	Area lower moiety (m²) N=35
Min	5	6	6
Max	42	42	31
Mean	18	22	16
Std. error	1.1	1.9	0.9
Variance	69.8	99.8	28.7
Stand. dev	8.4	10.0	5.4
Median	16	22	15

One can reasonably infer social difference between the two moieties because of the noticeable differences in landscape modification investment and structure sizes. To strengthen the hypothesis that the upper moiety (Saqapayoq) enjoyed a socially elevated status, however, one needs additional lines of evidence. In the following section, I analyze the pathways at Yanawilka to show that the upper moiety had higher integration and connectivity in their paths, implying elevated importance of that sector of the settlement.

5.2.2 Space syntax of paths, integration and connectivity

The organization of the pathways at Yanawilka also supports a moiety social division at Yanawilka. There are two "masses" of paths that correspond to each moiety, with only two paths directly connecting each moiety (Figure 5.15). The northern connecting pathway passes through the shared public area, and the more southern pathway passes by an unusual, small square structure with Inka fitted masonry style (see section 5.3). Through a spatial analysis of the structure of pathways at Yanawilka, we can identify which areas were the most central, integrated, and connective.

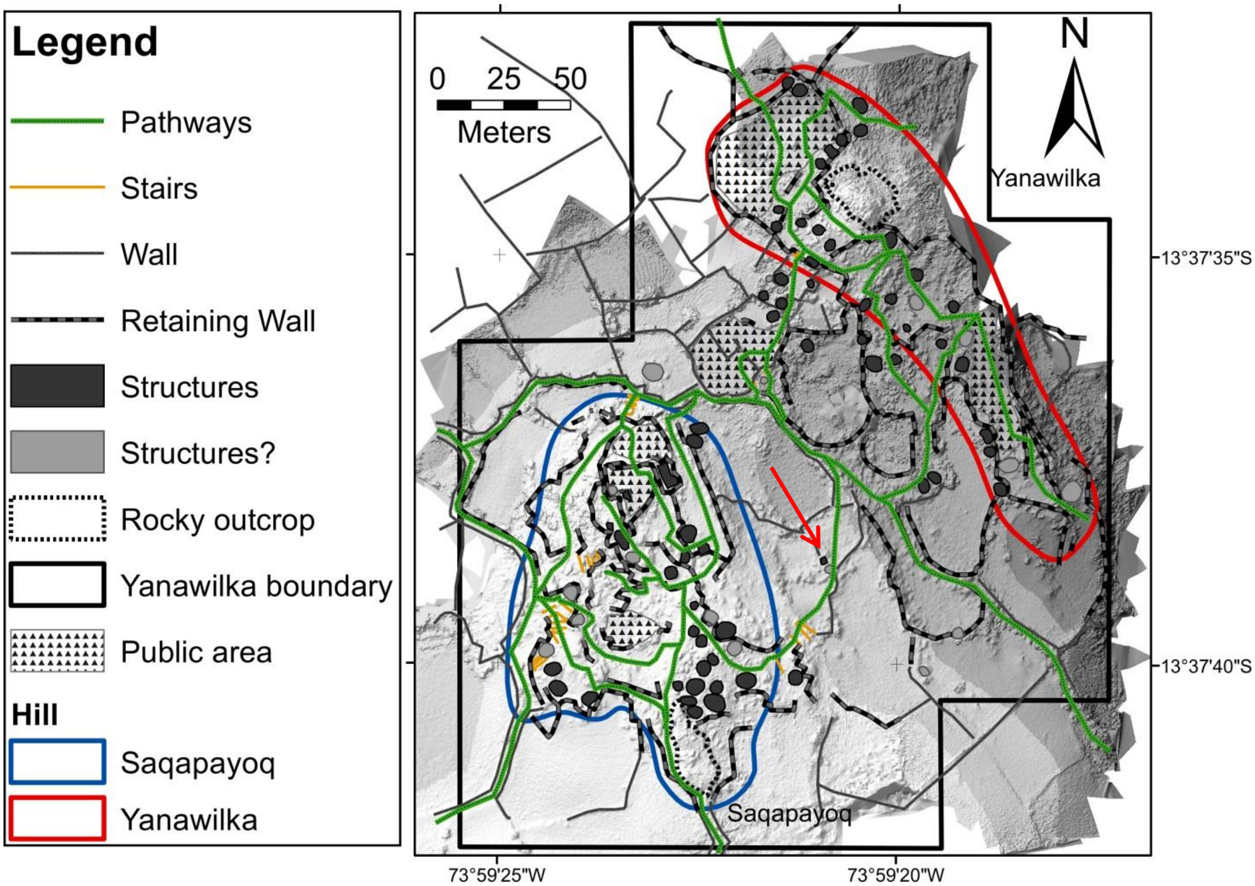

Figure 5.15: Pathways of Yanawilka. Red arrow points to the probable Inka structure that is beside the second connective path between moieties.

Results are consistent with previous analyses, showing that the most central (lowest depth) and integrated paths are the ones around the central public area (Figures 5.16, 5.17, 5.18). The pathways of the upper moiety (Saqapayoq) show more centrality (lower depth), higher overall integration and connectivity than the pathways of the lower moiety (Yanawilka) (Figures 5.17 and 5.18). Of interest is that there are two areas that exhibit the highest levels of connectivity: one area is at the heart of the site, between the two moieties, and the other area is in the middle of the upper moiety (Saqapayoq) and extends from the rocky outcrop "Saqapayoq" (Figure 5.18). These lines of evidence demonstrate that spatial syntax analyses do correspond to other lines of evidence concerning the areas of the settlement that were most important to the public lives of the inhabitants. The fact that the paths of the upper moiety (Saqapayoq) were more central, connective, and integrated than those of the lower moiety (Yanawilka) further supports the hypothesis that the upper moiety had higher political status.

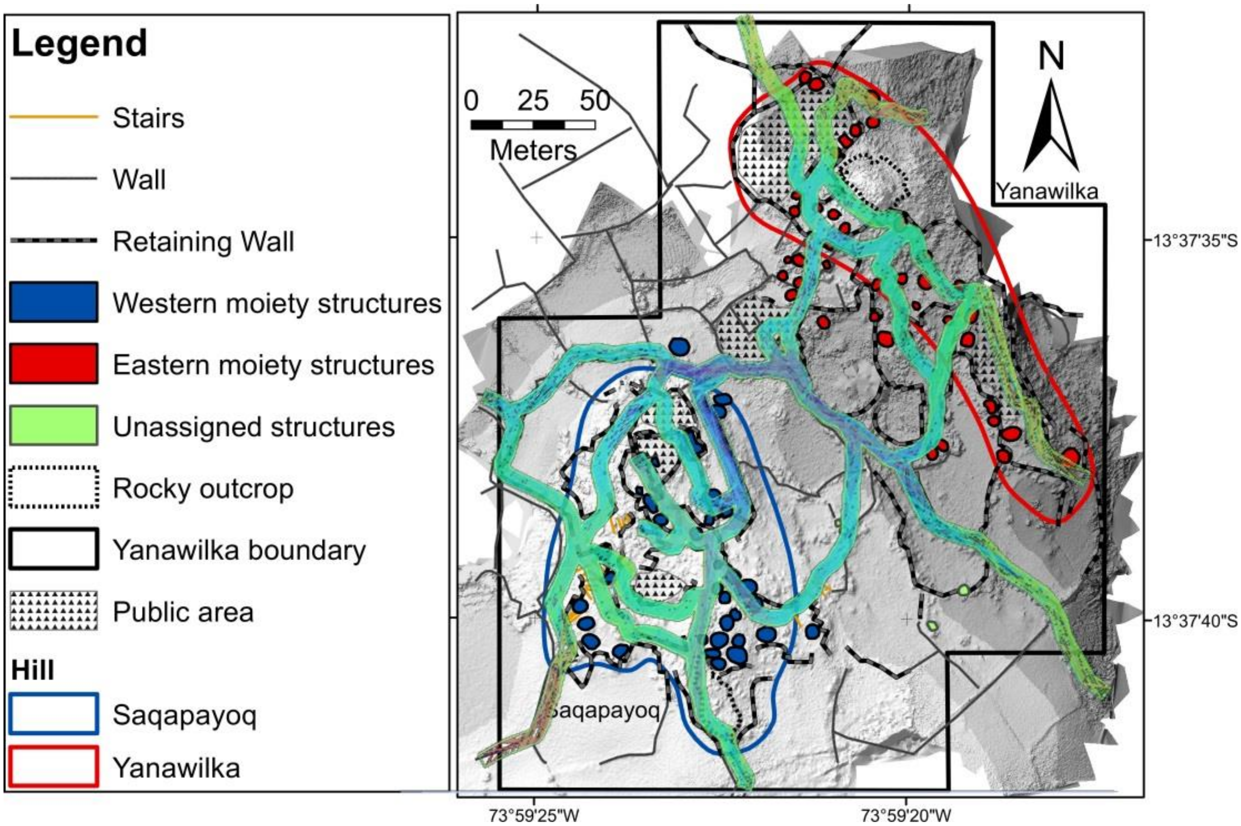

Figure 5.16: Mean depth of paths at Yanawilka. Towards dark blue on the color spectrum: less depth or more centrality. Towards red on the color spectrum: more depth or less centrality. The most central area is around the central public area and the northern end of Saqapayoq hill.

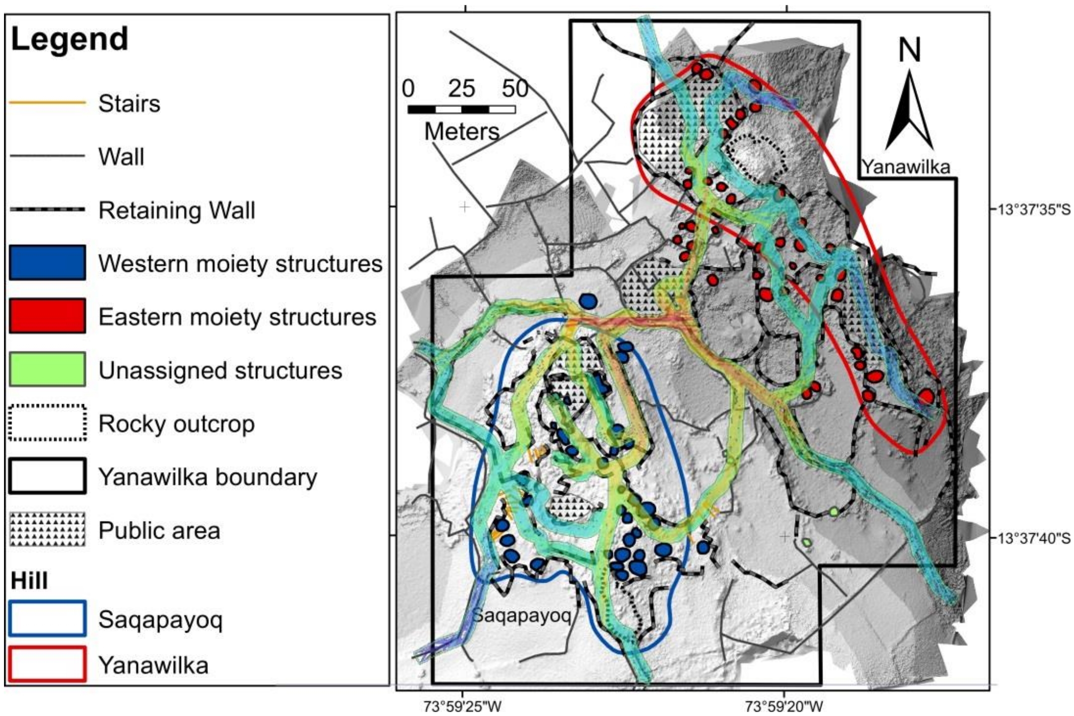

Figure 5.17: Integration of paths at Yanawilka. Towards dark blue on the color spectrum: less integration. Towards red on the color spectrum: More integration.

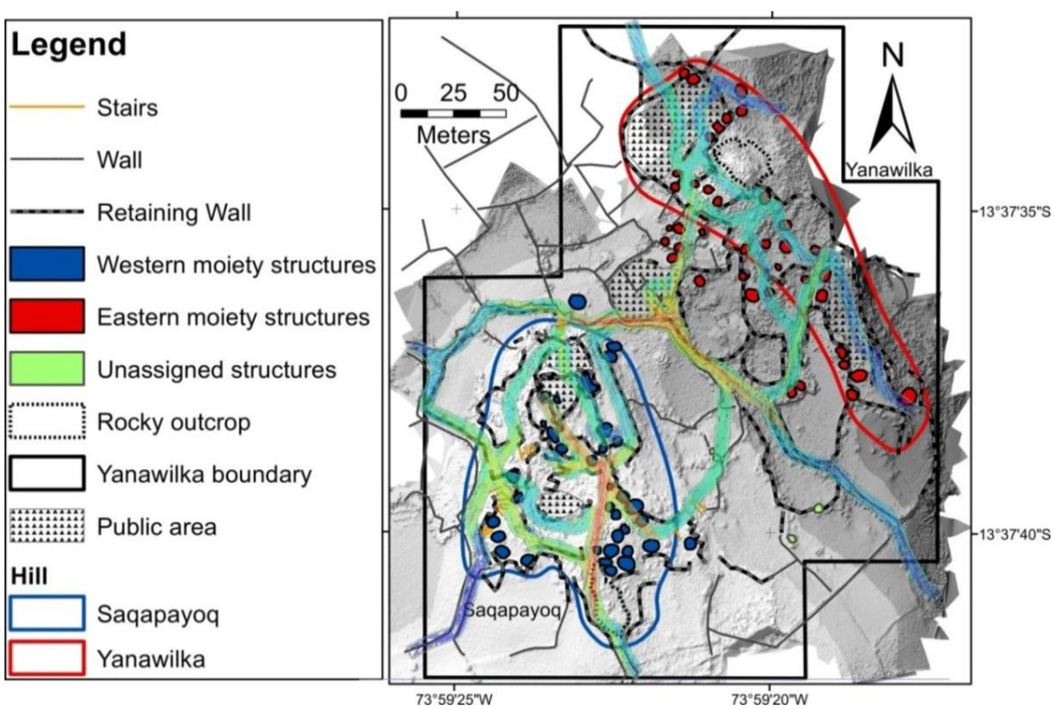

Figure 5.18: Connectivity of paths at Yanawilka. Towards red on the color spectrum: More connective. Towards blue on the color spectrum: less connective.

5.3 Construction techniques of the structures

All of the structures were single rooms, but they vary in interior shape. The interior shapes are circular, elliptical, and rectangular/square with rounded corners. The walls generally were more than two courses of stone high and wide, though in the past may have had more courses of stone. The exception was the Inka-style small square structure between the moieties, which had several courses of well-fitted stone (Figure 5.19). Some of the structures were built into the retaining walls (Figure 5.20). Others were semi-subterranean and had artificial fill around it, especially the structures immediately north/northeast of the rocky outcrop Saqapayoq (Figure 5.21). Most structures (44/63) incorporated a natural boulder or large stone in its original location into their foundations.

Figure 5.19: Inka-style masonry of the unusual small square structure (see Figure 5.15 for location).

Figure 5.20: Wall of a structure that also acts as a retaining wall.

Figure 5.21: Cluster of semi-subterranean structures in artificial fill near rocky outcrop "Saqapayoq."

The structure walls most likely consisted of a few courses of stone at the bottom and then adobe and daub above. The roofs were most likely thatch. Although humble in appearance, the structures in their landscape would have been impressive and good landscape vistas were enjoyed by the vast majority of structures. There were clusters of structures, sometimes with evident patios. The clusters ranged from two to upwards of ten structures. The biggest cluster of around ten or so structures was near the rocky outcrop of Saqapayoq and could represent a high status extended family. Overall, Yanawilka was an ideal place to settle because of its socially-appropriate landscape, good intra-site and panoramic visibility, good drainage, proximity to Inka sites, and fertile agricultural surroundings. The Condes *mitmaqkuna* who lived there were able to recreate a sense of community and home, and the Inka were able to keep an eye on the settlement.

5.4 Excavations at Yanawilka

The purpose of excavations at Yanawilka was to understand the spatial organization of daily life inside the structures. Especially important was to understand whether there was any spatial patterning in different daily activities, such as cooking or making stone tools, and whether the spatial patterning differed among the structures. The interiors of four structures were excavated (Y1, Y2, Y3, Y4). A total of 71m² was excavated. The strategy was to cover as much of the interiors of each structure for ease of comparison. While the areas outside structures are equally as valuable because many household activities took place outside (Hastorf 1993:73; Lavallée 1973; Lavallée and Julien 1983), for this early phase of excavations, the interior areas served as good points of departure for comparing intra-site variation. An artifact survey of the site[9] showed significant post-depositional processes of downhill erosion, and the topsoil outside of the structures was very thin (approximately 1-20cm). All of the artifacts were found at the bottom of the hills, with the exception of on top of the rocky outcrops themselves (Figure 5.22). The spatial distribution of artifacts does not represent primary discard locations, but rather the result of half a millennium of water erosion. Artifacts were less dense on the elevated areas of the upper moiety, which was probably also due to erosion over time because the slopes of the upper moiety hill were steeper than those of the lower moiety hill. Inside the structures, however, an abundance of artifacts was recovered in excavations, and the sediment layer was much thicker and organic (approximately 40-50cm). It is likely that the walls of the structures acted against erosion. The domestic areas of Yanawilka all had some slope, and water erosion would have carried artifacts downslope. Thus, excavations outside of the structures may not have yielded spatially faithful representations of past human activity because of erosion.

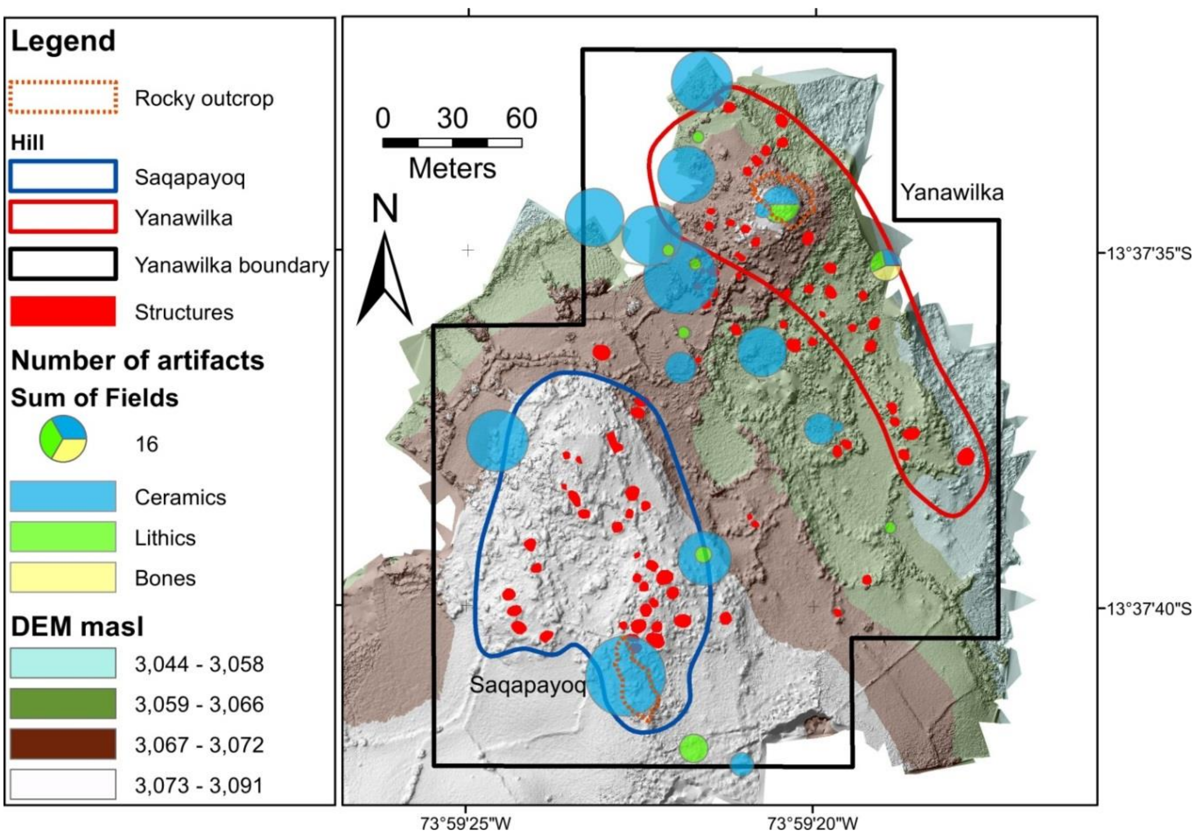

Figure 5.22: Surface artifact distribution at Yanawilka. Circle size corresponds to the number of artifacts recorded per circle with 1m radius. All artifacts, except for the ones directly on top of the rocky outcrops, are downslope.

[9] The surface survey did not involve collection of the artifacts, but rather recording and photographing the surface artifacts in a 2 meter diameter circle in the field and then immediately returning them to that circle.

This section is an overview of the key findings from excavations of the four structures at Yanawilka: descriptions of unusual and diagnostic artifacts, stratigraphy, and the activities that took place in each structure. The artifacts mapped and discussed are the ones recovered during the actual excavation, not through subsequent screening. A detailed treatment of the archaeological materials is in chapter 7. The spatial location of in-situ artifacts was recorded when possible. Two of the structures are from the upper moiety, and two are from the lower moiety (Figure 5.23). Overall, the four structures were distinct from each other even though they were comparable in size. There was a lot of diversity, which may be a result of occupational differences of the inhabitants or functional differences of the structures. Despite differences, there were also noticeable similarities in the stratigraphy and ceramic types of the structures. The similarities and differences highlight the complex social organization at Yanawilka, where multiple types of social divisions, such as class, occupation, moiety, and family, were probably in play at the same time. The superficial similarity of the circular/elliptical structures belies the variation among them.

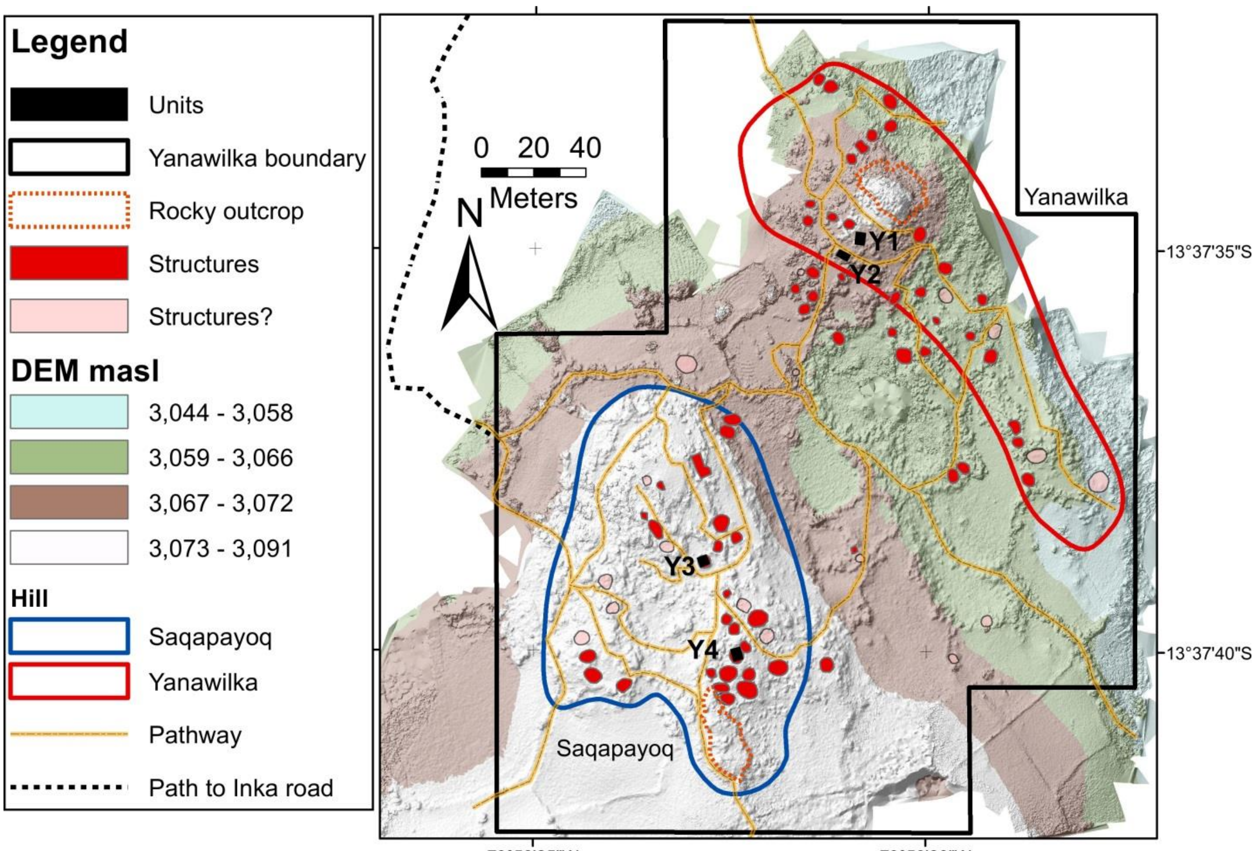

Figure 5.23: Locations of the four excavation units at Yanawilka.

5.4.1 Unit Y1

Unit Y1 measured 5 x 4 meters and was placed inside an elliptical structure (Figure 5.24). The structure less than ten meters away from the rocky outcrop "Yanawilka" and is part of the lower moiety. There were two other structures, one rectangular and one circular, in its immediate vicinity and the three probably functioned as part of a family unit. The structure had a short occupation given that it had shallow stratigraphy and only one, ill-defined, floor (Figure 5.25). This unit produced the richest diversity of artifacts and ecofacts of all the structures. At approximately 14m² in interior space, it is comparable to the median interior area size for the lower moiety (15m²). Although not remarkable in terms of size, the structure was obviously important. The entrance faced the southeast, and its perimeter wall incorporated three natural boulders. The floor on the southern side consisted of a boulder embedded in the bedrock that showed signs of smoothing, possibly from sitting or foot traffic. The area of the boulder floor had a clean layer of brown-orange clay that evened the surface; this area could have been a sleeping area or seating area from which to eat or craft. The western side had ample signs of craft production: stone and bone tool making and use. In the following chapter, starch grain analysis of stone tools recovered in this area show that there was food preparation as well.

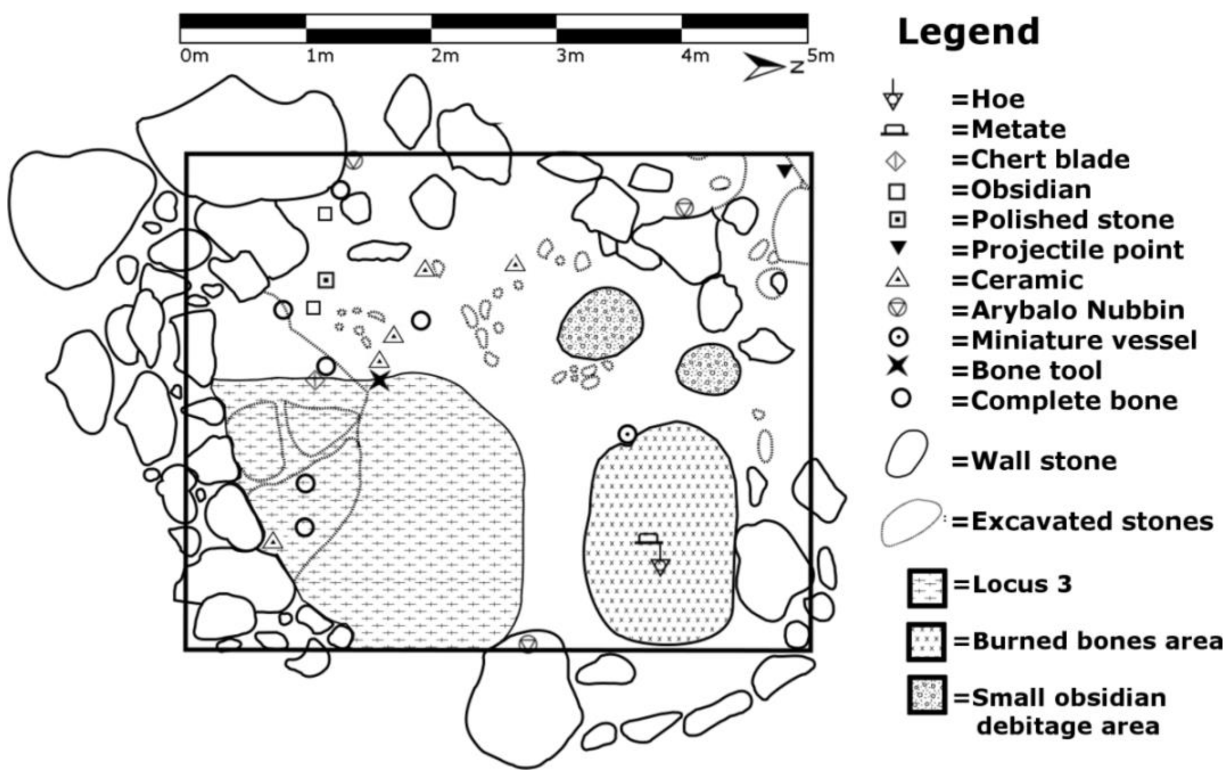

Figure 5.24: Unit Y1 and structure plan map with spatial positions of artifacts recovered during excavations. North is magnetic north.

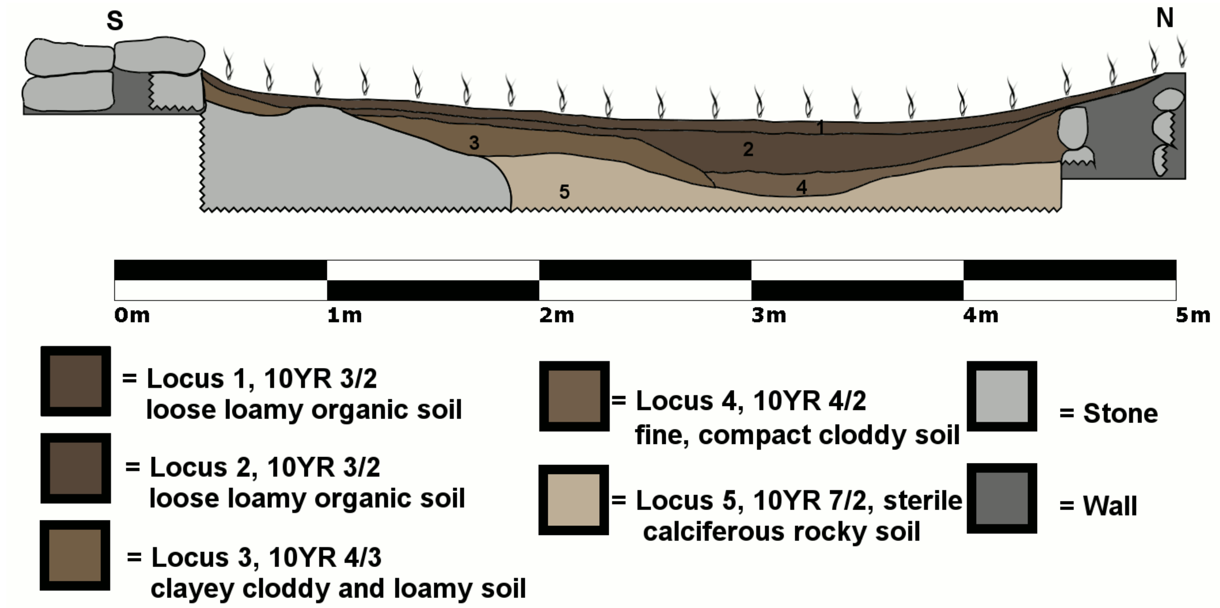

Figure 5.25: Stratigraphy of Unit Y1, transverse profile.

There was no obvious sign of a hearth, but the northeastern quadrant of the unit had a density of burnt bone and botanical remains such as maize cupules. This area could have held a hearth or could have been a designated area for eating roasted and toasted foods brought from elsewhere. In the same area as the concentration of burnt bone was also a cache of agricultural tools, such as slate hoes, and pieces of groundstone. The greatest quantity of burnt daub was also found in the northeastern quadrant and could be the remnants of a clay hearth (Figure 5.26). The presence of groundstone in the same area as the burnt food remains increases the probability of an indoor cooking or food preparation area. The presence of *manos* also supports this interpretation, and starch grain analysis proved that these *manos* were used to process food (see chapter 7.1.2).

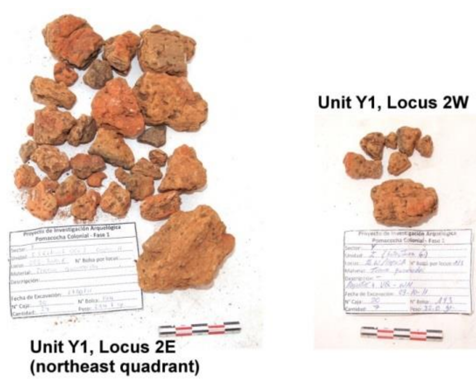

Figure 5.26: Burnt daub from Unit Y1. The eastern side (especially the northeast quadrant of the unit) had a concentration of burnt daub. The western side (Locus 2W) had fewer pieces of burnt daub.

Y1 was the only structure to have Inka arybalo nubbins, which were used to help secure a rope to the arybalo (Figure 5.27). The nubbins are typical of Inka arybalo canon and most often were zoomorphic (Figure 5.28). Three were found underneath three foundation/wall stones. Two of the stones were unusually large. They were curated and intentionally placed beneath the foundations, possibly as part of a dedication ritual. The presence and placement of these nubbins establish two facts about Y1: 1) This structure was built in the Late Horizon and not earlier, and 2) because of its close proximity to the rocky outcrop “Yanawilka” and rich diversity and quantity of feasting-related artifacts and ecofacts, Y1 had ritual significance.

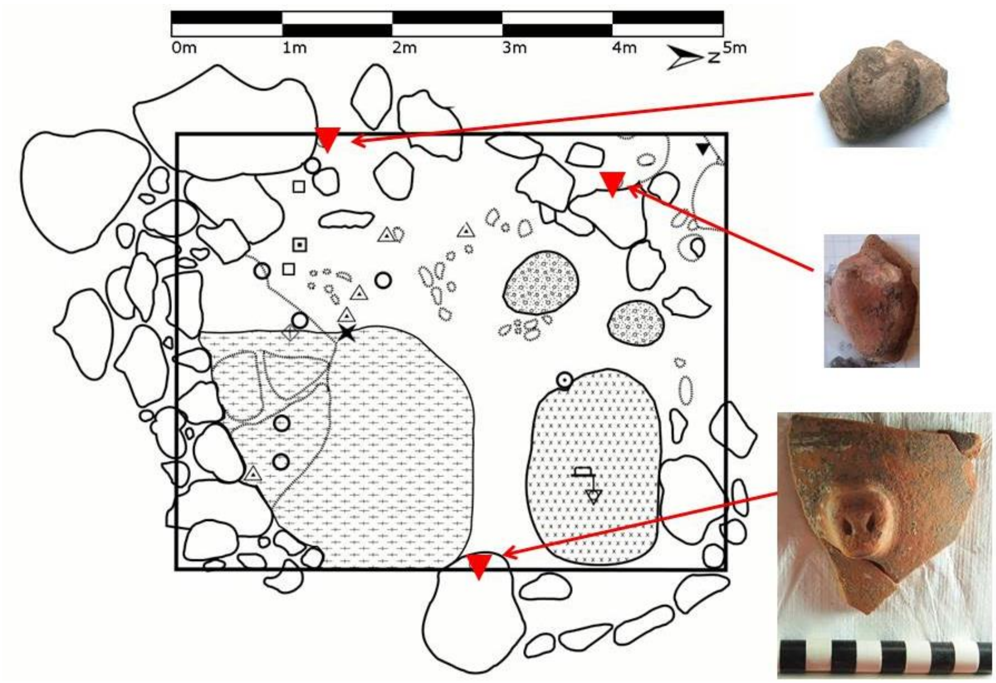

Figure 5.27: Three Inka arybalo nubbins found in Unit Y1. All three were found lodged underneath foundation stones.

Figure 5.28: Inka arybalos from the Museo Nacional de Arqueología, Antropología e Historia del Perú.

Further supporting the significance of Y1 is the presence of a bone tube and a miniature ceramic vase. These two artifact types were unique to Y1. Similar bone tubes were found in domestic structures in the Andes and were possibly used in conjunction with drugs (Burger and Salazar 2004: 202; Glowacki 2002: 282; Janusek 2004: 179-180; Miller 2003: 48; Zovar 2012: 241). The miniature ceramic vase was also common in domestic settlements of the Late Intermediate Period and was ritual in function (Abraham 2010: 212; Bauer and Stanish 2001: 129; Kurin 2012: 127). The placement of the miniature ceramic vase may have been intentional, as it was laid perfectly in an east-west orientation (Figure 5.29). The miniature ceramic vase already showed signs of age and curation before it was deposited slightly below the living floor. There were miniature handles on the vase originally, but they were either removed or fell off over time.

Figure 5.29**:** Miniature vessel found embedded in the floor of Y1 (Locus 4E).

Y1 likely served as an all-purpose crafting, food preparation and consumption, and ritual structure. Although there were distinct activity areas, the structure itself did not specialize in one function. The unremarkable size of the structure implies that there should be several structures that fulfill similar communal functions as Y1. Y1 could have been a general activity structure and ritual focus for a family. The small size of the ground stone pieces (*manos*) suggests that food preparation was not done on a large scale and was most likely for the consumption of a single family. The close proximity of the rocky outcrop "Yanawilka" to Y1 also underscores its importance. Given the unremarkable size of Y1, this could imply that there may not have been an automatic correlation between structure status and size.

5.4.2 Unit Y2

Unit Y2 measured 5 x 3 meters and was placed inside a roughly rectangular structure (Figure 5.30). The structure was located only four meters to the southwest of structure Y1 and twenty meters southwest of the rocky outcrop "Yanawilka." The entrance was at the northeast corner of the structure. Y2 was a clean structure, and there was only one artifact found in-situ in a nearly sterile locus (Locus 5) below the living floor (Locus 3). The stratigraphy is less complicated than Y1 (Figure 5.31), but there was an area (Locus 5) below the floor (Locus 3) that was excavated in antiquity. Locus 5 was completely sterile except for a ceramic sherd decorated with an appliquéd design (Figure 5.32).

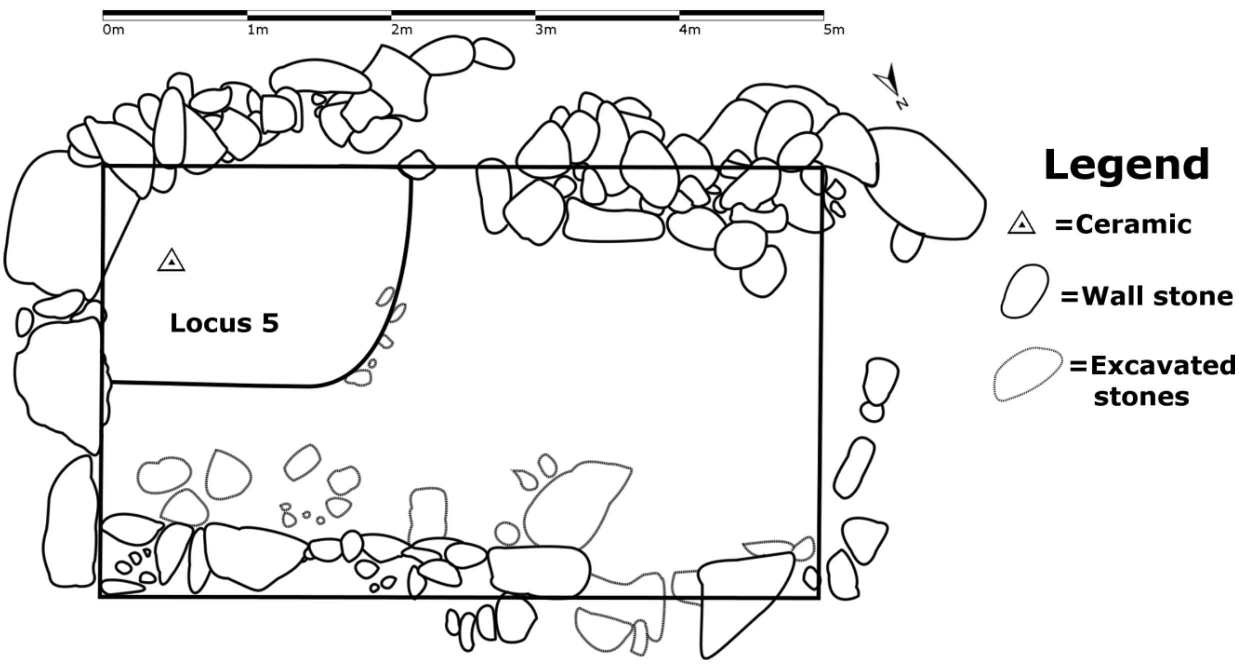

Figure 5.30: Unit Y2 and structure plan map with spatial positions of artifacts recovered during excavations. North arrow is magnetic north.

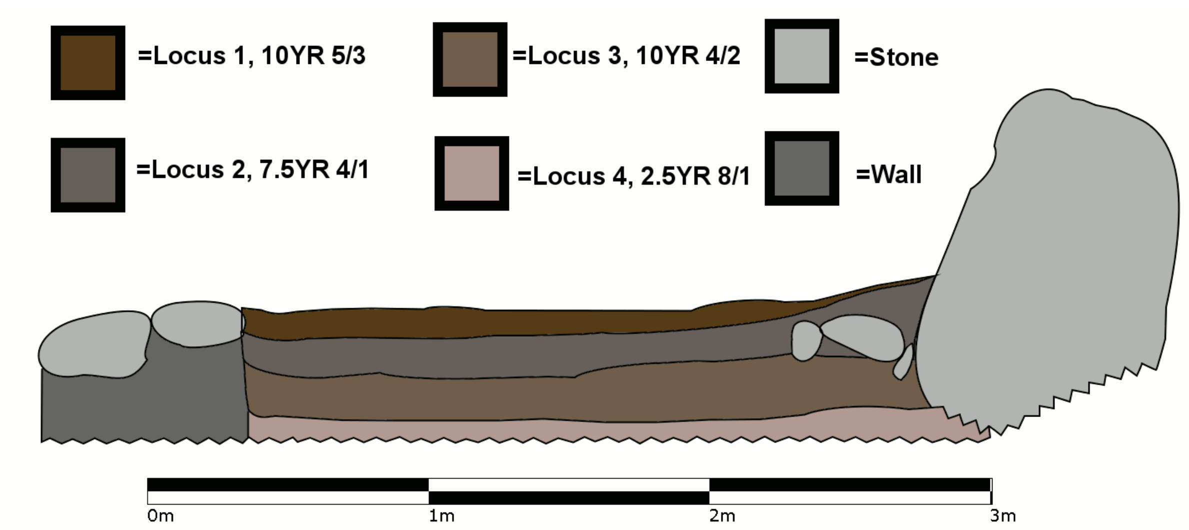

Figure 5.31: Western profile of Y2. Floor is the interface between locus 2 and 3.

Figure 5.32: Ceramic sherd with appliquéd design. Locus 5 of unit Y2.

Interpretation of the function of this structure was difficult, because of the relatively few artifacts found. The structure most likely had a domestic function, as the same types of artifacts relating to daily life were found as in the other structures, but just of a smaller quantity. The structure was probably a space of less intense daily activities, and might have functioned as sleeping quarters. The dirt of the fill above the floor was not as organic as Y1, which also supports Y2 being a less intense food preparation and consumption area. The fact that the structure is downslope and the floor would have had high humidity during the rainy season, however, complicates the interpretation of this space as sleeping quarters. Another possibility is that it functioned as a space for formal meetings or other public services, as ritual or administrative spaces themselves were often kept clean. Its unusual shape, roughly rectangular, is also consistent with the latter interpretation, because there are hardly any quadrangular structures at Yanawilka, so one would expect an unusual function, not sleeping quarters, for those structures.

5.4.3 Unit Y3

Unit Y3 measured 4 x 4 meters and was placed inside a circular structure (Figure 5.33). The entrance was to the north/northwest. A few fragments of fine Inka pottery were recovered in this structure, and most of the other artifacts and ecofacts were similar to those found in Y1, but in smaller quantities. There was a small patch of bright red pigment embedded in the fill (Figure 5.34). There was no apparent hearth inside the structure, and unlike Y1, no burnt daub either. Therefore, I believe that Y3 may not have had an internal hearth. The most spectacular artifact found in Y3 was a large obsidian projectile point (Figure 5.35). The eastern side of the floor had patches of clayey sediment and could have been an analogue to the clayey southeastern quadrant of Y1 (a sitting, working, sleeping area) (Figure 5.36). There was only one floor, and it was at the interface of locus 2 and 3 (Figure 5.37). Embedded in the floor on the western side was a fragment of a human vertebra, although no other human remains were found. It is uncertain if the fragment was the result of casual or intentional deposition. This structure was probably a typical domestic structure at Yanawilka: circular and the locus of occasional crafts and eating.

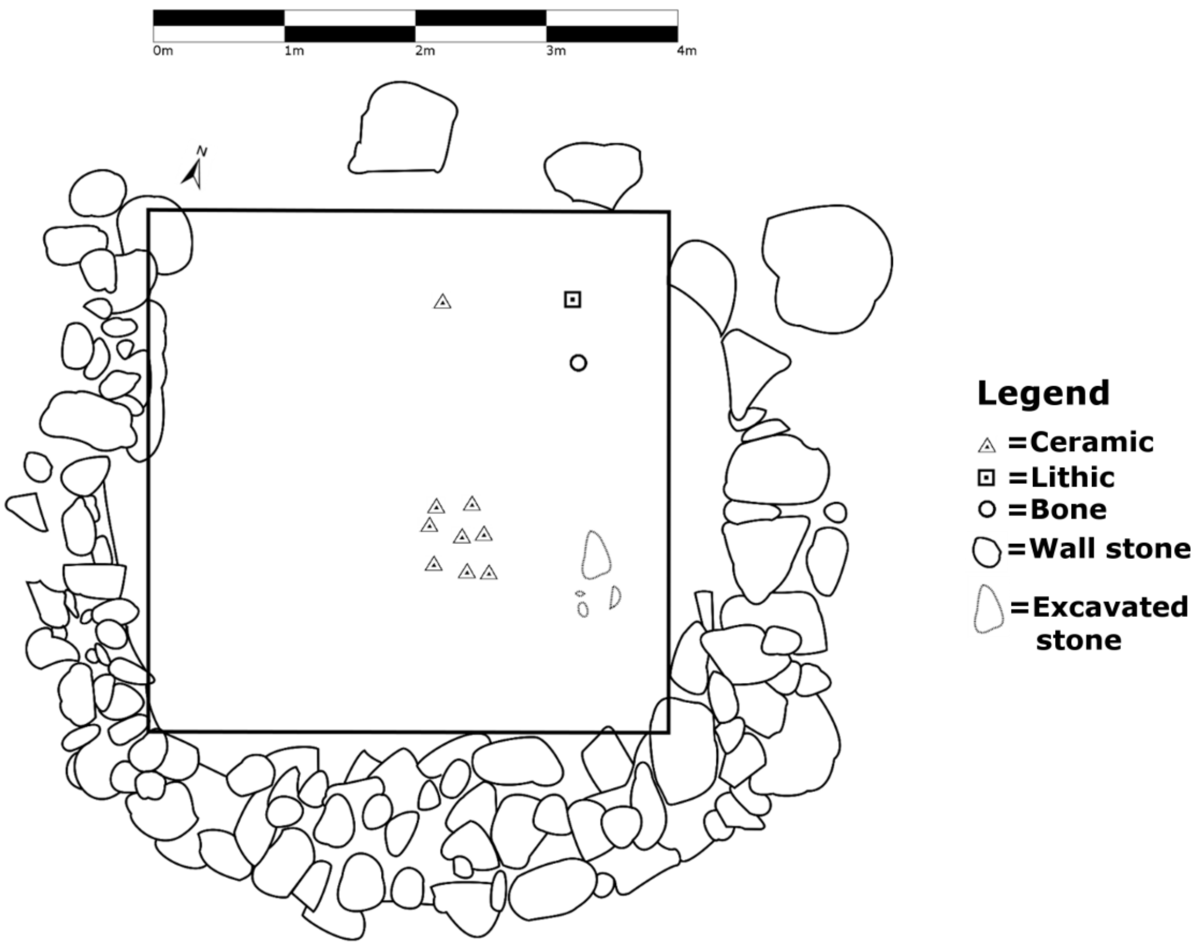

Figure 5.33: Plan map of Locus 2 of Y3. North arrow points magnetic north.

Figure 5.34: Sample of the bright red material embedded in the cultural fill (Locus 2) above the floor (Locus 3).

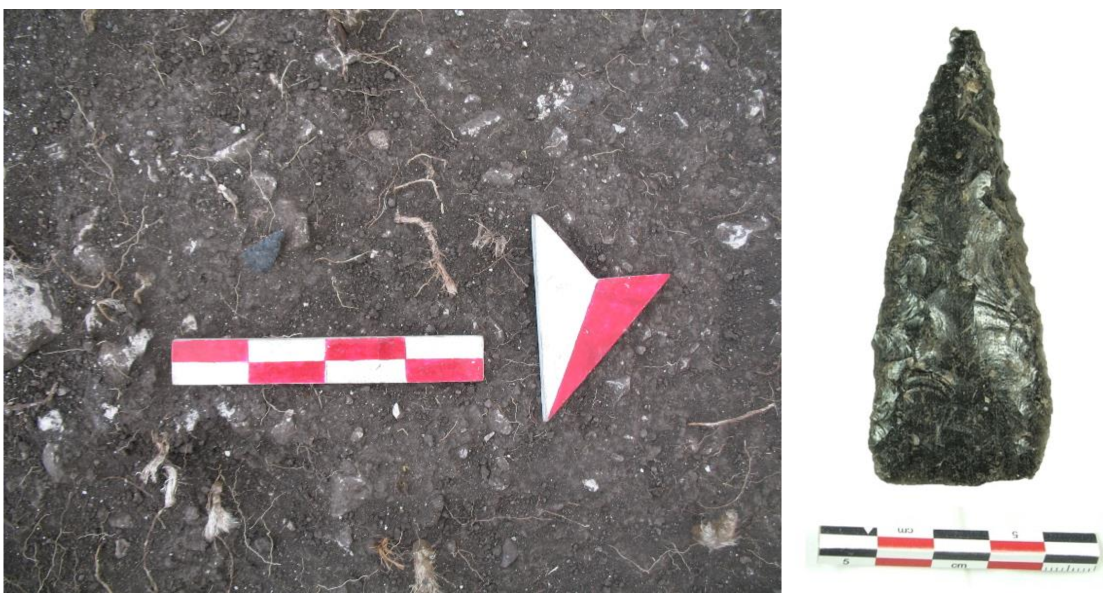

Figure 5.35: Left: large obsidian projectile point embedded in the floor (Locus 3), only tip is visible. Right: After excavation.

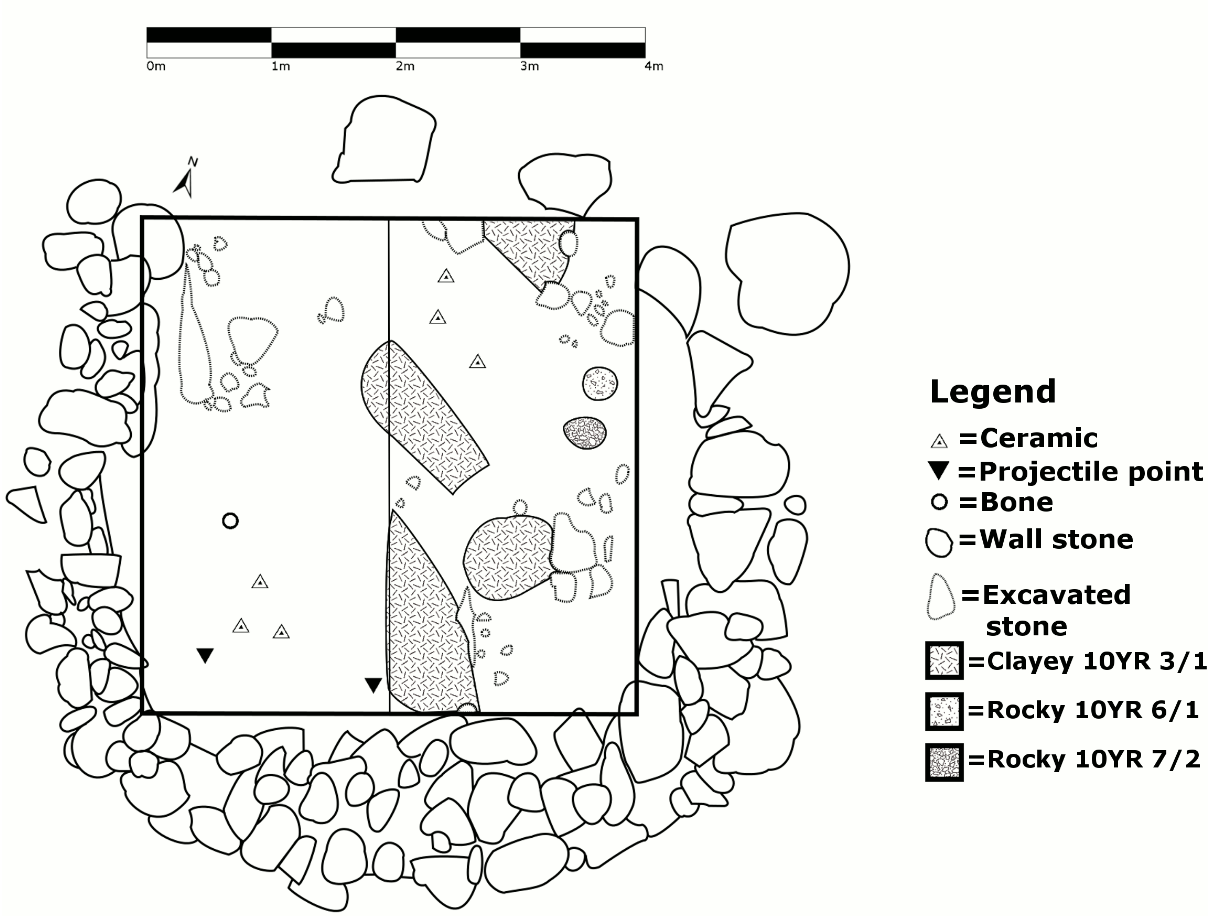

Figure 5.36: Plan map of floor context (Locus 3) of structure Y3. North arrow is pointing magnetic north.

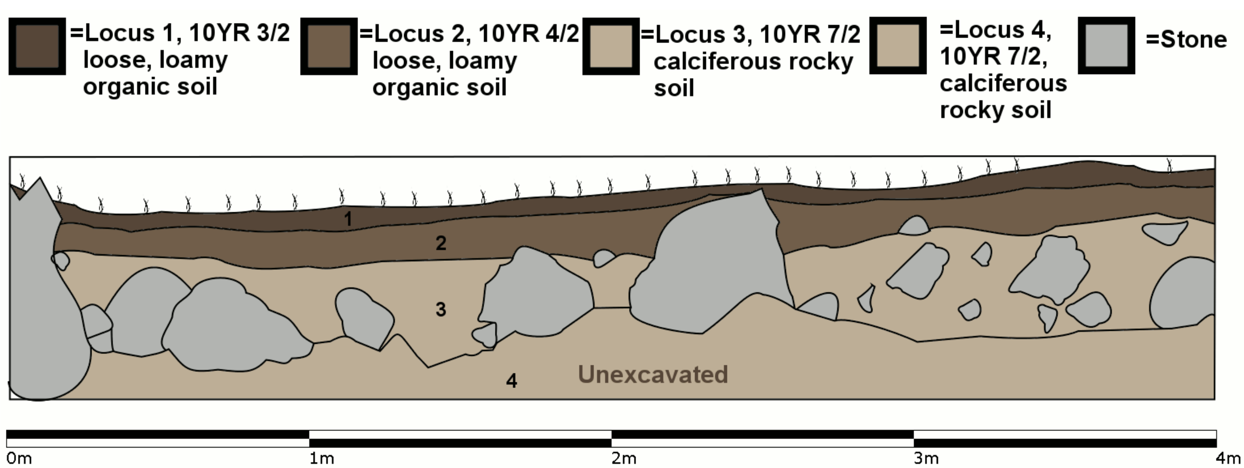

Figure 5.37: Northern profile of Y3. Floor is the interface between Locus 2 and Locus 3.

5.4.4 Unit Y4

Unit Y4 measured 5 x 4 meters and was placed inside a circular structure (Figures 5.38 and 5.39). Y4 was only fifteen meters away from the rocky outcrop of Saqapayoq. The structure was semi-subterranean in artificial fill, and like all other structures, the floor (top of Locus 4) was faint (Figure 5.40). We could not discern the position of the original entrance, but judging from the artificial fill that surrounded the whole structure except for the northeastern quadrant, the original entrance may have been placed there. The stratigraphy and internal layout was similar to Y1, but there were far fewer artifacts in Y4 than in Y1. Structure Y4 seemed to be geared toward lithic production, because unlike Y1, there was only evidence of lithic production in this structure. Obsidian debitage and tools were well represented in Y4, and an obsidian projectile point was recovered. Like all other structures at Yanawilka, the amount of debitage was not abundant, so while occasional lithic production may have occurred within the structure, it was not a space for specialization of lithic production.

Given the dearth of artifacts, Y4 may have been primarily a sleeping/storage area or perhaps a political gathering area for a family or two. I lean more toward the first interpretation, because guinea pig coprolites were found in the flotation samples, and guinea pigs generally cohabitated with humans due to the cold-sensitivities of the guinea pig and the cold Andean nights. There seemed to be a concentration of artifacts in the southeast quadrant, which coincided with the clayey locus 3. This area may have been a sitting/sleeping area where occasional crafting occurred. There would have been several exposed tips and surfaces of large limestone rocks jutting out from the floor. These could have provided surfaces for eating and crafting. Y4 had the fewest ceramics and lowest ceramic density out of all the structures, but enough were present to determine that Y4 was contemporaneous to the other structures excavated (see chapter seven). There were no diagnostic Inka ceramics found in this structure.

Figure 5.38: Plan map of Locus 2 and 3 of Y4. North is pointing magnetic north.

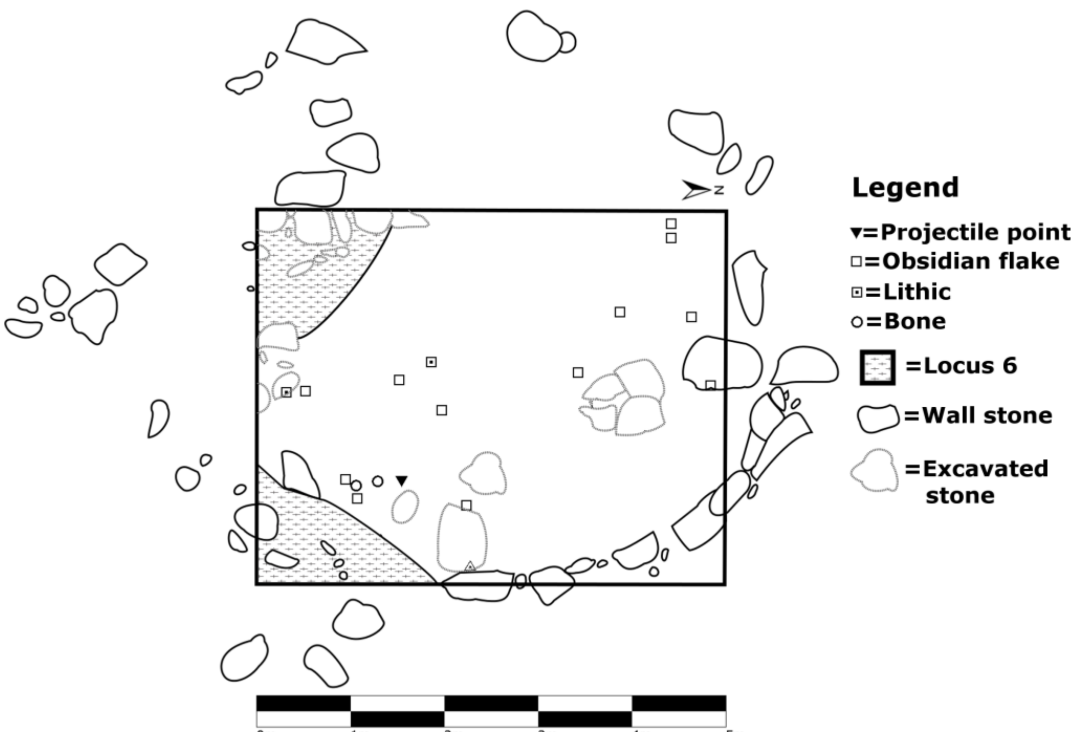

Figure 5.39: Plan map of Locus 4 and 6 of Y4. North is pointing magnetic north.

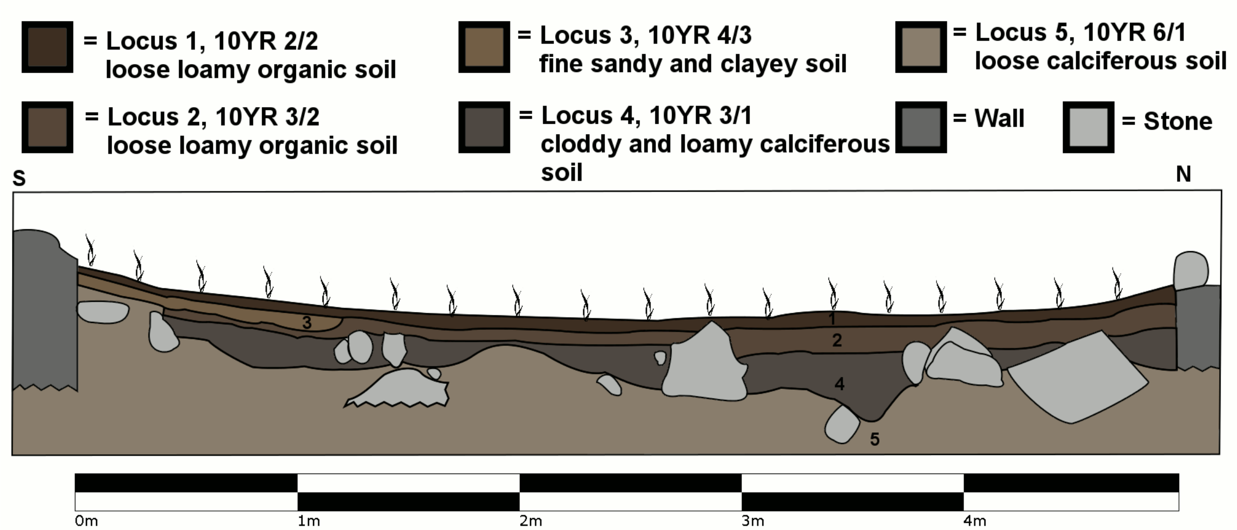

Figure 5.40: Transversal profile of unit Y4. Floor is the interface between Locus 2 and Locus 4. Note the exposed bedrock in places jutting out from the floor.

5.5 Conclusion: Daily life and state intervention at Yanawilka

If it were not for the presence of a few Inka ceramics and a small Inka-style structure, Yanawilka would resemble any other LIP site of the region based on artifacts, domestic settlement structure, and construction techniques. The Inka most likely indirectly ruled Yanawilka due to the minimal presence of Inka installations on-site and the non-Inka style public areas (non-trapezoidal main plaza). An overseer may have lived at Yanawilka in the small Inka-style structure, but its placement was peripheral to the main public area of Yanawilka. According to Cieza de León (1959: 169), "all the villages, wherever they might be, had lodgings and storehouses for the Incas…" The Inka may have only visited at special times of the year, such as during festivals, to strengthen reciprocal (but unequal) bonds with the Yanawilka populace. Future excavations of this particular structure will yield important clues to the nature of Inka presence at Yanawilka.

The shallow stratigraphy suggests a brief occupation of Yanawilka. Each structure only had one floor, and each floor was somewhat indistinct. Only the compactness gave away where the floor began, as the sediment color change was gradual. Because the two clusters of domestic structures were inhabited contemporaneously in the Late Horizon, the spatial pattern probably reveals a moiety social structure rather than simple accretion over time. Spatial analysis of Yanawilka settlement organization also revealed a probable moiety social structure. Spatial clues to Inka influence of Yanawilka settlement planning include 1) proximity to the royal Inka road, but not too close to pose a tactical threat, 2) the placement of the Inka-style structure in between the two moieties, but not at the principal public area shared by the two moieties, and 3) the orientation of the "upper" moiety on the right hand side from the perspective of the Inka road. Yanawilka's size was too big to be the kind of LIP hamlets that were at comparable elevations (Kellett 2010: 126). Yanawilka was located at a much lower elevation (3050 masl) than the LIP *pucaras* of the core Vilcashuamán area (see 4.1.1), which were at least 3540 meters above sea level and located in defensible topography. A settlement the size of Yanawilka in the LIP would have likely been at a much higher elevation and fortified/topographically protected. Yanawilka had no defensive features such as a defensible location, perimeter walls, parapets, baffled entrances, and ditches, which would have made Yanawilka an unsafe place to settle during the contentious LIP (Arkush and Stanish 2005). There were also no water sources on-site, and the nearest water source was outside the site boundary.

Overall, each structure demonstrated unique characteristics, and it is hard to generalize if the differences among the structures were a result of functional differences of the structures (e.g., kitchen versus sleeping area) or cultural/class differences. None of the structures showed specialization in any one kind of productive activity, such as weaving, cooking, crafting bone tools, or stone tool production. Kitchens with hearths, however, may have been their own class of structure, given that only Y1 had any direct evidence of an internal hearth (probably made of burnt clay/daub). Unlike our contemporary conception of a kitchen as dedicated to cooking and perhaps eating, the inhabitants of Yanawilka performed a variety of activities inside the cooking area. Clay ovens and grinding implements for maize were the norm in Inka houses (Coe 1994: 222-223), and the cooking areas of Yanawilka may have been similar. Given that Y1 also had the densest concentration and greatest diversity of artifacts and ecofacts, this would imply that cooking areas (or kitchens) were the loci of daily life. In the next chapter, I analyze the artifacts and ecofacts in more depth, and the results are fully consistent with Y1 being a major locus of communal, and probably political, activity. Given its unremarkable size, construction technique, and shape, there must have been multiple structures of the same type as Y1, and future excavations at Yanawilka can test this hypothesis. In general, future excavations are critical to clarifying whether there was class and cultural difference at Yanawilka, or whether the unique characteristics of the structures were due to functional differences of each structure within a family cluster of structures.

The lack of Spanish colonial ecofacts and artifacts suggest that the site was either abandoned shortly before or with the arrival of the Spaniards. This is consistent with the historical information that the area was continuously severely contested militarily starting with the Atawallpa and Waskhar (1528-1532 CE) civil war and ending with the Almagro-Pizzaro civil war (1537-1541 CE). Yanawilka's close proximity to a major Inka road and the Inka, and later Spanish, provincial capital of Vilcashuamán would have made it dangerous to dwell in during the civil wars and Spanish conquest.

6 Obsidian circulation and implications for regional social networks at Yanawilka

In the previous chapters, we learned that the Condes were considered allies of the Inka, and they were transplanted to the Inka Vilcashuamán province to secure this strategic area (Salas 2002). Therefore, the Inka may have socially elevated the Condes while at the same time isolating antagonistic groups like the Cañaris, who were also transplanted to the Vilcashuamán area (*ibid*: 66, 73). The assumption is that socially elevated *mitmaqkuna* groups were given economic advantages such as access to fertile land (Alconini 2013: 278). According to Sarmiento de Gamboa (2010: 146), Thupa Inka expanded the *mitmaq* system and gave *mitmaqkuna* "more privileges and freedom." Did the social elevation mean the Condes *mitmaqkuna* had freedom? Did the *mitmaqkuna* of Yanawilka maintain ties to their homeland and other regions? Or did obsidian circulation reflect a more Inka-dependent economic network? The answer to these questions can shed light on whether the Inka severed regional social and economic ties of *mitmaqkuna* such as the Condes of Yanawilka. To answer this question, we must consider three main research questions:

1) Were the variety of obsidian sources exploited at Yanawilka more, or less, geographically extensive and diverse than at comparable Late Intermediate Period sites? If the variety of obsidian sources exploited were more geographically extensive and diverse than at comparable Late Intermediate sites, then Inka hegemony expanded the obsidian networks of the Condes *mitmaqkuna* of Yanawilka. This implies that *mitmaqkuna* considered political allies of the Inka were given special economic privileges and access to obsidian resources. If, however, the obsidian sources utilized at Yanawilka were less geographically extensive and diverse, then the implication is that the Condes at Yanawilka were restricted from exchange networks with neighboring groups. Both expansion and contraction of obsidian source diversity could be the result of being plugged into an Inka-controlled obsidian distribution network, depending on the nature of the network itself. The relationship between geographic distances to the sources and the relative proportions of the sources used can be used to infer the political aspects of exchange (Shackley 2005: 154-155). For example, if the Condes *mitmaqkuna* used obsidian sources in proportion to distance, then political restriction of exchange is less likely. If, however, the Condes *mitmaqkuna* primarily used obsidian sources from farther afield than expected, then there probably were political influences on obsidian exchange networks. The results from questions two and three will help narrow possibilities.

The ideal test for this question would be to compare obsidian networks of Late Intermediate Period sites in the Condes' homeland to that of Yanawilka. Unfortunately, because no research on obsidian circulation of Late Intermediate Period sites in the Condes' homeland exist, I will use the Late Intermediate Period Chanka sites of

Achanchi and Luisinayoc as proxies for Late Intermediate Period social landscapes (Kellett *et al.* 2013). Fortunately, the Andahuaylas area is geographically close to both Yanawilka and to the Condes' homeland, so one would expect the same range of sources to be potentially exploited in both areas.

2) Are there differing obsidian source preferences among the domestic structures at Yanawilka? Multiple behavioral mechanisms can result in the same patterns of obsidian source preference; using other lines of evidence, such as production methods, can eliminate alternative explanations (Bayman and Shackley 1999). Here, I present a range of explanations for possible outcomes. For the first possible outcome, that the obsidian source preferences among the domestic structures were comparable, there are at least two (and non-mutually exclusive) implications. First, it could mean that the community of Yanawilka shared a common obsidian distribution network and therefore be likely to share other economic networks of items like salt (Tripcevich 2007). Sharing a common obsidian distribution network could also imply pooling and redistribution by a central agency or elite, either Condes or Inka (Torrence 1986: 33). The second explanation for shared obsidian source preferences is that the households of Yanawilka acquired their obsidian through an Inka economic network and not through direct economic exchanges with various groups.

For the second possible outcome, that the obsidian source preferences among the domestic structures were different, a number of explanations are possible. There may have been differential access to obsidian sources due to different social connections, implying that households arranged for their individual needs independently (*ibid*). Perhaps certain individuals carried obsidian raw material or tools from their homelands during initial migration. Cross-referencing the results to those of the question 3 will help narrow the range of possible explanations.

3) What kinds of production are evident from the obsidian artifacts? How much production occurred on site? Was there meaningful variation in lithic production among the different domestic structures (i.e., specialization)? These questions can help establish the relative importance of direct procurement of raw material versus exchange of finished or partly finished tools. Analysis of production can rule out some of the scenarios in question two. For example, if the tools found at Yanawilka were most likely produced on site, then any variation in obsidian source preferences is probably not a result of carrying finished tools from initial migration. A more likely scenario is that the people at Yanawilka had access to obsidian raw material.

Furthermore, we can judge how vibrant the obsidian circulation was by studying the methods of production. Efficient production techniques, such as bipolar reduction, may reflect scarcity in non-local obsidian or small nodule size of the source (Bayman and Shackley 1999: 843). The local small nodule-sized Pomacocha source is chemically identifiable through ED-XRF analysis. If non-local obsidian sources exhibit bipolar reduction, then scarcity is a likely explanation, especially if the source nodules are large. Another line of evidence that can be used to judge vibrancy of Inka period obsidian circulation is to compare the densities of obsidian artifacts at Yanawilka to those of Inka-period Pulapuco and pre-Inka Achanchi and Luisinayoc. If Yanawilka has high obsidian density compared to the other sites, then access to obsidian was not restricted and exchange was vibrant. If, however, Yanawilka has lower than expected obsidian density, then restriction of access to obsidian was likely.

6.1 Instrumentation and methodology

A Thermo Electron Quant'X Energy Dispersive X-Ray Fluorescence (ED-XRF) machine was used to the analyze mid-Zb condition elements of Ti-Nb, Pb, and Th. The X-ray tube operated at 30 kV with the current set automatically and used a 0.05mm (medium) Palladium (Pd) filter. Each sample was analyzed at 200 seconds 'livetime' and in an air path atmosphere. Trace element data are reported in parts per million (ppm) for titanium (Ti), manganese (Mn), iron (Fe_2O_3), cobalt (Co), nickel (Ni), copper (Cu), zinc (Zn), gallium (Ga), rubidium (Rb), strontium (Sr), yttrium (Y), zirconium (Zr), niobium (Nb), lead (Pb), and thorium (Th) (Shackley 2011: 203). M. Steven Shackley calibrated the Quant'X machine using international rock standards certified by the National Institute of Standards and Technology (NIST), the U.S. Geological Survey (USGS), the Canadian Centre for Mineral and Energy Technology, and the French Centre de Recherches Pétrographiques et Géochemiques (*ibid*: 204). Energy calibration was checked each analysis day and the USGS standard RGM-2 was used to check accuracy with each analysis batch. The instrumentation and calibration has shown good accuracy over numerous analyses and results are comparable to both XRF and NAA analyses among laboratories for most elements (*ibid*: 33).

The four major instrumental methods for analyzing chemical composition of obsidian are NAA/INAA (neutron activation analysis), XRF (X-ray fluorescence spectrometry), PIXE-PIGME (proton induced X-ray emission-proton induced gamma ray emission), and ICP-MS (inductively coupled plasma mass spectrometry) (Shackley 2005: 89). Given sufficient sample size, all methods provide comparable results for obsidian (*ibid*: 92). For the purposes of my dissertation, ED-XRF had the most advantages. First, it is non-destructive. Second, analysis is relatively quick and samples require minimal preparation. Third, NAA is not as accurate in measuring Sr and Zr, which are important in distinguishing sources, as ED-XRF is, and the multivariate analyses associated with NAA can yield inaccurate source assignations for a number of reasons (see Shackley 2005: 93-94; see Glascock 2011). Fourth, ED-XRF is more cost effective and energy efficient than NAA and WXRF (Shackley 2005: 95). Fifth, ED-XRF has a long history of successful use in the analysis of obsidian all over the world. The UC Berkeley Geoarchaeological XRF Laboratory in particular has analyzed thousands of obsidian artifacts and source samples from all over the world, in particular from the United States and the Andes. Most recently, the re-characterization of the Quispisisa source obsidian was carried out in the Berkeley Geoarchaeological XRF Laboratory (Tripcevich and Contreras 2011).

The optimum sample size is a minimum of 10mm in diameter and 1.2-2.5mm in thickness, at which "no statistically measurable element distortions are observed" (Davis *et al.* 2011: 61). This level of precision, however, is not necessary for accurate source assignment because relative element proportions are not affected, and samples with minimum dimensions of 8mm in diameter and 0.5mm in thickness should yield results appropriate for source assignment (*ibid*: 62). My sampling strategy was to analyze all available obsidian artifacts above the 8mm diameter and close to the 0.5mm thickness threshold; as a result, 123 obsidian artifacts from all excavation units were analyzed. Out of the analyzed 123 obsidian artifacts, 84 were from Yanawilka, which is the subject of analysis of this chapter. The 84 obsidian artifacts constitute 66% (84/128) by count and 94% (128g/136g) by mass of the total obsidian artifacts excavated from Yanawilka. A bivariate plot of Sr versus Rb distinguishes major South-central Andean obsidian sources; when identification is not clear, other elements such as Fe (%), Y (ppm), Zn (ppm), Zr (ppm), and Nb (ppm) were considered (Shackley 2005; Glascock *et al.* 2007). The obsidian artifacts were manually washed to remove excess dirt before analysis.

6.2 Obsidian sources in the south-central Peruvian Andes

In the late 1970s, Richard Burger and Frank Asaro characterized Bolivian and Peruvian obsidian artifacts using XRF and NAA (Burger and Asaro 1977; 1978). At the time, none of the obsidian sources had been located and geochemically characterized. In the past twenty years, the vast majority of unknown sources in Peru have been located and geochemically characterized. Therefore, analyses of archaeological obsidian in Peru detect few artifacts that come from unknown sources. Table 6.1 summarizes the obsidian sources relevant to this chapter. A bivariate plot of ED-XRF-determined Rb and Sr concentrations is good at distinguishing all of the major sources in the south-central Peruvian Andes (Figure 6.1).

Unfortunately, none of the sources have the ideal sample sizes and proper geological survey recommended to characterize intra-source chemical variation. Shackley recommended at least two hundred samples to be taken from transects across the entire dome(s) or flow(s) for Quaternary sources, and for earlier Tertiary sources the same sampling strategy among the various strata and alluvial samples along the entire drainage. At a minimum, ten samples might be enough to characterize a source, but the proper number of samples can only be determined with further sampling (Shackley 2005: 100-101). Recent re-characterizations of the major sources of Quispisisa and Alca with higher sample sizes show the urgent need to properly survey and sample sources (Rademaker *et al.* 2013; Tripcevich and Contreras 2011). In both cases, the 95% confidence ellipses changed significantly from earlier characterizations (Glascock *et al.* 2007), and intra-source variation was significant. Furthermore, in addition to the recently discovered Pomacocha source, minor sources not yet discovered probably exist within reasonable distance from Yanawilka. The shortcomings in sample sizes and geological survey of the obsidian sources may yield inaccurate geochemical characterizations, as the recent more comprehensive geochemical characterizations show.

Table 6.1: Obsidian sources and their elemental compositions (ED-XRF) (Glascock *et al.* 2007: table II; Rademaker *et al.* 2013: supplement). Alca-1, Alca-2, and Alca 3 have combined means and standard deviations from Glascock *et al.* 2007 and Rademaker *et al.* 2013. Tripcevich and Contreras (2011) have analyzed 34 samples from the Quispisisa source, but elemental compositions have not yet been published.

Attribute	**Alca-1**	**Alca-2**	**Alca-3**	**Jampatill a**	**Lisahuacho**	**Potrero-pampa**	**Quispisisa**
N	169	5	32	6	6	6	16
K (%)	3.70±0.20	3.57±0.34	3.60±0.21	3.68±0.10	4.03±0.08	3.96±0.26	3.73±0.03
Ti (ppm)	831±161	1142±96	1378±96	1164±63	1389±59	534±63	836±17
Mn (ppm)	439±52	428±83	398±71	610±43	472±17	547±43	332±12
Fe (ppm)	5371±271	6961±178	8118±324	8692±301	8547±135	4593±167	5623±39
Zn (ppm)	40±4	46±5	49±7	110±7	85±8	42±3	35±1
Ga (ppm)	17±2	15±2	15±2	11±1	18±1	21±3	16±1
Rb (ppm)	134±4	141±5	129±5	158±3	150±2	170±6	181±1
Sr (ppm)	82±10	142±13	233±19	252±16	310±8	88±7	121±5
Y (ppm)	13±2	16±2	15±2	27±2	14±3	16±3	19±2
Zr (ppm)	101±9	141±10	159±12	169±10	198±6	91±9	104±3
Nb (ppm)	13±2	11±3	12±1	27±3	15±4	13±3	11±1

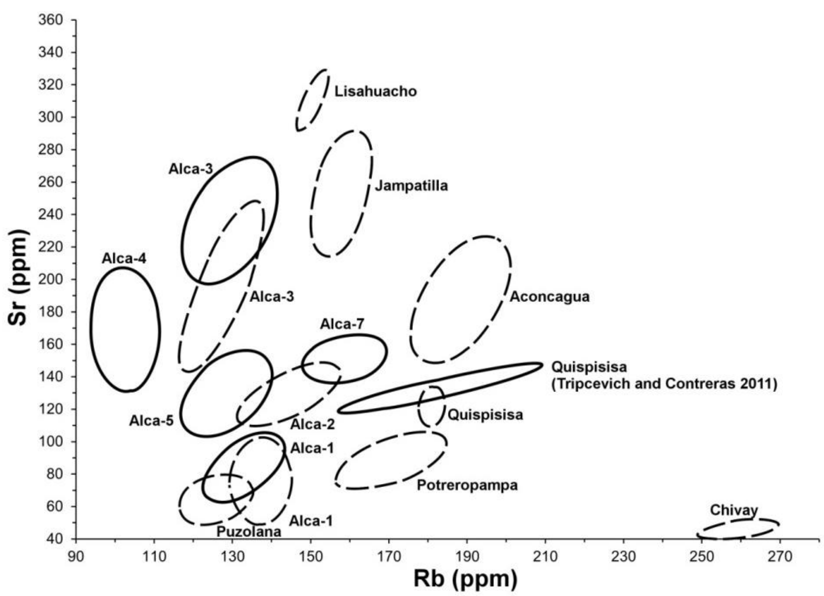

Figure 6.1: Bivariate plot of ED-XRF Sr (ppm) and Rb (ppm) concentrations of obsidian sources in Peru with 95% confidence interval ellipses. Dashed lines are 95% confidence interval ellipses from Glascock *et al.* 2007: figure 5. Solid lines are more recent chemical characterizations of Alca type obsidian (Rademaker *et al.* 2013) and Quispisisa obsidian (Tripcevich and Contreras 2011).

6.2.1 New minor obsidian source at Pomacocha

Ten marekanites from the primary source and three marekanites recovered during excavations in the alluvial fill were analyzed with the Quant'X ED-XRF (Table 6.2). They average 17mm in length and 12mm in width. The marekanites do not exceed 28mm in any dimension, so bipolar reduction is needed to work the material. Because the primary source only has the occasional embedded nodule, it was difficult to acquire a larger sample. Although the Alca-1, Pomacocha, Puzolana source overlap in their Rb and Sr concentrations (Figure 6.2), the Pomacocha source is distinguishable from those sources by Pomacocha's high Niobium (Nb) concentrations (Table 6.3). The analysis of obsidian artifacts recovered during excavations confirmed that this source was used archaeologically in the historic period (see chapter 11). One possible marekanite core, probably of the Pomacocha source, was found at pre-Hispanic Yanawilka, and it has possible evidence of bipolar reduction due to the presence of two bulbs of percussion on one side (Figure 6.3). Because of its small size, however, it was not among the chosen for XRF analysis. Although there is no conclusive evidence the Pomacocha source was used during the Late Horizon at Yanawilka. I am certain that future excavations will reveal more compelling evidence of the archaeological use of this source.

Table 6.2: Mean and central tendencies of 11 trace elemental concentrations of the Pomacocha obsidian source.

Element	N	Minimum	Maximum	Mean	SD 1	Std. Error
Ti	13	586	802	671.8	59.0	16.4
Mn	13	380.9	520	438.2	39.8	11.0
Fe	13	8336	9647	8893.9	346.7	96.2
Zn	13	53.1	161.7	89.1	35.0	9.7
Rb	13	105.9	127.8	117.1	7.3	2.0
Sr	13	52.2	76.9	66.7	7.5	2.1
Y	13	7.3	14.7	12.1	2.1	0.6
Zr	13	85.9	98.5	92.2	3.6	1.0
Nb	13	26	34.1	29.4	2.4	0.7
Pb	13	26.2	32.9	28.8	2.2	0.6
Th	13	11.6	21.3	16.9	3.2	0.9

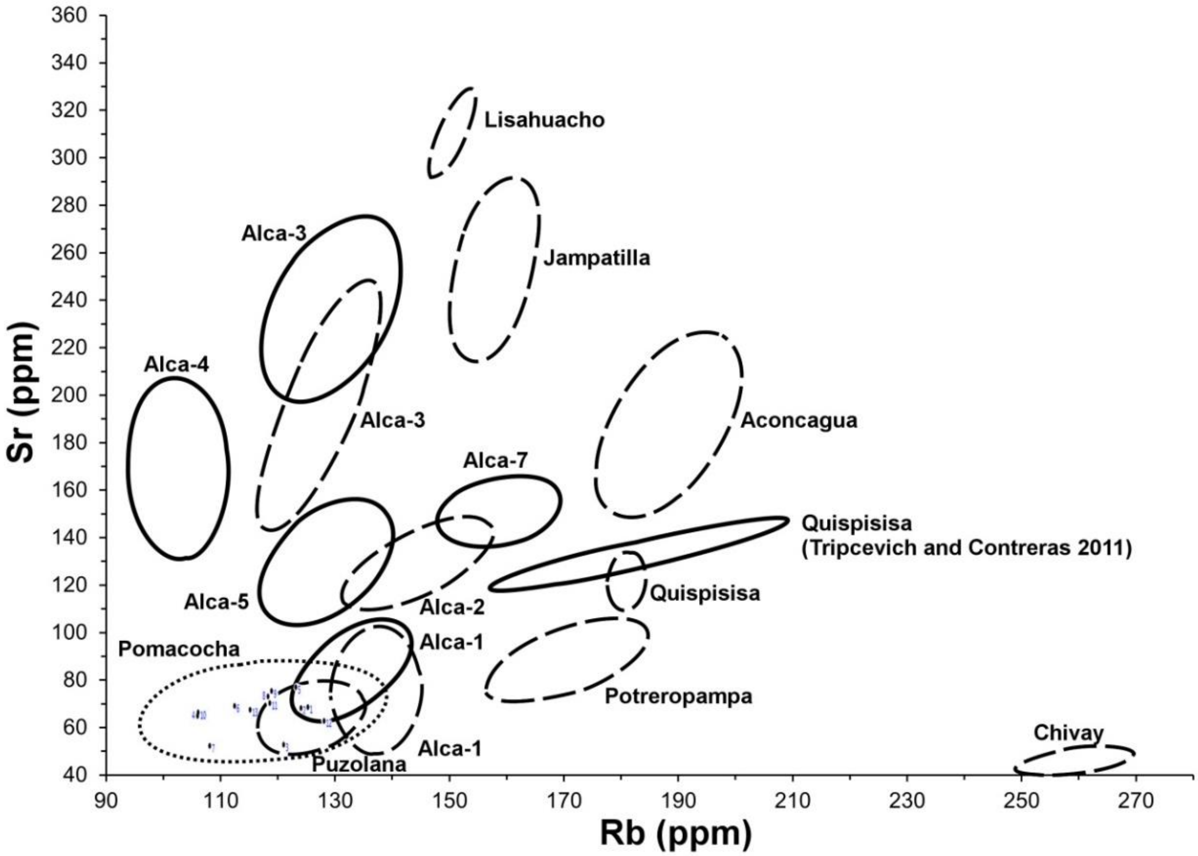

Figure 6.2: Bivariate plot of ED-XRF-derived Sr (ppm) and Rb (ppm) concentrations and 95% confidence interval ellipse of the newly discovered Pomacocha obsidian source (n=13) in relation to other obsidian sources in Peru.

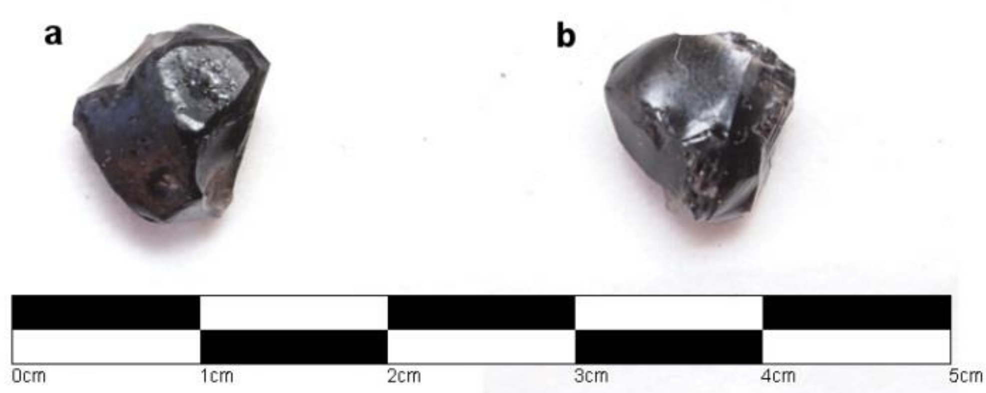

Figure 6.3: Small marekanite core showing possible evidence of bipolar reduction found at Yanawilka. It is most likely from the Pomacocha source as it is the closest source of marekanites, only a few hundred meters away. a=Dorsal/cortex side; b=Ventral side with two bulbs of percussion evident.

Table 6.3: Mean and standard deviations of niobium (Nb) concentrations of Alca-1, Pomacocha, and Puzolana obsidian sources.

Source	N	Mean	SD 1	Reference
Alca-1	36	14	1	Glascock *et al.* 2007
Alca-1	133	13	2	Rademaker *et al.* 2013
Pomacocha	13	29.4	2.4	
Puzolana	16	15	3	Glascock *et al.* 2007

In the future, more samples could be systematically acquired with geological survey, and $^{40}Ar/^{39}Ar$ dating will increase knowledge of the geology of the Pomacocha source. It is possible that the Pomacocha and Puzolana obsidian sources were part of same obsidian creation event, given the similarity in geochemical composition and nodule size. The Ayacucho Formation's extension includes Pomacocha and Puzolana (Wise 2008); it consists of "a complexly interfingering sequence of volcaniclastic lacustrine and fluvial strata, local conglomerates, ash-flow and reworked tuffs, and intercalated flows…" (Mégard *et al.* 1984: 1114). Obsidian fragments found embedded in tuff at 13°03.4' Latitude and 74°17.2' Longitude date to 7±2 mya (*ibid*: 1112), and it is reasonable to assume that the Puzolana and Pomacocha obsidian sources date to a similar age.

6.3 Migration, social networks, and identity

The geochemical analysis of obsidian artifacts can illuminate past migrations, social networks, and identities (Braswell 2003; Shackley 2002, 2005; Golitko and Feinman 2015). The most compelling studies combine multiple lines of evidence to understand different facets of social interaction. Nowhere is the marriage of ceramic and obsidian source analysis stronger than in Southwest North American archaeology (e.g., Mills *et al.* 2013; Neuzil 2008; Shackley 2005). The vibrant research is enabled by the large databases of obsidian and ceramic artifacts from numerous sites and active collaboration among Southwest ceramicists and lithicists. In the Andes, unfortunately, obsidian source analyses of artifacts are still few and far between, but the last ten years have seen an upsurge (Bigazzi *et al.* 1992; Burger and Asaro 1977, 1978; Burger *et al.* 2000, 2016; Burger and Glascock 2000; Craig *et al.* 2007; Eerkens *et al.* 2010; Glascock *et al.* 2007; Glascock and Giesso 2012; Giesso *et al.* 2011; Jennings and Glascock 2002; Kellett *et al.* 2013; Lazarri *et al.* 2009; Ogburn *et al.* 2009; Stanish *et al.* 2002; Tripcevich and Contreras 2011, 2013; Yacobaccio *et al.* 2002, 2004). Portable XRF (PXRF) produces reliable obsidian source assignments and inter-laboratory comparability with proper calibration (Craig *et al.* 2007; Nazaroff and Shackley 2009; Speakman and Shackley 2013). With the increased use of PXRF in the field, obsidian provenance studies in the Andes are nearing a watershed, and Social Network Analyses

(SNA) of a large number of sites and time periods will soon be possible (sensu Mills 2013; Golitko and Feinman 2015).

Because there are currently no geochemical analyses of obsidian artifacts from contemporary sites near Yanawilka/Pomacocha, we must rely on methods appropriate to the analysis of a single site in order to address questions of migration, identity, and social networks. For understanding the nature of migration, we can use ethnohistoric sources, and studies from the Southwest United States showed that migrants sometimes kept their former obsidian source preferences even at great distances (e.g., Mills *et al.* 2013; Shackley 2005). Therefore, if there is continued reliance on major obsidian sources near the Condes' homeland (i.e., the Alca sources), then kinship ties to their homeland probably continued (Figure 6.4).

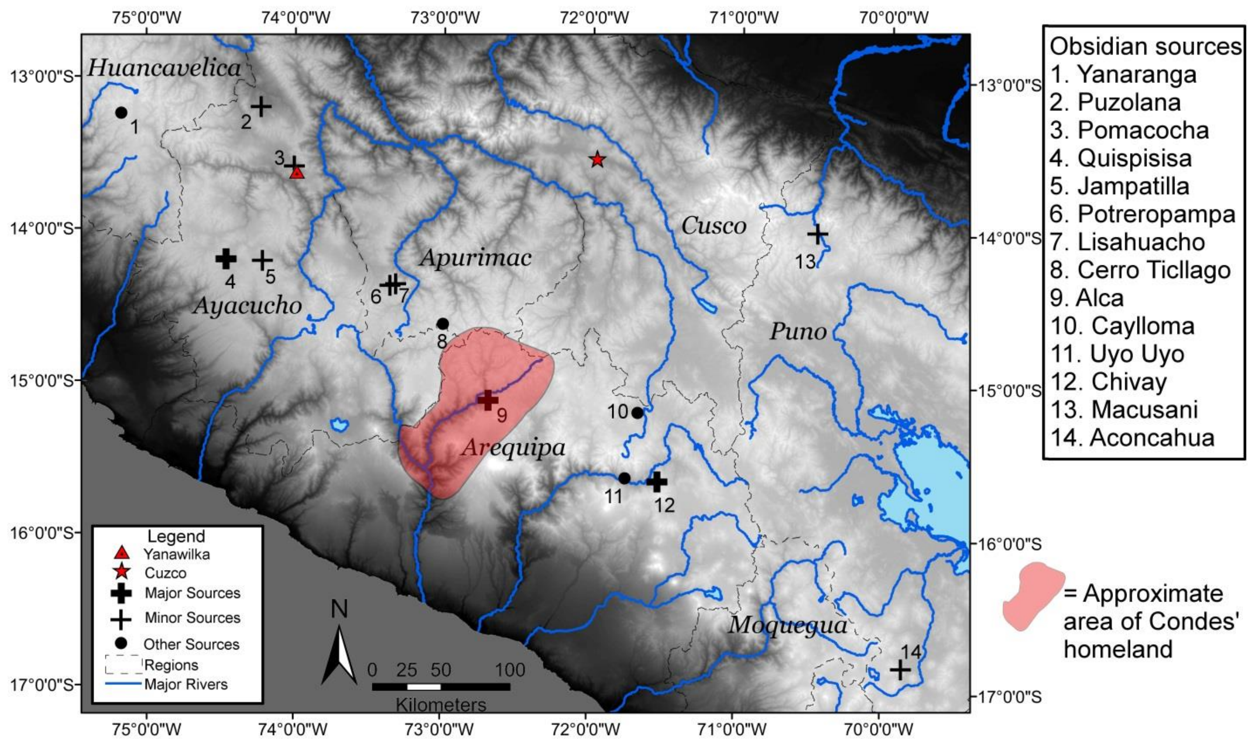

Figure 6.4: Map of the approximate area of the Condes' heartland in relation to obsidian sources, the Inka capital of Cuzco, and Yanawilka. Condes' heartland extent based on Julien 1991: 107-108 and Trawick 2003: 47-48.

The relative importance of direct procurement versus exchange mechanisms can shed light on the nature of economic networks across the landscape. Appropriate methods include analyzing any significant variations from the standard distance decay model, also known as the "Law of Monotonic Decrement" (Molyneaux 2002: 144; Renfrew 1984: 136; Shackley 2005: 154-155; Torrence 1986: 15-16). Significant deviations from the baseline distance decay model may be a result of political tensions and/or different kin affiliation (Levine *et al.* 2011; Shackley 2005: 137). The shape of the distance decay curve can help determine whether obsidian was acquired by a small number of short moves, implying "direct access to mode of procurement" (Hodder and Orton 1976: 142-145; Torrence 1986: 131). A large number of obsidian sources used can mean diverse exchange partners, implying some degree of regional integration and interaction (Shackley 2005: 143-144). Analysis of the artifacts themselves can also shed light on direct procurement versus exchange. If there is reliance on nearby sources, then direct procurement is more likely (Neuzil 2008: 72-73). Flakes and shatter from far away sources imply direct procurement or direct access to far-flung networks (Bayman and Shackley 1999: 843). The size of debitage in relation to distance to the source can also be used to assess the nature of the obsidian networks (Torrence 1986: 128). The presence of bipolar technology can imply limited access to large nodule sources and, thus, general restriction from regional obsidian networks (Bayman and Shackley 1999: 843).

Community-level obsidian distribution mechanisms, and by extension, social and economic organization, can be inferred from the degree of homogeneity or heterogeneity of obsidian source proportions among the different domestic structures at Yanawilka (Braswell and Glascock 2002; Torrence 1986: 33; Winter and Pires-Ferreira 1976: figure 10.9). Class identity can also be inferred: homogenous obsidian preferences suggest central pooling and redistribution, implying the presence of central agency or elites (*ibid*). If the obsidian source preferences among the domestic structures are heterogeneous, then the inhabitants of Yanawilka relied on different obsidian exchange networks, and this could hint at an agglomerative nature of the Yanawilka *mitmaqkuna* colony. Internal community economic specialization could also be inferred through the relative intensity of lithic production among the different domestic structures. Other studies have used relative proportions of ceramic sherds to obsidian flakes or of ceramic weight to obsidian weight to infer intensity of lithic production (e.g., Braswell and Glascock 2002: 42; Torrence 1986: 29).

The presence of expansionist polities can cause significant changes in obsidian exchange patterns (e.g., Levine *et al.* 2011). This was also true for the Andes. In the Middle Horizon (CE 600-1000), the Wari polity seemed to have expanded the use of the high quality Quispisisa obsidian in Peru, although local sources still dominated at most sites (Burger *et al.* 2000; Kellett *et al.* 2013; Williams *et al.* 2012). The Inka seemed to have dramatically affected obsidian exchange patterns. In the case of Late Horizon (CE 1450-1532) northwestern Argentina, the Inka's strict control over economic traffic manifested in significant shifts in obsidian exchange patterns from the previous period (Yacobaccio *et al.* 2002, 2004). Before the Inka, there were two long-lived distribution spheres centered on two separate major sources, respectively. With the arrival of Inka hegemony, all major sources appeared together at certain archaeological sites (Yacobaccio *et al.* 2002: 190; Yacobaccio *et al.* 2004: 202).

At the northern frontier of the Inka Empire in Ecuador, the Inka practice of drawing soldiers from disparate parts of their empire was reflected in the diversity of obsidian sources of the soldiers' tools (Ogburn *et al.* 2009). Possible interpretations are that the soldiers carried their tools from their places of origin or that the Inkas drew tribute from various parts of the empire and then redistributed the goods. Ogburn *et al.* (2009) suggested that political boundaries, as in the case of the Inka frontier, may have prevented certain sources from being exploited despite proximity. The border was probably non-permeable and quite controlled, and Inka integration of subject peoples was rapid. This chapter contributes a significant advance in our understanding of obsidian networks of the Late Horizon in Peru, especially of a core imperial area like Vilcashuamán. The data from this chapter can be used in future social network analyses of multiple sites in the area once more provenance studies are done.

6.4 Results

The data do not align neatly with any one expectation. The results paint a complex picture of obsidian circulation at Yanawilka and are suggestive of a strict control of interregional traffic under the Inka as hypothesized by other scholars. In this section, I address the three questions posed at the beginning of this chapter. The preliminary results show intriguing patterns that warrant future research of obsidian provenance and use at Yanawilka.

6.4.1 Question 1

Was the obsidian exploited at Yanawilka derived from more or less geographically extensive and diverse sources than at comparable Late Intermediate Period sites?

In this section, I will show that the obsidian exploited at Yanawilka were from sources comparable in diversity and geographic extension as at nearby Chanka sites of the period immediately preceding Yanawilka (Late Intermediate Period, 1000-1450CE). The inhabitants of Yanawilka and the Chanka sites of Achanchi and Luisinayoc, however, relied on different sources. I argue that the differences are consistent with a politically mediated obsidian circulation and consistent with what other scholars have noted about the highly controlled nature of interregional traffic under the Inka (Murra 1980; Yacobaccio *et al.* 2002).

A bivariate plot of strontium and rubidium aided in assigning the vast majority of obsidian artifacts to obsidian sources (Figure 6.5). Quispisisa obsidian is predominant at Yanawilka, comprising at least 83% of the obsidian artifacts analyzed (Table 5.4). The next most frequent obsidian source utilized at Yanawilka was Jampatilla (10.7%). Because the Jampatilla and Lisahuacho sources were only characterized by six samples each, I expect that their true 95% confidence ellipses differ significantly from the present chemical characterization (Glascock *et al.* 2007). For four of the samples that fell outside of the Jampatilla confidence ellipse (#63, 73, 84, 104; Appendix E), high yttrium concentrations were used to assign them to Jampatilla rather than to Lisahuacho (Glascock *et al.* 2007: 541). One sample (#78) is most likely from an unknown source due to its high rubidium concentration; nevertheless, #78's other elemental concentrations are largely consistent with Jampatilla. There are three unassigned samples (#81, 132, 139) that could either be Alca-2 or Quispisisa, judging from manganese (Mn) concentrations.

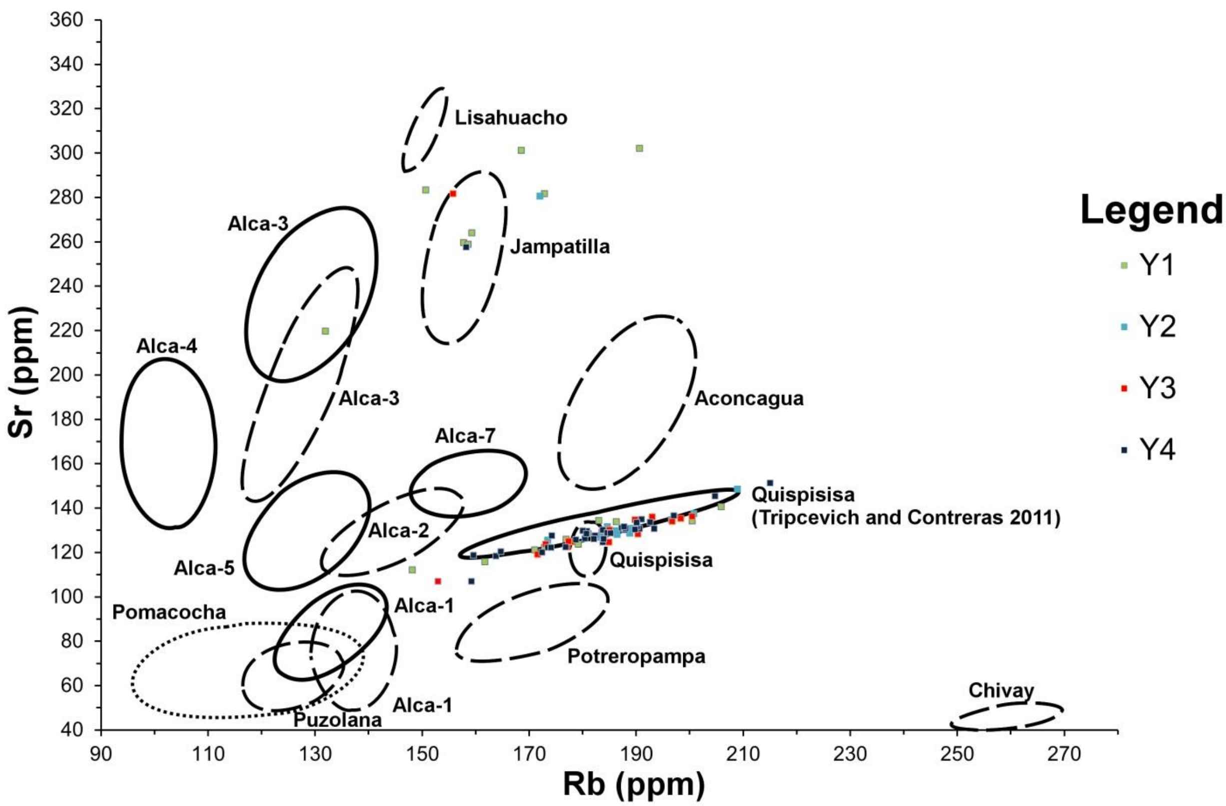

Figure 6.5: Bivariate plot of strontium (Sr) and rubidium (Rb) concentrations of 84 obsidian artifacts from Yanawilka superimposed on 95% confidence ellipses of obsidian sources.

Table 6.4: Source provenance of obsidian artifacts at Yanawilka.

Unit	Alca-3	Jampatilla	Quispisisa	Unassigned	Unknown	**Total**
Y1	1 (4.5%)	6 (27.3%)	13 (59.1%)	1 (4.5%)	1 (4.5%)	**22 (100%)**
Y2		1 (9.1%)	10 (90.9%)			**11 (100%)**
Y3		1 (6.7%)	13 (86.7%)	1 (6.7%)		**15 (100%)**
Y4		1 (2.8%)	34 (94.4%)	1 (2.8%)		**36 (100%)**
Total	**1 (1.2%)**	**9 (10.7%)**	**70 (83.3%)**	**3 (3.6%)**	**1 (1.2%)**	**84 (100%)**

To contextualize the geographic extensiveness and diversity of obsidian sources used at Yanawilka, I compare Yanawilka (1460-1532 CE) to the Chanka sites of Achanchi (1227-1315 CE 1σ) and Luisinayoc (1045-1221 CE 1σ) (Kellett *et al.* 2013). There are four reasons for comparing Yanawilka to these two sites. First, no other major obsidian provenance study has been carried out in the area for either the Late Intermediate Period (1000-1450 CE) or the Late Horizon (1450-1532 CE). Second, Achanchi and Luisinayoc are not far from Yanawilka: 62km and 69km away, respectively. Third, they are about the same average distances to the obsidian sources, and the differences in travel times to any obsidian source are less than two days (Table 6.5). Therefore, geographic distance alone should not prevent any one source from being potentially exploited. Fourth, as established in chapter 4, the Vilcas, a Chanka group, lived in the area before the Inka depopulated the Vilcashuamán area of this group. Therefore, the Chanka sites of Achanchi and Luisinayoc make acceptable proxies for obsidian exploitation in the area before the arrival of the Inka. Ideally, one should compare Yanawilka obsidian provenance proportions to those of Late Intermediate Period sites in the Vilcashuamán area as well as in the Condes homeland, but such research has not been conducted yet.

Table 6.5**:** Euclidean distances on an isotropic (flat) surface from obsidian sources to archaeological sites in kilometers. Travel times in parentheses are minimum estimates, assuming 4km/h velocity and 8h travel a day (Kellett *et al.* 2013: 1893).

	Yanawilka	Achanchi	Luisinayoc
Quispisisa	81.8 (2.6 days)	133.1 (4.2 days)	137.8 (4.3 days)
Jampatilla	69.2 (2.2 days)	112.1 (3.5 days)	116.0 (3.6 days)
Alca	216.7 (6.8 days)	188.7 (5.9 days)	182.8 (5.7 days)
Lisahuacho	106.7 (3.3 days)	88.9 (2.8 days)	85.4 (2.7 days)
Porteropampa	108.7 (3.4 days)	88.2 (2.8 days)	84.4 (2.6 days)
Mean distance (all)	116.6 (3.6 days)	122.2 (3.8 days)	121.3 (3.8 days)

Although the absolute number of obsidian sources exploited does not differ significantly among Yanawilka and the Chanka sites, there are substantial differences in emphasis (Table 6.6; Figure 6.6). At Yanawilka, Quispisisa is the overwhelming preference, and at the Chanka sites of Achanchi and Luisinayoc, the vast majority of the obsidian used comes from the Lisahuacho and Potreropampa obsidian sources, which are less than 5-10km away from each other. Because the occupations at Achanchi and Luisinayoc together span most of the LIP, it is clear that the area of Lisahuacho and Potreropampa was always part of the LIP Chanka obsidian circulation network, even if conflicts may have changed which source was emphasized (Kellett *et al.* 2013: 1899). Because of the diversity of obsidian sources present at Achanchi and Luisinayoc all came from either south or west of Andahuaylas as opposed to the east toward Cusco and Arequipa, Kellet *et al*. (2013: 1898) suggest that the Chanka obsidian patterns reflected stronger cultural ties to the Apurimac and Ayacucho regions. This is consistent with ethnohistorical sources that say the Chanka were a confederate of allied groups of the Apurimac and Ayacucho regions who opposed Inka expansion (see chapter four). The Quispisisa and Jampatilla sources are located in the LIP territories of the Lucanas and Soras peoples, respectively. The Andahuaylas Chanka area, therefore, did have access to exchange relationships or even directly procured in these areas. While there was certainly inter-group violence (Bauer and Kellett 2010; Kellet 2010, 2013; Kellet *et al*. 2013; Kurin 2012, 2014) the political landscape was fluid, and cultural similarities may have facilitated possibilities for the anti-Inka political alliances described in the ethnohistorical sources.

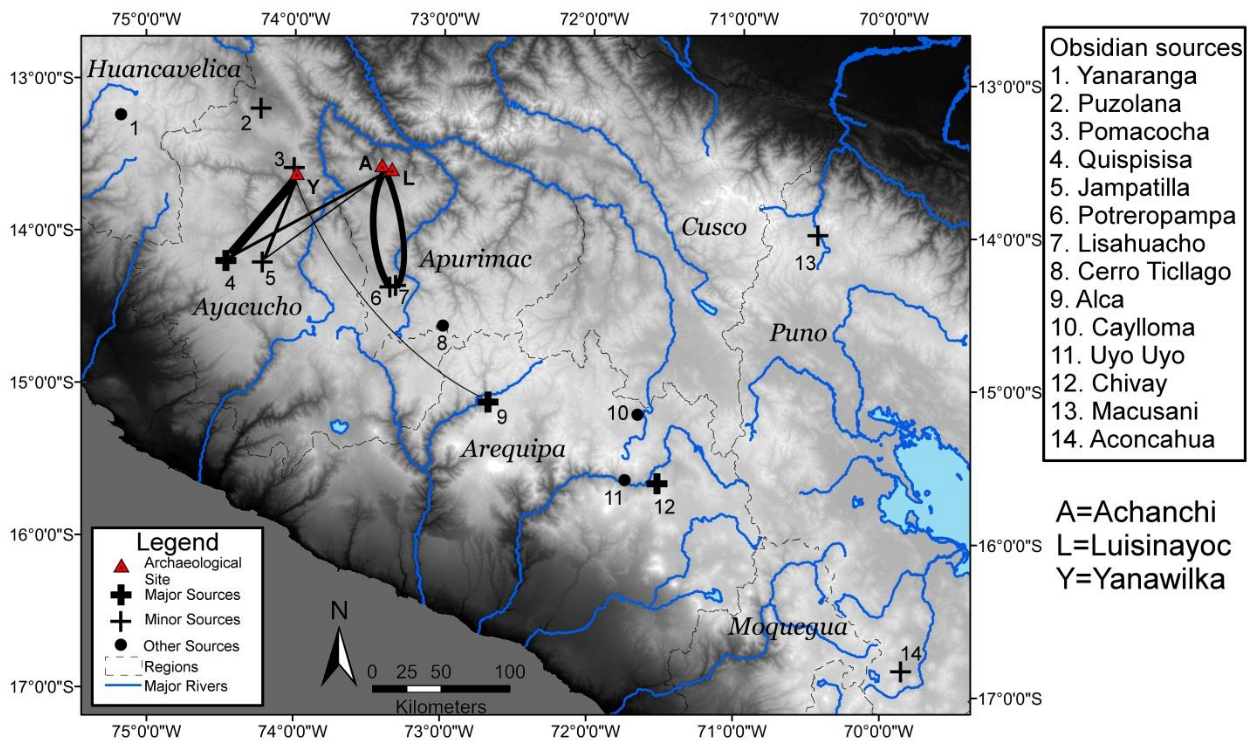

Figure 6.6: Obsidian sources utilized by Yanawilka (Late Horizon), Achanchi and Luisinayoc (Late Intermediate Period). Line thickness is proportional to the square root of the percentage of obsidian artifacts at the site from the source.

Table 6.6: Source provenance of obsidian artifacts at Achanchi and Luisinayoc.

Site	Jampatilla	Lisahuacho	Potreropampa	Quispisisa	Unknown	Total
Achanchi		1 (6.3%)	15 (93.8%)			16 (100%
Luisinayoc	1 (2.8%)	18 (50%)	8 (22.2%)	5 (13.9%)	4 (11.1%)	36 (100%)
Total	**1 (1.9%)**	**19 (36.5%)**	**23 (44.2%)**	**5 (9.6%)**	**4 (7.7%)**	**52 (100%)**

There was no Lisahuacho and Potreropampa obsidian among the artifacts analyzed from Yanawilka, which is surprising given that those sources comprised 80.8% of the total assemblage of Achanchi and Luisinayoc. Potreropampa had been a major source of archaeological obsidian in the area from 2500 BCE-1400CE (Kellett *et al.* 2013: 1899), and it is roughly equidistant from the Andahuaylas area as it is from the Vilcashuamán area. The dominance of Quispisisa at Yanawilka (83.3%) and of Lisahuacho/Potreropampa at Achanchi and Luisinayoc (80.8%) show a stark difference in obsidian source preference. A possible explanation is that since Lisahuacho and Potreropampa were located in the Chanka territories, the Inka may have discouraged the Condes at Yanawilka from having direct economic relations with the Inka-unfriendly Chanka groups. Alternatively, the Condes themselves may not have traditionally pursued obsidian exchange with the groups in the Apurimac Chanka area.

At Yanawilka, distant Alca obsidian is present at very low quantities, with only 1 out of 84 analyzed being Alca obsidian. The Alca obsidian source is located in the Condes homeland, and its presence at Yanawilka could be a result of weak or infrequent exchange with groups from their homeland. Another possibility is that the Alca obsidian (specifically Alca-3, found around Cerro Aycano) was carried from the homeland as part of the initial migration. Direct procurement after initial migration is less likely given the low quantities, small size of the debitage, and distance of the Alca obsidian source. The presence of Alca obsidian at Yanawilka marks a qualitative difference in obsidian exchange from the earlier Chanka sites where no Alca obsidian was used (even though Alca is closer to the Chanka area than to Yanawilka), presumably due to political considerations (*ibid*: 1898). Just as the Wari Empire had spread and intensified the use of Quispisisa obsidian (Burger *et al.* 2000a: 343-344, 351; Kellett *et al.* 2013: 1899), the dominance of Quispisisa obsidian at Yanawilka may be a result of similar Inka imperial interventions in interregional exchange. Further obsidian source provenance research at other Late Horizon and Late Intermediate Period sites is needed to further test this hypothesis.

Another line of evidence used to judge the effect of imperial intervention on obsidian circulation is how well the correlation between source proportion and linear distance conforms to the distance decay model (Shackley 2005: 154-155). The correlation at Yanawilka is very weak (r^2=0.274, p=0.649), implying that political influences on obsidian exchange existed (Table 6.7). Even though Jampatilla is closer to Yanawilka, there was an overwhelming preference for Quispisisa obsidian even though the quality of obsidian at both sources is good. Although not prohibitively distant, the Lisahuacho and Potreropampa sources were not exploited, at least to any appreciable degree, at Yanawilka. The combined source proportions at Achanchi and Luisinayoc conform better to the distance decay model, but the correlation is still not perfect (r^2=0.727, p=0.147) (Table 6.8). The pattern at Yanawilka is more consistent with controlled traffic than at Achanchi/Luisinayoc.

Table 6.7: Frequency distribution of obsidian source provenance at Yanawilka (1460-1532 CE) and linear distance to source. r^2=0.274, p=0.649.

Source	Frequency	Percent	Distance to source (linear km)
Jampatilla	9	10.7	69.2
Quispisisa	70	83.3	81.8
Alca-3	1	1.2	213.7
Total	**80**	**95.2**	

Table 6.8: Frequency distribution of obsidian source provenance at Achanchi (1227-1315 CE 1σ) and Luisinayoc (1045-1221 CE 1σ), and linear distance to source (averaged distances from Achanchi and Luisinayoc). r^2=0.727, p=0.147.

Source	Frequency	Percent	Distance to source (linear km)
Potreropampa	23	44.2	86.3
Lisahuacho	19	36.5	87.2
Jampatilla	1	1.9	114.1
Quispisisa	5	9.6	135.5

6.4.2 Question 2

Were there different obsidian source preferences among the domestic structures at Yanawilka?

The two expectations for this question were that obsidian source preferences were 1) homogenous at Yanawilka, implying a centralized obsidian distribution system at Yanawilka, either due to elites on site pooling and redistributing the obsidian or due to the households sharing a common trading network, and 2) heterogeneous, implying that households or groups at Yanawilka were separately responsible for acquiring obsidian through exchange with different trading partners. Preliminary results show that among the four structures excavated, obsidian preferences were largely homogenous at Yanawilka with the exception of unit Y1 (Structure 6) (Table 6.9). Therefore, the distribution of obsidian at Yanawilka does not neatly fit with just one expectation, making interpretation difficult. Also complicating interpretation is that the samples may not be statistically independent of one another: multiple samples could have come from a larger core, skewing the results.

Overall, it seems that there were two different obsidian distribution patterns. One was heavily dominated by Quispisisa, and units Y2 (structure 5), Y3 (structure 23), and Y4 (structure 16) are part of this obsidian distribution pattern. The excavation units covered the entirety of the interiors of the structures. Unit Y1 was part of the second distribution pattern, which had more diverse obsidian sources (Figure 6.7). The difference in obsidian source proportions between Y1 and the other structures are supported by Fisher's exact tests (Tables 6.10 and 6.11). Although Y2 and Y3 sample sizes are too small to establish statistical significance, it is clear that Y1 has significantly more Jampatilla obsidian than the other structures. Even though Y1 only represents 24% of the total volume excavated, it has 84% (16.57g/19.45g) of the total Jampatilla obsidian mass excavated and analyzed for geochemical composition from Yanawilka. Because 94% of the mass of total obsidian was analyzed, the proportions should remain effectively unchanged even if all of the obsidian was analyzed. The patterns could mean that certain individuals, households, or kin groups had more access to diverse trading relationships. Preliminary results are intriguing, and it is crucial that more structures be excavated in the future to establish better statistical significance. Right now, I do not have sufficient data to confidently assess the overall intra-site differences in obsidian source preferences. With more structures excavated at Yanawilka, we can better grasp the internal spatial social organization of the site.

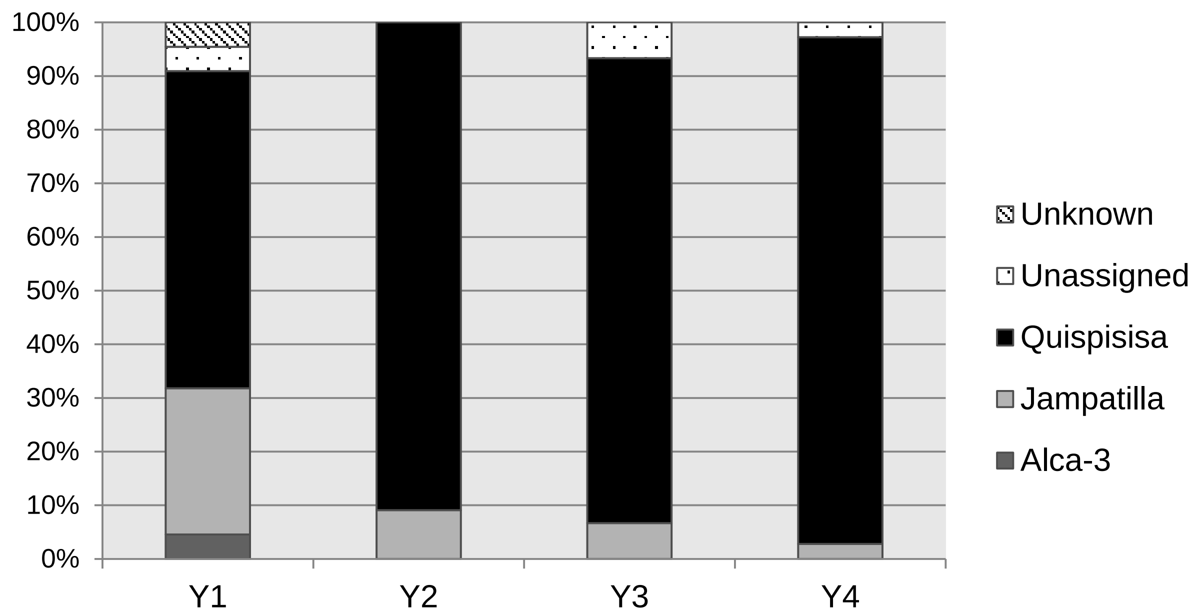

Figure 6.7: Obsidian source representation by unit at Yanawilka.

Table 6.9: Fisher's exact test (4x2 table) comparing Y1 and (Y2+Y3+Y4) source proportions. Two-tailed p-value: 0.0006, statistically significant.

Unit(s)	Alca-1	Jampatilla	Quispisisa	Unknown	Total
Y1	1	6	13	1	21
Y2+Y3+Y4	0	3	57	0	60
Total	**1**	**9**	**70**	**1**	**81**

Table 6.10: Fisher's exact test (2x2 table) comparing Y1 and (Y2+Y3+Y4) Quispisisa and Jampatilla source proportions. Two-tailed p-value: 0.005, statistically significant.

Unit(s)	Jampatilla	Quispisisa	Total
Y1	6	13	19
Y2+Y3+Y4	3	57	60
Total	**9**	**70**	**79**

Table 6.11: Fisher's exact test two-tailed p-values comparing Quispisisa and Jampatilla proportions among units (2x2 tables).

Unit	Y1	Y2	Y3
Y2	0.2146		
Y3	0.195	0.999	
Y4	**0.0056****	0.4251	0.494

As described in chapter 4, Y1 (structure 6) has a number of unusual properties. Y1 has the greatest diversity in artifact classes, is located right next to the rocky outcrop called Yanawilka, and is the most elevated structure on eastern side of settlement. Y1 is also the only structure with zoomorphic nubbins from Inka arybalos placed underneath foundation stones. Y1 could be an elite residence or a structure for communal eating, crafting, and ritual. If it was an elite residence, it is possible that redistribution of Jampatilla obsidian could have occurred from there. If it was a communal structure, its small size precludes it from serving the whole community of Yanawilka at the same time. Future excavations of other structures at Yanawilka can clarify whether Y1 was unique and what kind of communal purpose, if any, it played.

6.4.3 Question 3

What kinds of production are evident from the obsidian artifacts? How much production occurred on site? Was there meaningful variation in lithic production among the different domestic structures (i.e., specialization)?

In this section, I show how obsidian was relatively scarce at Yanawilka and that production methods reflect economizing scarce resources rather than showing specialization in obsidian tool production. The lines of evidence I use are the importance of bipolar reduction, analysis of debitage, and density of obsidian. Bipolar reduction is evident when flakes are sheared, diffuse or multiple bulb of percussion/point of impact or ripple direction on the same surface, and when their inner and outer surfaces are not distinct (Ahler 1989: 210; Kooyman 2000: 56; Kuhn 1995: 97-98; Odell 2004: 61). Orange-slice shaped flakes (with cortex as the 'rind') or splintered flakes are also generally indicative of bipolar reduction (Shott 1999). Bipolar reduction can produce flakes of various sizes and shapes (Shott 1989). Debitage consist of angular debris, flakes, and blades. For the analytical purposes of this chapter, the "blades" category was lumped with debitage: the single blade found at Yanawilka is incidental in that it happened to be a complete flake with the formal properties of a blade. Flakes are defined by having an identifiable interior surface, and angular debris have uncertain dorsal to ventral orientation (the interior surface is not identifiable) (Shott 1994: 70). In addition to comparing and contrasting the units at Yanawilka, I will also compare and contrast Yanawilka's obsidian density to LIP Achanchi, Luisinayoc, and LH Pulapuco. Through comparison with other sites, we can understand whether Yanawilka's obsidian scarcity was normal, or if it was a likely characteristic of Inka-period (LH) sites like Pulapuco.

Production certainly occurred on site due to the predominance of debitage (flakes and angular debris) in the assemblage (Table 6.12). Furthermore, the small size of the debitage, with 83% (83/99) weighing a gram or less, shows that production did occur within the structures. Half of the obsidian artifacts (64/128) have cortex on the dorsal side or platform. The high proportion of obsidian artifacts with cortex also supports production occurring on site. Evidence of bipolar reduction is present at all of the structures and occurs on 13% (17/128) of obsidian artifacts. The bipolar classification is conservative, as I only included flakes that exhibited clear signs of bipolar reduction (at least two identifying attributes). The actual proportion of debitage that was created through bipolar reduction is undoubtedly higher, since a lot of bipolar reduction shatter does not leave clear evidence (Barham 1987: 48). Furthermore, there is no significant difference in dimensions and mass of debitage with and without evidence of bipolar reduction, making it possible that some of the debitage classified as non-bipolar nevertheless were a result of bipolar reduction (Table 6.13). Surprisingly, bipolar reduction is evident on obsidian from sources with large nodule sizes, such as Quispisisa (Tripcevich and Contreras 2011) (Table 6.14). I have personally seen some Quispisisa nodules at the primary source measuring 40 to 50cm in the largest dimension. The prevalence of bipolar reduction on obsidian from a source with large nodules is a classic indicator of resource scarcity and minimal direct procurement, if any. Even a smaller-sized nodule from Quispisisa could more than account for all the mass of Quispisisa obsidian excavated at Yanawilka. Large debitage were rare, and the vast majority clustered around 1.4cm in length and 1.0cm in width, implying that the original cores, preforms, or source material started out small (Table 6.15).

Table 6.12: Distribution of obsidian lithic classes among Yanawilka units.

Unit	Angular debris	Blade	Core	Flake	Flake tool	Projectile Point	Total
Y1	22		1	19	2	1	45
Y2	4			4	3		11
Y3	7	1		2	6	3	19
Y4	15			25	12	1	53
Total	**48**	**1**	**1**	**50**	**23**	**5**	**128**

Table 6.13: Attributes of all obsidian artifacts with and without evidence of bipolar reduction.

Bipolar evidence?	N	Mean of mass (g)	Mean of length (cm)	Mean of width (cm)	Mean of thickness (cm)
Yes	17	0.9	1.6	1.1	0.4
No	111	1.1	1.6	1.1	0.4
Total	**128**	**1.1**	**1.6**	**1.1**	**0.4**

Table 6.14: Evidence of bipolar reduction on Jampatilla and Quispisisa obsidian.

Bipolar evidence?	Jampatilla	Quispisisa	Total
Yes	1	13	14
No	8	57	65
Total	**9**	**70**	**79**

Table 6.15: Attributes of debitage (Angular debris, blade, and flakes).

Lithic class	N	Mean and SD of mass (g)	Mean and SD of length (cm)	Mean and SD of width (cm)	Mean and SD of thickness (cm)
Angular debris	26	1.1±0.9	1.3±0.5	0.9±0.4	0.4±0.2
Blade	1	0.3	1.6	0.8	0.2
Flake	32	1.1±1.8	1.6±0.9	1.0±0.4	0.3±0.2
Total	**59**	**1.1±1.4**	**1.4±0.7**	**1.0±0.4**	**0.4±0.2**

Although the inhabitants of Yanawilka had access to the Jampatilla and Quispisisa sources, they did not have great quantities of obsidian from those sources. Nevertheless, the Jampatilla and Quispisisa obsidian were in too great quantities to have solely originated from being carried on site during the initial migration. There are no significant differences in the dimensions of Jampatilla and Quispisisa debitage (Table 6.16). Although the differences in width did turn out to be statistically significant (P value: 0.014), the result is a false positive. Applying the Bonferroni correction, one would need a p-value of 0.0125 (0.05/4 tests) to be statistically significant at the p=0.05 level.

The comparable dimensions of Jampatilla and Quispisisa obsidian imply that obsidian from both sources probably arrived at Yanawilka due to similar behavioral processes (Figure 6.8). The small size of the vast majority of the debitage and the lack of Jampatilla and Quispisisa cores point to conservation of scarce obsidian resources. Surprisingly, none of the obsidian analyzed were from the local Pomacocha source. The edge of the secondary distribution of the Pomacocha source is only 600 meters away. There was one marekanite, classified as a core, recovered in the excavation of Y1, but it was small (1.1 x 1cm). The single Pomacocha marekanite recovered from Yanawilka excavations was likely intentionally carried on site because the secondary distribution of the Pomacocha source's boundary is at least 600 meters away from Yanawilka on the other side of the stream (see chapter three). Therefore, the inhabitants of Yanawilka did have access to the Pomacocha source, at least to its secondary distribution, but did not rely on it to make tools. Future excavations may reveal archaeological use of Pomacocha obsidian at Yanawilka. The obsidian is very glassy and high quality, and the larger nodules would produce flakes comparable in size to obsidian flake tools at Yanawilka made with other obsidian source material.

Table 6.16: Properties and dimensions of Jampatilla and Quispisisa debitage (angular debris, blades, flakes). Mann Whitney U-Test p values: Mass: 0.136; Length: 0.082; Width: 0.014; Thickness: 0.326.

Source	N	No. with cortex	No. with bipolar	Mean of mass (g)	Mean of length (cm)	Mean of width (cm)	Mean of thickness (cm)
Jampatilla	8	0	1	2.02	2.3	1.6	0.5
Quispisisa	48	15	13	0.99	1.7	1.2	0.4
Total	**56**	**15**	**14**	**1.13**	**1.8**	**1.2**	**0.4**

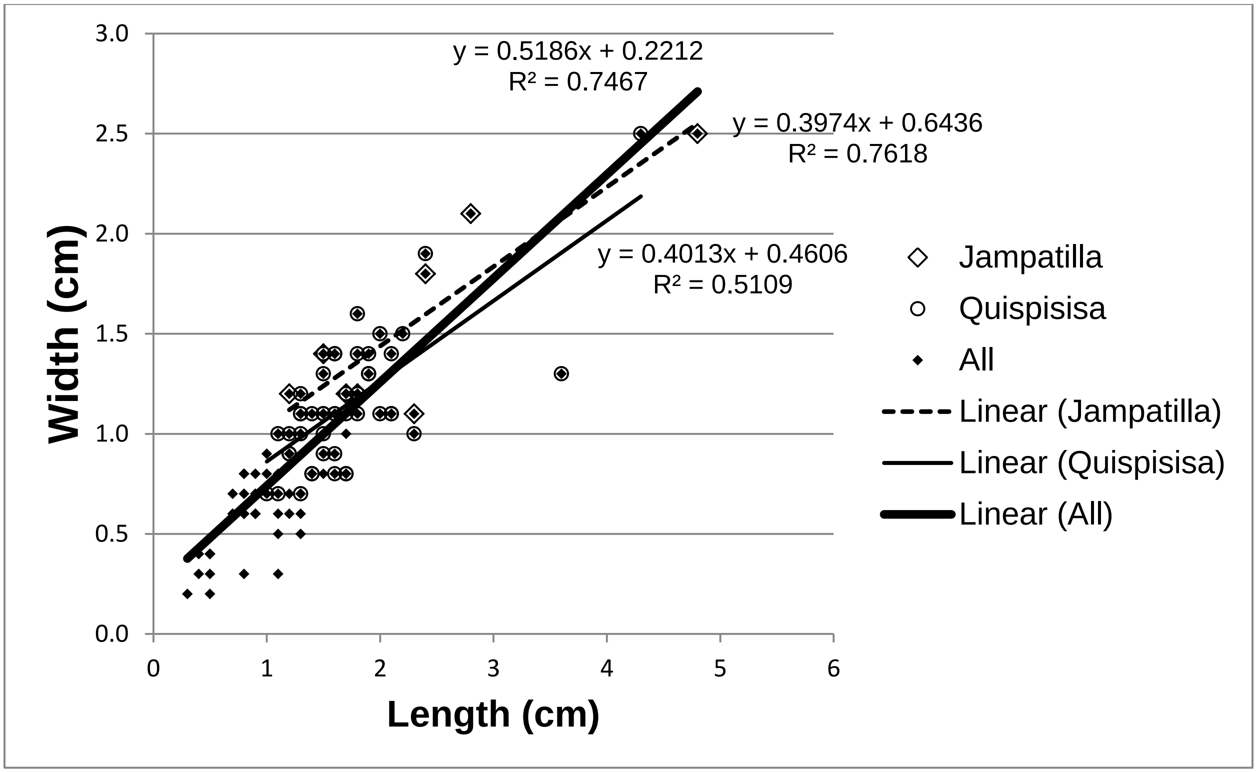

Figure 6.8: Length versus width linear regression of debitage at Yanawilka. Jampatilla p-value: 0.004663; Quispisisa p-value: 1.15E-08; All debitage p-value: 1.12E-30.

Household-level specialization in obsidian reduction was unlikely at Yanawilka because all excavated structures show evidence of low-intensity obsidian (and other lithic) reduction. There are no significant differences in the ratio of angular debris to flakes among the four structures (Table 6.17). Nor is there a significant difference in debitage masses among the four structures (Kruskal-Wallis one-way analysis of variance adjusted H: 2.896, d.f.: 3, P value: 0.408). Bipolar reduction is present in all of the structures, showing the need to conserve scarce obsidian resources (Table 6.18). Unit Y4 (structure 16) possibly had slightly more intense obsidian reduction activities given its higher obsidian to ceramic ratios, but its overall obsidian density is not significantly different from the other units (Tables 6.19 and 6.20). Given its low overall obsidian density, Y4 was not a structure dedicated to obsidian tool production. Reinforcing the characterization of Y1 as unusual, it has significantly fewer flake tools to debitage than the other structures combined (Table 6.21). This difference is difficult to interpret because the final deposition of the flake tools may not reflect what activities occurred in that space. If we do assume that the flake tools were used in the structures they were found in, however, Y1's lower than expected numbers of flake tools could indicate that the activities related to obsidian flake tool use was underrepresented in Y1. Given the other indicators (see question 2) that show Y1 was indeed unusual, it is not unreasonable to assume that the statistically significant underrepresentation of flake tools is behaviorally meaningful. Again, future excavations at Yanawilka will shed more light on how unusual Y1 was in comparison to other structures.

Table 6.17: Distribution of obsidian artifacts by class among the excavated structures.

Unit	Angular debris	Blade	Core	Flake	Flake tool	Projectile Point	Total
Y1	22		1	19	2	1	45
Y2	4			4	3		11
Y3	7	1		2	6	3	19
Y4	15			25	12	1	53
Total	**48**	**1**	**1**	**50**	**23**	**5**	**128**

Table 6.18: Evidence of bipolar reduction by unit and lithic class. Percentages in parentheses are of the total number of that lithic class in the specified unit.

Unit	Angular debris	Flake	Flake tool	Total
Y1	5 (23%)	1 (5%)		6 (13%)
Y2	1 (25%)			1 (9%)
Y3		1 (50%)		1 (6%)
Y4	2 (13%)	4 (16%)	3 (25%)	9 (17%)
Total	**8 (17%)**	**6 (12%)**	**3 (13%)**	**17 (13%)**

Table 6.19: Comparison of ceramic to obsidian ratios among Yanawilka units.

Unit	No. of obsidian	Mass of obsidian (g)	No. of ceramic sherds	Mass of ceramic sherds (kg)	No. of obsidian/No. of ceramic sherds	Obsidian (g)/Ceramic sherds (kg)
Y1	45	36.89	2142	11.33	2.10×10^2	3.26
Y2	11	6.7	838	4.78	1.31×10^2	1.40
Y3	19	45.77	2049	9.24	0.88×10^2	4.95
Y4	53	47.10	705	2.94	7.66×10^2	16.02
Total	**128**	**136.46**	**5734**	**28.30**	$\mathbf{2.23 \times 10^2}$	**4.82**

Table 6.20: Density of obsidian artifacts and mass at Yanawilka.

Unit	No. of obsidian	Mass of obsidian (g)	Volume (m^3)	Density (No. of obsidian/m^3)	Density (g/m^3)
Y1	45	36.89	6.18	7.28	5.97
Y2	11	6.7	4.47	2.46	1.50
Y3	19	45.77	7.88	2.41	5.81
Y4	53	47.10	7.40	7.16	6.36
Total	**128**	**136.46**	**25.93**	**4.94**	**5.26**

Table 6.21: Fisher's exact test of a 2x2 contingency table comparing debitage to flake tool ratios between Y1 and (Y2+Y3+Y4) groups. The difference between the two groups is significant, with a two-tailed P value of 0.0030.

Unit(s)	Debitage (AD+B+F)	Flake tools	**Total**
Y1	41	2	**43**
Y2+Y3+Y4	58	21	**79**
Total	**99**	**23**	**122**

Although some obsidian reduction undoubtedly occurred outside of the structures, I do not expect it to be significantly different than inside the structures because we excavated a small area outside of Y1 and did not find any debitage, only one intact obsidian point. Survey of Yanawilka also confirmed the low densities of obsidian on site (see chapter four). Likewise, at Pulapuco, another Late Horizon site under Inka hegemony, obsidian debitage densities were evenly low (1-3 flakes per unit) throughout the site (Abraham 2010: 246-247). Given that obsidian was a scarce and efficiently conserved resource at Yanawilka, it is possible that excess debitage from production were collected for future use, so the presence of debitage does not automatically mean that area was used for lithic reduction. The very small debitage recovered inside the Yanawilka structures, however, confirm that the inhabitants did carry out obsidian reduction inside the structures. The inhabitants of Yanawilka may not have regularly swept the interior of their structures, because they left behind significant small cultural material behind. They may have knapped indoors due to inclement weather or as occasional tool-making for pressing food preparation needs.

The low densities of obsidian artifacts at the Late Horizon sites of Yanawilka and Pulapuco may be a characteristic of many settlements under Inka hegemony. Comparing obsidian densities at the LH sites of Pulapuco and Yanawilka to the LIP sites of Achanchi and Luisinayoc shows that the LH sites have significantly lower obsidian densities than the LIP sites (Table 6.22). I suspect that the low obsidian densities at Pulapuco and Yanawilka are common, if not the norm, among sites in areas of firm Inka hegemony. I interpret the low densities of obsidian at Yanawilka as a result of restriction of interregional traffic of obsidian. Such control of traffic is likely a result of Inka imperial policies, as other scholars have noted. Although Abraham (2010: 244-245) believed that access to obsidian was not restricted at Pulapuco under the assumption that it would have been difficult for the Inka to restrict access to the nearby Jampatilla and Quispisisa sources, I disagree with her assessment. Pulapuco is closer on average to the Jampatilla (75km away) and Quispisisa (50km away) sources (*ibid*: 245) than Yanawilka is to those sources (69 and 82km, respectively), and yet Pulapuco has a lower obsidian density (although not significantly so). Also, Pulapuco is closer to Jampatilla and Quispisisa than Achanchi and Luisinayoc are to their principal sources of Lisahuacho and Potreropampa (average of 87 and 86km, respectively), and yet Pulapuco has significantly lower obsidian densities. Based on distance alone, Pulapuco should have a higher obsidian density than Achanchi, Luisinayoc, and Yanawilka, but instead, it has the lowest obsidian density.

Table 6.22: Obsidian artifact densities at four sites (Abraham 2010; Kellett 2010). They are ordered chronologically from youngest to oldest sites.

Site	No. of obsidian	Volume excavated (m^3)	Density (No. of obsidian/m^3)
Yanawilka (Condes, LH)	128	25.93	4.94
Pulapuco (Lucanas, LH)	120	33.54	3.58
Achanchi (Chanka, LIP)	228	9.06	25.17
Luisinayoc (Chanka, LIP)	156	8.63	18.08

Yanawilka and Pulapuco are more similar to each other than either is to the Chanka LIP sites in terms of obsidian artifact density. The Chanka LIP sites have much higher obsidian artifact densities than Pulapuco and Yanawilka. Overall, it seems that access to obsidian was restricted to some degree at Pulapuco and Yanawilka, and that this may be part of a larger pattern of obsidian scarcity at domestic settlements under Inka hegemony. Unfortunately, other than the sites of Pulapuco, Achanchi, and Luisinayoc, there is a lack of published information on obsidian densities. The general dearth of research in general about the Late Intermediate Period and the Late Horizon sites of the south-central Peruvian Andes precludes more systematic comparisons.

6.5 Discussion

The central question of this chapter was about whether the Condes of Yanawilka were able to maintain direct regional ties to other groups, especially from their homeland, or if the economic ties were mediated through Inka-controlled regional traffic. From the standpoint of obsidian exchange, at least, it seems that there was some restriction of interregional traffic. Because obsidian was considered a "bulk" luxury, much like salt (Tripcevich 2007), other goods that traveled on the same economic circuits may also have been regulated. The botanical analysis in the next chapter will shed further light on interregional exchange. Given the small size of the debitage and the very low numbers of medium to large size flakes, as well as the low density of obsidian on site, direct procurement of the obsidian was less likely than some form of exchange. Furthermore, an 8.4cm long obsidian projectile point from unit Y3 (structure 23) was much longer than any of the flakes found (see Chapter seven), and this also supports the idea that obsidian was not directly acquired at the source. Obsidian likely arrived at Yanawilka in the form of preforms, large flakes, or finished products. There is even a possibility that the inhabitants of Yanawilka reused the obsidian artifacts found in their local landscape and did not have any trade relationships, given how easily a few pieces picked up from tilling the fields and tending the animals could account for the obsidian at Yanawilka. But this is not likely because multiple lines of evidence, including in the use of obsidian sources, consistently show that Y1 is unusual. The expansion of the use of Quispisisa obsidian is similar to other time periods with regional hegemonies like the Wari and is consistent with regulated traffic (Burger *et al.* 2000; Kellett *et al.* 2013).

Yanawilka is positioned only 700 meters from a major royal Inka road and is geographically close to both the royal palace at Intihuatana (3km) and the Inka provincial capital of Vilcashuamán (6km). The proximity of Yanawilka to this major artery of the Inka Empire would have meant that there was constant traffic passing by. Therefore, it would have been easy to acquire obsidian from traders on the royal Inka road. Despite being in an area of great economic connectivity, the inhabitants of Yanawilka seemed to be economically marginalized. They did not seem to have high status goods such as fancy ceramics or metal objects, and their domestic structures were expediently constructed, further reinforcing the idea that traffic was regulated and controlled. The royal Inka road had regular wayside posts (*tampu*) every few kilometers (about 7km) for relay of goods and messages by runners, and thus, the royal Inka roads were easily controllable (Hyslop 1984; Polo de Ondegardo 1873: 169). Cieza de León (1959: 127) mentioned that troops patrolled these roads, and that the storehouses of Vilcashuamán supplied maize and other provisions for these troops.

The Inka are renowned for their divide-and-control policies such as the *mitmaq* system and encouraging distinction, especially through dress, among groups (D'Altroy 1992; Rowe 1982). The obsidian provenance data at Yanawilka does not contradict the Inkas regulating or dividing the larger political landscape to their advantage, even if they did not exercise direct control of Yanawilka. The obsidian at Yanawilka only came from one direction: south and southwest. Notably, obsidian did not come from obsidian sources in Chanka territory, even though those sources are not much further away. Before the Inka, the Ayacucho area, which included Inka Vilcashuamán province, had ties to the Andahuaylas area (Kellett *et al.* 2013). The Condes' connection to their ancestral homeland is reinforced by the single Alca-3 obsidian angular debris, which could have been carried to Yanawilka during the initial migration. By controlling major traffic on the royal Inka roads, the Inka presumably were also the mediators of a significant, if not majority, portion of interregional interaction. Therefore, the inhabitants at Yanawilka probably had little to no direct interaction with surrounding ethnic groups, most of which were also *mitmaqkuna* groups. An important implication of the obsidian provenance study at Yanawilka is that even the *mitmaqkuna* afforded special status and considered friendly by the Inka may have been restricted in interethnic interactions, both locally and to other regions. The Inka strategy was to minimize political alliances among large groups that would pose a threat.

A counterargument to scarcity being the result of political mediation by the Inkas is that perhaps obsidian became a less important raw material in the Late Horizon. Therefore, lower demand resulted in lower densities of obsidian at Late Horizon sites such as Pulapuco and Yanawilka. The fact that the inhabitants of Yanawilka went to great lengths to conserve obsidian (through the prevalence of bipolar reduction, for example), however, minimizes the plausibility of the counterargument. Obsidian was still valued at Late Horizon Yanawilka, only there was not much available to go around.

As discussed in chapter 4, the Inka had minimal presence and did not invest in administrative architecture at Yanawilka like at Pulapuco. There were no defensive walls and no identifiable Inka architecture. There was also very few diagnostic Inka ceramic sherds. These attributes support the ethnohistorical evidence that the Condes were considered a friendly group to the Inka, because they did not need constant surveillance and direct control at their settlements. Alternatively, they might have been considered friendly because the Inka were able to implement the *mitmaq* system effectively with them by breaking down larger political groups into smaller, more manageable ones, thereby minimizing threat. Yanawilka was not a high population settlement and probably only had 100-200 people living there. Therefore, by itself, it would not pose an existential threat to the Inka even if they were located close to the road. Yanawilka is very inter-visible with the royal Inka road, which would have prevented any surprise attacks on the road, at least during the day.

Evidence of obsidian tool production at Yanawilka supports production for personal consumption. The Condes of Yanawilka were not specialized in lithic production. Most likely, they were agriculturalists who supplied food to the nearby Inka settlements of Intihuatana and Vilcashuamán. The homogenous distribution of Quispisisa obsidian among the structures at Yanawilka hints at a mostly centralized distribution network. Unit Y1 (structure 6), however, was unusual in many ways, including in its high incidence of Jampatilla obsidian. More structures need to be excavated, however, before the role that Y1 played in on-site obsidian distribution could be clarified. Y1 was possibly a communal activity or elite structure, but its small size precludes it from being for the whole community. This means that there should be other structures with similar function to Y1 at Yanawilka. As discussed in chapter 4, there are multiple plazas at Yanawilka and several ritual foci. The topography of Yanawilka supports at least a moiety division, if not several *ayllu* kin-groups. Thus, Yanawilka may be a conglomeration of different kin groups, even if they are from the same extended ethnic group. The low population of Yanawilka combined with the numerous public and ritual spaces on site are not consistent with an integrated single kin group, but rather with the aggregation of multiple groups (Wallace and Lindeman 2013). The lack of evidence of overt direct Inka control at Yanawilka may reflect the same interregional divide-and-control strategy operating within a single settlement, which minimizes the need for on-site surveillance and Inka presence.

6.6 Conclusions

This chapter represents the largest obsidian provenance study of any Andean archaeological site from a single time period. It is also the first major obsidian provenance study in the core of the Inka Empire and yielded intriguing preliminary patterns. The patterns are consistent with other literature that emphasizes the divide-and-conquer strategies of Inka control that minimize the need for costly direct control. The surprising part is that even though the Condes were considered friendly to the Inka, the Condes *mitmaqkuna* of Yanawilka had relatively economically marginalized status, and frequent direct interaction with other ethnic groups was unlikely. The scarcity and provenance of obsidian at Yanawilka are consistent with some form of control of interregional traffic. Another non-mutually exclusive possibility is that the scarcity of obsidian at Yanawilka is a result of the Inka fragmenting the larger political landscape, which would have disrupted the previous obsidian exchange networks. The literature that states that certain *mitmaqkuna* groups were socially and economically elevated by the Inka may not apply to the Condes at Yanawilka. The agricultural focus of Yanawilka might be a factor in their economic marginalization, because at other sites, like Milliraya, the *mitmaqkuna* were craft specialists and may have been elevated by the Inka (Alconini 2013). There was no metal found at Yanawilka, which is unusual for Late Horizon domestic settlements and may also reflect their economically marginal status.

Although it seems that the Condes of Yanawilka were largely dependent on Inka-mediated traffic for distant obsidian (and probably other kinds of) resources, there were exceptions like structure 6 (unit Y1), which had more obsidian source diversity. This could be evidence of some push-back against Inka political control of the larger landscape, but there needs to be more research at Yanawilka to clarify the intra-community obsidian distribution systems. The presence of projectile points at Yanawilka shows that they did hunt, which also implies some freedom of movement over the local landscape (see section 7.3 on faunal remains). Obsidian provenance research at Yanawilka is an important first step in understanding Inka period obsidian circulation in the heart of the empire. In the next chapter, we will examine the other archaeological remains from Yanawilka that paint a picture of daily life. The evidence from multiple kinds of archaeological remains will be used to evaluate the intriguing preliminary results thus far, especially regarding intra-community divisions and interregional connections.

7 Remains of the day: Daily life, foodways, and production at Yanawilka

This chapter unpacks the daily life and nature of social cohesion of the inhabitants of Yanawilka through botanical, ceramic, faunal, and lithic remains. Through a comparison of the commonalities and differences in the frequency and density of different types of archaeological remains among the four structures, we can infer production, foodways, and relationship to the local landscape at Yanawilka. What can the botanical, faunal, and lithic remains tell us about what ecological zones were exploited? Do the differences among structures reflect cultural or functional difference? Was there specialization in productive activities? Were there differences in wealth? How did Inka presence manifest at Yanawilka and was it indicative of direct or indirect control? In this chapter, I argue that the inhabitants of Yanawilka were agriculturalists and not craft specialists. They produced primarily for personal consumption. Evidence of both functional and cultural variation among the four structures highlights the complexity of social organization at Yanawilka despite rudimentary architecture. Although they prepared food for themselves, they likely produced a surplus of agricultural products. The purpose of the *mitmaqkuna* settlement Yanawilka was probably to provision raw agricultural products for the nearby Inka settlements, especially Inka Pomacocha and Vilcashuamán. Their productive activities and foodways show that they had freedom to move over the local landscape, and they enjoyed a relatively diverse diet. The analysis of the archaeological remains from excavations is more consistent with indirect control than with direct control by the Inka.

7.1 Stone tool production and use

Did the inhabitants of Yanawilka produce their own stone tools? What did they use their stone tools for? Were there significant variations in stone tool production and use among the four structures? First, I analyze the various lithic artifact classes to interpret the nature of production and use among the four structures. Second, I present the starch grain analysis results conducted by Víctor Vásquez of 54 stone tools, especially groundstone and flake tools. The starch grain analysis is the largest of its kind in the Andes and provides valuable information on Late Horizon diet and food preparation.

7.1.1 Summaries of lithic artifact classes and comparison among structures

A total of 286 lithic artifacts were recovered from excavations at Yanawilka. They were organized among the nine following classes: angular debris (AD), flakes (F), cores (C), core tools (CT), blades (B), flake tools (FT), bifaces (BF), groundstone (GS), and other (OT) (Table 7.1). Volcanic raw materials predominate, and the two most common raw materials were obsidian (128/286) and andesite (53/286). Lithic density varied among the units, and the differences hint at differences in stone tool use and production at Yanawilka (Table 7.2). In this section, I describe and analyze each artifact class and their distribution among the four structures excavated at Yanawilka. Were raw materials locally acquired? Did production of stone tools occur inside the structures? How did the structures differ in stone tool production and use?

Table 7.1: Distribution and descriptive statistics of lithic artifacts by class at Yanawilka.

Class	N=	Mean length (cm)	Mean width (cm)	Mean thickness (cm)	Mean mass (g)	Common raw materials
AD	103	2.1	1.4	0.5	2.2	Obsidian (48), Andesite (25)
F	97	2.4	1.6	0.5	6	Obsidian (50), Andesite (22)
C	3	11.1	7.9	2.1	680	Andesite (2)
CT	1	4.9	3	1.8	25.5	Quartzite
B	6	3.9	1.6	0.6	5.6	Chert (3)
FT	39	2.5	1.9	0.7	5.6	Obsidian (23), Chert (4)
BF	3	13.2	9.1	1.9	332	Andesite (3)
PP	5	3.9	2.0	0.6	6.2	Obsidian
GS	8	6.1	3.9	2.4	97.0	Igneous rock (5)
OT	21	3.2	2.4	1.5	20.9	Quartzite (7), Igneous rock (5)

Table 7.2: Distribution of lithics among excavated units at Yanawilka.

Unit	AD	F	C	CT	B	FT	BF	PP	GS	OT	Total	Density (/m³)
Y1	65	54	3		3	12	3	1	1	12	154	24.92
Y2	9	6			1	5			1	2	24	5.37
Y3	9	6			2	8		3	5	4	37	4.70
Y4	20	31		1		14		1	1	3	71	9.59

<u>Angular debris and flakes (AD and F)</u>

There were no clear significant differences between angular debris and flakes in terms of length, width, thickness, or mass (Table 7.3). Almost all of the angular debris and flakes were less than 6cm in length and 5cm in width and the length to width ratio was generally consistent (Figure 7.1). There was no appreciable difference in raw material diversity, either. The overwhelming majority of angular debris and flakes were of volcanic raw materials (171/200). Andesite, dacite, quartzite, and rhyolite debitage were the largest, reflecting larger pieces of raw material to work with. The majority of the raw material (other than obsidian and chert) could have been acquired from relatively close by, because the streams and rivers contain a variety of cobbles of different raw materials, including volcanic rock. Although technically not lithic, I lumped together with the lithics five ceramic pieces (2 angular debris and 3 flakes), because they were clearly the result of intentional knapping and not of incidental breakage: clear bulbs of percussion, homogenous paste, and spatial proximity to each other.

Most of the angular debris and flakes do not have any cortex (78% of AD and 71% of F) (Tables 7.4 and 7.5). The difference in proportion of debitage with cortex is not significant (Fisher's exact p-value: 0.332, Z-test of sample proportions p-value: 0.289). The overall small size of the debitage and high proportion of ones with no cortex at all suggest that while some finer knapping may have occurred inside the structures, most of the rough knapping from cores occurred elsewhere. Generally speaking, angular debris and flakes that have cortex were more likely from an earlier stage of lithic reduction than those without. Likewise, larger angular debris and flakes correlate with earlier stages of lithic reduction than smaller ones. The fact that smaller debitage without cortex predominates in the structures excavated is also consistent with the interpretation that later stages of lithic reduction occurred within structures and earlier stages occurred elsewhere.

The different structures mostly exhibited the use of the same type of raw materials, namely igneous rocks (Table 7.6). Thus, access to lithic raw material was not particularly restricted among structures at Yanawilka. Because the streams and river near Yanawilka have many large cobbles and boulders of volcanic origin, the raw materials would have been locally available. Y1 did have significantly more andesite angular debris and flakes than the other structures, which was a result of agricultural tool production occurring inside Y1. A complete hoe, a broken hoe, and a hoe that was in the process of manufacture were found in Y1. All hoes were made of andesite, and no other hoes were found in the other structures. Also of note is that Y3 had pieces of knapped ceramic. The knapped ceramic pieces were possibly the result of knapping practice. Because some of the raw materials were highly valued and scarce, such as obsidian, knapping practice with the abundant ceramic sherds probably occurred.

Other than the above mentioned minor differences, there were no other statistically discernible differences in the relative proportions of angular debris and flakes among the four structures (X^2=4.41, dof=3, p-value=0.220). If one lumps together Y1, Y2, and Y3, which all have more angular debris than flakes and compares the aggregated values to Y4's, then we get a *possibly* significant difference (Fisher's exact p-value:0.0515). However, if one applies the Bonferroni correction (or any other correction) for multiple comparisons (0.05/4 possible comparisons), the 0.0515 p-value becomes insignificant. There is also no discernible statistical difference in the distribution of angular debris and flakes with and without cortex among the four structures (Table 7.7).

Table 7.3: Summary statistics and attributes of angular debris (AD) and flakes (Y) recovered in excavations of units Y1, Y2, Y3, and Y4. Mann-Whitney U tests of equal medians show that there are no significant differences in lengths (p value: 0.202), widths (p value: 0.440), thicknesses (p value: 0.372), and masses (p value: 0.670) of angular debris versus flakes.

	N=	Mean length (cm)	Mean width (cm)	Mean thickness (cm)	Mean mass (g)
AD	**103**	**2.1**	**1.4**	**0.5**	**2.2**
Unidentified	6	2.0	1.4	0.4	1.7
Quartzite	3	4.3	3.0	1.1	14.7
Obsidian	48	1.3	0.9	0.4	0.7
Chert	6	2.0	1.6	0.7	2.4
Andesite	25	3.4	1.9	0.5	3.3
Igneous n/i	8	2.0	1.5	0.5	2.5
Basalt	2	1.6	1.1	0.5	1.0
Rhyolite	2	2.9	1.9	0.8	4.4
Knapped ceramic	2	1.8	1.0	0.6	0.8
Dacite	1	3.4	2.7	1.0	9.3
F	**97**	**2.4**	**1.6**	**0.5**	**6.0**
Unidentified	5	2.3	1.5	0.7	5.8
Quartzite	3	3.0	1.8	0.6	4.3
Obsidian	50	1.6	1.0	0.3	0.7
Chert	4	3.0	2.0	0.6	3.9
Andesite	22	3.6	2.3	0.6	6.8
Igneous n/i	2	6.6	5.7	1.3	153.5
Granite	2	3.0	2.5	0.7	6.7
Basalt	1	1.9	1.7	0.3	1.4
Rhyolite	2	3.8	2.1	0.6	4.5
Knapped ceramic	3	1.8	1.3	0.5	1.0
Dacite	3	2.1	1.5	0.5	2.7
All	**200**	**2.2**	**1.5**	**0.5**	**4.1**

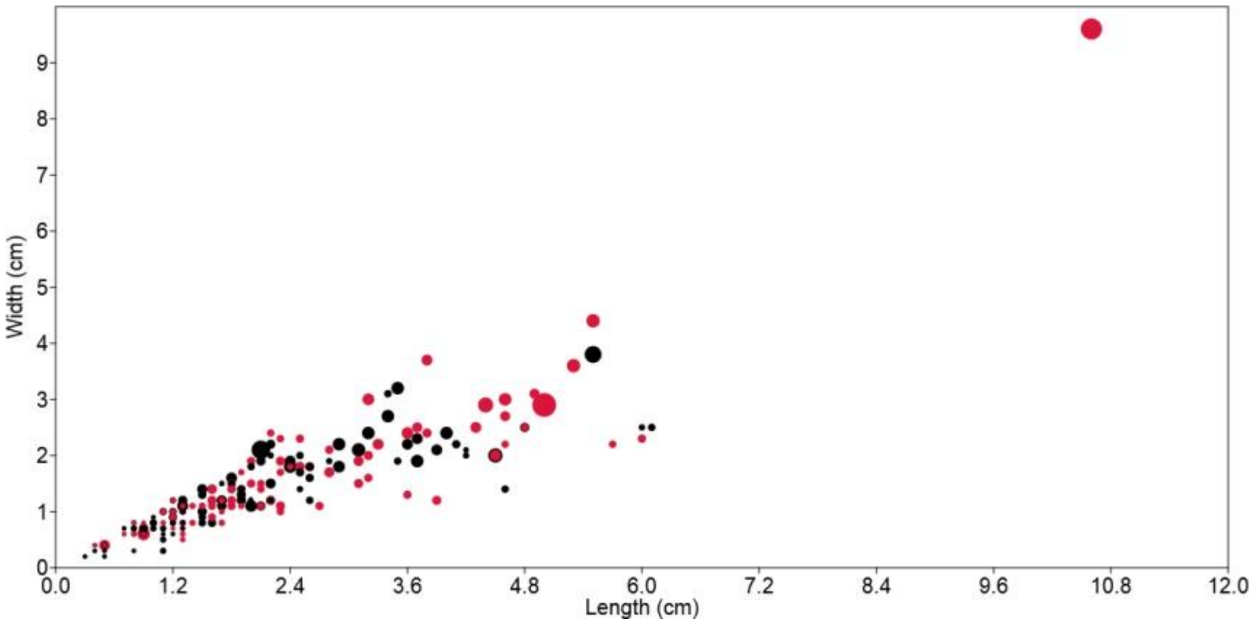

Figure 7.1: Length, width, and thickness dimensions for angular debris (red) and flakes (black). Dot size is scaled to thickness.

Table 7.4: Descriptive statistics and raw materials of angular debris (AD) with and without cortex.

	N=	Mean length (cm)	Mean width (cm)	Mean thickness (cm)	Mean mass (g)
0% cortex	**80**	**1.9**	**1.2**	**0.5**	**1.9**
Uniden.	4	1.7	1.2	0.3	0.9
Quartzite	3	4.3	3.0	1.1	14.7
Obsidian	40	1.1	0.8	0.4	0.6
Chert	6	2.0	1.6	0.7	2.4
Andesite	17	3.1	1.8	0.5	3.1
Igneous n/i	5	2.0	1.4	0.4	2.4
Basalt	2	1.6	1.1	0.5	1.0
Rhyolite	1	2.6	1.6	0.5	2.2
Knapped ceramic	2	1.8	1.0	0.6	0.8
1-99% cortex	**23**	**2.8**	**1.8**	**0.9**	**3.2**
Uniden.	2	2.7	1.9	0.5	3.3
Obsidian	8	1.8	1.4	0.6	1.4
Andesite	8	3.9	2.0	1.3	3.9
Igneous n/i	3	2.0	1.6	0.6	2.7
Rhyolite	1	3.1	2.1	1.1	6.5
Dacite	1	3.4	2.7	1.0	9.3
All	**103**	**2.1**	**1.4**	**0.6**	**2.2**

Table 7.5: Descriptive statistics and raw materials of flakes (CF) with and without cortex.

	N=	Mean length (cm)	Mean width (cm)	Mean thickness (cm)	Mean mass (g)
0% cortex	**69**	**2.0**	**1.3**	**0.4**	**1.8**
Uniden.	3	1.8	1.2	0.4	1.0
Quartzite	3	3.0	1.8	0.6	4.3
Obsidian	45	1.5	1.0	0.3	0.6
Chert	3	3.0	2.0	0.5	3.9
Andesite	9	3.7	2.3	0.7	6.5
Igneous n/i	1	2.6	1.8	0.6	3.5
Basalt	1	1.9	1.7	0.3	1.4
Ceramic	1	1.6	1.2	0.6	0.7
Dacite	3	2.1	1.5	0.5	2.7
1-99% cortex	**28**	**3.4**	**2.3**	**0.7**	**16.4**
Uniden.	2	3.1	2.0	1.3	13.0
Obsidian	5	2.2	1.3	0.4	2.2
Chert	1	2.8	1.7	0.7	3.9
Andesite	13	3.5	2.3	0.6	6.9
Igneous n/i	1	10.6	9.6	2.0	303.5
Granite	2	3.0	2.5	0.7	6.7
Rhyolite	2	3.8	2.1	0.6	4.5
Ceramic	2	2.0	1.4	0.5	1.2
All	**97**	**2.4**	**1.6**	**0.5**	**6.0**

Table 7.6: Distribution and raw material of angular debris and flakes by unit/structure. Raw material key: 1=Unidentified; 2=Quartzite; 3=Obsidian; 4=Chert; 6=Andesite; 8=Igneous rock; 10=Granite; 11=Basalt; 12=Rhyolite; 15=Knapped Ceramic; 16=Dacite.

Raw material	**1**	**2**	**3**	**4**	**6**	**8**	**10**	**11**	**12**	**15**	**16**	**Total**	**Density**
Y1	11	1	41	5	47	7	2	3	2			119	**19.3**
AD	6		22	4	25	5		2	1			65	10.5
F	5	1	19	1	22	2	2	1	1			54	8.7
Y2		3	8	2		2						15	**3.4**
AD		2	4	1		2						9	2.0
F		1	4	1								6	1.3
Y3			9	1						5		15	**1.9**
AD			7							2		9	1.1
F			2	1						3		6	0.8
Y4		2	40	2		1			2		4	51	**6.9**
AD		1	15	1		1			1		1	20	2.7
F		1	25	1					1		3	31	4.2
Total	11	6	98	10	47	10	2	3	4	5	4	200	**7.7**

Table 7.7: Distribution of angular debris and flakes with and without cortex. There is no discernible statistical difference among units. Fisher's exact p-value=0.835 (2x2 contingency table comparing Y1 versus Y2+Y3+Y4).

Units	0% cortex	1-99% cortex	**Total**
Y1	94	33	127
Y2	7	2	9
Y3	8	1	9
Y4	14	6	20
Total	**123**	**42**	**165**

Cores and core tools (C and CT)

There were only three cores at Yanawilka, and all were found in unit Y1. A small, unmodified obsidian marekanite measuring 1.1 by 1cm showed that while none of the obsidian artifacts analyzed at Yanawilka came from the local Pomacocha obsidian source, future excavations may reveal that they did utilize this source (see Figure 6.3). Because the obsidian marekanites' distribution did not extend into Yanawilka territory, the marekanite must have been carried to Yanawilka from somewhere beyond the stream north of Yanawilka. The other two cores were made of andesite and clearly related to the production of agricultural hoes (Figure 7.2). The cores support Y1 being a locus of stone tool production. A quartzite, or dense sandstone, core tool, was the only core tool excavated and was found in Y4 (Figure 7.3). The core tool measured 4.9by 3.0cm and was 1.8cm thick and was clearly used judging by the wear on the tip.

Figure 7.2: Andesite cores from Y1, Locus 2E. These two cores were probably intended for hoe-making.

Figure 7.3: Sandstone core tool from Y4. This was the only core tool found at Yanawilka.

<u>Blades and flake tools (B and FT)</u>

Blades and flake tools were essential in the daily function of the household. All structures excavated had flake tools, and three out of four had blades. They were versatile in function and could have been used to cut and scrape a variety of items: botanical, faunal, wool, leather, and could have been used for personal grooming. Chert appeared to be the preferred raw material for blades, as three out of the total six were made of chert (Figure 7.4). The other three blades were one of unknown material, one of obsidian, and one of basalt. Chert artifacts were only 5.9% of the total (17/287). Although chert was a relatively minor raw material at Yanawilka, it was overrepresented in blades and flake tools (7/45) (X^2=5.38, dof=1, p-value: 0.020; Monte Carlo p-value: 0.028; Fisher's exact p-value: 0.030). The chert at Yanawilka was usually a creamy, grey, or reddish-pink color.

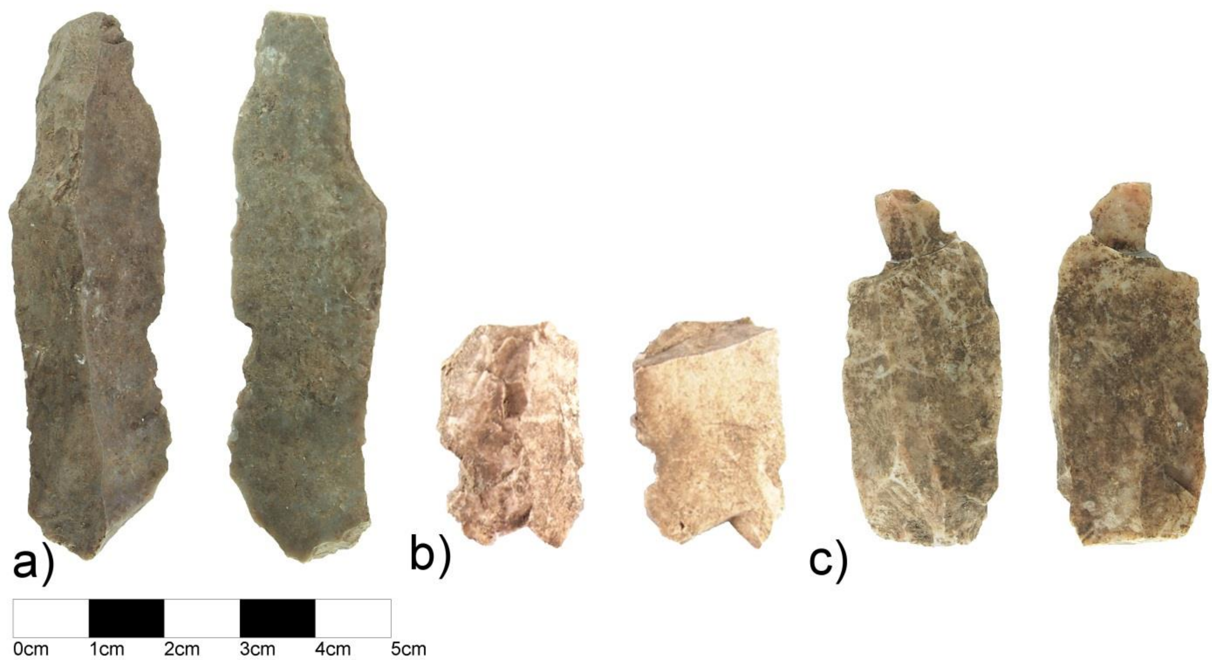

Figure 7.4: Chert blades from Yanawilka. a) From unit Y1, Locus 2W. b) From unit Y1, Locus 1. c) From unit Y3, Locus 1.

The most abundant raw material for flake tools was obsidian (Table 7.8). The most striking difference in raw material usage was between Y1 and Y4. Y1 had a diverse range of raw materials even though there were only twelve flake tools. Y4, on the other hand, almost exclusively relied on obsidian. This difference is consistent with the results of the obsidian source analysis in chapter six, where Y1 had the most access to a wider range of obsidian sources than the other structures. From this analysis, it is clear that Y1 also had access to a wider range of lithic raw material in general.

Table 7.8: Distribution of flake tools and their raw materials among Yanawilka structures.

Raw material	Y1	Y2	Y3	Y4	Total
Unknown	1				1
Obsidian	2	3	6	12	23
Chert	1	1	2		4
Andesite	2				2
Igneous n/i	3			1	4
Basalt	3				3
Rhyolite		1		1	2
Total	12	5	8	14	39

<u>Bifaces (BF)</u>

There were only three bifaces, all andesite agricultural hoes, recovered at Yanawilka. Only one of them was complete and showed signs of use (Figure 7.5). All were recovered in unit Y1. Y1 may have been abandoned suddenly, because one of the hoes showed no signs of wear and was in the process of being made (Figure 7.6). The high number of andesite debitage in Y1 supports the interpretation that at least one hoe was produced inside the structure. The hoes were important in agricultural functions, were labor intensive to make, and should not have been abandoned unless there was a need for a sudden abandonment of the site. This is consistent with other lines of evidence already presented that suggest the site was abandoned during a time of conflict.

Figure 7.5: Complete hoe from Y1, Locus 2E showing signs of wear on distal edges.

Figure 7.6: An andesite hoe in the process of manufacture from Y1, Locus 2E.

Projectile points (PP)

There were three complete and two broken obsidian projectile points recovered at Yanawilka (Figure 7.7). One projectile point was large and well-made. It had no signs of wear or retouch and was probably relatively new when deposited. The styles of two of the projectile points were consistent with late prehistory, but one had an unusual form for the Late Horizon, and more closely resembled the 5A Klink and Aldenderfer (2005: fig 3.6b) style projectile point style dating from 4400 BP. The projectile point was found in the otherwise sterile layer outside of Y1, and it is possible that it was not associated with Late Horizon Yanawilka.

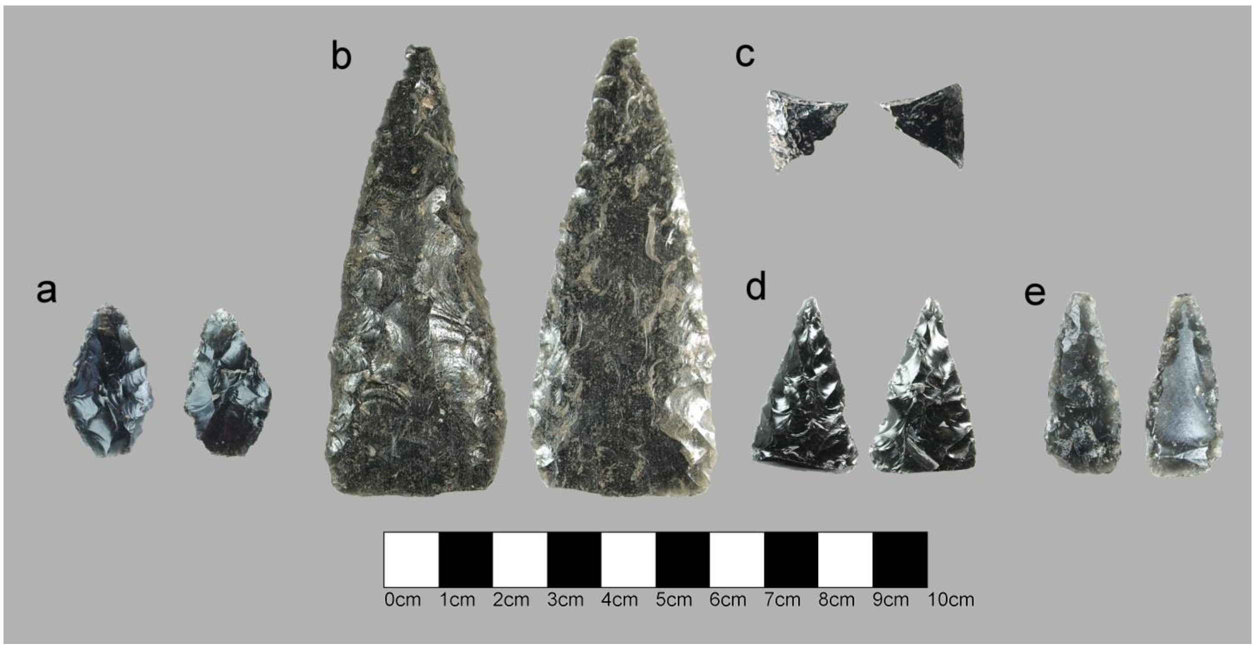

Figure 7.7: Three complete and two partial projectile points from Yanawilka. a=From Y1, Locus 6W. b) From Y3, Locus 3E. c) From Y3, Locus 3W. d) From Y3, Locus 3W. e) From Y4, Locus 4E.

Groundstone (GS)

There were only eight groundstone recovered in excavations at Yanawilka. All groundstone were presumably *manos* used for grinding. Manos were present in all structures and were mainly made of volcanic materials (Table 7.9). Most structures had only one *mano*, whereas Y3 had four. The presence of at least one *mano* in each structure suggests that grinding was an activity that occurred at most structures at Yanawilka. All of the *manos* yielded heat modified starch grains, with the exception of the one in Y2 (see section 7.1.2).

Table 7.9: Distribution and attributes of groundstone at Yanawilka.

	N=	Mean of length (cm)	Mean of width (cm)	Mean of thickness (cm)	Mean of mass (g)
Y1	**1**	**3.4**	**2.9**	**2.7**	**33.4**
Igneous n/i	1	3.4	2.9	2.7	33.4
Y2	**1**	**5.3**	**4.4**	**2.5**	**75.6**
Quartz?	1	5.3	4.4	2.5	75.6
Y3	**5**	**6.2**	**3.5**	**2.1**	**71.0**
Unknown	1	6	2.6	1.4	25.3
Igneous n/i	4	6.3	3.7	2.3	82.5
Y4	**1**	**8.9**	**6.5**	**3.7**	**311.6**
Andesite	1	8.9	6.5	3.7	311.6
Total	**8**	**6.1**	**3.9**	**2.4**	**97.0**

Several of the groundstone were subject to phytolith and starch grain analysis, which are summarized in the next section. No *batanes* or mortars were found in excavations or in the site survey. Because Yanawilka was not located in an isolated place, the site was easily accessible and may have been robbed of precious *batanes* and mortars in the Spanish colonial period.

Other (OT)

Most of the "other" lithic category consisted of natural rocks that were not from Yanawilka (limestone bedrock) and must have been carried there from elsewhere (Table 7.10). Because the structures were all on the elevated areas of Yanawilka, there is little possibility that water action brought them there. All structures had natural nodules and three out of four had river rocks. The natural nodules and river rocks had uncertain functions. They showed no signs of human modification, but were too small to be hammer stones. It is possible that they were intended as cores, but their small size would have necessitated bipolar reduction. Also, other than the one chert nodule, the other nodules and river rocks would have been too small and dense to easily reduce, even with bipolar reduction. Some of the natural nodules and river rocks could have been what were commonly referred to as "conopas," or small, mobile household deities that were most often made of stone (Arriaga 1920: 26-27; Lau 2008: 1030; Mills 1997: 75-77). They were often zoomorphic, but were most often just natural pebbles that were unusual in some way and were passed down patrilineally (Arriaga 1920: 26-27).

Three stones, from Y1, Y3 and Y4, had signs of polishing. One of the polished stones, from unit Y1 Locus 2W, was later confirmed through starch grain analysis to be a *mano* or some other kind of food processing tool (see section 7.1.2).

Table 7.10: "Other" lithic artifacts at Yanawilka and raw material compositions.

	N=	Mean length (cm)	Mean width (cm)	Mean thickness (cm)	Mean mass (g)
Natural nodule	**4**	**3.1**	**2.5**	**1.6**	**16.7**
Unknown	2	2.5	2.1	1.4	11.3
Chert	1	3.7	2.5	2.1	26
Igneous n/i	1	3.8	3.4	1.6	18.2
Polishing stone	**3**	**4.4**	**3.7**	**1.8**	**51.1**
Unknown	1	5.6	4.9	2.8	110
Quartzite	2	3.8	3.1	1.3	21.7
River rock	**13**	**3.0**	**2.1**	**1.5**	**17.5**
Unknown	4	3.1	2.2	1.6	17.0
Quartzite	5	2.6	1.7	1.1	8.8
Igneous n/i	4	3.3	2.5	1.8	28.9
Fossil	**1**	**2.1**	**1.7**	**1.3**	**3.7**
Limestone/calcite	1	2.1	1.7	1.3	3.7
Total	**21**	**3.1**	**2.4**	**1.5**	**21.5**

7.1.2 Starch grain analysis of fifty-three stone tools

Víctor Vásquez carried out two phytolith and starch grain identification and analyses in 2012 and 2014 (Table 7.11). In 2012, 31 stone tools from Yanawilka, especially groundstone and flake tools, were analyzed for the presence of phytoliths and starch grains (Appendix F). In 2014, Rob Cuthrell washed and sonicated an additional 31 artifacts that were later analyzed by Victor Vásquez. The 2014 artifacts were all obsidian because they were from the sample of obsidian artifacts exported to the United States for geochemical analysis (chapter six). The 2014 starch grain analysis was more complete and systematic than the one carried out for presence/absence of phytoliths and starch grains in 2012 because it included a manual wash sample and a sonicated sample per tool. Furthermore, in 2014, Victor Vásquez counted and recorded attributes for all starch grains identified (Appendix G). According to Víctor Vásquez, none of the artifacts in 2012 and 2014 had any phytoliths, but starch grains were abundant. Nine of the 31 artifacts analyzed in 2012 were also analyzed in 2014. Thus, in total, 53 stone tools were analyzed, and nine of those were analyzed twice.

Table 7.11: Presence of starch grains per artifact type. The 2012 starch grains extracted from spot samples of lithics of various raw materials, and the 2014 starch grains were extracted from manual washes and sonicated samples of obsidian artifacts.

Presence of:	AD	B	F	FT	Mano	PP	Total
Zea mays (maize)				5	2		7
Oxalis tuberosa (oca)					1		1
Solanum tuberosum (potato)		1		9	5		16
Manihot esculenta (cassava)				4	2		6
Phaseolus sp. (bean)				1			1
cf. *Lupinus mutabilis* (lupine)							
Cucurbita cf. *ficifolia* (squash)							
Marantaceae (arrowroot)							
Unidentified				3			3
2012, Total number of lithics		**1**		**21**	**9**		**31**
Zea mays (maize)	4	1	8	13		5	31
Oxalis tuberosa (oca)							
Solanum tuberosum (potato)	2		3	4		3	12
Manihot esculenta (cassava)			1	3			4
Phaseolus sp. (bean)			1				1
cf. *Lupinus mutabilis* (lupine)			1				1
Cucurbita cf. *ficifolia* (squash)			1	4			5
Marantaceae (arrowroot)			2	3			5
Unidentified				4		1	5
2014, Total number of lithics	**4**	**1**	**8**	**13**		**5**	**31**

Modern contamination was not a serious issue with the stone tools analyzed because no old world starch grains were detected, and the sonicated samples had the same species of starch grains as the manual washes. In fact, there was most likely no modern starch grains, given that the loose superficial dirt was removed in both the 2012 and the 2014 batch (Vásquez, personal communication 2015). In this section, I summarize key findings of the starch grain analysis carried out by Victor Vásquez. I discuss whether and how various stone tools were used in botanical food processing. I also compare the starch grain recovery rate of the two different methods (2012 presence/absence swabs versus 2014 manual wash/sonication). The results show that maize and potatoes were the most important botanical staples at Yanawilka. The *manos* showed clear evidence of direct contact with heated food. The evidence for direct contact in processing plant material with other tool types is less certain, but the sonicated samples and other evidence support that at least some were used in processing maize, beans, potatoes, squash, and possibly arrowroot (Table 7.12) (Perry 2007: 250). Because sonication of the artifacts yields dirt lodged within the interstices of the stone tools, the starch grains recovered from sonicated samples are unlikely to be due to modern contamination.

Table 7.12: Starch grain count of manual (A) and sonicated (B) washes of 31 lithics analyzed in 2014.

Starch grain count of:	**AD, N=4**	**B, N=1**	**F, N=8**	**FT,N=13**	**PP, N=5**	**Total**
Zea mays (maize), A	46	8	86	126	37	303
Zea mays (maize), B	4	2	10	21	6	43
Solanum tuberosum (potato), A	3		3	6	2	14
Solanum tuberosum (potato), B					1	1
Manihot esculenta (cassava), A			3	6		9
Manihot esculenta (cassava), B						0
Phaseolus sp. (bean), A						0
Phaseolus sp. (bean), B			1			1
cf. *Lupinus mutabilis* (lupine), A			1			1
cf. *Lupinus mutabilis* (lupine), B						0
Cucurbita cf. *ficifolia* (squash), A			1	8		9
Cucurbita cf. *ficifolia* (squash), B						0
Marantaceae (arrowroot), A			2	4		6
Marantaceae (arrowroot), B				1		1
Unidentified, A				2	2	4
Unidentified, B				3		3
Total	**53**	**10**	**106**	**178**	**48**	**395**

Manos

In 2012, nine *manos* were spot-checked by Víctor Vásquez for starch grains and phytoliths (Figure 7.8). No phytoliths were recovered, but starch grains were recovered in eight of the *manos*. Six *manos* had starch grains that were damaged from heat (presumably from cooking) and therefore had direct contact with heated food as opposed to indirect contact with starch grains from touching (Appendix F). From this evidence, *manos* were clearly used to process potatoes (*Solanum tuberosum*) and cassava (*Manihot esculenta*). These *manos* may have been used to mash cooked starchy tubers or to make bread. According to Cobo (1979: 27), bread was made from maize, cassava, oca, potatoes, yucca (manioc), and other vegetables. The one "mano" that had no starch grains was made of a hard fine-grained crystalline material, probably quartz or quartzite. One side clearly demonstrated usewear from grinding, and the object was subsequently broken in half (Figure 7.8e). It is possible that the object started out as a *mano* and then ended up as a tool for smashing open hard objects, such as bone, small pieces of lithic raw material, or nuts.

Figure 7.8: *Manos* tested for starch grains. a=Unit Y1, Locus 2W, heat-damaged *Manihot esculenta* (cassava) starch grains recovered. b=Unit Y1, Locus 3E, heat-damaged *Solanum tuberosum* (potato) starch grains recovered. c=Unit Y2, Locus 2E, no phytoliths or starch grains recovered. d=Unit Y3, Locus 1, evidence of heat-damaged *Manihot esculenta* (cassava) and *Solanum tuberosum* (potato) starch grains. e=Unit Y3, Locus 1, evidence heat-damaged *Solanum tuberosum* (potato) starch grains. f=Unit Y3, Locus 2E, heat-damaged *Solanum tuberosum* (potato) recovered. g=Unit Y3, Locus 2W, heat-damaged *Solanum tuberosum* (potato) recovered. h=Unit Y3, Locus 3W, *Zea mays* (maize) and *Oxalis tuberosa* (oca) starch grains recovered. i=Unit Y4, 2E, Zea mays (maize) starch grains recovered.

Blades/flake tools

Between 2012 and 2014, a total of two blades and twenty-five flake tools were analyzed. Of the twenty-five flake tools, nine were analyzed twice, the first time in 2012 for presence/absence and the second time in 2014 through manual washes and sonication. Blades and flake tools were most likely used to process raw foods. While the blades and flake tools were not tested for lipids, which would indicate meat processing, they were tested for starch grains and phytoliths. No phytoliths were identified, but most blades and flake tools had many starch grains. I hypothesize that the blades and flake tools were used for processing raw, as opposed to cooked, food. Unlike the heat-damaged starch grains found on *manos*, the vast majority of the starch grains found on blades and flake tools were not damaged by heat. Possible uses of these tool types include processing maize, removing the skin of tubers, cutting through the hard exterior of squash (*Cucurbita* cf. *ficifolia*) (Appendix G), or cutting the tubers into smaller pieces for efficient heating and boiling.

Among the stone tools analyzed in 2012, there were no significant differences between the proportion of *manos* and the proportion of blades/flake tools that showed presence of maize starch grains or the presence of tubers (Table 7.13). The only notable difference was the proportion of *manos* that had heat damaged starch grains (6/9) as opposed to the blades/flake tools (0/21) (Fisher's exact 2x2, p-value: 0.0001). These two lines of evidence support the hypothesis that blades and flake tools were used to process the same raw foods that were later cooked. After cooking, those foods were subsequently processed with *manos*. The presence of heat-damaged starch grains was not due to modern contamination, since *only manos* and no other tool types had them. Such a systematic difference is unlikely due to modern contamination. There was evidence for direct contact with *Zea mays* and *Solanum tuberosum* in three of the blades/flake tools in the 2012 analysis batch, and subsequent manual/sonicated wash analysis in 2014 confirmed direct contact.

Table 7.13: Blades/flake tools and *manos* analyzed in 2012, numbers that exhibit maize or tuber starch grains. Fisher's exact p-values for maize (1.000) and for tubers (0.132) indicate no likely difference between blades/flake tools and *manos* in the types of botanical food processed.

	B/FT	Manos	Subotal *Zea mays*		B/FT	Manos	Subtotal tubers
Zea mays	5	2	**7**	Tubers	10	7	17
No *Zea mays*	17	7	**24**	No tubers	12	2	14
Total	**22**	**9**	**31**		**22**	**9**	**31**

The fourteen blades/flake tools analyzed in 2014 exhibited some of the same starch grains, mostly the common ones, as those analyzed in 2012: *Zea mays, Solanum tuberosum, Phaseolus* sp.*, and Manihot esculenta*. However, the 2014 manual/sonicated wash methodology was able to recover a richer diversity of rarer starch grains: cf. *Lupinus mutabilis,* Marantaceae*,* and *Cucurbita* cf. *ficifolia*. Most of the starch grains were recovered in the manual washes, and the starch grains recovered in the sonicated washes (*Zea mays,* Marantaceae, and unidentified) also existed in the manual washes (Table 7.12). The vast majority of the starch grains were of maize, highlighting the importance of blades and flake tools in the processing of this food.

<u>Angular debris/flakes</u>

Twelve angular debris/flakes were analyzed in 2014. Like flake tools, angular debris and flakes were also used to primarily process maize. Flakes and flake tools exhibit similar starch grains and were likely used for similar foods and in similar ways.

<u>Projectile points</u>

Of the five projectile points analyzed, three were complete and two were fragments. The first projectile point (sample 81) only had five maize starch grains from the manual wash, which could have adhered through ancient contamination (touching), but the second one, a large projectile point (sample 103), had maize and potato starch grains in the sonicated wash, which suggests some form of direct contact. The smaller projectile point (sample 81) may not even be from the Inka period, because it was found in the sterile layer outside of structure Y1 and had a form more typical of the a projectile point from around 4400 BP. The third complete projectile point (sample 141) had a maize starch grain in the sonicated wash, which suggests that even projectile points had at least occasional direct contact with maize. Because sharp obsidian tools were such an important part of daily life and food processing, its overall scarcity at Yanawilka probably put pressure on people to occasionally use even projectile points, normally reserved for hunting, for botanical food processing.

The two fragments of projectile points (samples 106 and 132) were also likely used to process maize and potatoes. Sample 132 had a maize starch grain in the sonicated wash, supporting the hypothesis that the projectile point fragments were also used, at least occasionally, for the processing of maize and potatoes.

<u>Presence/absence swab (2012) versus manual/sonicated wash (2014) methodologies</u>

To assess the difference in results of the two methodologies, I compare the results of nine lithics that were analyzed using both methods. Notably, the presence/absence swab was not effective in recovering the most economic taxa, *Zea mays*, in the majority of lithics. If we recall from Table 7.11, *Zea mays* was detected in only 7/31 lithics using the presence/absence swab method. From the manual/sonicated wash method, it becomes clear that *Zea mays* starch grains should have been present on all of the lithics. Thus, the presence/absence method gave false negatives 77% of the time for *Zea mays*, and presumably for other taxa as well. The discrepancy is about the same for the reanalyzed lithics (78% false negatives).

One would expect that the manual/sonicated wash methodology would detect all of the “present” starch grains in the presence/absence swab, but the two methods diverge on the individual lithic scale (Table 7.14). Surprisingly, the manual/sonicated washes were not able to detect all of the rarer starch grains found in the presence/absence swabs, specifically *Solanum tuberosum* (potatoes) and *Phaseolus* sp. (beans). Because only a third of the wash/sonicated solution was mounted on the microscope slide, the “missing” rarer starch grains were probably not missed, but rather only not analyzed.

The two different methods are comparable if we are primarily concerned with the most economic taxa. The 2012 presence absence swab method yielded less diversity in starch grains than the manual/sonicated wash method. The 2012 method, however, did recover an *Oxalis tuberosa* (oca) starch grain, which was not present in the 2014 manual/sonicated wash samples. To be fair, the oca starch grain was found on a *mano*, and no *manos* were analyzed in 2014. The manual/sonicated wash samples also generated more diversity *per* lithic than did the presence/absence swab, which is expected. Manos, therefore, should have manual and sonicated washes in the future to get a better idea of the diversity of starch grains. Both methods are adequate for getting an idea of what the most economic taxa are, but are not perfect in mitigating false negatives. For both methods, analyzing a large sample is necessary to gain an accurate idea of total diversity.

Table 7.14: A comparison of nine lithics (all obsidian) analyzed using both the presence/absence swab method and the manual/sonicated wash method. The numbers are the numbers of starch grains recovered using the manual/sonicated wash method. The grey boxes indicate whether the starch grain was recovered in the presence/absence swab method.

Lithic artifact ID #	**89**	**99**	**107**	**108**	**109**	**117**	**121**	**133**	**134**	**Total**
Zea mays (maize)	9	12	8	11	8	10	11	9	9	**87**
Solanum tuberosum (potato)		1	1							**2**
Manihot esculenta (cassava)			1		1				2	**4**
Phaseolus sp. (bean)										
Cucurbita cf. *ficifolia* (squash)	1			3			1			**5**
Marantaceae (arrowroot)						1				**1**
Unidentified	1						1	3		**5**
Total	**11**	**13**	**10**	**14**	**9**	**11**	**13**	**12**	**11**	**104**

Comparison of starch grains by structure

The difference in distribution of the starch grains among the structures was not immediately discernible (Table 7.15), which could mean that the botanical foods consumed at Yanawilka did not differ greatly from family to family. To test this hypothesis, I set up a 2x4 contingency table testing whether each structure had significantly different distributions of common (maize, potato, cassava) versus rare (oca, bean, lupine, squash, arrowroot) starch grains (Table 7.16). Both Fisher's exact and Chi squared tests show that there are no statistically discernible differences. Therefore, the inhabitants of Yanawilka may have had shared access to the same botanical foods, and there were no significant restrictions to access by household.

Table 7.15: Distribution of presence of starch grains on lithics by structure.

Presence of starch grains of:	**Y1, N=14**	**Y2, N=7**	**Y3, N=15**	**Y4, N=17**	**Total, N=53**
Zea mays (maize)	10	5	7	15	37
Solanum tuberosum (potato)	8	3	8	8	27
Manihot esculenta (cassava)	2	1	2	6	11
Oxalis tuberosa (oca)			1		1
Phaseolus sp. (bean)		1		1	2
Lupinus mutabilis (lupine)	1				1
Cucurbita cf. *ficifolia* (squash)	1	1		3	5
Marantaceae (arrowroot)	2			3	5
Unidentified	1	2		4	7

Table 7.16: A 2x4 contingency table comparing distribution of common (maize, potato, cassava) versus rare (oca, bean, lupine squash, arrowroot) starch grains. X^2=1.8461, dof=3, p-value=0.605; Fisher's exact p-value=0.634.

	Y1	**Y2**	**Y3**	**Y4**
Common starch grains (maize, potato, cassava)	20	9	17	29
Rare starch grains (oca, bean, lupine, squash, arrowroot)	4	2	1	7

Morphometric analysis of *Zea mays* (maize) starch grains

Victor Vásquez (Appendix G) conducted morphometric analysis of the *Zea mays* starch grains to find evidence of 1) grinding and milling, 2) whether the maize came from homogeneous or heterogeneous populations, and 3) which modern varieties of maize share the most affinity with the maize of Yanawilka. In this section, I summarize and synthesize his findings. The maize starch grains were mainly polyhedral (295) and spherical (46), which accounted for 98.6% of all maize starch grain shapes (341/346). The majority of the polyhedral starch grains exhibit "Y"-shaped fissures in the hilum consistent with milling and grinding (Zarillo *et al.* 2008: 5008). This suggests that milling and grinding maize were common practices at Yanawilka. The production of maize flour must have been very important in the daily life of the inhabitants of Yanawilka, and the flour may have been used in soups or stews (or possibly a similar dish to *sanco*). *Sanco* was maize dough about the size of an apple generally reserved for special holidays (Garcilaso de la Vega 1989: 357).

Analysis of the dimensions (length and width) of the starch grains suggests that the maize came from a homogenous population (Figure 7.9). Coefficients of variation of less than 20% suggest a more homogenous population. The coefficients of variation for the polyhedral grains were 17.87% for the length and 19.13% for the width. For the spherical grains, they were 20.04% for the length and 19.52% for the width. The relative homogeneity of the harvest populations of maize suggest that the inhabitants of Yanawilka grew their own maize instead of traded it from other valleys. Given that

Yanawilka is located in a maize-growing zone, the inhabitants could have easily grown maize close to home. The relative homogeneity of the maize starch grains is consistent with the inhabitants of Yanawilka being agricultural *mitmaqkuna* who produced food for the local Inka settlements.

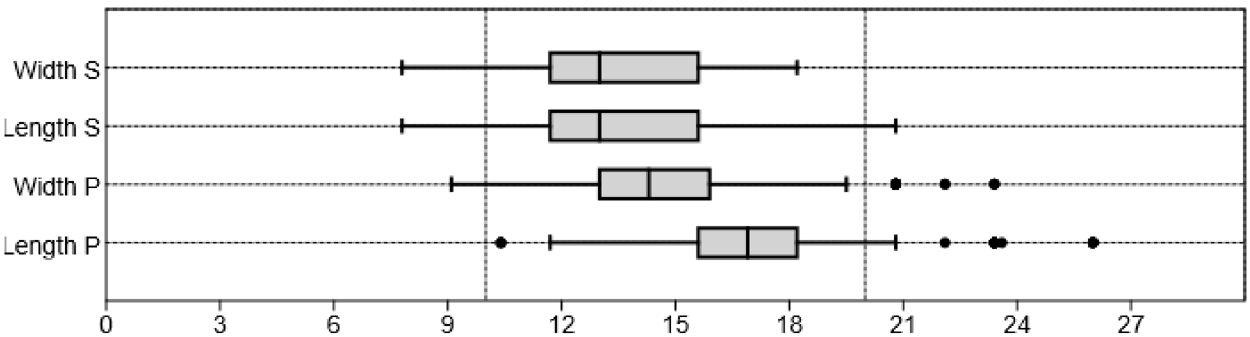

Figure 7.9: Box plots of the lengths and widths of polyhedral (P) and spherical (S) starch grains. Measurements are in microns.

Of the four primary varieties of maize that currently exist in the region of Ayacucho (Confite Morocho, Confite Puntiagudo, Kulli, Chullpi), only the Kulli variety has smooth endosperms and spherical starch grains. It is probable that the polyhedral starch grains belonged to proto-Confite Morocho and proto-Confite Chavinense.

<u>Ecological zones exploited</u>

Most of the crops could have been grown in the immediate vicinity of Yanawilka, with two important exceptions: cassava and arrowroot (Table 7.17). Although there were small patches at the upper limit of the cassava growing range 7.4 km away, a better candidate for the closest cassava-friendly area was 19.0km to the east as the crow flies. Arrowroot can only grow below 1000 meters in elevation in tropical conditions (Perry 2007; Piperno and Pearsall 1998), and the nearest suitable area was 80.5km away as the crow flies to the northeast (Figure 7.10). Because the nearest cassava-growing area was in the Tanquihua territory, the Condes of Yanawilka may have traded with the Tanquihua. The nearest cassava-growing area was also coincidentally in the area where there was mixed pockets of Condes and Tanquihua land use in the early colonial period (see chapter 8), so it was likely that under the Inka, they shared the use of the lands, especially pastoral lands. Arrowroot had to be transported in some form, whether as rhizomes or flour, to Yanawilka from a tropical area at least four days' travel away. Although the inhabitants of Yanawilka clearly grew most of their foods, they must have also had access to foodstuffs beyond their immediate vicinity. Whether the *mitmaqkuna* at Yanawilka had *direct* trading relationships with those areas, however, is unclear, and the foods could have come by way of controlled Inka traffic on the royal Inka road.

Table 7.17: Ecological zones exploited. Minimum distance from Yanawilka expressed in Euclidean (as the crow flies) distances. Elevation data of plants from Hastorf 1993; Hernández and León 1994, Perry 2007, Piperno and Pearsall 1998, and Vásquez 2015 (Appendix G).

Taxa	Elevation (masl)	Min. dist. Yanawilka	Possible locally grown?
Zea mays (maize)	0-4000	0 km	Yes
Oxalis tuberosa (oca)	2800-3800	0 km	Yes
Solanum tuberosum (potato)	2500-4100	0 km	Yes
Manihot esculenta (cassava)	2000-2500	7.4 km; 19.0 km	No
Phaseolus sp. (bean)	50-3000	0 km	Yes
cf. *Lupinus mutabilis* (lupine)	2800-3850	0 km	Yes
Cucurbita cf. *ficifolia* (squash)	1000-3000	0 km	Yes
Marantaceae (arrowroot)	0-1000	80.5 km	No

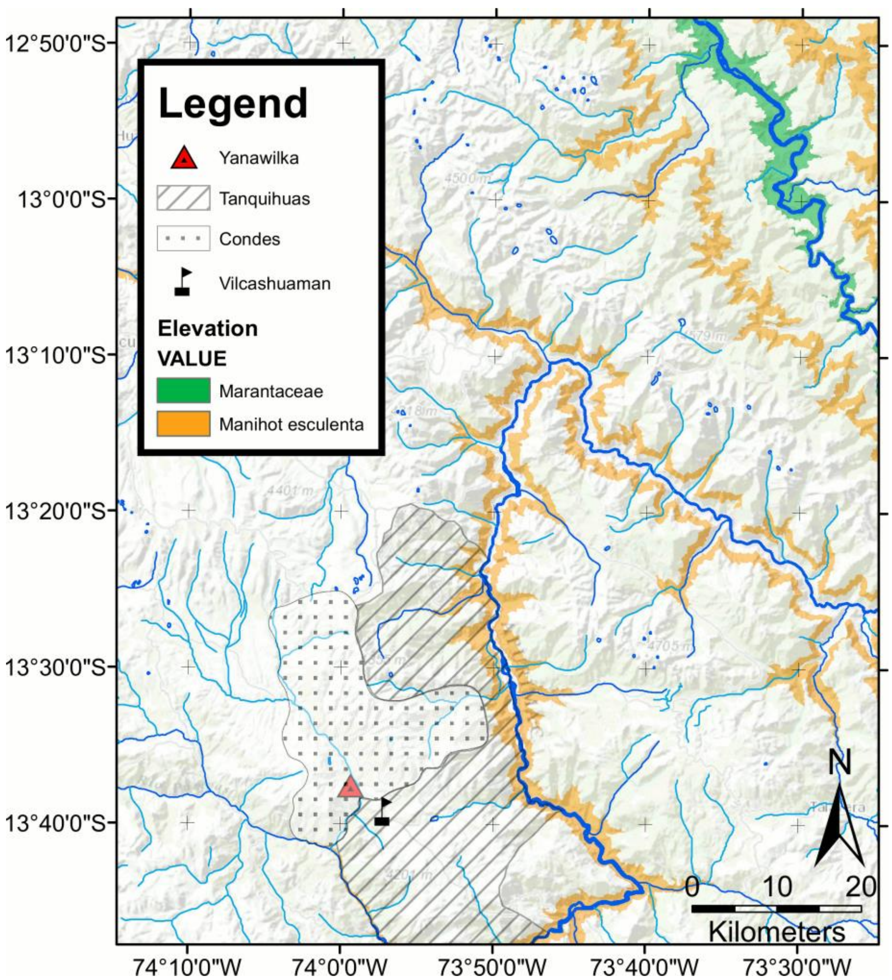

Figure 7.10: Map of nearest locations of arrowroot and cassava growing areas.

7.2 Macro-botanical analysis

All non-surface sediment samples underwent flotation, comprising 50.75 liters of sediment coming from fifteen distinct contexts. Out of the 50.75 liters floated, 42.05 liters from eleven distinct contexts contained archaeological remains. Some contexts crossed the mid-line of the unit and were split into two loci, designated by an "E" representing the eastern side, or "W" representing the western side (e.g. Unit Y1, Locus 2E and 2W). A sample was collected from both sides of any context that crossed the mid-line of the unit. At least two liters were collected in each context, whenever possible, and contexts averaged 3.8 liters (see Appendix B).

Preservation of carbonized (archaeological) botanical remains was poor, due to the shallow stratigraphy, wet climate, and sediment type (limey and loamy). Only two identified carbonized botanical remains and ten unidentified carbon fragments were recovered in flotation samples from Yanawilka. The two carbonized seeds recovered and identified were *Chenopodium quinoa* (quinoa) (Figure 7.11) and *Prosopis* sp. (algarrobo) (Table 7.18). Sediment type was probably the biggest contributing factor in the poor preservation of carbon. The small flotation sample size also contributed to the low numbers of carbonized seeds recovered. Because the thin layers of sediment were on top of limestone, the lime seeped into the sediments above and created an alkaline environment not conducive to the preservation of charcoal due to heavy fragmentation (Braadbaart *et al.* 2009). In this sediment environment, even the recommended 30L per context in the highland Andes (Hastorf, personal communication 2015) may not yield statistically significant numbers of carbonized botanical remains. The abundance of archaeological bone, on the other hand, underscores the alkalinity of the sediment, as bone and shell preserve well in limey sediments. In fact, two carbonized maize cupules were recovered apart from flotation because they were lodged inside a bone, protected from extreme fragmentation (Figure 7.12). Starch grain and phytolith analysis yielded much more fruitful results in this case.

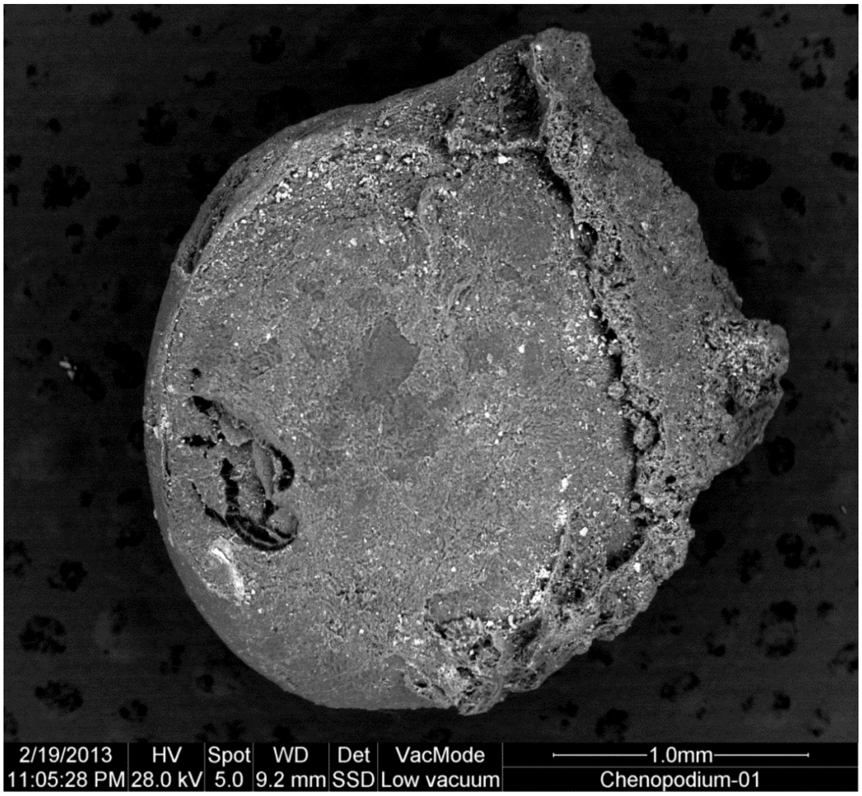

Figure 7.11: Scanning Electron Microscope image of the carbonized *Chenopodium quinoa* (quinoa) seed found in Unit 1, Locus 6W.

Table 7.18: Botanical seeds recovered from flotation at Yanawilka.

Taxa	**Sector Y (carbonized)**		**Sector Y (all)**		**Standard density (N/L)**
	N	%	N	%	
Chenopodium quinoa	1	50	1	0.8	0.01970
Cactaceae			2	1.6	0.03941
***Argemone* sp.**			1	0.8	0.01970
***Prosopis* sp.**	1	50	1	0.8	0.01970
***Trifolium* sp.**			1	0.8	0.01970
***Linum* sp.**			1	0.8	0.01970
***Galium* sp.**			1	0.8	0.01970
***Conium* sp.**			1	0.8	0.01970
***Convolvulus* sp.**			1	0.8	0.01970
Poaceae			113	90.4	2.22660
Seed n/i 1			1	0.8	0.01970
Seed n/i 2			1	0.8	0.01970
Total	2		125		

Figure 7.12: One maize cupule and one maize kernel recovered from inside animal bone from Unit Y3, Locus 2E.

Even with the scant macrobotanical remains, we gain the valuable knowledge that quinoa was also consumed at Yanawilka. The algarrobo (*Prosopis* sp.) carbonized seed was also a taxon not detected through starch grain analysis. The seeds themselves are edible and were also used to prepare a fermented drink, a form of *chicha*. *Prosopis* sp. generally grows in climates dryer than at Yanawilka and at lower elevations, so the seed could have come by way of trade. Contemporary climate (warm and wet) was similar to climate in Yanawilka's heyday (Thompson and Davis 2014).

7.3 Faunal remains

Numbering 606 bones, faunal remains comprise the second largest portion of the archaeological assemblage at Yanawilka, after ceramics. The faunal remains were analyzed by the team for fragmentation and charring and by Teresa Rosales Tham of ARQUEOBIOS for more detailed zoological analysis (NISP, species identification, taphonomy). What animals were represented in the assemblage? What did the inhabitants of Yanawilka eat? How did they prepare their meat? Was there differential access to certain animals or in quantity of meat? To answer these questions, I first summarize the number of identified specimens (NISP) by taxa and provenience. Because, *Lama* sp. was the most dominant taxa at Yanawilka, and the meat was certainly consumed, I give a more detailed treatment of these taxa. I then analyze the attributes of the faunal remains, particularly their fragmentation and charring. I then summarize the worked bone. Finally, I discuss the faunal and macalogical remains recovered in flotation.

The faunal assemblage was dominated by camelids (*Lama* sp.), which comprise 30.6% of the NISP count and and 67.0% of the total bone mass (Table 7.19). Deer (*Odocoileus virginianus*) was also present at Yanawilka, and a particularly large and robust left femur was found in structure Y1. Artiodactyls comprise the vast majority at 69.8% of NISP and 92.5% of the bone mass. Guinea pig was present in most of the structures, and the presence of guinea pig coprolites in two structures (Y1 and Y4), show that guinea pig was either raised and/or consumed in all structures. Y1 had many mammalian bones, but their fragmentary nature precluded further identification. There was no restriction of access to any given meat, but Y1 had disproportionally large numbers of bones, which may indicate feasting.

Table 7.19: NISP and mass by taxa and structure.

Taxa	**Y1**	**Y2**	**Y3**	**Y4**	**NISP total/%**		**Mass/%**	
Rodentia			1		1	0.2%	0.3	0.0%
Cavia porcellus	5	1	2		8	1.6%	4.9	0.4%
Odocoileus virginianus	7	2	1	1	11	2.2%	158.0	14.0%
***Lama* sp.**	109	13	26	6	154	30.6%	754.7	67.0%
Artiodactyla	134	9	35	8	186	37.0%	129.6	11.5%
Mammal n/i	140	3			143	28.4%	79.0	7.0%
Total	**395**	**28**	**67**	**13**	**503**		**1126.5**	
Total density (NISP/m³)	**64**	**6**	**9**	**2**	**19**			

Lama sp. was especially important to the diet and daily life of the inhabitants of Yanawilka. Both llamas and alpacas were eaten, and they almost certainly functioned as pack animals as well. Only *Lama* sp. showed evidence of butchery, with three bones (two ribs and a carpal bone) showing cut marks. Osteometry of a first phalange from Y3 shows values consistent with *Lama pacos* (alpaca) (Appendix C). A metatarsal from Y1 has a g' of 22.2mm, which is about medium-sized for a big cargo llama (24-25mm) (Moore, personal communication 2012). Most parts of the *Lama* sp. skeleton were represented at Yanawilka. Especially favored were the limbs and feet (Figure 7.13). The high percentage of charred *Lama* sp. bones (58.4%) shows that roasting was a major way of preparing this meat. Roasting is fuel intensive, however, and ethnohistorical accounts stress that native kitchens were fuel efficient and that stews were the common daily fare (Hastorf and Johannessen 1993). Therefore, roasted *Lama* sp. meats were probably mainly eaten during feasting events, such as festivals. Costliness of preparation and quantity of food were two attributes of feasting fare (Bray 2015: 103). This assessment is supported by the fact that Y1 had disproportionately much more bone (and mostly charred) than the other three structures. The fact that the structure is not unusual in its size or shape suggests that there may be multiple structures like it with similar function at Yanawilka.

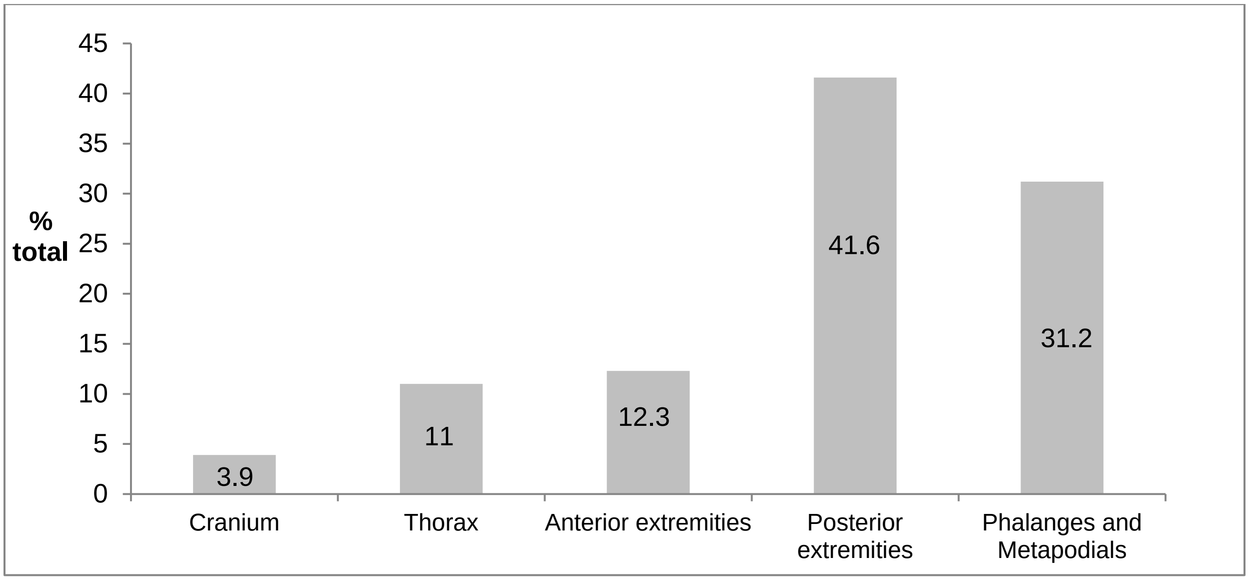

Figure 7.13: *Lama* sp. anatomic parts represented at Yanawilka. N=154.

The mostly charred and fragmented faunal assemblage at Yanawilka reveals a lot about how food was prepared and eaten. We can confidently say that the meat of these animals was mostly roasted for consumption because 62.4% of the bones show evidence of charring (Table 7.20). A lot of the non-charred bones exhibited significant polish, which is consistent with stirring and stewing (Flexner 2011; O'Connor 2000). Most of the bones were incomplete or fragmented (95.0%), raising the likelihood that bones were intentionally broken for the nutritious marrow inside. Although both charred and non-charred bones were fragmented, charred bones had a higher proportion of fragmentation than non-charred bones (Table 7.21). The proportion of incomplete bones did not vary significantly by structure, indicating that the practice of breaking open bones for marrow was a common daily practice (Table 7.22). Consistent with the characterization of Y1 as a feasting space, Y1 had significantly higher proportion of charred bones than the combination of the other three structures (Table 7.23).

Table 7.20: Distribution of charred, non-charred, fragmentary, and complete bones by structure.

Unit	Not charred		Subtotal	Charred		Subtotal	Grand total	Density (m^3)
	Not frag.	Frag.		Not frag.	Frag.			
Y1	11	124	135	8	308	316	451	73.0
Y2	6	25	31		6	6	37	8.3
Y3	5	42	47		47	47	94	11.9
Y4		15	15		9	9	24	3.2
Total	**22**	**206**	**228**	**8**	**370**	**378**	**606**	**23.4**

Table 7.21: 2x2 X^2 contingency table of charred bones and fragmentation. Charred bones were more likely to be fragmented. Dof=1, X^2=17.15, p = 3.5E-05, Monte Carlo p= 0.0001.

	Fragmented	Not Fragmented	**Total**
Charred	370	8	**378**
Not Charred	206	22	**228**
Total	**576**	**30**	**606**

Table 7.22: 2x2 X^2 contingency table comparing bone fragmentation of Y1 to the other three structures (Y2+Y3+Y4). Dof=1, X^2=2.04, p-value=0.15, Monte Carlo p-value: 0.20; not significant.

	Fragmented	Not Fragmented	**Total**
Y1	432	19	**451**
Y2+Y3+Y4	144	11	**155**
Total	**576**	**30**	**606**

Table 7.23: X^2 contingency table charred bone proportion of Y1 to the other three structures (Y2+Y3+Y4). Y1 has a Dof=1, X^2=44.435, p-value=2.6E-11, Monte Carlo p-value: 0.0001.

	Charred	Not Charred	**Total**
Y1	316	135	**451**
Y2+Y3+Y4	62	93	**155**
Total	**378**	**228**	**606**

7.3.1 Worked bone tools

There were five worked bone tools recovered from Yanawilka, but only one of them, a large tube, was complete. Even the complete tube, however, suffered from a longitudinal crack. The incomplete tools were possibly failed attempts at bone working. In total, we recovered one complete tube, three fragmentary tubes, and one fragmentary spatula/spoon. Four out of five were found in structure Y1, reinforcing the characterization of this structure as a communal multi-use area.

First, I discuss the tubes. The first three tubes were from Y1, and the fourth tube was from Y3. The first tube was much smaller than the others, measuring only 27.5mm long and weighing one gram. Although it was broken in half, its worked end was intact and show intentional sectioning. There was a small circular, human-made hole near one of the ends that would have allowed a string to pass through the tube (Figure 7.14). This small tube may have been used as a pendant or some other kind of adornment.

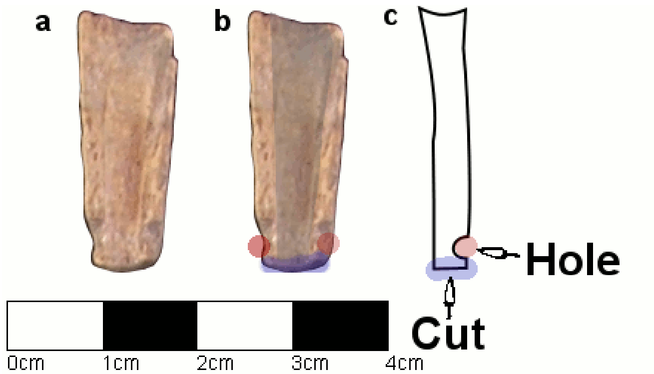

Figure 7.14: Small bone tube with hole (red) and sectioned end (blue). a=normal view of interior. b=enhanced view of interior. c=profile view.

Also from structure Y1, the second tube, weighing 32.8g, was the largest bone tool recovered at Yanawilka (Figure 7.15). The tool came from the diaphysis of a *Lama sp* right femur and measured 84mm long, 24mm wide, and 23mm in diameter. Both ends were beveled and smoothed.

Figure 7.15: Large bone tube from unit Y1, Locus 3W of unknown function. Both ends are beveled and smoothed.

The third bone tube, consisting of just one charred beveled end, also came from structure Y1 (Figure 7.16a). The third tube, from the diaphysis of an artiodactyl long bone, measured 12mm long and 24mm wide. The beveled end was similar to one of the beveled ends of the second tube in angle and in size, so the second and third bone tubes were likely the same type. This bone tube may have been used as a snuff tube. The fourth tube, from the tibia of a *Lama* sp., measured 60mm long and 14.5mm wide (Figure 7.16b). One end of the tool was cut smooth, and the other end came to a point. Because the tool is incomplete and does not resemble the other tubes, its intended form and function are unknown. The fifth bone tool, a spatula or spoon from Y1, measured 61.8mm long and 14.5mmwide (Figure 7.16c). The tool was made with the ulna of *Odocoileus virginianus* (deer). Judging from the polish on the surface and its overall shape, this tool may have been a weaving pick. Two ceramic spindle whorls were found at Yanawilka (Y1, Locus 1; Y2, Locus 2E), showing that textiles were produced at Yanawilka, albeit in a non-intensive way (see section 7.4).

Figure 7.16: Bone tools from Yanawilka. a=Fragment of bone tube end from Unit Y1, Locus 3E. b=Probable weaving pick from Unit Y1, Locus 3E. c=Worked bone artifact with cut end from Unit Y3, Locus 2E.

The overrepresentation of bone tools in structure Y1 shows it was a locus of diverse productive activities. Two of the bone tubes could have been used as snuff tubes, and a probable weaving pick shows that weaving also occurred at Yanawilka. There was no apparent spatial separation in "ritual" versus "domestic" activities, suggesting that this distinction may not have been salient for the inhabitants of Yanawilka. Ritual and household fertility were inextricably interwoven. The structures at Yanawilka, and Y1 in particular, show how domestic spaces were also political arenas, where feasting and communal activities occurred. Its proximity to the rocky outcrop "Yanawilka" also raised its ritual prestige. The fact that Y1 was not remarkable in its construction (size and shape) shows that there should have been multiple structures like it at Yanawilka. Future excavations can confirm or disprove this hypothesis.

7.3.2 Faunal remains from flotation samples and environmental reconstruction

Guinea pig and rodent coprolites were recovered in Y1, Y2, and Y4, showing that guinea pigs were often raised inside the domestic structures at Yanawilka, just as they often are to this day. In a 1586 description of the Ayacucho region, Ribera and Chaves (1881: 125) confirmed that guinea pigs were raised inside houses. A charred guinea pig premolar was recovered in Y1. Several other small artiodactyl and mammalian bones were also recovered, but do not give any new information. Land snails dominated the faunal flotation assemblage, comprising 94.9% of the assemblage (Table 7.24). The land snails provide valuable information about ancient climate at Yanawilka (Appendix H). The land snails were identified through scanning electron microscope (SEM) images. They indicate the immediate local conditions inside the structures at time of deposition.

Table 7.24: Yanawilka faunal and macalogical remains recovered from flotation samples.

Taxa	Y1	Y2	Y3	Y4	Total	%	Total density (N/L)
***Gastrocopta* sp.**	74	32	50	21	177	64.4	**3.84**
***Bostryx* sp.**		1			1	0.4	**0.02**
Charopidae	35	11	5	13	64	23.3	**1.39**
***Steeriana* sp.**	3				3	1.1	**0.07**
***Drepanostomella* sp.**	5	7	1	3	16	5.8	**0.35**
Cavia porcellus	3			1	4	1.5	**0.09**
Rodentia		2			2	0.7	**0.04**
Artiodactyla	1				1	0.4	**0.02**
Mammalia n/i	3	1		3	7	2.5	**0.15**
Total	124	54	56	41	275		**5.97**

At 64.4% of the total assemblage, predominant land snail is *Gastrocopta* sp., and they live in xeric environments, which are generally dry but can be moist during the winter (Figure 7.17a). *Gastrocopta* were likely deposited in dry sediments, and because they were the most common land snail recovered during excavations, the immediate environment should have been more dry than not. The next most common land snail is *Charopidae* (possibly from the genus *Radiodiscus* sp.), comprising 23.3% of the total assemblage (Figure 7.17b). *Charopidae* generally live in cold and humid climates (shaded areas underneath trees or bushes) (Miquel and Steffan 2005). Because none of the structures excavated at Yanawilka were in the shade, but rather subjected to the

intense Andean sun, the presence of *Charopidae* could indicate ancient conditions inside the structures during the rainy season (cold, humid, and shady). *Drepanostomella* sp., which predated on scarab beetle larva and juveniles (Ramírez *et al.* 2001), were also found in appreciable numbers, comprising 5.8% of the total assemblage (Figure 7.17c). Presumably, because the scarab beetle larva and juveniles thrive in organic environments, such as domestic interiors, the presence of *Drepanostomella* indicates deposition in organic, sheltered environments. The dirt on the hills of Yanawilka is not rich, and the richly organic dirt that does exist is anthropogenic. The presence of three *Steeriana* sp. land snails in the assemblage is not surprising, given that they live in rocky, calciferous environments (Figure 7.17d).

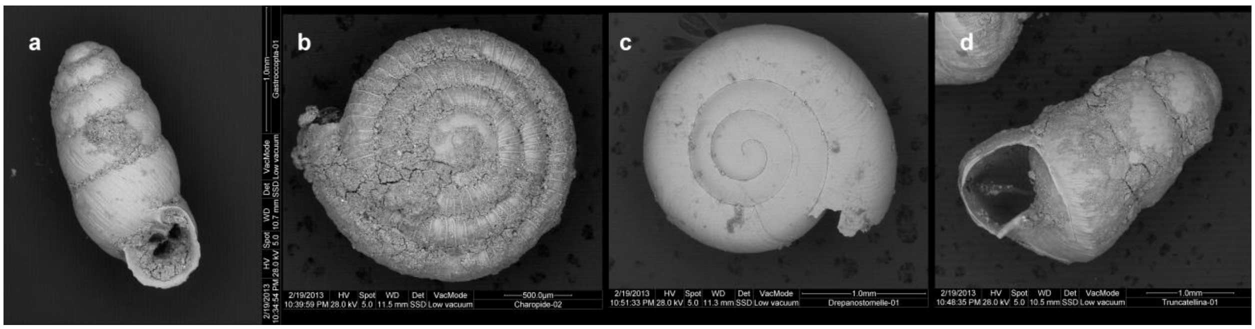

Figure 7.17: Land snails found at Yanawilka. a=*Gastrocopta* sp. b=*Charopidae*. c=*Drepanostomella* sp. d=*Steeriana* sp.

The land snail species recovered in flotation tell us about the sediment conditions. Taking all information into account, the land snails indicate that local sediment conditions were consistent with the shaded interior of structures. Under contemporary climatic conditions at Yanawilka, it rains nearly every day during the rainy season, which is approximately half of the year (November to May). The other half of the year, Yanawilka is dry and hot. The Andean sun bears down on the rocky environment, making Yanawilka much hotter and drier than the non-rocky local environments. The predominance of *Gastrocopta* sp. shows that the interiors of the structures were dry more often than not, which is consistent with the structures having roofs. The prevalence of *Charopidae*, however, reminds us that the interior was not dry year-round, and the floor would have been cold and damp some of the time, especially during the rainy season. Human activity would have enriched the poor sediments of the hills of Yanawilka and increased biodiversity. Thus, the inhabitants of Yanawilka were able to make a comfortable settlement in an environment that would have been hostile to live in during the dry season.

7.4 Ceramics

At 5734 sherds, ceramics were the most numerous artifact type at Yanawilka. The ceramics analysis team consisted of seven archaeology students from the Universidad Nacional San Cristóbal de Huamanga (Hector Carhuas, Ruddy Huillca, Sonia Laurente, Rosmery López de la Cruz, Henry Navarro, Carina Paullo, and Alberto Tello) and me.

Due to problems with subjectivity in typological analysis of ceramics, the bulk of the data employed an attribute analysis strategy (Smith 1979). A rudimentary stylistic analysis (typological and minimum number of vessels per context) complemented the attribute analysis (Figure 7.18). Twenty-two distinct types, based on surface color and paste, were identified in the Yanawilka assemblage, and seriation was carried out on the presence/absence of the types in the different contexts to judge similarity among them.

Figure 7.17: Ceramics from Unit Y1, Locus 2W undergoing Minimum Number of Vessels (MNV) analysis.

Each sherd was analyzed for eleven attributes: mass, slip smoothness (yes or no), direction of wiping, exterior Munsell color, decoration Munsell color, form (open versus closed), thickness, sherd type (body, rim, base, handle), rim diameter, firing atmosphere (oxidized versus reduced), and the presence of mica. Each context also had a fragmentation index based on the proportion of sherds that could fit within a 2x2cm square. I selected these attributes to facilitate efficient and consistent recording. In most cases, for example, the sherds and rims were too fragmentary to confidently tell what kind of vessel it came from; however, in most cases, one could confidently tell whether the vessel was open (e.g., a plate or bowl) versus closed (e.g., olla or jug). Because determining the surface treatment and density of mica inclusions in the paste can vary among different analysts, I made these attributes binary (either present or absent a certain attribute). To ensure minimal variation in the recording of the attributes, one person was in charge of analyzing one to three attributes for the entire assemblage. For example, Carina Paullo recorded the exterior and decoration Munsell colors of all the sherds, ensuring minimal variation in color recording. The attributes enable analysis of the technological and stylistic aspects of production, as well as post-depositional processes of the contexts from which they were found.

Because there are no regional reference collections and systematic studies of Late Horizon Vilcashuamán ceramic traditions, or even for the Late Intermediate Period, I decided to forego detailed typological analysis of the ceramic assemblage at Yanawilka. Furthermore, because Yanawilka was only inhabited during the Late Horizon, one could not do a ceramic chronology of the Vilcashuamán area based on this single site. The assemblage was extremely fragmentary: 2979 sherds comprising 52% of the assemblage were smaller than 4cm^2, and only one complete vessel, a miniature jar, was recovered from excavations. Because of these challenges, the analysis had to operate on the level of sherds rather than vessels. Despite these challenges, the attribute analysis made basic types of vessels discernible (see question two).

The research questions regarding the ceramic assemblage are divided into three groups. Overall, the questions seek to address intrasite variation and social cohesion at Yanawilka. First, through typological analysis, what was the distribution of the ceramic stylistic types among the four structures? Were they more homogenous, implying shared cultural preferences, or more heterogeneous, implying differing cultural preferences? If the structures fulfilled different functions, the heterogeneity may also be a result of the "linking" of certain stylistic types with functional types (jugs, bowls, plates, etc.). Does the heterogeneity correspond to moiety differences? How much of the assemblage was Inka-style, and were there differences among the structures in the percentage of Inka-style ceramics? How do the ceramic stylistic types at Yanawilka compare to other Late Horizon sites in Ayacucho?

Second, what variation existed among the structures regarding ceramic production and post-depositional processes? Do we have evidence that the ceramics were locally produced, possibly by the inhabitants of Yanawilka themselves? Did differing production practices map on to the four structures or the moieties? Or was there more variation within each structure than between them? From the fragmentation indices, what can we tell about the post-depositional processes of each structure? Which structures were the most similar to each other?

Third, what can we tell about cooking and food consumption practices from the ceramic assemblage? Did they stew/boil their food? How big were the cooking and the storage vessels, and do they indicate food preparation for a few or many people?

7.4.1 Question 1

What types of ceramics existed at Yanawilka and what was their distribution among the four structures?

I identified a minimum of twenty-two ceramic types based on surface color/treatment and paste color. Munsell colors were not used in the classification because it was difficult dividing distinct groups of colors and possible issues with singleanalyst consistency from one day to another (Farahani and Chenoweth 2015). Rather, the types were identified through the MNV (Minimum Number of Vessels) analysis as the MNV groups were photographed for each context, enabling easy ceramic type identification from one context to the next. The MNV was determined by grouping the sherds from each context into groups that could possibly have been from the same vessel based on surface characteristics and paste. I then made a presence/absence table of the types in each distinct context at Yanawilka and seriated the table (Figure 7.18). The seriation reveals that the four structures were more similar to than different from each other, sharing the same core suite of ceramic types. This similarity is consistent with the contemporaneous occupation of all four structures from the radiocarbon evidence. Unsurprisingly, the structures from each moiety were more similar to each other: Y1 and Y2 are more similar to each other, and Y3 and Y4 are more similar to each other. The seriation does not correspond well with stratigraphic chronological relationships for Y1 and Y2, but there does seem to be some chronological order for Y3 and Y4. If the seriation does show chronological relationships, then the seriation is consistent with the radiocarbon evidence that hinted at Y3 being initially settled prior to Y1 and Y2 (unfortunately, no reliable radiocarbon date was available for Y4). This would suggest that Y4, given its position at the bottom of the seriation, might have been the first structure founded and settled among the four structures excavated. Seriation may have provided another line of evidence for the upper moiety (Y3 and Y4) being older than the lower moiety (Y1 and Y2).

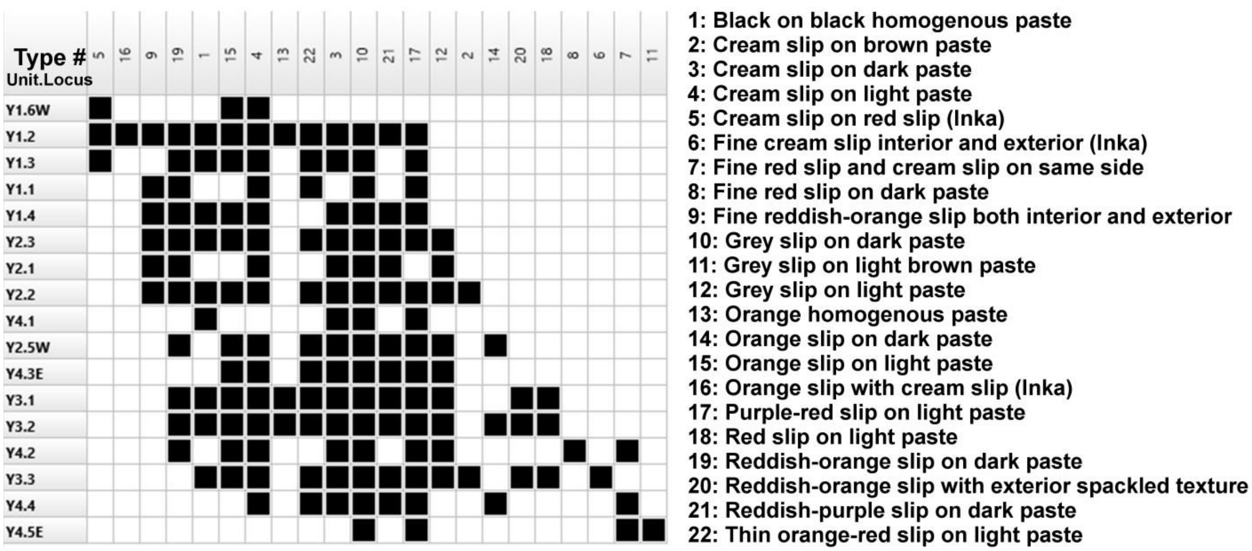

Figure 7.18: Seriation of presence/absence table of ceramic types at Yanawilka.

Seriation may also reveal differing preferences between the moieties. Seriation shows that the moieties were distinct, in either chronology or in contemporary preferences. Given that there were at least three generations of settlement at Yanawilka (assuming 20 years per generation), I suspect that the seriation does indeed reflect more chronological than cultural difference. The fact that Y1 and Y2 are indistinguishable in the seriation reflects contemporaneous construction and settlement, which is consistent with other lines of evidence such as radiocarbon dating and the close proximity of the two structures.

Inka-style ceramics made up a tiny percentage of the total ceramic assemblage. Only thirty-two Inka-style ceramic pieces were found, making up about half a percent of the total assemblage. Of those thirty-two ceramic pieces, twenty-four were probably from the same vessel (cream on red) and included an arybalo nubbin. The other ceramic pieces were unique from each other in terms of surface treatment/decoration and paste, which suggests that they were carried to the structures from elsewhere and the original vessels not broken in situ. A broken half of a spindle whorl was made of reutilized Inka-style ceramic (Figure 7.19). The rarity of Inka-style ceramics was not unusual for a Late Horizon non-Inka domestic settlement (Abraham 2010; Makowski and Vega Centeno A. 2004; Schreiber 1993). On the other hand, some areas did see substantial presence of Inka ceramics in surface collections (Wernke 2001; 2003). This variation is not surprising because the Inka Empire was variegated, geographically and socially, and the expression of Inka power was uneven (see Burger *et al.* 2007 volume).

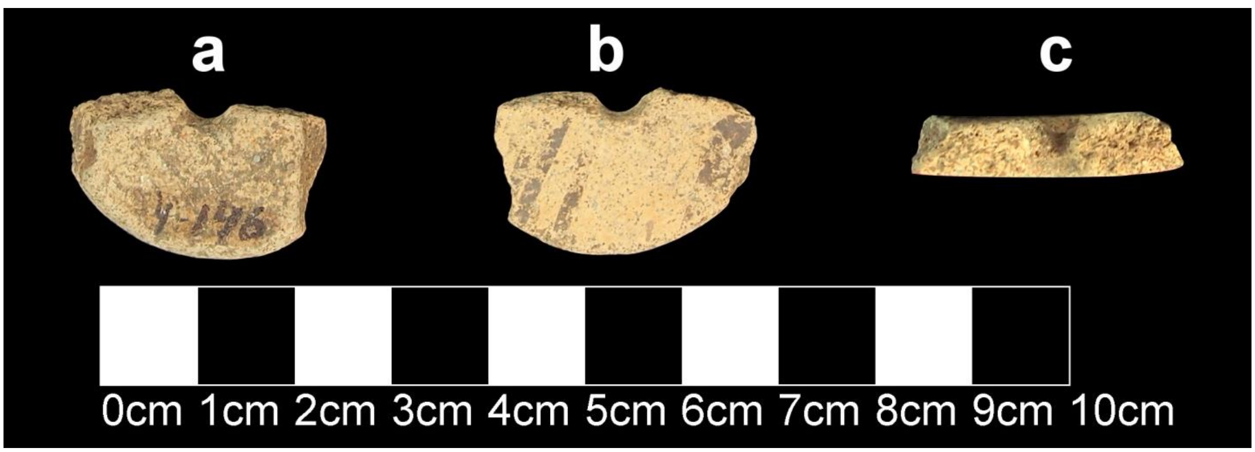

Figure 7.19: Broken spindle whorl made from Inka-style ceramic found in Unit Y1, Locus 1.

Currently, the regional diversity of Ayacuchan Late Horizon ceramic types, especially domestic, is poorly understood. Other than Abraham's (2010) dissertation on the Inka-Lucanas domestic settlement of Pulapuco, there are no other published comparable data and analysis of Late Horizon ceramics in the Ayacucho region. The Late Horizon assemblage at Yanawilka has not been described elsewhere and does not resemble the Late Intermediate Period ceramics of where the Condes of Yanawilka were most likely from, the Cotahuasi valley (Jennings 2002), nor do they resemble ceramics from the Inka province of Collagua: Cabanaconde, Coporaque, Lari, and Yanque, which were other areas where the Condes of Yanawilka were possibly from (Doutriaux 2004; Wernke 2003). One ceramic type, only found in Y3, was highly distinctive with its incision and 'spackled' texture below the incision, and I have not yet seen this ceramic type anywhere else in the Andes (Figure 7.20). The diversity of ceramic types at

Yanawilka suggests a lack of standardization and specialization in ceramic production. The ceramics of Yanawilka were most likely produced locally. Surface survey of the site did not yield any evidence of ceramic production, so there may have been communication with nearby ceramic-producing settlements. The uniqueness of the ceramic assemblage at Yanawilka suggests innovation, which is not surprising given the extreme diversity of the newly transplanted ethnic groups to the Vilcashuamán province (see Makowski 2002; Makowski and Vega Centeno A. 2004).

Figure 7.20: Ceramics with a "spackled" texture from Unit Y3. The ceramic sherd on the left has an incision; above the incision is smooth, and below the incision is spackled.

The ceramics of Yanawilka were utilitarian. Only six sherds and one spindle whorl had any color decoration. Two sherds had appliqué decoration, and two sherds had incisions. The spindle whorl was fashioned from an Inka sherd. Several sherds were possibly not from the Late Intermediate Period or the Late Horizon. One was a sherd with fine dark red slip and black and cream decoration, which appeared to be from the Middle Horizon (Wari). Another sherd was found in an otherwise sterile context (locus 5) below the floor of unit Y2 and appeared to be from the Early Horizon Muyu Moqo Phase C-D (Bauer *et al.* 2010: 157; Grossman 1972: Plate LXIII) (see Figure 5.32). Locus 5 of Y2 was a depression that was excavated during construction, and it is possible that the Muyu Moqo sherd was either deposited intentionally or carried in with fill from elsewhere.

Of the types described by Abraham, only the red slip banded ceramic sherds (2010: Figure 7.14, bottom left) coincided with the Yanawilka assemblage (type 7). This type resembles the Qasawirka ceramic type found in Andahuaylas and possibly dates to the Early Intermediate Period to the Middle Horizon (Kellett *et al.* 2013: 1893). Only three sherds, all found in Y4, were of this type. Interestingly, the anomalous radiocarbon date (81-215 CE) from below the sterile floor of Y4 coincides nicely with the Qasawirka phase (300 BCE-900 CE). Two of the possible Qasawirka ceramic sherds were found in the sterile fills of the floor and the wall berm, suggesting that these sherds were transported from elsewhere, possibly the public area (depression) to the northwest. It is possible that Yanawilka had a low-intensity Early Horizon and Wari ceramic scatter, but surface survey did not identify any diagnostic ceramics from those time periods within the site boundaries. A Wari ceramic sherd, however, was found near the northern boundary of the site, showing that there was a Middle Horizon site nearby Yanawilka. The few anomalous sherds do not affect the chronology of when the structures of Yanawilka were constructed, because nearly all radiocarbon dates embedded in the floors and the Inka ceramics located in construction events firmly date the site to the Late Horizon. Furthermore, the relative uniformity of shared styles at Yanawilka also speaks to the contemporaneity of the four structures excavated. Nevertheless, future excavations of other structures at Yanawilka may reveal earlier occupations, although it is highly unlikely that the majority of the cultural material at Yanawilka dates to earlier occupations. The overall diversity and uniqueness of ceramic types at Yanawilka warrant more in-depth study in the future, and detailed ceramic analyses of Late Intermediate Period and Late Horizon sites in the Vilcashuamán area is sorely needed.

7.4.2 Question 2

What variation existed among the structures regarding ceramic production and post-depositional processes?

First, to see if there are differences in post-depositional processes among the structures, I analyze the relationship between minimum number of vessels (MNV) and total number of sherds per context. This can help us characterize each context and understand what differences were due to post-depositional processes versus ceramic production. The exact post-depositional process responsible for the pattern cannot be determined. However, the relationship does give us an index with which to measure difference. As an additional measure difference in post-depositional processes, I analyze the proportion of sherds under 4cm^2 in size per context.

Second, I analyzed variation among the structures from a production, as opposed to stylistic appearance, point-of-view. The attributes I examined are surface smoothness, wipe direction, thickness, firing environment, and the presence of mica in the paste. Based on these attributes, I ran a discriminant analysis of the structures to evaluate the degree of similarity. [10] Special attention is paid to the degree of similarity within and between moieties. If there is more similarity within rather than between moieties, this would suggest that each moiety may have acquired its ceramics from different distribution networks. If, however, there is more similarity between rather than within moieties, this would suggest that the differences map on to functional differences of the ceramic assemblages among the structures. Of course, given that only four structures were excavated, any conclusions are suggestive and warrant future excavations for confirmation.

<u>Minimum number of vessels and fragmentation of ceramic assemblages</u>

[10] Statistical software used for these analyses is PAST (Paleontological Statistics v. 3.08).

The minimum number of vessels (MNV) and number of ceramics less than 4cm²was recorded for each locus (Table 7.25). The minimum number of vessels is highly correlated with the total number of ceramic sherds (Figure 7.21). Furthermore, the contexts that were considered cultural fill above the floors (loci 1, 1E, 1W, 2E, 2W) saw higher than expected MNV for the number of sherds in those particular contexts. The number of ceramics smaller than a 4cm² square showed a very strong linear correlation with the total number of sherds, regardless of structure, suggesting that there are negligible differences in post-depositional processes among the structures (Figure 7.22). There are negligible differences in the percentage of sherds smaller than 4cm² comparing cultural fill contexts (loci 1, 1E, 1W, 2E, 2W) and other contexts (52% versus 47%, respectively).

Table 7.25: Summary of minimum number of vessels (MNV) and number of sherds smaller than a 4cm² square at Yanawilka.

Unit	Locus	Sum of MNV	Sum of <4cm²	Total
Y1	1	10	101	199
	2E	43	382	820
	2W	29	506	906
	3E	11	31	79
	4E	16	31	81
	4W	11	18	47
	6W	3	0	10
Y1 Total		123	1069	**2142**
Y2	1	13	51	73
	2E	17	131	308
	2W	39	118	258
	3E	13	26	62
	3W	11	52	99
	5W	10	13	38
Y2 Total			**391**	**838**
Y3	1E	43	220	437
	1W	26	222	465
	2E	15	149	281
	2W	31	473	797
	3E	12	8	42
	3W	9	9	27
Y3 Total			**1081**	**2049**
Y4	1E	4	45	56
	1W	10	74	109
	2E	11	64	105
	2W	13	55	98
	3E	18	110	174
	4E	13	23	48
	4W	9	55	91
	5E	6	12	24
Y4 Total			**438**	**705**

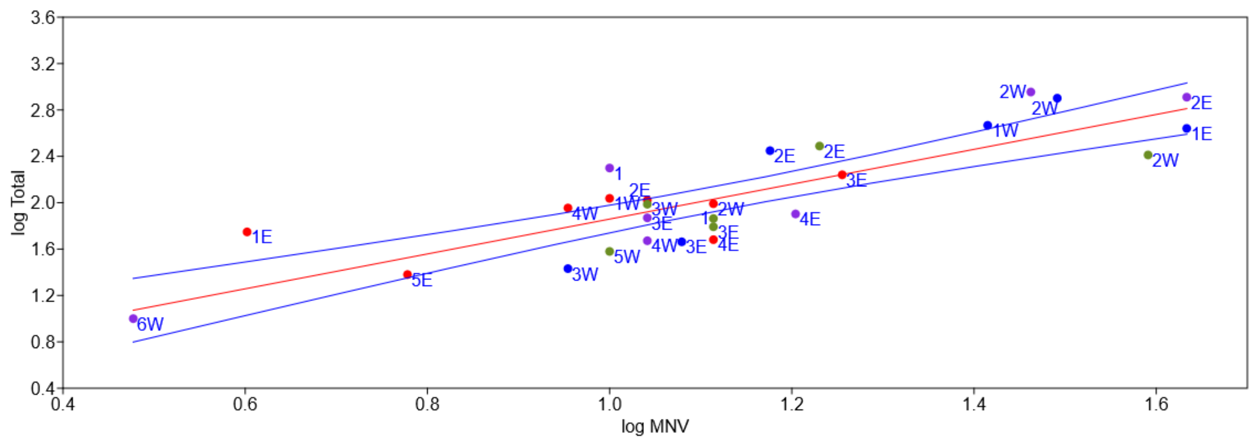

Figure 7.21: Ordinary Least Squares Regression of MNV and total number of sherds, log-log transformed with 95% bootstrapped confidence intervals (N=1999) in blue. R=0.849; r^2=0.720; t=8.02; p value=2.25x10^-8. Purple dot is Y1, green is Y2, blue is Y3, and red is Y4.

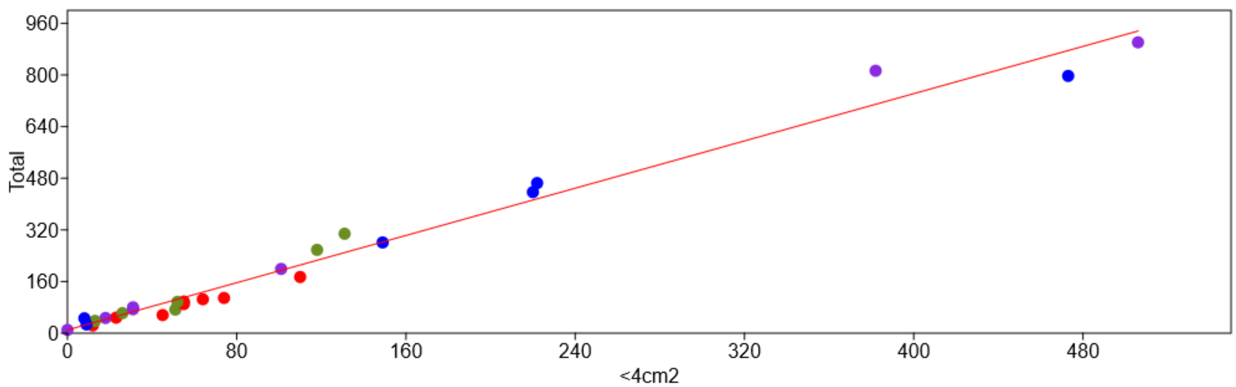

Figure 7.22: Ordinary Least Squares Regression of sherds smaller than 4cm² square and total number of sherds. R=0.990; r^2=0.980; t=35.78; p value: 5.38x10^-23. Purple dot is Y1, green is Y2, blue is Y3, and red is Y4.

The extensive wear on the ceramics and the high fragmentation on all the ceramic assemblages show that they accumulated over time inside the structures. The indices (MNV and fragmentation) are consistent with the structures having similar post-depositional processes. Within the structures, however, the cultural fills above the floor might have more diversity of MNV. However, these differences would not affect structure to structure comparisons because there were no systematic differences in MNV and fragmentation indices among structures.

Analysis of production-related attributes

Summary descriptive statistics show that Y1 and Y3 are most similar to each other in most attributes, with the exception of the proportion of smooth surfaces (Table 7.26). The proportion of sherds with wiping impressions present, however, shows that Y2 and Y3 are most similar to each other (Table 7.27). Clearly, not all combinations of variables show the same similarity relationships. To consider all attributes concurrently, I broke each structure down into their contexts and ran a discriminant analysis to assess degree of dissimilarity. The variables for the discriminant analysis were 1) proportion of ceramics with smooth surfaces, 2) proportion with wiping present, 3) mean thickness, 4) proportion of pastes oxidized, 5) and proportion with mica present.

Table 7.26: Summary descriptive statistics of ceramics. Y1 and Y3 most similar to each other overall.

Unit	Ceramic ct.	Density (/m³)	% Smooth	Mean thickness (mm)	% Oxidized	% Pres. Mica
Y1	2142	346.6	25.7	6.1	40.0	59.2
Y2	838	187.5	19.6	7.1	54.4	35.1
Y3	2049	260.2	14.3	6.6	36.5	57.3
Y4	705	95.2	18.6	6.8	69.9	41.1
Total	**5734**	**221.2**	**19.9**	**6.5**	**44.5**	**52.8**

Table 7.27: Presence of wiping on ceramics among structures excavated. Y2 and Y3 most similar to each other.

Unit	**Wiping present**	**Wiping not present**	**Total**
Y1	1488 (69.5%)	645 (30.1%)	2142
Y2	517 (61.7%)	321 (38.3%)	838
Y3	1216 (59.3%)	833 (40.7%)	2049
Y4	250 (35.5%)	455 (64.5%)	705
Total	**3471**	**2263**	**5734**

Results of the discriminant analysis show that the contexts of Y1 and Y3 were indeed the most similar to each other. They overlapped in the discriminant analysis, leading to the rejection of the null hypothesis that they are different (Figure 7.23). The confusion matrix showed 78.57% correct classification, but with the more conservative jackknife method showed only 42.86% correct classification (Chenoweth and Farahani 2015: 314; Kovarovic *et al.* 2011: 3009). The low percentage of correct classifications using the jackknife method is consistent with the ceramic assemblages of the structures being more similar than different. Furthermore, a principal coordinate analysis reveals there was no marked difference among the structures, because the variation between structures was not significantly more than within structures (Figure 7.24). In the principal coordinate analysis, Y1 was most similar to Y3 and Y2 was most similar to Y4, implying that if there were any real differences, they do not map onto moiety classes since both pairings are of structures from different moieties. Therefore, I hypothesize that the differences in production-related attributes do not reflect cultural differences at Yanawilka, but rather differences in the function of each structure.

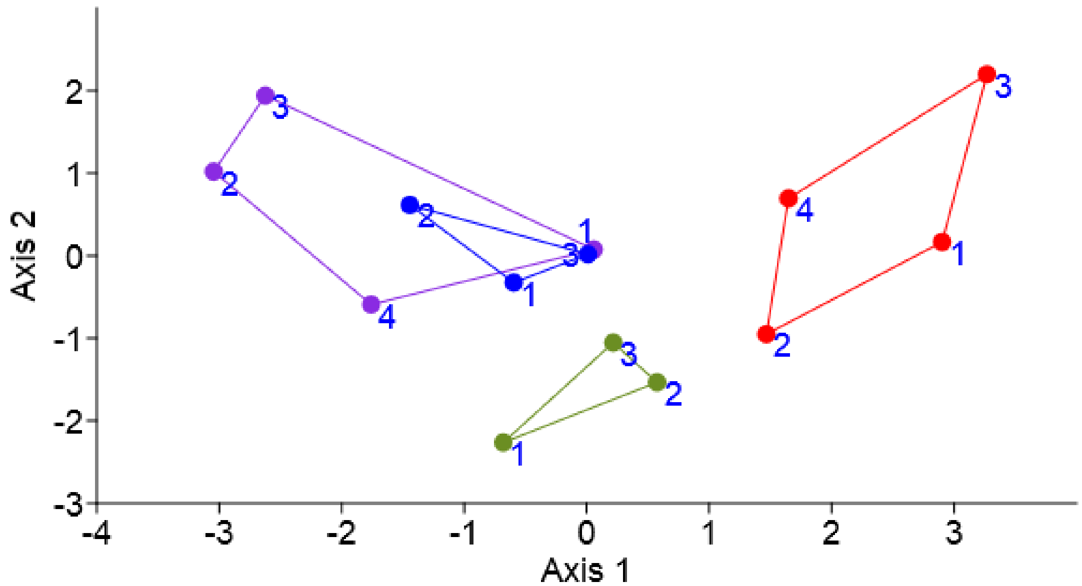

Figure 7.23: Discriminant analysis of the ceramics from Yanawilka structures. Purple dots denote contexts from Y1, green from Y2, blue from Y3, and red from Y4. Y1 and Y3 overlap, leading to the rejection of the null hypothesis that they are different. Axis 1 has an eigenvalue of 3.6517 and explains 67.43% variance, and axis 2 has an eigenvalue of 1.0488 and explains 19.37% variance.

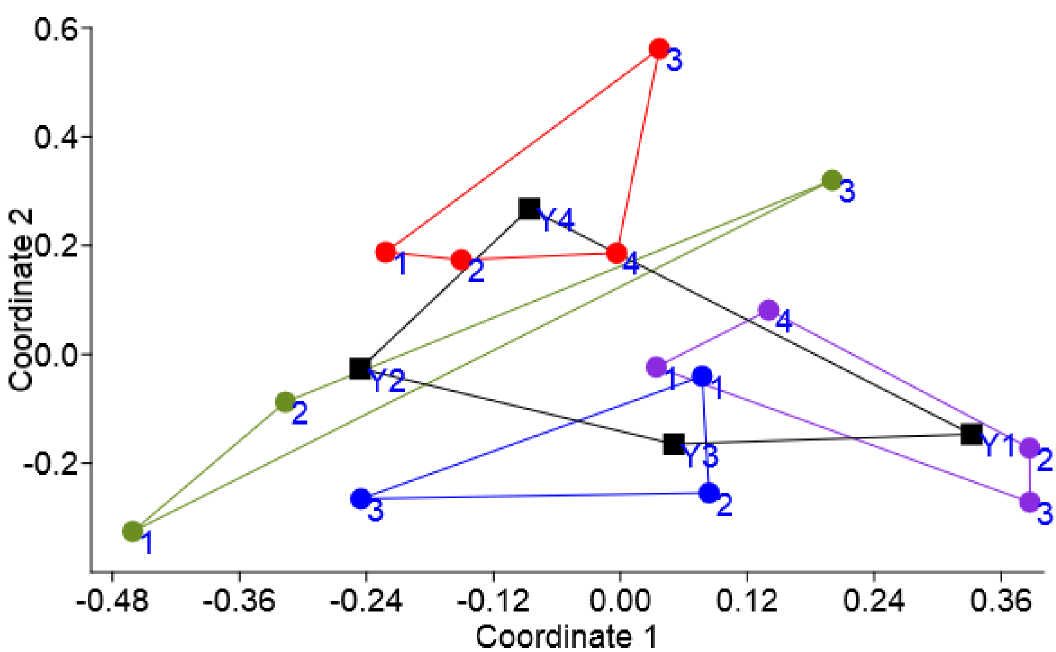

Figure 7.24: Principal coordinates analysis of ceramics from Yanawilka structures. Purple dots denote contexts from Y1, green from Y2, blue from Y3, and red from Y4. Black squares denote the entire assemblages of each structure. Coordinate 1 has an eigenvalue of 3.2035 and explains 70.471% of variance, and coordinate 2 has an eigenvalue of 0.89478 and explains 18.684% of variance. Y1 is most similar to Y3, and Y2 is most similar to Y4.

7.4.3 Question 3

What can we tell about cooking and food consumption practices from the ceramic assemblage?

We can tell a lot about how the inhabitants of Yanawilka prepared and consumed their food by analyzing rim diameter and the relative proportions of open (unrestricted) versus closed (restricted) ceramic forms. Bray (2003) showed how the frequency of certain vessels of the Inka culinary suite varied throughout the Inka Empire, with provinces emphasizing more *chicha* consumption (more arybalos). While the fragmentary nature of the Yanawilka ceramic assemblage does not permit the level of functional detail of Bray's study, but we do have an idea of the relative frequencies of open and closed forms. Open forms at Yanawilka were mostly bowls, judging by the curvature, but there were certainly plates as well. Closed forms, however, vastly outnumbered open forms at Yanawilka five to one (Table 7.28). Closed forms mainly consisted of round-based *ollas*, or cooking pots. A handful of vessels, at least three, were arybalos, but all the arybalo fragments were found in Y1. Bray (2003: 18) noted that in the provinces, the Inka culinary suite was mostly made up of the arybalo, shallow plates, pedestal pots, and two handed casseroles in a roughly 100:33:48:7 ratio. In the Inka provinces, the number of open form vessels was 484 and the number of closed form vessels was 2225, or approximately 1:4.6. In the Inka heartland, the ratio of open form vessels was higher, with 438 open to 1237 closed, or approximately 1:2.8 (*ibid:* 19). The 1:5.1 ratio at Yanawilka matches the ratio of the Inka provinces well and is statistically indistinguishable (X^2= 0.24025; dof=1; p value=0.62403; Monte Carlo p value=0.6718). At the Inka-Lucanas domestic site of Pulapuco, the ratio of open to closed forms was approximately 1:2.9 (182:536), which was much closer to the Inka heartland ratio (Abraham 2010: 202). Pulapuco, unlike Yanawilka, had significant Inka architectural canon and was probably an Inka administrative center. Clearly, more research is needed to understand the frequency of open and closed non-Inka forms in the Late Horizon at various sites, as doing so would shed much light on variation in domestic life on the continuum of Inka control.

Table 7.28: Distribution of sherds exhibiting clear evidence of open or closed vessel form.

Unit	**Open**	**Closed**	**Unknown**	**Total**
Y1	6	62	2074	2142
Y2	5	6	827	838
Y3	12	61	1976	2049
Y4	4	9	692	705
Total	**27**	**138**	**5569**	**5734**

The frequency of closed form vessels, which were mostly *ollas*, at Yanawilka attest to stewing or boiling as the primary mode of food preparation. As I noted in the faunal section of this chapter, many of the bones exhibit "pot polish" from being stirred inside pots.

How big were the cooking and storage vessels, and do they indicate food preparation for a few or for many people? Open forms were less than 10mm in thickness, which makes sense because they generally do not need to hold heavy liquids and be subjected to repeated heat (Figure 7.25). Closed forms had a larger range of thickness. There were almost no two rims that were from the same vessel, so there was not a problem of sample independence. Therefore, the statistical results should be valid.

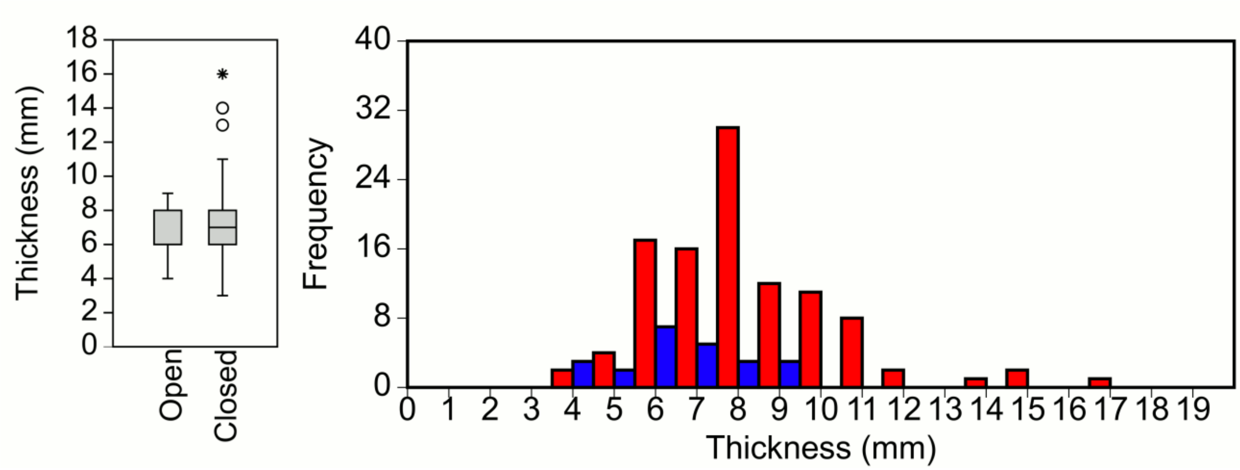

Figure 7.25: Boxplots and histograms of open and closed vessel thickness. One outlier in the "open" category was excluded. Blue is open and red is closed.

The diameter to thickness bivariate plot reveals that open forms were almost never more than 25cm in diameter (Figure 7.26). The only exception, measuring 50cm, was probably misclassified. The mean diameter of the open vessels, excluding the 50cm outlier, was 14.9cm. The mean diameter of closed vessels was larger at 16.7cm, but there was no statistically significant difference between the open and closed vessels (p values for all statistical tests above 0.10). The open vessels, for serving food or drink, were possibly sized for one person and probably not for serving more than a handful of people. In a group setting, several open vessels could be set for communal eating, allowing some flexibility, but the overall small portions of food and drink each vessel suggests that they could not accommodate large numbers of people. Some of the closed vessels, on the other hand, could have served large numbers of people. The few standouts in either rim diameter or thickness were probably reserved for feasting events or storage.

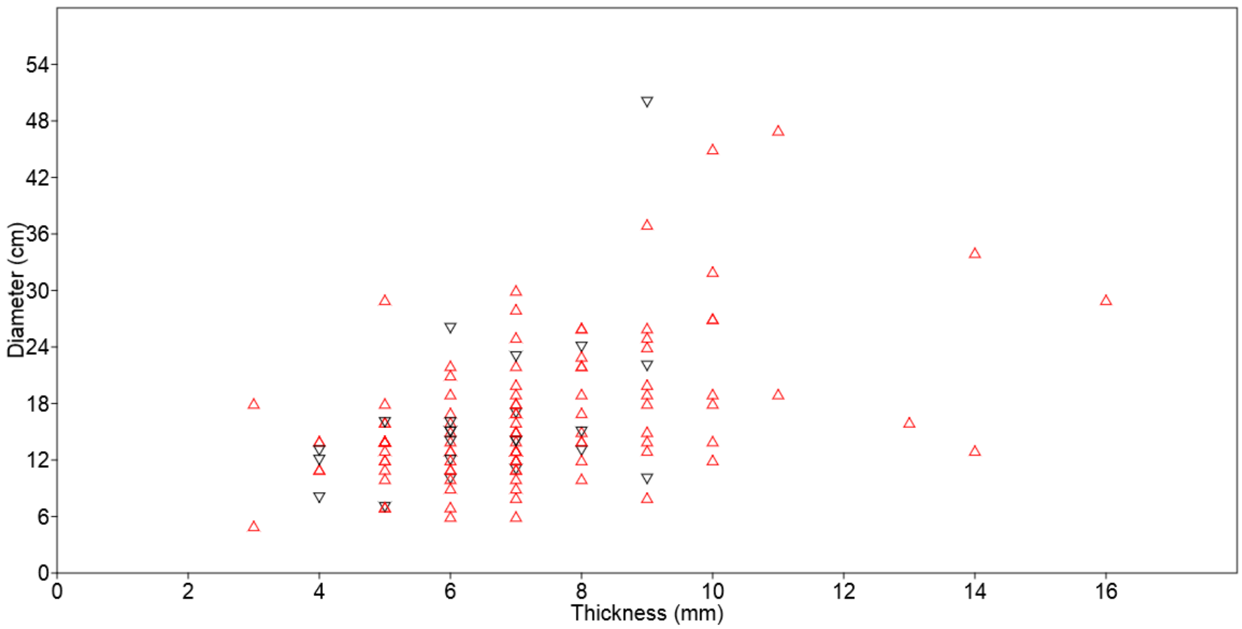

Figure 7.26: Plot of thickness and diameter of open (inverted black triangle) and closed (red triangle) vessel rims. No open vessels had wall thicknesses above 10mm.

The fact that most of the vessels seem to be reserved for smaller groups of people shows that most of the assemblage was for daily domestic use. However, the outliers suggest that feasting activities were also part of the social fabric of Yanawilka. Comparing the rim diameters of the structures, there was no statistically discernible difference among the structures (Figure 7.27). Y1 and Y3, however, did have some outliers at the high end, which is consistent with earlier interpretations that feasting probably occurred occasionally in these two structures. These large diameter closed form vessels were possibly for storage or brewing of large quantities of liquid, such as *chicha*. The *chicha* was probably prepared outdoors given the lack of evidence of large hearths indoors. Chicha was usually brewed in large quantities at certain times of the year, and had to be consumed no later than a few days after preparation due to souring quickly (Jennings 2005; Perlov 2008).

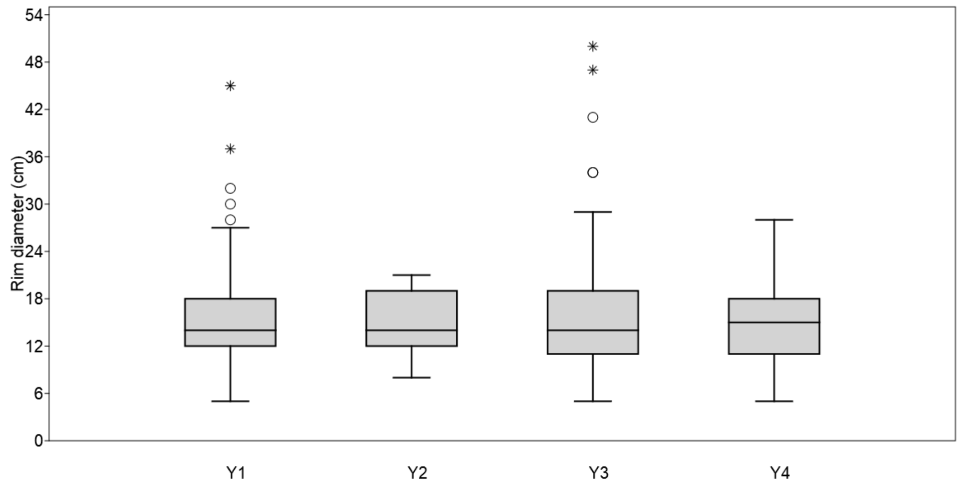

Figure 7.27: Boxplots of rim diameters among the four structures excavated at Yanawilka.

To summarize, there seemed to be two overall cuisines at Yanawilka, one for daily consumption and one for occasional feasts. Daily consumption consisted of stews consumed in bowls or straight from the *ollas*. Feasts emphasized large quantities of *chicha* (of maize and possibly algarrobo) and roasted meats. Y1 and Y3 were probably kitchens, where food preparation and consumption took place. These "kitchens" were not the strictly utilitarian conception of kitchens we have, but rather spaces for the production of social cohesion (Weismantel 1988: 169, 2005). A wide variety of activities occurred in these spaces, including lithic production, bone tool production, spinning, food consumption, and food preparation. Social cohesion at Yanawilka was characterized by overall cultural similarity, but evidence of uneven quantity of roasted meats between Y1 and Y3 show that there may have been social inequality at Yanawilka. Y1's location was more prestigious: it had a better view of the surrounding landscape and was right next to the ritually important rocky outcrop of Yanawilka. Y3 was not located in a prominent location compared to Y1. Y1 was also the only structure to incorporate Inka material culture into their daily ritual, through the placement of three Inka arybalo nubbins under three separate large foundation stones. One can speculate that given the overrepresentation of quality roasted camelid meats in Y1 (ribs and limbs), that the individuals who used Y1 were higher up in the Inka-sponsored social hierarchy at Yanawilka.

7.5 Activity areas

In this section, I plot the densities of lithics, faunal remains, and ceramics of the contexts of each structure to interpret where the loci of human activity were. I also compare the fill above the floor to the floor contexts so that I can assess whether the densities of remains were due to post-depositional processes of going downslope. If we see higher densities upslope as well as different patterns between the fill above the floor and floor contexts, then we can be assured that slope was not a contributing factor to the densities.

7.5.1 Spatial distribution of lithics inside structures

Slope did not seem to affect densities of lithics, as they were not concentrated downslope in any of the structures. Y1 and Y4 showed the highest densities of lithics, and for all structures, there were low densities of lithics in floor contexts (Figure 7.28; Appendix I). Y2 and Y4 had low densities of lithics, but it was still clear that the densities were uneven, hinting at activity areas. Of note is that the densities of Y2 and Y4 reverse in pattern between the floor and fill above floor contexts. For floor contexts, Y1 and Y3 showed negligible densities. It is possible that Y1 and Y3 did not show appreciable densities of lithics in floor contexts because of evolution over time of the functions of those structures. Lithic production may not have occurred in Y1 and Y3 initially with any regularity, but later, it seems that Y1 became a regular area of lithic use and production, especially on the eastern side where the possible hearth was (north east quadrant of the unit). Overall, the lithic density patterns show that certain structures, for example, Y1, had much more lithic production and use activity occurring and that there may have been shifting emphases in lithics-related activities over time.

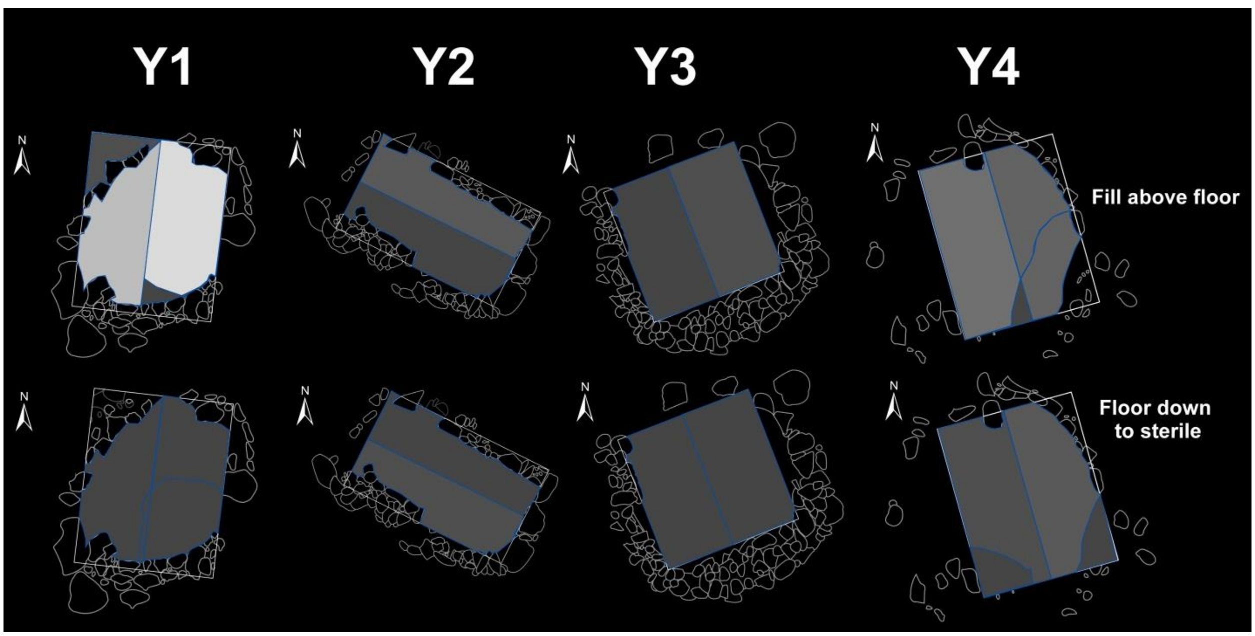

Figure 7.28: Lithic densities of contexts at Yanawilka. The lighter the color, the higher the density.

7.5.2 Spatial distribution of faunal remains inside structures

The patterns of faunal remains density are different than those of lithics, which supports the likelihood that there was some spatial division of different types of activities, whether it was faunal or lithic related (Figure 7.29). Similar to the lithic density patterns, the fill above floor contexts and the floor contexts exhibit different patterns, which could be a result of changing use of space over time. Whereas for lithics, Y1 and Y4 showed the greatest densities, for faunal remains, Y1 and Y3 show the greatest densities. This supports the interpretation that these structures were used at kitchens. As with lithics, Y1 shows the highest densities of faunal remains.

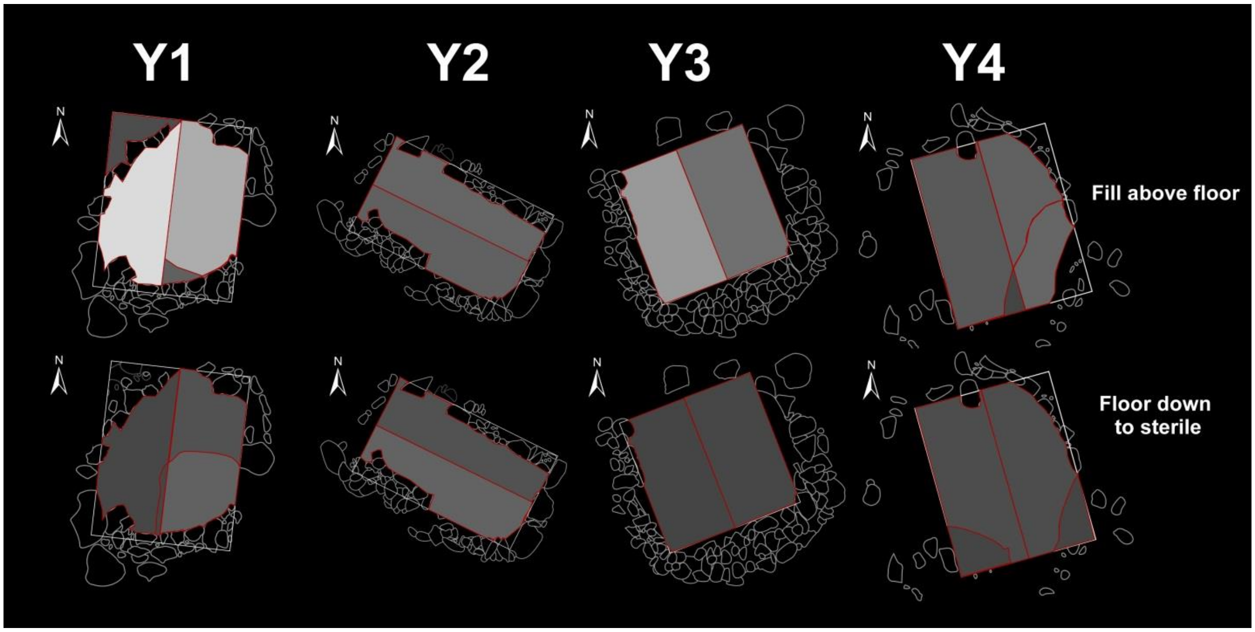

Figure 7.29: Densities of faunal remains of contexts at Yanawilka. The lighter the color, the higher the density.

7.5.3 Spatial distribution of ceramics inside structures

High ceramic densities spatially corresponded with high lithic densities (Figure 7.30; Appendix I). Most floor contexts had very low relative densities of ceramics. Only Y1 and Y3 had appreciable densities of ceramics in the fill above the floor, which is fully consistent with those structures being loci of many productive activities. The fragmented remains of ceramic vessels would accumulate over a few generations. Y1 showed much higher densities in the eastern side, especially in the northeast quadrant where the probable hearth was located. The location of the highest ceramic density was therefore fully consistent with cooking and therefore chances of breakage in that area. The highly fragmented and worn nature of the ceramic assemblage also suggests that the sherds remained in the structures after initial deposition. This is consistent with earlier lithic analysis that suggested no appreciable sweeping occurred inside the structures. For all of the classes of remains, lithic, faunal and ceramic, there was spatial integrity with where the original activities occurred. The outside context of Y1 (northwest corner, Locus 6W) showed much lower density of ceramics than the corresponding level inside the structure, showing that the differences in ceramic densities among the interior of the structures did reflect real differences during occupation. The spatial integrity was preserved due to a relatively short occupation, an apparent lack of sweeping or cleaning activities inside the structures, the walls acting against erosion/movement of artifacts, and a rapid abandonment.

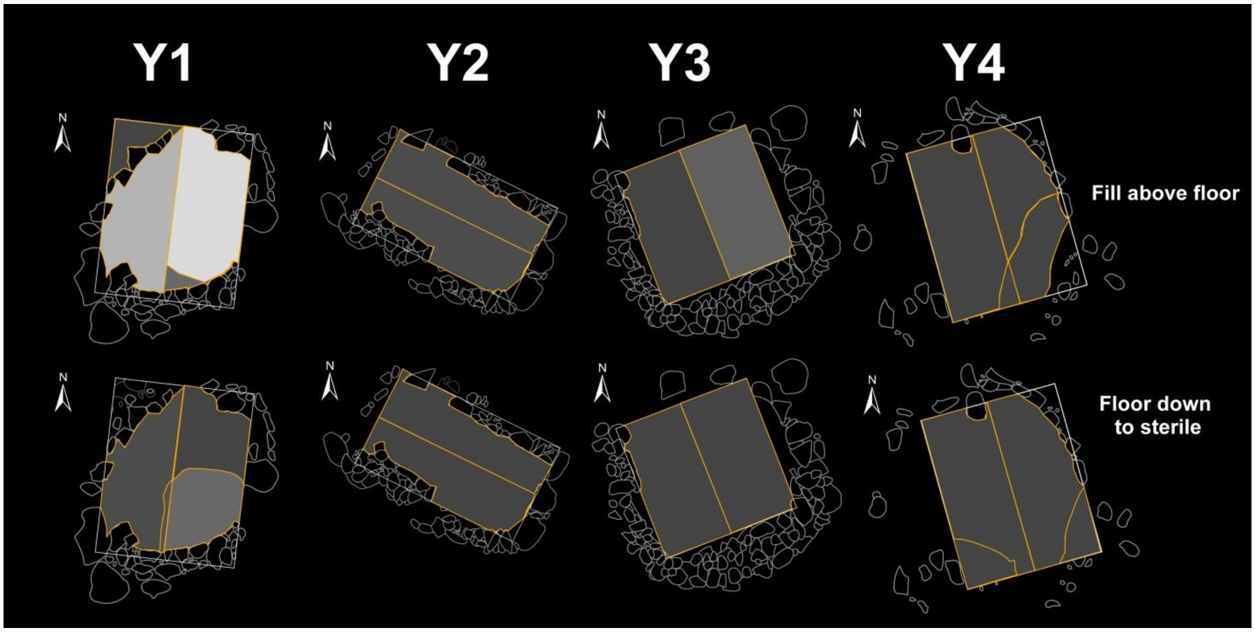

Figure 7.30: Ceramic densities of contexts at Yanawilka. The lighter the color, the higher the density.

7.6 Daily life at Yanawilka under the Inka Empire: an overview

The Inka were notorious for adjusting their strategies of rule depending on local conditions (Doutriaux 2004; Hastorf and D'Altroy 2001, D'Altroy 1992; Meddens and Schreiber 2010; Wernke 2007, 2013). Most often, they imposed hierarchical power structures by imposing settlement hierarchies. The Inka often depopulated the smaller settlements and elevated certain large settlements to be the administrative centers of the area. Therefore, where there may have been heterarchical settlement patterns before the Inka, the Inka imposed hierarchical settlement patterns. The area around Yanawilka, however, was unusual in that all the Late Intermediate Period settlements were depopulated. The settlement of Yanawilka itself does not have a Late Intermediate Period component and fits into the ethnohistorical narrative. In the neighboring areas of Lucanas and Soras, in contrast, all substantial LIP settlements continued to be inhabited during Inka rule (Meddens and Schreiber 2010: 139). In the province of Vilcashuamán, the Inka imposed an especially intrusive state strategy of control: that of mass deportation and subsequent transplantation of *mitmaqkuna* ethnic groups from various places. Vilcashuamán was a state-sponsored reordering of the social landscape on a scale that never occurred before the Inka and never had since in the area. From the ethnohistorical sources and the radiocarbon evidence from Yanawilka, the *mitmaq* policy was implemented soon after initial conquest as a form of consolidating conquest. From the archaeological evidence of the last four chapters, we can, for the first time, have some insight into the daily life of an agriculturalist *mitmaqkuna* domestic settlement in the heart of the Inka Empire. Synthesizing all the lines of evidence, we can reconstruct a plausible history and characterization of Yanawilka.

We know that sometime in the 1440s or early 1450s, during the reign of Pachakuti, the first inhabitants arrived at Yanawilka, and they were called the Condes. They probably came from or near the Cotahuasi valley in the modern day region of Arequipa, where there was an Inka province called Condes (Julien 1991: 118). The province of Condes had recently been subdued, and the province of Vilcashuamán was in the process of deportation of most of their original inhabitants, with the exception of the Tanquihua. It is unclear whether the first Condes migrants were from the same village or *ayllu*. A favorable location called Yanawilka had been chosen, and the Inka promised access to fertile agricultural lands. To arrive at Yanawilka, they travelled for at least a week over dangerous and uneven terrain. Perhaps they carried some obsidian tools and small stones of personal ritual significance from their homeland. Once they had arrived, they began modifying the landscape by building retaining walls, making high places higher through artificial fill, and creating multiple public areas for the different kin networks at Yanawilka. Yanawilka was divided into moieties, and the spatial organization of the moieties was consistent with Inka principles of directionality and hierarchy. There was cultural similarity between the moieties, but the upper moiety seemed to have higher status overall. Future excavations will surely reveal more of the complex social structure at Yanawilka, and Yanawilka's seemingly humble architecture did not translate into undifferentiated social organization. Yanawilka shows that we must not make assumptions about social complexity automatically reflected by architectural complexity.

The wider landscape was dotted with Inka installations, and the Condes of Yanawilka could see frequent traffic on the royal Inka road on a daily basis. Although diagnostic Inka material culture was not well represented at Yanawilka, the material evidence does show that daily life at Yanawilka was fully consistent with daily life under Inka control elsewhere. Although there were no big Inka administrative or ritual structures at Yanawilka, the presence of a small quadrangular structure with Inka-style masonry shows that there was some degree of Inka administrative presence, if small, at the site. Feasting events would also be occasions for the Inka to show their generosity and reify their privileged position in the social hierarchy (Hastorf and Johannessen 1993). The Condes at Yanawilka probably saw all three Inka emperors in processions along the royal Inka road: Pachakuti, Thupa Inka, and Wayna Qhapaq, as all three spent considerable time in Intihuatana-Pomacocha and the provincial capital of Vilcashuamán (e.g., Betanzos 1996: 170; Cieza de León 1959: 126-127; Pachacuti Yamqui 1879 [1613]: 276). It is also possible that the Inka may have visited Yanawilka during important festivals such as Raymi, which was also when tribute tax was due (Polo de Ondegardo 1964: 155).

The Condes of Yanawilka produced food and clothing for themselves, although during feasting events, the Inka probably gifted clothes and high quality roasted meats. The Condes of Yanawilka most likely produced surplus food for the nearby Inka settlements of Intihuatana-Pomacocha and Vilcashuamán, because they did not specialize in any craft activities. There were probably around one to two hundred people living at Yanawilka at any given time, and there is evidence that population grew in the three or four generations of occupation. For at least one family at Yanawilka (associated with Y1), Inka material culture was incorporated into household ritual through the burial of three zoomorphic arybalo nubbins underneath three major foundation stones. The quality of construction of the domestic structures, however, was rudimentary and less elaborate than most highland LIP domestic structures. Given that one third of all produce belonged to the Inka (Polo de Ondegardo 1964: 155), even the availability of fertile agricultural lands at Pomacocha probably could not offset the intense pressure to produce for the Inka. Furthermore, it is likely that the inhabitants of Yanawilka also had to participate in the construction of various Inka buildings dotting the nearby landscape at Intihuatana-Pomacocha and Vilcashuamán. An early Spanish colonial tax collection record from 1549 indicated some of the kinds of goods and foods the Inka would have required, and for the general Huamanga area included woolen products, potatoes, grease, and ceramics (Rostworowski 2005: 262-267). Daily life was probably difficult at Yanawilka due to the labor demands of the state.

The Condes at Yanawilka may not have had sustained formalized trading relationships with other communities, which would have been consistent with the Inka policy of fragmenting the political landscape to prevent rebellion. Interregional traffic was also highly controlled under the Inka, so getting around unbeknownst to the eye of the Inka state was not easy. According to Guaman Poma (1615: 546), the Inka made travelers wear special badges to show that they had permission on the roads.[11] Obsidian was scarce at Yanawilka despite its proximity to multiple major high quality sources of obsidian. The vast majority of obsidian came from Quispisisa, but most of the pieces were much smaller than expected given the nodule sizes at the Quispisisa source, and bipolar reduction was performed on obsidian from this source, which suggests that obsidian was scarce. Y1, however, did have higher than expected numbers of non-Quispisisa obsidian. This may reflect some degree of non-Inka controlled trade occurring. Because the Inka tolerated resource sharing, as long as ethnic groups were separated politically (Ramírez 1998: 57-58), there may have been opportunities for trading foodstuffs at the borders of juridical boundaries. Maize and potato were the daily staples, and stews were preferred. Most of the food consumed by the inhabitants of Yanawilka could have been grown in its immediate environs with two important

[11] Original: "…en el tienpo de los Yngas, para que no fuesen rreueldes, guagamundos, para que fuese muy ubedente en este rreyno, la gente en lugar de sédula del Ynga lleuaua señal los señores prencipales y demás yndios pobres en este rreyno." Translation: In the time of the Inkas, so that they would not be rebellious, vagabonds, and that they would be obedient in this kingdom, the people [principal lords and commoners], in place of a cédula [a written decree], would wear a badge.

exceptions: arrowroot and cassava. Flake tools were used to process both tubers, and because these two plants were not part of the tribute tax foods and foods stored in Inka qollqas (storehouses), they were probably foods grown by locals that could supplement the daily diet.[12] Cassava, in particular, is known as an anti-state food, as it is not easily taxable because it can grow in small patches without the need of constant tending in remote, forested areas (Scott 2009: 190, 195, 206). The consumption of these two tubers suggests that the inhabitants of Yanawilka were not isolated from surrounding groups. However, because other Condes groups lived in nearby areas where such tubers could be grown, it is not certain whether the Condes at Yanawilka traded with their kin (other Condes groups) or with a different ethnic group (Tanquihuas, for example). There is a good possibility that the Condes of Yanawilka did trade with another ethnic group, probably the Tanquihua.

Although the initial migration to Yanawilka may have been a significant rupture for the Condes, they quickly remade "home" in their new landscape. The settlement organization of Yanawilka was highly organized along cosmological principles, and graves dotted its boundary, recreating a new history at Yanawilka. After all, the Condes had lived there for several generations, and their old networks in their homeland were shuffled by the Inka, so it is not a surprise that they did not return to their homeland even after Spanish conquest. Instead, they may have started to create new networks over their new wider landscape, even though the Inka discouraged such inter-community cooperation.

When the Spaniards arrived in late October of 1533, Yanawilka was quickly abandoned due to the fierce battles occurring in its immediate environs. Yanawilka itself was not reoccupied during the Spanish colonial period, but its immediate landscape continued to be tilled by the same people as part of the larger Condes community of Vischongo. For the following centuries, the Condes would continue to fight for their ownership of the land they worked and turned into home. Although the fields that subjects tilled for the Inka were called the lands of the Inka, they practically belonged to the community (Bandera 1881 [1557]: 102). [13] In the subsequent chapters, I show how the Condes based their strategies of survival and prosperity in the Spanish colonial period on the fierce loyalty to the local landscape and alliance building with other communities and local ethnic groups, strategies first developed under Inka rule.

[12] The Inka storehouses of Vilcashuamán held coca, charqui (dried meat), wool, ají (chili), maize, fine clothing, arms, and probably potatoes (Cieza de León 1959: 127; Santillana 2012: 315). The early Spanish colonial tribute lists (tasas) from the 1540s are good indicators of tribute under the Inka, and none of them list cassava as part of the tribute (Block 1999).

[13] "Estas chácaras en que sembraban para el Inga, son las que agora los indios y los españoles llaman del Inga; pero, en realidad de verdad, no lo eran, sino de los mismos pueblos, las cuales tenían y tienen como propios de tal pueblo desde su fundación, para aquel mismo efecto de sembrar en ellas para el tributo, y así lo hacen agora." Translation: "These fields in which they worked for the Inka are those that the Indians and the Spaniards now call the fields of the Inka; but, in reality, they were not, and rather belonged to the same pueblos, which had and have as property those fields since their founding, for the same purpose of paying tribute, then and now."

8 Losing ground: resistance at Pomacocha from 1532 to 1690

This chapter will review the challenges to the autonomy and prosperity of the Condes, the inhabitants of Pomacocha, in the sixteenth to mid-seventeenth centuries before the establishment of the *obraje*. The chapter begins with a discussion of how the suppression of Taki Onqoy, an anti-Spanish revitalization movement that affected the area, marked the end of relative autonomy and the beginning of the loss of the most productive lands for the Condes. Challenges to the autonomy and prosperity of the Condes included the *reducciones* program implemented by Viceroy Toledo beginning in the 1570s, demographic collapse due to epidemics and onerous labor and tribute tax demands, and the rise of *obrajes*. This chapter argues that the Taki Onqoy rebellion spurred more intrusive state reorganization of the social landscape in Vilcashuamán. I argue that for the natives of Vilcashuamán province, *obrajes* and the loss of fertile lands created serious ruptures in within-group cohesion and also gave rise to increasing antagonism between communities over sole rights to land, whereas before, communities were dispersed and had overlapping usufruct rights. Because of this, the ecological complementarity and cooperation of the diverse ethnic groups was replaced with an economy that stressed division of local ethnic groups into separate tax, labor, and religious *doctrina* units. The Spaniards viewed these policies as part of the civilizing *policía* process, which would turn supposedly unruly, lazy and pagan natives into productive members of colonial society. The *tambo* Vilcashuamán became a major Spanish trade center because it was on the main highway from Huamanga to Cuzco, so there was economic incentive for state penetration. Resistance to the loss of native autonomy initially began as uneasy Spanish-native alliances (Stern 1993), but as religious orders like Santa Clara (St. Clare) gained power, the Condes of the community of Vischongo used encroachment on lands lost to the Spaniards as well as formal legal challenges.

8.1 Taki Onqoy

Before the Taki Onqoy movement, the Condes tenaciously held control of Pomacocha's lands despite the wider political chaos. From 1533 to the 1543, Pomacocha was a dangerous place to live given the frequent battles that occurred there, first during Spanish conquest and second during the Almagro-Pizarro civil war. Pomacocha may not have been a safe place to dwell for the Condes shortly prior to Spanish conquest either due to the civil war between Inka claimants to the throne Atawallpa and Waskhar, when many battles were fought around Vilcashuamán. Pomacocha seemed to be a key strategic point for the Almagristas and was described as a "strong site" during the

Guerra de Chupas (Cieza de León 1877: 265).[14] The Condes, however, still laid claim to Pomacocha despite all these years of disruption, as they were the ones who worked the land and created relationships with sacred *huacas* over the landscape for several generations. Intermarriage with the Spanish helped keep Pomacocha's lands under Condes control. The sister of the Condes *casique*, or chief, Don Juan Huchapaucar of Vischongo, Doña Beatriz Guarcay Inquillay married the Spaniard Don Cristóbal de Gamboa, and they founded a *hacienda* called "Paucarbamba," which included the lands of Yanawilka (Appendix D: 14). Hacienda Paucarbamba would later be the site of the *obraje* of Pomacocha, and it appears that the Condes still focused on agricultural work in the 1550s. Although they would have still tilled the lands of Yanawilka, they no longer lived there, probably due to the lack of a reliable water source on site and the generally exposed nature of the site. Demographic collapse probably also contributed to Yanawilka not being resettled in the colonial period, and people generally preferred to live in small dispersed hamlets if the state was not forcing them into larger, more accessible settlements (Santillana 2012: 321). Tribute and tax obligations were manageable during this period, and a significant portion of the population was not counted in the tax rolls judging from the discrepancies between earlier censuses and the Toledan census (Rostworowski 2005).

From the 1560s to the early 1570s, the Taki Onqoy (Quechua for "Dancing/Singing Sickness") movement shook much of south-central Peru. The core area of the Taki Onqoy movement comprised of the provinces of Huamanga, Lucanas, Parinacochas, Soras, and Vilcashuamán, and had spread to areas in what are now Arequipa, Apurimac, Cuzco, Huancavelica, Jauja, La Paz (Bolivia), and Lima (Duviols 1967: 36; Molina 2011: 84; Salas 1998a: 542-43; Urrutia 2014: 65). Taki Onqoy was an anti-Spanish religious movement whose message emphasized solidarity over ethnic, community, and emergent class divides (Stern 1993: 59-61). Taki Onqoy's adherents preached a rejection of all things and ideas Spanish, especially the Catholic religion, and a return to worship of the *huacas*. With ecstatic communal dancing and singing, the adherents spread the word that the *huacas* burned by the Spaniards had come back to life and will reverse the world order in their favor: "[B]ut that now the world had turned, and God and the Spanish would be conquered this time and all the Spaniards would die, and their cities be flooded, and the sea would rise and drown them... (Mumford 1998: 152)." Those who did not heed their message would invite the wrath of the *huacas* and die from pestilence (Salas 1998a: 539). In 1565 in Cuzco, Huamanga, Huánuco, and Jauja, plans for an armed revolt were discovered by magistrates (Molina 2011: 88, 120). There seemed to be many female preachers of the Taki Onqoy, and given that the ruptures in early Spanish colonial society were even less favorable to native women than to native men, this is hardly a surprise (e.g., Arriaga 1922: 84; Silverblatt 1987; Stern 1993: 66). Contrary to what Albornoz and Molina thought, the Taki Onqoy movement was not instigated by the rebel Inkas in Vilcabamba; rather, it was a popular movement

[14] "é otro dia se marchó hasta llegar á Pomacocha, sitio fuerte, adonde quisieron descansar é áun aguardar hasta que supiesen que el enemiga habia salido de Chupas, para dar la batalla en Sachabamba…."

that developed from the severe cultural and demographic ruptures in native society (Bauer 2011: xxxi).

The Taki Onqoy movement was also called “ayra.” A popular interpretation of the meaning of “ayra” is that it probably was the Quechua word *ayrihua*, meaning either the month of April or a maize harvest song and dance performed in May (Duviols 1967: 36; Arriaga 1922: 52-53, 205; Salas 1998a: 544; Tomlinson 2007: 184). The *ayrihua* dance involved tying cobs of maize to a stick and then dancing with the sticks with cobs (Arriaga 1922: 26, 205). The word *ayrihua* derives from *ayri*, which means “an ax for cutting,” referring to the implements used to harvest maize (Holguín 1952 [1608]: 57). Alternatively, “*ayra*” may be equivalent to *hayra*, which is the verb root of *hayratani*. Hayratani means “to castigate with hands or words with reprehension (Holguín 1952 [1608]:122).” I believe that the latter interpretation is more plausible for two main reasons. First, “aira” and “hayra” would have sounded nearly identical, but “ayrihua” has the extra syllable “hua.” Second, accounts of the Taki Onqoy movement stress the *huacas*’ punishing anger and the chastising quality of the adherents’ proselytizing (Duviols 1967: 36-38; Molina 2011: 85-87). Albornoz (Duviols 1967: 36) described the Taki Onqoy dance as involving copious drinking, frenzied dancing and crying, after which many ceremonies and ancient rites are performed.

After the movement was discovered by secular priests near Huamanga, the Taki Onqoy adherents, numbering at least eight thousand, were swiftly punished (Millones 1971: 63-64). Cristóbal de Albornoz was in the provinces of Huamanga (which included Vilcashuamán province at the time) from 1569 to 1571 to extirpate idolatries and to quell the Taki Onqoy movement (Duviols 1967: 35). Destroying *huacas* involved burning them, throwing them in the river, smashing them, or dismantling them (Duviols 1967; Arriaga 1922). To the Andeans, *huacas* were only powerful if they were effective; once the *huacas* were “conquered” through destruction people would stop worshipping them (Duviols 1967: 37).[15] Albornoz did not encounter major difficulties in his campaign because he received the help of many native collaborators who reported where the *huacas* were and who the Taki Onqoy adherents were (Molina 2011: 89). The native elite, who were generally receptive to alliances and a hybridized *modus vivendi* with the Spaniards, were not the prime force behind Taki Onqoy, as they stood to lose power if the movement was successful (Stern 1993: 65). Many native collaborators gained power and riches (*ibid*: 75). Guaman Poma (1615: 690), who was employed by Cristóbal de Albornoz during Taki Onqoy, described how collaborators used extirpation to further their own ambitions:

> Don Juan Cocha Quispe, fiscal, was a Quechua indian. By order of Cristóbal de Albornoz, he destroyed all the *huacas* and idols, while hiding his own. Because of this, he gained the position of *curaca* [chief], but through great bribery. As a result, he became very rich, and the judge Albornoz became poor. With the riches

[15] In reality, pieces of destroyed huacas were highly sought after by the natives, which encouraged extirpators to make sure there were no remnants.

> he became *curaca*, chief, and ruled over all the Quechua Indians and *mitmaqkuna*. And to this day, along with his children, he rules the aforementioned Quechua *ayllu*.[16]

People like "Don" Juan Cocha Quispe deftly maneuvered during the extirpation so that they could easily destroy their enemies by informing on them or receive bribes to keep quiet about certain people's activities. With the riches and power, they rose to prominent positions that were previously hereditary.

Emergent class distinctions between the elite and commoners were put in relief during the Taki Onqoy (Stern 1993: 65-66). These tensions sometimes resulted in violence. Albornoz (Duviols 1967: 36) stated that in the *pueblos* of Huamanga (which included Vilcashuamán province at the time), the Taki Onqoy adherents would seek out local native priests ("camayos de huacas"), entice them to drink and dance and then kill them to consolidate religious dominion over the populace. Knowing that the local native priests often developed an understanding with the Catholic Church and held much sway over people, the Taki Onqoy adherents would target them to get rid of competition. More often than not, the marginal members of the community, such as the *yanaconas*, would participate in the movement (Stern 1993: 65). The prevalence of women participants, and at the highest ranks, in the Taki Onqoy movement is not surprising.

Even though Taki Onqoy had not turned violent against the state, the Spaniards were unsettled by the scale and anti-Spanish message of the movement. In the Spanish colonial province of Vilcashuamán, which was at the heart of Taki Onqoy, the suppression of the movement was brutal (Salas 1998a: 548). There was an important *huaca* of the Taki Onqoy movement at a place called Chincheros, twenty-one kilometers south of Pomacocha (Salas 1979: 152-160, 1998a: 548). At Chincheros, extirpators publicly disinterred and burned 160 ancestor mummies (*mallquis*) and small deities known as "illas"[17] (Salas 1998a: 548; Duviols 2008: 132). Nativist religions flourished in Vilcashuamán province, and in Huamanga in general (Arriaga 1922: 83). Social tensions drove much native religious innovation during the early Spanish colonial period. Although the Taki Onqoy preached against Catholicism and Spanish culture, there was evidence of religious hybridity in the adoption of female "saints" with Christian names (Stern 1993: 66). This hybridity seemed to be the rule, and not the exception, in native religion both under the Inka and the Spanish.

Pomacocha was in one of the core areas of the Taki Onqoy movement, and given that Yanawilka was an important local *huaca,* it would have been an ideal place for adherents. The idea of a "ñaupallacta" or ancient town as a place to return to during festivals or for rituals was salient during the Spanish colonial period, and Yanawilka

[16] Original: "Don Juan Cocha Quispe, fiscal, fue yndio bajo Quichiua. Por mandado de Cristóbal de Albornós, destroyyó todas las uacas ýdolos, escondiendo lo suyo. Y por ello, alcansó curaca pero llebó este grandes cohechos. Y ancí salió muy rrico, el jues salió pobre. Y con ello se hizo curaca, prencipal, que le obedició todos los yndios Quichiuas, mitimays. Y se quedó hasta agora sus hijos en el mando del dicho ayllo Quichiua."

[17] Also known as conopas (Lau 2008).

may have been both *ñaupallacta* and *huaca* (Huertas 1998). Yanawilka was a prominent place on the landscape and was mentioned in the land titles of Pomacocha several times (Appendix D). Ceramic sherds were found in front of the rocky outcrop of Yanawilka as well as in its crevices. People were interred inside of it during the Late Horizon, so its status as an important *huaca* is certain.

Class distinctions were already apparent among the Condes before and during Taki Onqoy, as the sister of the principal chief of Vischongo, Doña Beatriz Guarcay Inquillay, owned vast stretches of Pomacocha lands, established an *hacienda* for the Condes to work in, and consolidated the ownership through marrying the Spanish elite (Appendix D: 14-15). These class distinctions meant that there were marginalized members of the community who did not own land and had to work in the *hacienda*. These more marginalized members, who had to fulfill multiple tax and labor obligations, to the *casique*, to the *hacienda*, to the *corregidor* (chief magistrate of the province), to the Church, and to the Crown, would have been receptive to Taki Onqoy's message. The combination of further impoverishment, rise in labor obligations, Hispanicization of the elite, rampant epidemics, and ruptures in traditional ritual provided the needed context for receptive Taki Onqoy adherents (Bauer 2011; Stern 1993).

Although Taki Onqoy was officially suppressed in 1572, native ritual practices continue to the present day. People in Pomacocha still make offerings to the local *huacas*, including to Yanawilka, to ask for fertility and good health for themselves, their animals, and their crops. Furthermore, folk stories about Spaniards extracting fat probably originated with the Taki Onqoy movement and are still told in Pomacocha. After 1570, a belief arose among the natives that:

> ...[people] had been sent from Spain to this kingdom [to search] for an ointment of the Indians to cure a certain illness for which no medicine was known except for that ointment. In those times [and] for this reason, the Indians went about very secretively, and [they] distanced themselves from the Spaniards to such a degree that no [Indian] wanted to take firewood, herb[s], or other things to a Spaniard's house. They say that [in this way, the Indian] would not be killed inside by having the ointment extracted from him [Molina 2011: 84-85].

This ointment referred to fat/grease (Bauer 2011: xxxiii), and this belief reflected the anxieties of native commoners: that the Spaniards would extract their "fat" (labor and power) to the point of dying so that the Spaniards could cure themselves of some unknown illness. This "illness" could have been a metaphor for gold and riches, or it could have been more literal, as Spaniards were known to use human fat as a salve for their wounds (Szeminski 1987: 171). "I am my companions suffer from a disease of the heart which can be cured only by gold" is a famous quote attributed to Hernán Cortés (López de Gómara 1966: 58). Guaman Poma (1615: 371) also noted how the Spanish obsession with gold led Andeans to believe that they ate gold to survive; he relates a story where an Inka asked "Is this the gold that you eat?" and the Spaniard replied, "This gold we eat." This story about fat extraction lived on in many forms from Taki

Onqoy to today in the Andes, and often manifests as the myth of the *ñak'aq* or *pishtaku*, fair-skinned vampire-like humanoids, often equated with Spaniards and *mestizos*, who feast on the fat of natives (Szeminski 1987: 170; see also Weismantel 2001). I personally have heard versions of these stories in several communities in the region of Ayacucho: Cacamarca, Chincheros, Huamanga (Ayacucho), Pomacocha, Pomatambo, and Vilcashuamán. The stories I heard referred to how the Spaniards extracted the fat of people to use as fuel for founding church bells, and that the more fat used, the sweeter the bells would ring. Church bells sounded the beginning of the work day in the *obrajes* such as the one at Cacamarca (Salas 1998a: 211). Fat was, and still is, precious to the Andeans, as it contained the life-giving essence of that particular being and would often be burned during sacrifices (Arriaga 1922: 45-46, 198; Molina 2011: 18). These stories probably originated with the Taki Onqoy movement, because the earliest and, thus far, the only colonial reference to this kind of story refers to the Taki Onqoy movement. The stories remain salient even today because labor exploitation is common. The stories' themes work on many levels, from literal to metaphorical.

8.2 Establishment of *reducciones* and *obrajes* in the province of Vilcashuamán

The Taki Onqoy rebellion had far-reaching legacies. The Spaniards began earnestly implementing policies and institutions to prevent threats to the colonial regime, and the civilizing rhetoric of these policies, emphasizing "policía," or civic life and order, underpinned strategies of control of the native populace in the coming centuries. As Stern (1993: 71) said, "[t]he crisis of the 1560s inspired radical dreams of utopia in native society; in imperial society, the crisis gave rise to a radical, reformist spirit which searched for solutions." In Vilcashuamán province, *obrajes* were first established by conquistadors in the 1560s to 1580s towards the end of the Taki Onqoy movement (Salas 1979, 1998a). Starting in the 1570s, Viceroy Francisco de Toledo began his *reducción* program, which "reduced" or aggregated smaller settlements into "reducciones," larger settlements organized according to a grid. The primary purpose of *reducción*, according to Toledo, was to indoctrinate the native populace into the Catholic faith, which is necessary to overcome their natural state as "enemies of work" (Noejovich 2009: 67). Others have discussed the *reducción* program in more detail (e.g., Mumford 2012; Noejovich 2009). For the purposes of this dissertation, I focus on the implementation and outcome of *reducción* in the core Vilcashuamán area (modern province of Vilcashuamán) for the Condes and the Tanquihua peoples.

The process of resettlement and aggregation began before Viceroy Toledo, as a consequence of demographic collapse caused by epidemics and the installation of the *encomienda* and *repartimiento* system (Yaranga Valderrama 1995). The *encomienda* system granted conquistadors the right over a native group's labor. The *repartimiento* system divided the native populace roughly along ethnic lines (although they sometimes split or aggregated ethnic groups) into units with specific tax and labor obligations to the Crown and Church (Stern 1993). As both systems allowed for unchecked exploitation of native labor, which aggravated the depopulation of native communities and left many, especially the small ones, deserted, thereby "reducing" settlements. In the Huamanga region, for example, out of a total of 676 settlements recorded in 1549, only 252 continued to be inhabited in 1557 due to population decline (Bandera 1881 [1557]: 96). The Toledan *reducción* program began in the 1570s, but the process of resettlement continued through the Spanish colonial period (Mumford 2012).

I argue that *obrajes* and *reducciones* fulfilled the same state agenda of making the native populace more docile, as the Spanish equated good religion with hard work. Obrajes and *reducciones* caused significant disruptions to daily life and social cohesion. Specifically, they exacerbated depopulation, increased class tensions within the communities, and created a vicious cycle of the loss of fertile lands for native communities. First, I show how *obrajes* provided incentives to make the aggregation of people feasible. Second, I summarize the major effects of the *reducción* program in the Vilcashuamán province. I show how both *obrajes* and *reducciones* severely disrupted political cohesion and the *modus vivendi* of the 1540s to 1560s. The implementation and consequences of resettlement was uneven in the core Vilcashuamán area, and some groups, such as the Condes, fared better than others, such as the Tanquihuas.

Toledo's *reducción* program was not nearly as efficient, standard, and successful as he had hoped (Mumford 2012). Local conditions, from ecology, social landscape, and previous settlement planning, to political interests of clergy, local Spanish authorities, *hacienda* owners, and native leaders, all affected the implementation and outcomes of *reducción* (*ibid*; Wernke 2007, 2013). *Reducción* was less a reflection of a standardized state policy than a political arena for local actors to gain or consolidate power over indigenous labor. As such, in many areas, *reducciones* did not successfully fulfill Toledo's vision because much of the native population was not living in them; they were home for Spaniards, *mestizos* and *mulatos* as well, contrary to official policy that designated *reducciones* to be native only ("República de Indios") (Mumford 2012: 153). Keeping the native population in *reducciones* long-term was difficult. Walking great distances to tend to their fields became too burdensome. Resettled people moved back to their former hamlets to be closer to their fields and *huacas,* because their previous local landscape was laden with meaning and history (*ibid*: 139-145). The implementation of *reducciones* was also slow: many *reducciones* were incomplete in the late sixteenth century (*ibid*: 139). Endemic corruption, among both natives and non-natives, made *reducciones* unsavory places to live for commoners, as one had to fulfill multiple, and often illegal, labor obligations and had little legal recourse (*ibid*: 149-151). Nevertheless, *reducciones* were successful in Vilcashuamán province, and nearly all were continuously inhabited to the present day. Why was this so?

Reducciones were most successful when they were located near a large labor force (Mumford 2012: 120). Existing large population centers, *haciendas,* and *obrajes* nearby all made *reducciones* more likely to survive the challenges of escape and demographic collapse. Reducciones, in turn, also encouraged the growth of nearby *haciendas* and *obrajes* because of the proximity of labor. In the sixteenth century, the native peoples had to fulfill *mita* labor obligations at both *obrajes* and the mines, especially at the mercury mines of Huancavelica (Salas 1979; Yaranga Valderrama 1995). They also had to pay tribute in food, clothing, and cash, so they needed to be close to both their fields and to cash-paying *haciendas* and *obrajes*. The province of Vilcashuamán had a total of thirty-four *reducciones* in 1586 (Carabajal 1965). *Reducciones* were located at pre-existing population centers that had been occupied since the Wari period (Valdez and Vivanco 1994). *Obrajes* were always sustained by multiple local *haciendas* (Cushner 1982; Salas 1998b). *Obrajes* and their satellite *haciendas* in Vilcashuamán were located near *reducciones*, within a couple hours' walk. The *haciendas* of Chanin and Paucarbamba were close to the *reducción* of Vischongo. The *obrajes* of Canaria and Chincheros were at or near the *reducciones* of Canaria, Cayara, and Huamanmarca. The *obraje* of Cacamarca was near the *reducciones* of Chumbes and Ocros, five and eight kilometers away, respectively. The proximity of *obrajes/haciendas* to *reducciones* meant that the native populace could earn cash without abandoning their fields and homes. The legacy of the Inka state in Vilcashuamán province was instrumental to the relative success of *reducciones* in Vilcashuamán. Because the Inka had already intensively reordered settlement patterns in the province of Vilcashuamán for suitable extraction of labor, the Spanish *reducciones*, founded on previous Inka period settlements, were already in optimal locations (see Figure 8.2).

With their agreeable climate, access to fresh water, and fertile lands, *hacienda*s and *obrajes* tended to be at the same site, or close to, pre-*reducción* towns. One of the stated goals of *reducción* was to move people away from their *huacas* (Mumford 2012; Noejovich 2009). *Obrajes* and *hacienda*s, however, were always located near important *huacas* in the province of Vilcashuamán. For example, *hacienda* Paucarbamba in Pomacocha was located only a few hundred meters from Yanawilka. The Chincheros *obraje* was located at an important Taki Onqoy religious center (Salas 1979; 1998a). Cacamarca *obraje* was located a few hundred meters from Lake Angascocha, an important *huaca* and *ñaupallacta* (ancient town) for the Tanquihua (Santillana 2012: 319). The Spanish were notorious for superimposing churches and crosses on top of pre-Hispanic religious sites. The church of Vilcashuamán itself, for example, was superimposed on the Inka temples of the sun and moon. The Spanish built churches and chapels at their *haciendas* and *obrajes*, so that religious indoctrination could, in their eyes, make the workers into obedient and hardworking subjects. At both Cacamarca and Chincheros, the church was part of the *obraje* compound. The church of the *obraje* of Pomacocha was only a stone's throw away.

While visiting the *obraje* of Chincheros, I noticed that the church located inside the textile workshop was placed at an unusual orientation relative to the principal patio of the workshop. Behind the church was large rocky outcrop that could have been the same *huaca* described in the historical documents regarding the Taki Onqoy (Figure

8.1). The church may have been placed to capture the ritual importance of the pilgrimage to the site and cut off access to the *huaca*.

Figure 8.1: The Chincheros *obraje*. Note the unusual orientation of the church along North-South line and the location of the rocky outcrop behind it. The western side of the church and rocky outcrop is a steep decline.

Establishing *obrajes,* especially at or near native sacred sites, was motivated by the common Spanish attitudes at the time about natives as "phlegmatic, lazy, evil, liars, thieves, cowards, and ingrates" who were the "capital enemies of the Spaniards."[18] In 1567, Juan de Matienzo (1967 [1567]: 85-87), in his influential treatise entitled "Government of Peru" characterized all the natives as "cowardly," "timid," "naturally melancholic," "afraid," "lazy," "stupid," "dishonorable," "dirty," "naïve," "born and raised to serve," "enemies of work and friends of laziness," "friends of drunkenness and of idolatry," "uncharitable," "liars," and "cruel." Most central to Matienzo's argument was that the natives only behaved when forced to do so under the threat of violence, out of fear. Left to their own devices, they were treacherous: "They are dishonest and use treachery whenever they can, especially if they see a Spaniard alone in lands that are not very pacified. They are very cruel, that they murder each other for trivial reasons, and [murder] Spaniards when they know that they [Spaniards] are alone or sleeping" (*ibid*:

[18] British Library, London, [BL], Add MS 17586, Tratado sobre Guamanga, February 22, 1586, ff. 6-7.

86).[19] Because the natives were "born to serve," Matienzo believed that good government should rest of putting the natives to hard work: "They…were born to serve…and to learn mechanical trades, in which they have skill. They are very good weavers and painters" (*ibid*).[20] Putting the natives to work would ensure that they could overcome their violent nature, he reasoned. Matienzo's treatise became the basis of Viceroy Toledo's tribute tax and *reducción* system (Mumford 2012: 69). Such attitudes about the character of natives persisted throughout the colonial period and the language used to characterize the natives remained remarkably consistent (see chapters nine and ten).

To fulfill labor and tribute tax duties, many indigenous people worked endless hours in *obrajes*, *hacienda*s, or mines from childhood until death (Salas 1979). In addition to *mita* labor at *haciendas* and *obrajes*, *yanaconas* became an ever more important part of the labor force. Many people escaping unbearably corrupt *reducciones* and *mita* labor in the mercury mines of Huancavelica would seek the protection of *hacienda*s and *obrajes*. The *haciendas* and *obrajes* generally paid their tribute tax and payment in exchange for someone else to take their place in Huancavelica in exchange for labor on the *hacienda*, making the natives into *yanaconas*, dependent laborers (Salas 1979, 1998a; Stern 1993). Often, it would be the poorest members of the community who would flee to *haciendas* and *obrajes*, because the richer members would pay a fee to commute their *mita* obligation and appropriate the land of those who had escaped (Serulnikov 2003: 89). In this way, the native populace was further divided along class lines.

The *obrajes* employed young children, women, and old people because middle-aged males had to fulfill *mita* labor at distant mines (Salas 1979: 71-72). Most of the permanent labor force of the *obrajes* would often be forced into debilitating debt that turned many community Indians into *yanaconas* or workers detached from their communities and subservient to Spanish masters (Salas 1998a: 372-273). By becoming *yanaconas*, native peoples were sometimes able to lessen the proliferating labor obligations because they only needed to fulfill the needs of the *hacienda* or *obraje* owners, which usually did not require much travel (*ibid*). Because *obrajes* and *hacienda*s would often allow native peoples to work their former lands and therefore be close to their *huacas*, many people fled their communities to become *yanaconas* in *hacienda*s and *obrajes*. Nevertheless, the conditions of the *obrajes* were often so unbearable that people had to escape. For example, at Chincheros, many children escaped to the city of Huamanga (Salas 1979). People also tended to escape to inaccessible areas on the landscape, especially the sides of steep mountain valleys and

[19] Original: "Son mentirosos y usan de traición cuando pueden a su salvo, especialmente si ven a un español solo en tierras que no están muy pacíficas. Son muy crueles, que se matan unos a otros por pequeña ocasión, y a españoles quando les saben solos o dormiendo."
[20] Original: "Ellos…nacieron para server…e para aprender oficios mecánicos, que en esto tienen habilidad. Son muy buenos texedores y pintores."

ravines (*quebradas* or *huayccos*) (Glave 2009: 441-442; Santillana 2012: 321).[21] Strategic escape was a form of voting with one's feet to find less burdensome labor obligations (Mumford 2012: 153). The ever shrinking labor force due to demographic collapse and escape, however, did increase competition for native labor among native and Spanish elites from different sectors of the economy, and such competition would open up opportunities for new kinds of political alliances in the seventeenth to the early nineteenth centuries.

Despite mapping onto many Inka-era settlement patterns and way of life, the *reducción* program in Vilcashuamán province, as elsewhere, wreaked havoc for native communities. The implementation of *reducciones* enabled the Spaniards to appropriate the most fertile agricultural lands (Mumford 2012: 146). All native groups experienced some degree of land appropriation, but Tanquihua land was especially diminished. The Condes, on the other hand, fared better than most other groups in keeping some degree of control over their lands well into the seventeenth century. In Vilcashuamán province, the Spaniards appropriated land in a consistent pattern. The Spaniards treated the "lands of the Inka" as rightfully theirs and claim legal ownership. In order to do so, the Spaniards had to prove that the land used to belong to the Inkas and to the Sun (Inti), that no one currently works that land, and that the land is of "ningún provecho," or useless, and "enferma," sick (see Appendix D).[22] If the native peoples still lived close to that land, they laid claim by continuing to use them, and it was difficult to prevent such intrusions with low state capacity (e.g., Piel 1995). To counteract this, the Spaniards would often use the *reducción* program as a pretense to move people away from coveted agricultural lands (e.g., Ramírez 1996).

The local implementation of the *reducción* program unevenly affected the *repartimientos*. Compare the Condes to the Tanquihua, for example. The Tanquihua lost large tracts of land that were distant from their *reducciones* (Figure 8.2). By 1690, the Tanquihua had lost significant tracts of their ancestral lands because members of their own communities illegally sold communal lands of those who had absented or died, and because Spanish enterprises such as ranches, sugar mills and *obrajes* illegally purchased communal lands.[23] The chiefs of Vilcashuamán province declared to inspector Alonso de la Zerda y de la Coruña: "…as each married Indian is in the obraje with his wife and child, they cannot work their fields and therefore flee and sell all they have of their clothes or livestock so they can eat, and thus die from hunger…" (Salas 1998a: 371). With communal lands ever shrinking and the heavy burden of the Huancavelica *mita* and debt slavery to *obrajes*, there was little incentive for people who had fled to return.

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[21] Archivo General de la Nación, Lima [AGN], Documentos diversos sobre la visita y reducción de Huamanga, Derecho Indígena, Legajo 5, Cuaderno 65, 1619.

[22] AGN, Composición de las tierras denominadas Chinchepampa, Ayabamba, Higos-pampa y otras, partido de Huamanga, Títulos de Propiedad, Legajo 18, Cuaderno 451, ff. 14-15, June 1, 1712.

[23] Biblioteca Nacional del Perú [BNP], Composición de tierras en la provincial de Vilcas por Dn. Pedro Guillén de Rodas, Z315, ff. 5v, 9v-10r, February 20, 1686.

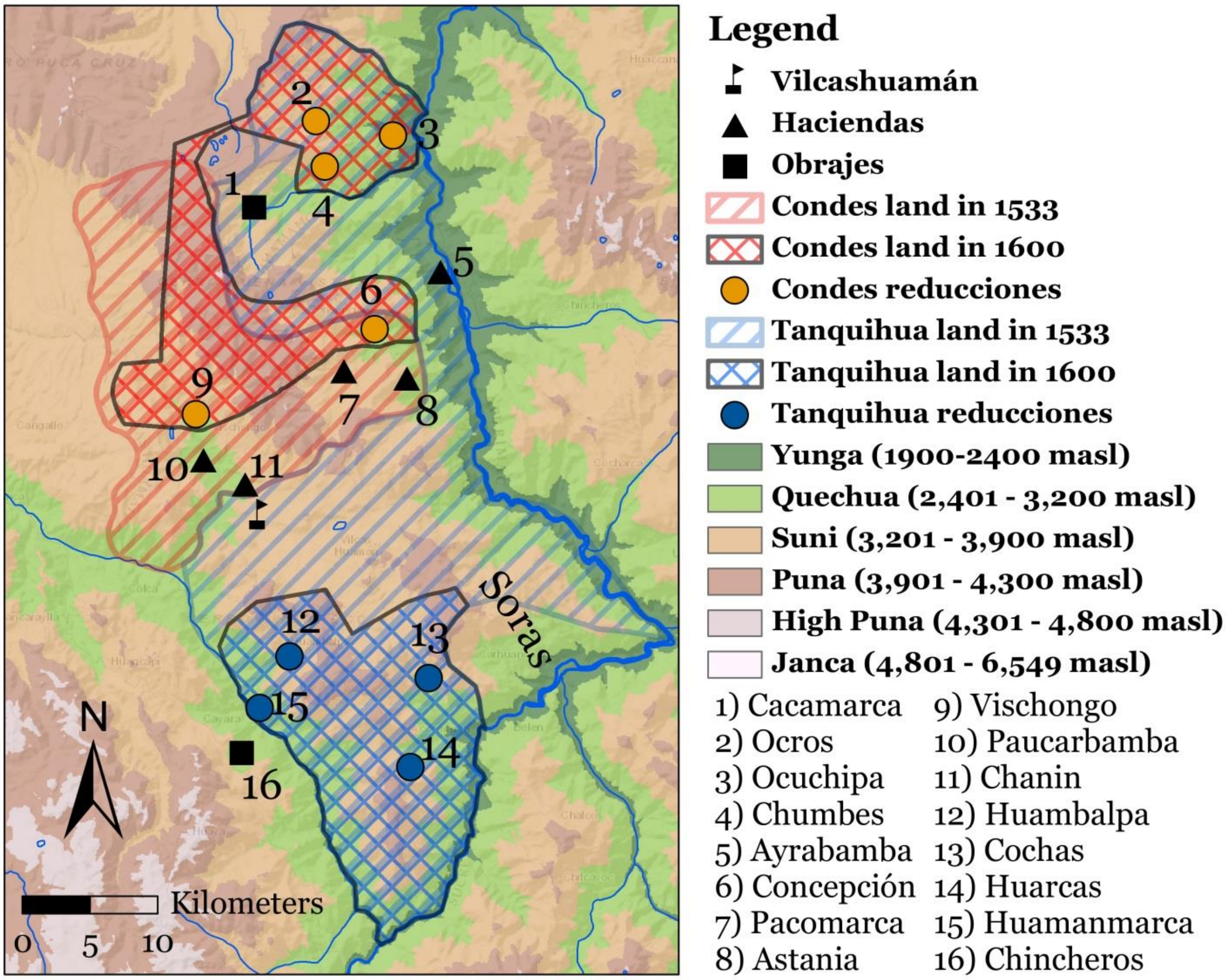

Figure 8.2: Reducciones, *hacienda*s, *obrajes,* and land loss patterns of the Condes and Tanquihua, sixteenth to mid-seventeenth centuries.

Although the Condes lost legal claim to a part of Pomacocha's lands early on around Lake Pomacocha, they still used the land and put up fierce legal resistance over its loss for more than half a century (Appendix D; Piel 1995: 175-176). The difference between the Condes and the Tanquihua was that the lands the Tanquihua lost were too distant from their *reducciones* to allow for easy intrusions, whereas the Condes *reducciones* were located near all their prime agricultural lands. Furthermore, the Condes were not subject to *mita* labor in the mines of Huancavelica in the sixteenth and seventeenth centuries, unlike the Tanquihua. The Condes had to fulfill *mita* labor in the form of *chasqui* work, or running messages and goods for Spanish officials, which was also tiresome, but at least they could work close to home. The plethora of *obrajes* and *haciendas* near their *reducciones* also provided the Condes with ample opportunities to earn cash to pay their tax to the state.

The Condes and Soras ethnic groups gained land at the expense of the Tanquihua during the process of land appropriation by the Spaniards. They received some Tanquihua land in exchange for testimony supporting the cause of the Spanish claimants. For example, in 1579, the legal process by which the Tanquihua lost lands around the Astania, Ayrabamba, Cacamarca and Pacomarca involved various Condes and Soras *casiques* testifying that those lands were vacant, very hot, "sick," and of "no use to mountain Indians."[24] Among the *casiques* who testified in favor of the Spaniard Hernán Guillén de Mendoza was the Condes *casique* of Vischongo, Don Juan Hocha Paucar (Huchapaucar).[25] The Tanquihua whose ancestors worked those lands, Andres Huacra, testified that because the Tanquihua *reducciones* were too far away from his ancestral lands, he could no longer work them. He only received 100 pesos for the land because the legal process judged the land to be useless or "ser de ningún provecho."[26] In reality, the lands were extremely fertile and would come to sustain the *haciendas* and *obrajes* of the area. Those lands were shared by the Condes and Tanquihua before *reducción*, so the establishment of only Condes *reducciones* in that area was a serious blow to Tanquihua claims to the land. At least one Tanquihua pre-*reducción* town was named in land titles: Angascocha, which was only a few hundred meters from the site of the *obraje* of Cacamarca (Santillana 2012: 319). The principal *casique* of the Soras, Don Martin Ayarche, testified in favor of Hernán Guillén de Mendoza that the Inka lands near Vilcas were vacant for many years, lands that the Tanquihua traditionally claimed (*ibid:* 315).

Initially, the Tanquihua were the main workforce in the *obraje* of Cacamarca because they were part of Hernan Guillén de Mendoza's *encomienda*. However, as the Tanquihua were hit hard by labor obligations to Huancavelica, epidemics and the loss of their lands around Cacamarca, the Condes became the main workforce of the Cacamarca *obraje* from the beginning of the seventeenth century (Salas 1998a: 358). With a shrinking labor force, different Spanish actors began to compete for native labor and blamed each other for demographic collapse. According to a report to the King by Don Bartholome Salazar in 1662, the great controversy of the day was over the reasons for the great decline in native labor.[27] The two main positions were 1) that the work in the mines, especially in those of Huancavelica, were so burdensome that they caused their deaths or 2) that the natives fled and hid themselves in ravines, other provinces, or were sheltered, hidden, and defended by Spaniards in their ranches, *haciendas*, and *obrajes*, thereby depriving the crown of revenue from tax and mining. Don Bartholome Salazar personally blamed *obrajes* the most, going even so far as to say that *obrajes* caused more physical harm to the natives than the mines of Huancavelica.[28] The Spanish authorities who had mining interests emphasized that the usurpation of native lands by

[24] AGN, Composición, Títulos, L. 18, C. 451, ff. 18-19, 1712.
[25] *Ibid*: f. 18r
[26] *Ibid*: f. 15r
[27] Archivo General de Indias, Sevilla [AGI], Visitas de las minas de Huancavelica, Gobierno, 271, ff. 3r-4v, 1662.
[28] *Ibid*: f. 4v

hacendados and *obraje* owners were the primary reason for depopulation,[29] while *hacienda* owners, *obraje* owners, and local Spanish authorities blamed the mines as the primary cause of depopulation.[30] Even more successful groups, such as the Condes, could not stem the tide of Spanish land grab forever, and by the end of the seventeenth century, their most fertile lands were in the hands of the Spaniards (Appendix D; Piel 1995; see section 8.3).

The r*educciones* signaled major disruption of the political *modus vivendi* of the 1540s to 1560s in Vilcashuamán province. Reducciones, however, did not fulfill most of the stated goals of Toledo's program: they did not manage to permanently nucleate populations, they did not stamp out native religion (Salas 1998a: 550), they did not successfully segregate the native population from other castes, and they did not prevent the exploitation of the native population by Spaniards (Mumford 2012). What the implementation of *reducciones* did do was increase divides between native elites and commoners, the importance of *reducción*-based identity as opposed to ethnic identity, the number of *yanaconas*, and the frequency of Spanish land grabs (Mumford 2012; Salas 1998a). There were fewer native inter-ethnic alliances during this period, as each *reducción* had to fend for the control of its lands because the Spanish legal system did not normally recognize joint right-of-use among communities. In the case of the Condes and Tanquihuas, the Condes actually gained communal lands at the expense of the Tanquihua. Because the *encomienda* system was also abolished as a reaction to *encomenderos* becoming too powerful and putting up armed revolts against the Crown (*encomendero* rebellions of the 1540s and 1550s), there were fewer opportunities for native-Spanish alliances (Mumford 2012: 76; Stern 1993). The native elite even participated in many of the Spanish conspiracies against the Crown in the 1550s (Abercrombie 2002). Corruption exacerbated a crisis in faith of traditional native leadership (Guamán Poma 1615; Mumford 2012; Stern 1993). Reducciones did increase state capacity against local challenges to the Crown, just not in the way that Viceroy Toledo intended. The political chaos and instability of daily routines caused by *reducciones* and Spanish labor institutions such as the *hacienda*, *obraje*, and *mita*, would have made the message of the previous Taki Onqoy movement ever more salient. The struggles against Spanish land appropriation would further strengthen community identity based on bounded territory. While the rise of community-based identity did slow down land appropriation, it also led to a more divided political landscape among communities. A divided political landscape was the norm in Vilcashuamán province until the late seventeenth and eighteenth centuries, when the political landscape began to emphasize alliances once more.

8.3 Condes' struggles to keep the lands of Pomacocha

Until the 1580s, all of Pomacocha's lands were effectively controlled by the Condes, but the aggressive tactics of the Spaniards, in particular the nuns of the

[29] e.g., AGI, Sobre la venta de las tierras de los Indios, Contaduría, 1780A, No. 3, 4, f. 12v, December 9, 1661.
[30] e.g., AGN, Real Provisión sobre la visita de indios en Vilcashuamán, Legajo 39, Cuaderno 798, f. 3v, 1624.

Monastery of Santa Clara of Huamanga, wrested control of all of Pomacocha's lands over the course of one hundred years. Despite the eventual loss of Pomacocha, the Condes of Vischongo were more successful than other groups in the area, especially the Tanquihua, in resisting land usurpation. Theoretically, community land was inalienable and could not be sold (Mumford 2012: 163), yet the Condes of Vischongo did eventually lose about eighty percent of their land. Through what mechanisms did the Monastery of Santa Clara gain control of Condes' land? How were the Condes of Vischongo able to slow land usurpation even as other groups, such as the Tanquihua, had lost the bulk of their lands early on? First, I summarize the history of the loss of Pomacocha's lands to the Monastery of Santa Clara and show that it was a multi-stage process characterized by aggregation of smaller landholdings. Private property was difficult for families to hold onto for multiple generations because of economic and demographic uncertainty, but the Monastery had enough capital, singularity of purpose, and political power over multiple generations to keep their acquisitions. Second, I show how the Condes of Vischongo were able to slow down this process through an early marriage alliance with a Spaniard, litigation, and squatting. The Condes were more successful than the Tanquihuas in holding onto their lands because they did not have to fulfill *mita* labor obligations to the mercury mines of Huancavelica, so depopulation was less severe and therefore they had more people to occupy lands. Also, the lands they lost were close to their *reducción* of Vischongo, making it easy to employ the strategy of squatting. Eventually, though, the Condes lost all the lands of Pomacocha for the same reason they were able to hold onto them for a long time: the paramount status of clearly titled private property.

During the pre-Hispanic era, ownership of Condes land was not based on individual land titles, but rather on the active use of the land. The lands of the Inka became common land of the community during the early colonial period, and even under Inka rule, the Condes would have considered the lands they worked as their own in return for tax and labor (see Bandera 1881 [1557]: 102). Almost all land was considered common property of the community and redistributed by its leaders based on the needs of each family. Under the Inka, Vischongo's communal land was extensive, but by the 1680s, they had lost over eighty percent of their original communal lands (Figure 8.3).[31] None of the lands had title until January 28th, 1555, when the *corregido*r of Vilcashuamán province, Don Pedro de Carvajal authorized possession of the *hacienda* of Paucarbamba and its surrounding 21 *fanegadas* of land or approximately 63 arable hectares[32] to the Spaniard Don Cristóbal de Gamboa and his Condes wife Doña Beatriz Guarcay Inquillay, the sister of the *casique* of Vischongo Juan Huchapaucar (Appendix D: 15). Don Juan Huchapaucar was not only the *casique* of Vischongo, but was also the

[31] Notario Aparicio F. Medina Ayala [NMA], Ayacucho, Copia certificada del título de la comunidad campesina de Vischongo, Título de comunidades campesinas, ff. 1-2, 1648.
[32] A Spanish *fanegada* at the time was defined as 288 by 144 *varas*, with each *vara* equivalent to 0.84 meters (Ramírez 1996: 54). Therefore, a *fanegada* is roughly 242 meters by 121 meters, or 3 hectares. The *fanegada* can vary significantly depending on the fertility of the soil, as it is defined by the amount of land needed to harvest a certain amount of wheat.

principal *casique* of the entire Condes *repartimiento* (Santillana 2012: 321-322). The Condes elite, such as Don Juan Huchapaucar and Doña Beatriz Guarcay Inquillay, readily made alliances with the Spaniards to consolidate their power through titling landholdings. The land was for communal use and the titled status gave the Gamboa family the right to distribute it to people as they saw fit. Don Cristóbal de Gamboa and Doña Beatriz Guarcay Inquillay administered the lands "without prejudice to the natives of the community of Vischongo and others" (Appendix D: 15). The *hacienda* was already functional when it was formally granted to the couple and consisted of a few structures and a mill by the Vischongo (or Yanayaco) river and the royal Inka road (*ibid*: 10-11). It would later become the site of the *obraje* of Pomacocha as well as the core of the community of Pomacocha (*ibid*: 15). Because the *hacienda* Paucarbamba was located on the royal Inka road that served as the main highway from Huamanga to Cuzco, and by a bridge, it would have been coveted by many people. Therefore acquiring titles for the lands was of the utmost importance. Any lands deemed "vacant," even if they were not, could be easily appropriated by outsiders who bribed Spanish authorities (Mumford 2012: 145-146). Through an alliance by marriage with the Spaniard Cristóbal de Gamboa, the Condes elite of Vischongo could maintain legal control of the fertile and strategic lands of Paucarbamba. This early strategy of alliance shows a mix of Inka-period and Spanish style ownership: although the land was titled, community members still worked the lands to fulfill tribute obligations to the state through the mediation of local elites. Native-Spanish alliances through marriage were quite common in the sixteenth century due to a dearth of Spanish women, and *mestizo* children of such legitimate marriages had the same legal status as their Spanish fathers in the sixteenth century (Powers 2005: 72-89). Native-Spanish alliances, through marriage, business, and political ties, were the basis of early Spanish colonialism in Huamanga and often challenged centralized Crown authority (Stern 1993).

Toledo's *reducción* program and population decline opened up new opportunities for Spaniards to acquire land at the expense of the community of Vischongo. The Crown had declared that all lands formerly belonging to the Inka now belonged to the Crown, which meant that the lands that used to pertain to the palaces of the Inka around the shores of Lake Pomacocha now belonged to the Crown.[33] The governor of Perú Cristóbal Vaca de Castro granted ("hizo donación y merced") fifty *fanegadas* (approximately 150 hectares) of land around Lake Pomacocha to the royal notary of the *cabildo* of Huamanga, Gonzalo de Isidro, under the pretense that these lands were left vacant in the 1550s or 1560s. This grant was confirmed on August 22nd, 1577. As Gonzalo Isidro's main business was in the city of Huamanga, four days' journey away, he transferred the property to the widow of the conquistador Antonio de Oré, Doña Luisa Díaz Rojas, on February 10th, 1578 (Appendix D: 7-8). Antonio de Oré and his family were one of the most powerful families of Huamanga, having founded the Monastery of

[33] The lands were described thus: "que originariamente fueron pertenecientes a los Incas y que, habiendo quedado vacantes y en cabeza de los Reyes de España (Appendix X: 7)." Translation: "[Lands] that originally pertained to the Incas and which, having been left vacant and therefore in charge of the Kings of Spain."

Santa Clara in 1568, and invested heavily in Vilcashuamán province. Antonio de Oré had already founded two *obrajes* in Vilcashuamán province and aggressively acquired land from native communities (Salas 1979, 1998a). From 1577 to 1594, various *corregidores* of Vilcashuamán, especially Pedro de Carvajal, fought over the possession of the lands around Lake Pomacocha through the use of *amparo*, arguing that they had rightful possession because they made use of the lands. Amparos were writs of protection against sudden changes to the legal status of the land and illegal occupation until a final legal decision had been reached (Owensby 2008). As a compromise to Pedro de Carvajal, he was given possession of a building on the land from 1586 until 1594 (Appendix D: 7-8). The loss of the lands around Lake Pomacocha did not sit well with the community of Vischongo, and they litigated against this loss because Francisco de Oré, Antonio de Oré's son, had to confirm possession of the lands several times through *amparo* and *composición de tierras* until the legal claim to title was reached its final decision in 1627 (Piel 1995: 175-176). A *composición de tierra* was a legal process of acquiring titles for vacant land (Owensby 2008; Stern 1993: 100). Although the *amparo* was supposed to protect the weak from the strong (Owensby 2008: 59), in the case of Pomacocha, it was used against the community of Vischongo's claims of rightful use. To argue against the community, Francisco de Oré had convened a *probanza,* or proof, in 1586 with various *casiques* and leaders of Vilcashuamán province corroborating Oré's claim that the lands were indeed the former "patrimonio de los Incas," or patrimony of the Inka. Thus, the community's use of the lands did not negate Francisco de Oré's legal claim to it (Appendix D: 8-9).

Because the native leaders did not speak Spanish and because such questionnaires were asked in a leading manner and open to bribery, such legal actions were rife with corruption (Mumford 2012). In the case of Francisco de Oré, as he was both claimant and the person who convened the *probanza* of the native leaders, the *probanza* was just a conclusion given legal status through going through the motions. On November 23rd, 1594, Francisco de Oré paid 25 pesos for a *composición de tierras* to *juez visitador* (land inspector judge) don Gabriel Solano de Figueroa, who dispatched the land titles (Appendix D: 8). Up to the 1594 *composición de tierras* done by Gabriel Solano de Figueroa, only 25 pesos were officially exchanged for the 50 *fanegadas* of land, which were worth at least several thousand pesos; bribery, therefore, must have been rife, and legal decisions had to be ratified many times over the course of half a century because of contradictory claims. The community of Vischongo and various *corregidores* claimed the land with the justification of traditional use. The legal process of settling land disputes would have contributed to political instability, as it did in early colonial Mexico (Owensby 2008: 19). Such political instability resulted in a long process of legally confirming possession of the lands, from 1577 until 1627, half a century. The disputed legal status of the land, however, did favor the Condes of Vischongo: they could easily make use of the lands due to proximity to their homes and no legal action could be taken against them because no one had clear titles. The accessibility and geographic centrality of the lands ensured multiple Spanish claimants, which ironically helped the Condes of Vischongo. If the Condes were the only claimants against the Oré family, the titles would have easily been cleared in favor the powerful Oré family. As long as the titles were disputed, the Condes of Vischongo could continue as before.

On June 19th 1624, Francisco de Oré gave temporary authorization over the right of use of the lands and a *hacienda* on the lands to the Monastery of Santa Clara of Huamanga in place of a monetary dowry of 1250 pesos of his daughter, Clara de Padilla, who had entered the Monastery. The Monastery was to enjoy the use of the *hacienda* of Pomacocha,[34] the lands, and the rights over "los indios de mita y servicios repartidos a esas tierra," or the "Indians of *mita* and services distributed over those lands (Appendix D: 6-7)" until Francisco de Oré was able to pay the 1250 *pesos* of Clara de Padilla's dowry. Francisco de Oré was able to finally settle his legal claim over the lands on February 25th, 1627. He was able to add another 25 *fanegadas* using the same trick as before: paying a sum of money, 70 pesos this time, to the same *juez visitador* Gabriel Solano de Figueroa for a *composición de tierras* (*ibid*: 8-9). As a compromise to the Condes of Vischongo, he allowed them to have legal right of use over seven *topos* of land called Chacapampa and Molinopampa within the borders of the newly added 25 *fanegadas* of land. Although the Pomacocha land titles do not explicitly say so, it is highly probable that the Condes of Vischongo were able to make alliances with different Spaniards depending on how favorable to the terms were, because the titles were not settled until Francisco de Oré gave a compromise to the Condes of Vischongo over the lands of Chacapampa and Molinopampa, which were the most fertile and strategically located of the lands. They were by the royal road of Huamanga to Cuzco and controlled a bridge. The Condes were aware of the alarming rate of Spanish usurpation of lands elsewhere and accepted the compromise to ensure Francisco de Oré's protection of the lands Chacapampa and Molinopampa from future claimants.

It is unclear whether Francisco de Oré ever paid the dowry, because the Monastery of Santa Clara of Huamanga gained legal title over the lands on June 17th, 1648. They paid 110 pesos for a *composición de tierras* of the 75 *fanegadas* and an additional five *fanegadas*, for a total of 80 *fanegadas* of land (*ibid*: 4-5). The 110 *pesos* that the Monastery paid severely underestimated the true value of the 80 *fanegadas* of land[35], which was at least four thousand *pesos* judging by the value of similar tracts of land in normal sale transactions nearby. The true amount of money spent to secure the rights to the land through paying lawyers, notaries, and bribes to authorities and complicit natives, however, did amount to significant sums.

Although the 1648 transfer did not legally affect the Condes' claim to Chacapampa and Molinopampa, the Condes of Vischongo were not happy that the Monastery had annexed five new *fanegadas* and wanted to prevent future usurpation. The Condes immediately reaffirmed their ownership of 43 *fanegadas* of communal land

[34] At this time, the hacienda of Pomacocha and the hacienda of Paucarbamba were two distinct entities. The hacienda of Paucarbamba still belonged to the Gamboa family.

[35] Guaman Poma said that a horse was worth about 50 pesos (Huamán Poma 1978: 215), so the Monastery of Santa Clara paid the equivalent of about two horses for the land.

on June 26th 1648 after petitioning the Protector of Natives Christobal Pizarro.[36] This time the legal petition was a concerted effort of multiple *ayllus* and the communities of Vischongo and Tincoc. The Condes *casiques* Don Blas Antonio Cusiatau, Don Antonio Guaman Anampa, Don Francisco Pomallibiac, Don Cristóbal Chochon, Don Diego Curis, Don Bartolome Achamalqui, Don Francisco Yanquirimachi, Don Antonio Rimascca, Don Pasqual Poma Lliviac, Don Pedro Bilcapoma, and Don Bartolome Muchay wanted to confirm the boundaries of their land as well as affirm communal ownership of lands disconnected from their main landholdings around Vischongo. They said that without formal *composición* de tierras, those disconnected satellite pieces of land would be subject to illegal usurpation and sale because they border other properties.[37] The disconnected pieces of land were called "Pariamarca," "Omayo" [Umaro], "Guamanquero," and "Chacamarca." As native land became more fragmented, it became easier for the Spanish to usurp their lands because the natives would have to travel further to work the lands. The need to preserve right of use over their lands led to dispersal, in direct reversal of Toledo's *reducción* program. In the 1648 Condes *composición*, many of the places listed were old pre-*reducción* villages that were then resettled. Chacapampa and Molinopampa were included in the *composición de tierras* of the Condes, even though they already had clear legal claim in the titles of Pomacocha.[38] The Condes were probably worried, and rightfully so, that the Monastery of Santa Clara had their eyes on these two pieces of land. They were successful in their petition and paid 80 *pesos*, forty of which they paid up front and another forty to be paid nine months later for the new *composición de tierras*.[39] The money was a significant sum for the Condes, as it was equivalent to a years' salary for a *casique* and a laborer only earned about an eighth to a quarter of a *peso* a day. That they could not pay the sum in full up front shows economic hardship. A provision in the new *composición* imposed a penalty of 500 *pesos* on any outsiders who "caused trouble" in their lands.

Unfortunately, the Condes' trust that their lands of Chacapampa and Molinopampa were secure was misplaced, because the Monastery of Santa Clara of Huamanga usurped the lands through a lengthy legal process that began in 1664 and ended in 1681.[40] The process was not altogether peaceful, as the Condes continued to use and live on the lands to preserve their usufruct rights and had to be forcibly expelled in 1674; even the *casique* Felipe Chuchón was kicked out of his home near the old mill in Molinopampa. Only through multiple expulsions and *amparos* was the Monastery able

[36] NMA, Título Vischongo, ff. 1-2, 1648.
[37] *Ibid*: f. 3r. Original: "…Y atento que las dichas sobras, no son, ni pueden en una sola parte y paraje, sino en diferentes, y que si se hubieren de vender, sería en mucho mas perjuicio de los indios, por estar tan mescladas, en cuya consideracion y mediante lo que su majestad manda por sus reales cedulas que de este tartan, admitia y admitio a los dichos indios de los dichos pueblos y en su nombre a don Blas Antonio Cusiatau, Gobernador de ellos, a composición de las dichas demasias, para que se les pase de haberla queden por suyas propias para el comun de los dichos pueblos…"
[38] *Ibid*: f. 1
[39] *Ibid*: f. 3
[40] *Ibid*: ff. 5-6

to gain control. Even though they had clear legal rights of use of Chacapampa and Molinopampa, in both the titles of Pomacocha and the titles of Vischongo, their only concession for the usurpation was that those lands would be "substituted" with other lands, but the substitution seemingly never took place.[41] How was the monastery able to usurp the lands of Molinopampa and Chacapampa? By 1673, the Monastery had already started to rent out the *hacienda* of Pomacocha, now on the site of the *hacienda* of Paucarbamba, for 400 pesos a year.[42] In that document, they noted that Don Christoval de Rojas y Sandoval oversaw the transaction. Don Christoval de Rojas was the *maestro de campo*, or "master of the field" of the military company of Vilcashuamán.[43] He was also the *corregidor* of Vilcashuamán who occupied the lands and carried out the numerous evictions, presumably with the armed help:

> Through diligence of occupying property and evictions carried out the 26th of October of 1674 by the *corregidor* and justicia mayor of Vilcashuamán, don Cristóbal de Sandoval y Rojas, this, by petition done by Fray León de Lirzandi, procurator and administrator of the goods of the indicated monastery, give to this royal possession and corporal juré dominé vel cuasi, without prejudice of third party better rights, to avoid being dispossessed, without first being heard and lose in court, of the lands comprised inside the titles and especially a piece of land that reaches until the old mill, land from which don Felipe Chuchón was evicted, Governor of the pueblo of Vischongo and the rest of the Indians in community in fulfillment of the *auto* dispatched by the same corregidor the 25th of the said month and year (Appendix D: 5).

The Condes were able to win a decision on September 14th, 1680 under the authority of archiepiscopal viceroy Tomás Vásquez de Velasco, which affirmed their rightful possession of Chacapampa and Molinopampa, but the decision was not enforced. On May 2nd, 1681, the nuns of the Monastery of Santa Clara and their procurator Friar León de Lirzandi finalized their control over Molinopampa under the authority of the new archiepiscopal viceroy Manuel Liñan de Cisneros under the pretense that the titles shown to archiepiscopal viceroy Tomás Vásquez de Velasco were not as old as the ones that the Monastery had. This was legal trickery, as the Condes did have clear legal ownership of Chacapampa and Molinopampa when the additional 25 *fanegadas* were first usurped by Francisco de Oré in 1624. The concession to the Condes over the original usurpation was that they had legal title over Molinopampa and Chacapampa; this concession made the usurpation more palatable to the Condes and therefore less contested. The Monastery, on the other hand, reasoned that because Francisco de Oré had transferred the lands to them to do whatever they wished, the concession was no longer valid. Not surprisingly, the 500 *peso* penalty that the Condes

[41] *Ibid*: f. 5

[42] Archivo Regional de Ayacucho [ARAY], Arrendamiento El Monasterio de monjas de Santa Clara de esta ciudad a Joseph De Viloria de la Hasienda de pomacocha por un año en 400p, Notariales, Joseph Benites Cortes Cavezas, Legajo 25, Protocolo 35, ff. 752r-754v, November 15, 1673.

[43] *Ibid*: f. 753v

had paid 80 pesos to legally sanction in 1648 was not incurred against the Monastery for "causing trouble."

At the same time that the Monastery was working to expel the Condes from Chacapampa and Molinopampa, the Gamboa family began to run into financial hard times and took out *censo* loans in the 1650s totaling 3000 pesos against the lands of Paucarbamba with a total annual interest of 150 pesos (*ibid: 10*). On June 27th, 1683, under mounting debts and legal fees, Gabriel de Gamboa, the grandson of Cristóbal de Gamboa and Beatriz Guarcay Inquillay sold the lands of Paucarbamba, which totaled 122 *fanegadas*, to the Monastery of Santa Clara for 4000 pesos (*ibid*: 9-10). How was the Gamboa family able to successfully manage and even significantly expand their landholdings of Paucarbamba for more than a hundred years before losing control? What were the legal actions that led to the sale of Paucarbamba? The Gamboa family was successful as long as the property was distributed among multiple family members and as long as none of the family members took out *censo* loans on the property. Because usury was illegal due to moral concerns, *censos* were used. If you wanted a loan, you would sell a *censo*, which was technically the right for someone else to collect a certain sum each year from you until the original amount of money you received was repaid (Burns 1999: 64). *Censos* often led to the eventual loss of property and even imprisonment if the annual "rent" was not paid on time.

For over a hundred years, the Gamboas successfully kept the lands of Paucarbamba under their control by passing them down to their children, both male and female without any accumulated debt. First, they had to overcome the political chaos of the late sixteenth century land disputes. Before the 1550s, the lands of Paucarbamba, which included Yanawilka, originally belonged to the *casique* of Vischongo Don Juan Pomaquiso, the father of Doña Beatriz Guarcay Inquillay and succeeding *casique* Don Juan Huchapaucar. Don Pomaquiso donated the lands of Paucarbamba to his daughter Beatriz as part of her dowry when she married Don Cristóbal de Gamboa, and the official titles were granted in 1555 by Pedro de Carvajal. In late November of 1583, after the death of Don Juan Pomaquiso, his son Don Juan Huchapaucar affirmed the lawful transfer of the lands of the 21 *fanegadas* of Paucarbamba to his sister and her husband. In successive years of political chaos and land disputes in the area, Don Cristóbal de Gamboa and Doña Beatriz Guarcay Inquillay were able to build the strength of their claim to Paucarbamba, and they confirmed the legality of their titles on May 10th, 1586, February 3rd and 30th, 1594, and June 12th 1606 (Appendix D: 14-15). If we recall the legal battles over the lands around Lake Pomacocha from 1586 to 1594, we can infer that the titles of Paucarbamba had to be reaffirmed multiple times to prevent usurpation by outsiders, especially by Spaniards. Because the titles of Paucarbamba came originally by way of royal authority as well as being the earliest set of titles, the Gamboa family won against all legal challenges.

With the taxes earned from community members working on the land, the Gamboa family became influential enough that on July 29th, 1619, Don Fernando de

Palomino donated one *fanegada* of fertile land called Totorabamba, which was adjacent to Paucarbamba, to the Gamboas (*ibid*: 14). The children and grandchildren of the couple were active in securing titles for more land. On February 19, 1627, Don Juan de Gamboa and Doña Maria de Gamboa, the children of Beatriz and Cristóbal, purchased and titled an additional 100 *fanegadas* of land adjacent to their property for 400 pesos through sale and *composición,* arguing that they had usufruct rights even though those 100 *fanegadas* of land were not titled to anyone (*ibid*: 13). At the same time, they also reaffirmed their possession of the previous 21 *fanegadas* of Paucarbamba land on February 21st, 1627 (*ibid*). The Gamboa family's possessions were further consolidated under one set of legitimate titles when on March 24th, 1630, Gabriel de Gamboa, the grandson of Beatriz and Cristóbal, purchased the lands of Accopampa and Tenería, which was at the southern border of the 100 new *fanegadas* of land, from their relative Isabel de Gamboa (*ibid*: 14). Doña Beatriz Guarcay Inquillay donated to her grandson Gabriel de Gamboa the 1 *fanegada* of Totorabamba land on June 10th, 1648. The Condes of the communities Vischongo and Tincoc did not lay claim on any of Paucarbamba's lands in their *composición* of 1648, even though two of their communities/*ayllus* Pariamarca and Tincoc were surrounded by Paucarbamba land (see Figure 8.3).[44] Although Paucarbamba land disconnected Pariamarca and Tincoc from Vischongo, the Gamboas were essentially family, being the children and grandchildren of the principal *casique* of Vischongo. The fact that the Condes *casiques* did not lay any claim to the lands of Paucarbamba shows that there was respect for the Gamboas' rightful dominion because they played by community rules. Some community members may have seen the Gamboas as part of the community, because they allowed people to continue working the lands, provided income through the *hacienda*, and could protect those lands from intrusion. The fact that the community of Vischongo did not challenge the Gamboa *composición* of 1627 as they did the Monastery's *composición* of 1648 further lends credence to the respect the Gamboas had among the Condes of Vischongo, especially because they had not sold any property to outsiders. Don Cristóbal de Gamboa and Doña Beatriz Guarcay Inquillay passed down the 121 *fanegadas* of Paucarbamba land and its *hacienda* to their children, Don Juan de Gamboa and Doña María de Gamboa, giving each half of the property, and this transfer was completed on December 10th, 1653 as fulfillment of their will (Appendix D: 12-13). Thus, for over a hundred years after the Spanish conquest, the Condes living in Pomacocha continued an agricultural lifestyle similar to the one they had in Yanawilka under the Inka.

The beginning of the end of the Gamboa family's land holdings was when Don Juan de Gamboa and his sons Gabriel and Antonio sold a *censo* worth 2000 pesos on the property of Paucarbamba to Diego Francisco Vandibelti on March 8th, 1650, who collected the right to receive 100 *pesos* annually until the original 2000 *peso censo* was repaid in full. After the *censo* changed hands several times, some of the debt was resolved through the auction of the future profits of the *hacienda* buildings and its mill to the Monastery of Santa Clara. To streamline legal proceedings, Don Juan de Gamboa

[44] NMA, Título Vischongo, 1648.

and his son Don Antonio Solano de Gamboa sold Paucarbamba to Don Gabriel de Gamboa, the son of Juan and brother of Antonio, for 6000 pesos on May 21st, 1657 (*ibid*: 11). The sale also transferred *censos* from Diego Francisco Vandibelti, 500 pesos which were already outstanding, and from Tomás Ruiz, 400 pesos which were outstanding. They also owed the Monastery of Santa Clara pensions accrued from the *hacienda* of Paucarbamba, which the Monastery had purchased from them a few years earlier. Apparently, Don Juan de Gamboa's will stated that the lands of Paucarbamba be sold to the Monastery of Santa Clara due to the outstanding *censos*, and his son Don Gabriel de Gamboa was put in charge of making the transfer (*ibid*: 3-4). Don Gabriel de Gamboa, still reeling from debts, sold another *censo* of 1000 *pesos* with the right of collection of 50 pesos annually on the lands of Paucarbamba to the Monastery of Santa Clara on October 21st, 1658 (*ibid*: 10).

Although we do not know specifically why the Gamboas ran into financial troubles, we can infer some possible reasons. First, their income derived from taxes paid by community members who used their land for agriculture, so as the Gamboa family grew in size and demographic collapse and out-migration continued to occur, there was not enough income to support the family's privileged lifestyles, which was necessary to maintain legitimacy especially in the eyes of the Spanish. With the significant decrease in population, the Gamboas would have also run into difficulties with the costs of running the *hacienda* given shrinking economies of scale. As more of the Condes' surplus money was siphoned by ever increasing demands for their labor from local Spanish authorities, the Gamboas found themselves with impoverished workers. The fact that the communities of Vischongo and Tincoc could not even pay the entire 80 *pesos* up front for the 1648 *composición de tierras* show just how little surplus cash was available. Furthermore, maintaining legal control of the lands was a costly endeavor. Legal battles would carry on for years, racking up significant debts, and any land invasion also had to be resolved in court. All of these possibilities could explain why the Gamboas resorted to numerous *censos* in the 1650s, which led to the loss of their lands. The brother of Gabriel de Gamboa, Antonio Solano de Gamboa brought a civil case against the Monastery of Santa Clara on October 19th 1663. He said that the Monastery of Santa Clara had illegally dispossessed him of the lands of Paucarbamba. The Monastery of Santa Clara won the decision because in the will of Don Juan de Gamboa, Antonio's father, the lands of Paucarbamba was to be given to the Monastery of Santa Clara of Huamanga to cancel the debt from the *censos*. Antonio Solano de Gamboa was not going to give up the lands without resistance, so the Monastery of Santa Clara sent their representative to live and guard the lands to ensure Antonio's compliance (*ibid*: 3-4). Effectively, all the Gamboas had left to their name was the one *fanegada* of land called Totorabamba, which was the sole property of Gabriel de Gamboa.

Aware of the Gamboa family's financial troubles, the *corregidor* of Vilcashuamán, Don Cristóbal Tello Peña de Chávez made a formal complaint on November 20th, 1657 that Don Gabriel de Gamboa had usurped the mill and other buildings of Totorabamba from him (*ibid*: 12). Not intimidated and determined to save the last *fanegada* of land, Don Gabriel de Gamboa argued that he, his father Don Juan de Gamboa, and his grandfather Don Cristóbal de Gamboa had rightful use of the mill and buildings for more than seventy years (presumably from 1550s to 1619), after which Don Fernando de Palomino made a formal donation of those buildings to his grandfather, Cristobal de Gamboa (on July 29th, 1619). Furthermore no one had challenged the Gamboa's rightful ownership of the mill and buildings before. Making legal troubles worse for Don Gabriel, another Spaniard, Don Pedro Gutiérrez de Quintanilla, also came out of the woodwork to challenge Don Gabriel de Gamboa's rights over the mill and other buildings of Totorabamba on November 20th, 1667. Don Gabriel won the decision and *amparo* against Don Cristóbal Tello Peña de Chávez and Don Pedro Gutiérrez de Quintanilla on January 20th, 1669. Don Gabriel's victory did not deter Don Pedro Gutiérrez de Quintanilla, and on September 17th, 1669, he appealed to the *Real Audiencia de la ciudad de Los Reyes* (Audience of Lima). The *Real Audiencia* affirmed Don Gabriel's rightful possession of the mill and buildings, and rejected the claims of Don Pedro on October 2nd, 1669 (*ibid*). The lengthy legal battles, involving much travel costs, notary costs, paper costs, and lodging costs proved too much for Don Gabriel de Gamboa as he desperately tried to save the last *fanegada* of land of his family, that of Totorabamba. The legal victory was pyrrhic, as the costs of winning outweighed the actual value of the one *fanegada* of land. An old man now, Gabriel was defeated by debt and tired from fighting. Gabriel sold any rights he had over the *hacienda* of Paucarbamba, which was situated on Totorabamba, for 4000 pesos to the Monastery of Santa Clara on June 27th, 1683. The land that his grandmother gifted him thirty-five years prior was now legally in the hands of the Monastery. By then, the Monastery had already established a small *obraje* on the site of the *hacienda* of Paucarbamba in 1681. With the lands of Pomacocha and Paucarbamba integrated as one, the nuns of Santa Clara had at their disposal 222 *fanegadas* of arable land with which to establish an *obraje* (see Figure 8.3). The Monastery of Santa Clara had patience, capital, and singularity of purpose on their side and came out on top with the land disputes. They were not a divided community, as Vischongo was, nor could their property be divided through dowry or multiple heirs. Once they acquired property, they rarely lost it. Similarly, other religious orders also became the premier property owners of Vilcashuamán province in the seventeenth to eighteenth centuries.

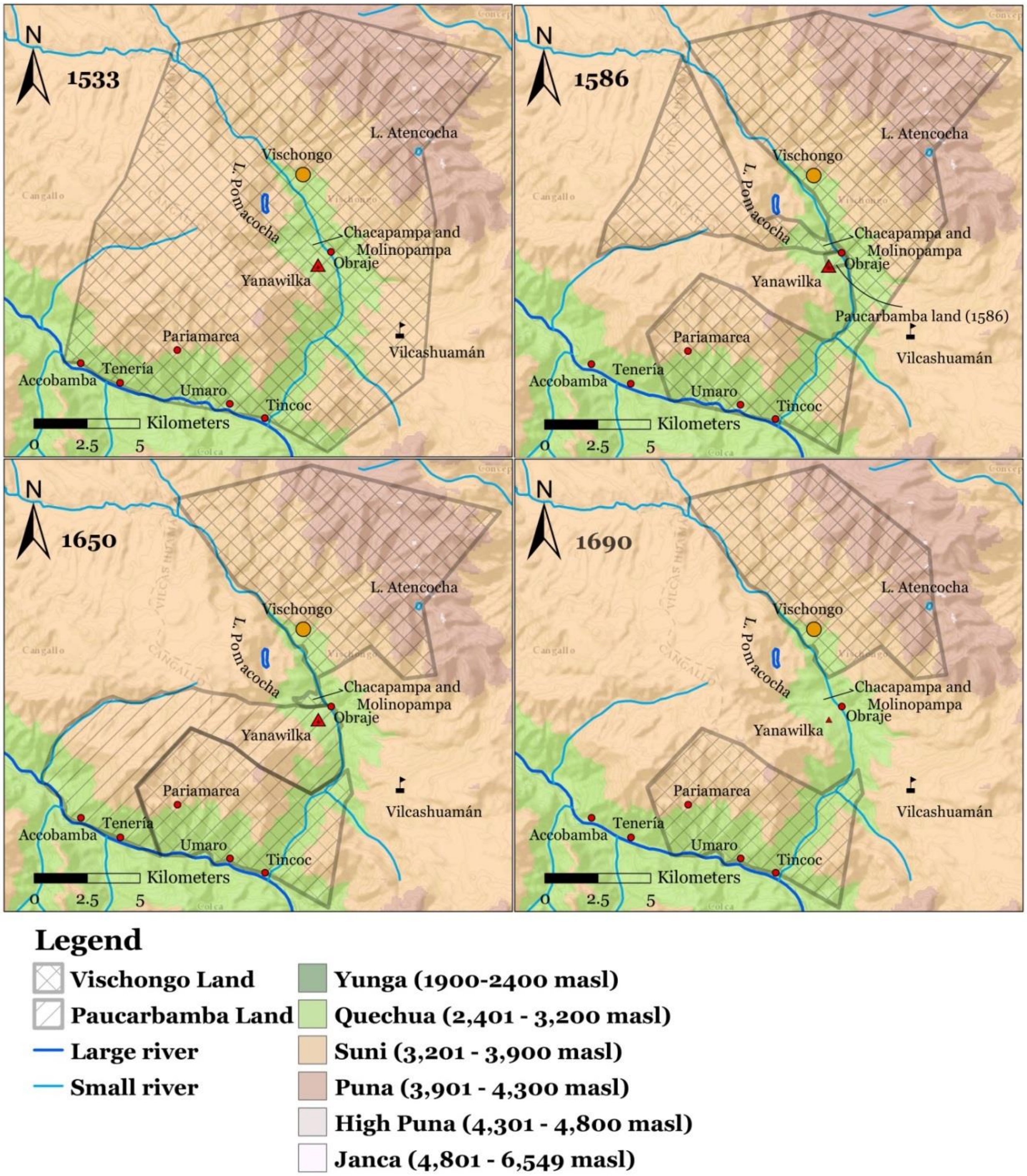

Figure 8.3: Evolution of landholdings of the community of Vischongo, 1533-1690.

8.4 Conclusion: transformation of Pomacocha into *hacienda* community

Pomacocha's lands were still accessible to the community of Vischongo until the Monastery of Santa Clara was able to establish an *obraje-hacienda* at the site of the *hacienda* of Paucarbamba and administer it without direct daily oversight from Vischongo's leaders. The Monastery was not able to establish an *obraje-hacienda* until they consolidated the lands to prevent encroachment by the Condes. Construction of the *obraje* began in 1681 and the *obraje* became fully functional in 1689 (see chapter nine). The lands that the Monastery consolidated were across the Vischongo River from the community of Vischongo, and there were two or three bridges connecting the lands of Pomacocha to Vischongo, enabling easy control. As long as the Condes had a foothold on the Pomacocha side of the Vischongo River, they were able to effectively exercise their usufruct rights to land, both legally and illegally. The loss of Chacapampa and Molinopampa, which overlooked the location of the future *obraje*, therefore, was devastating to the Condes of Vischongo. The concurrent loss of the lands of Paucarbamba sealed the fate of the lands of Pomacocha, and the community no longer had any legal control over the royal road from Huamanga to Cuzco.

The Condes were more successful than other groups at keeping control of their lands, however, especially given how coveted they were due to their fertility and strategic location. That the lands of Paucarbamba were owned by a *mestizo* family, the Gamboas, who saw themselves as leaders of the community, helped the Condes successfully challenge the loss of the lands around Lake Pomacocha. Encroachment was an effective and relatively easy tactic, because the Condes had to pass through those lands every day in order to work at the *hacienda* of Paucarbamba. The proximity of *hacienda* Paucarbamba to Vischongo also kept the community together, as it was only a forty minute walk downhill. In most other Vilcashuamán communities at the time, *hacienda*s were owned by Spanish families, especially the Guillén de Mendoza and the de Oré families. The Toledan *reducción* program and general Spanish wariness of unmonitored native labor after the Taki Onqoy rebellion underpinned the acceleration of the creation of *hacienda*s and *obrajes* in the area. The discovery of mercury at Huancavelica also created a regional market for cloth (Salas 1998a). The presence of Spanish-run *hacienda*s and *obrajes* accelerated the loss of native land because land boundaries were only vaguely described, and it was easy to annex bordering territory. Those *hacienda*s accelerated the "yanaconization" of the native populace, because many people fled their *reducción* villages to become dependents of *hacienda*s and *obrajes* so they could escape labor obligations to the Huancavelica mercury mines (Salas 1979, 1998a).

At Pomacocha, however, the presence of a *hacienda* run by the Gamboas helped the economy of Vischongo, as it was an important way station on the royal road. The Gamboas also allowed community members to use the common lands of Pomacocha for pastoral activities, and the fields were repartitioned according to pre-Hispanic customs.

Although the Gamboas allowed the community to continue to use the lands, they were hardly egalitarian. As *mestizo* elites with great landholdings and a *hacienda*, they were able to extract surplus labor and tax of the native populace. The Gamboas' status was on a higher level than even the native elites of Condes communities. Gabriel de Gamboa received a hefty several thousand *peso* payout in the end for one *fanegada* of land, while the Condes of Vischongo never received any payout for the loss of their lands and struggled to pay taxes and fulfill labor obligations.

Debt rang the death knell for the community of Vischongo's control over the lands of Pomacocha. As the Gamboa family was buckling under debt, the Monastery of Santa Clara was able to take advantage and successfully mount legal challenges to the lands of Chacapampa and Molinopampa, evicting the Condes who had lived there for generations. They were also able to use debt to appropriate the *hacienda* and lands of Paucarbamba down to the last *fanegada* of land of Gabriel de Gamboa. With clear titles, the Monastery assumed full control of the lands and now held the upper hand over the community of Vischongo, which now no longer had a steady source of cash income and use of the bountiful lands of Pomacocha. With the newly acquired control, the Monastery of Santa Clara expanded their Pomacocha lands further, buying up bordering Spanish property to sustain a new *hacienda-obraje*. As *obrajes* were very profitable, the Monastery of Santa Clara would greatly increase their capital and continue to expand their land holdings in the next one hundred years.

The rise of Spanish property in Vilcashuamán province fragmented the land holdings of the native communities. Because the geographical contiguity of land was paramount in supporting one's legal claim to land, native communities always lost their satellite land holdings, which also decreased inter-community exchange and cooperation. The communities of Vischongo and Tincoc cooperated to clearly title their fragmented landholdings in response to this pattern. Unfortunately, the separation of their lands led to political separation, as by 1790, the community of Umaro had absorbed Tincoc and become a separate juridical entity from Vischongo (see Figure 8.3).[45] There was also less interaction with Tanquihua communities because Spanish-owned land divided Condes land from Tanquihua land.

Under the Inka, resource sharing was the norm, so ethnic groups often had interspersed, non-contiguous and overlapping territories. Only in juridical matters and governance was territory bounded (Ramírez 1996: 57-59). As the most coveted lands were in the *pampas* (flat areas) and the bottoms of river valleys, the Spanish usurpation of these lands also meant that many communities no longer bordered each other and instead bordered Spanish property. This fragmentation decreased inter-community cooperation over shared common lands. The loss of the most useful lands devastated native economies, as the natives had to walk further between isolated patches of arable land on steep mountainsides in order to sustain themselves and pay the various taxes,

[45] NMA, Títulos de las tierras de Sillabamba y otros nombres pertenecientes al pueblo de Umaro, Título de comunidades campesinas, ff. 4-5, 1790.

which was often impossible (Salas 1998a: 355). The Spaniards would complain that natives naturally gravitated and escaped to the steep mountainsides, eschewing religious indoctrination and civilization (Glave 2009), but they had little choice. Occupying difficult terrain made travel more arduous, increasing the caloric needs for survival and decreasing the amount of available energy for non-subsistence activities in civil society. Rampant corruption, mounting labor obligations to local authorities, loss of ancestral lands, demographic collapse, and the dread of fulfilling *mita* in the mercury mines of Huancavelica exacerbated absenteeism from *pueblos*. The image of the ruined church in a desolate *pueblo* was invoked frequently by natives in their petitions against local abuses and *mita* obligations. For example, in 1656, the Protector of Natives (Protector de los naturales) of Huamanga in the name of the *casique* of Guaychao said:

> [T]he Indians by going to the *mita* of Huancavelica have abandoned the *pueblo* and thus there is no one to raise the ruined church; because of this, they say mass with great indecency under a small structure made of branches suffering the rigors of the sun, cold, downpours, and strong winds.[46]

As I will show in the following chapters, there were some unintended consequences of the Monastery's actions. The *hacienda-obraje* of Pomacocha became a place of refuge for diverse peoples: natives who escaped their communities, *mestizos*, *mulatos*, and even poor Spaniards. Migratory networks driven in part by the *obraje* created new networks and alliances over the landscape that challenged the Monastery's control. As Pomacocha became less Condes, it became a new hub that moved people over the landscape, even to places like Oruro in Bolivia, which laid the social groundwork for serious challenges to the Spanish state in the late eighteenth and early nineteenth centuries.

[46]ARAY, Protector de los naturales de Huamanga, en nombre del casique de Guaychao, Asuntos Administrativos, Legajo 39, No. 638, 1656.

9 In the shadow of the *obraje*, 1690-1760

In a 1666 petition to the Crown, the nuns of Santa Clara of Huamanga asked to establish a small *obraje* of three or four looms at Pomacocha to alleviate their poverty.[47] They complained that "the nakedness and being without sufficient clothing day and night caused countless sicknesses"[48] that put their lives at risk most of the year. They promised that the *obraje* would not cause any harm to the Indians working there or to the nearby Indian communities and, on the contrary, would be "useful to the neighboring Indians."[49] Their petition was accepted and a small *obraje* of three looms opened at Pomacocha in 1681.[50] Construction of a much larger formal *obraje* of sixteen looms on the same site was completed in 1689.[51] The *obraje* became very profitable, but did the nuns keep their promise to not harm the workers? The documental evidence is contradictory. On one hand, the Pomacocha *obraje* was perhaps the first in Vilcashuamán province to secure a royal license from Duque de la Palata in the year 1686 or before, which freed the workers from the *mita* of Huancavelica.[52] Royal protection from the Huancavelica *mita* labor draft made the *obraje*, despite exploitative conditions, attractive for many Condes. Nevertheless, on September 13th, 1729, elected *alcalde* or mayor Nicolas Guaman, "in the voice and name of the community of the Indians of the *obraje* of Pomacocha," gave a litany of complaints of the ways that the workers were illegally exploited and imprisoned and asked to be freed from "slavery" (Mendizabal 1958: 275). Less than three years later in 1732, seemingly contradicting the 1729 complaint, many Spanish witnesses testified that they never saw any of the workers imprisoned and declared that the administrator, Friar Lorenzo Gomes, treated the workers "with much charity, aiding them with food, clothing and money."[53]

How can we reconcile these two conflicting accounts? In this chapter, I examine the interplay among strategies of control and resistance at Pomacocha from the 1690 to 1760, at the height of the *obraje*'s profitability. I show how the seeming contradiction concerning treatment of the workers is a manifestation of the fluidity of control and resistance at Pomacocha. Specifically, I argue that far from the helpless persona of the

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[47] Archivo San Francisco, Lima [ASF], Proposal to found obraje by the Monastery of Santa Clara-Huamanga, Registro I-10, Legajos 21A, 22, 22A, 1666.
[48] ASF, Proposal, Legajo 21A, f. 200v, 1666. Original: "…la desnudes y menos abrigo de Dia y de noche les sobrebienen tantos achaques…"
[49] ASF, Proposal, Registro I-10, Legajo 21A, f. 200r, 1666.
[50] ARAY, Arrendam./to El Monasterio de S./ta Clara de esta Ciudad= al Cap,/n esteban de Maisondo de las Hasiendas de Pomacocha, chanin y pucaguasi en 1500. P ambas=cada año, Notariales, Francisco Blanco de Cassazua, Legajo 27, f. 826r, June 19, 1681.
[51] ARAY, Administración El Monasterio de Monjas de Santa Clara al Cap,/n Esteban de Maysondo y a otros del obraje, de, Pomacocha y otras Haziendas, Notariales, Francisco Benegas de Toledo, Legajo 20, Protocolo 27, January 15, 1689, f. 263v.
[52] *Ibid*: 263r-266r
[53] Archivo Arzobispal de Ayacucho [AAA], Títulos de Pomacocha, Cuaderno 9, f. 32r, 1732.

"miserable indian" portrayed by natives and Spaniards alike in colonial documents at that time, the workers at Pomacocha had at their disposal a wide repertoire of strategies of resistance, especially after labor became scarce because of the great earthquakes of 1716-1719 and epidemics of 1719-1726. Although daily life could be extremely harsh in the shadow of the *obraje,* conditions were not evenly horrid, in great part due to the active resistance by the workers. The interaction of resistance and control produced a moral economy, a "costumbre" or customary understanding of duties between the workers and those who managed them. The methods of control operated on the logic of reinforcing and producing racial and caste tensions for a divide-and-control strategy. The methods of control included cooptation through social elevation of a portion of the workforce, strategic gift-giving and aid to workers by savvy administrators, violent repression, imprisonment, offering protection from labor duties in the mercury mines of Huancavelica, and social and physical separation of workers with different labor specializations. The methods of resistance included formal legal complaints, fleeing, sabotage, defending "costumbre" or custom, alliance-building across racial, caste, and class lines, and mixing of diverse cultural practices. Both methods of control and resistance were situational, so different combinations of the various methods would be in play in different situations. To show the situational balance between various methods of control and resistance, I look at three lines of evidence. I first analyze the spatial logic of the *obraje* of Pomacocha through spatial syntax analysis to reveal how the architecture of the Pomacocha *obraje* was conducive to social control. Second, I show how the devastating earthquakes of 1716-1719 and epidemics of 1719-1726 marked a watershed in strategies of resistance at Pomacocha. Third, through critical analysis of tribute and census data, I reveal the wider social landscape of resistance to the extraction of labor.

9.1 The spatial logic of control inside the *obraje*

February 11th, 1716 was a harsh day of work like any other for the seventy or so workers in the *obraje* of Pomacocha when disaster struck. An 8.6 magnitude earthquake leveled the *obraje*, killing over sixty workers (Mendizabal 1958: 275; Ocola 1984).[54] Given the multiple open-air patios of the *obraje* to which people could flee, why was mortality so high? The workers were illegally locked inside the various rooms of Pomacocha's *obraje* to prevent escape and to better control the nature of interaction between them (Mendizabal 1958: 275). The Spaniards, like the Inka, were notorious for taking advantage of and encouraging social tensions as part of a divide and rule strategy to quell rebellion (Spalding 1984: 288-289).The goal of this section is to question if the architecture of control of the Pomacocha *obraje* was able to effectively divide the workers, impede social trust and cooperation, and extract maximal profit from the workers. The three main questions I address in this section are:

1) Where does the Pomacocha *obraje* fit in with textile *obrajes* in general?

[54] AAA, Títulos, Cuaderno 9, f. 38v, 1732.

2) What can an analysis of the spatial syntax of the plan of the Pomacocha *obraje* reveal about the organization of social interaction inside the *obraje*? How did the Pomacocha *obraje*'s architectural design reflect Spanish attitudes toward native labor?

3) How were the strategies of control of the workers and resistance by the workers informed by the spatial layout of the Pomacocha *obraje*?

I answer these questions through a combination of archival research, archaeological excavations and survey, and architectural analysis using spatial syntax. First I review general architecture and organization of labor inside Spanish colonial *obrajes* and how dominant attitudes about social hierarchies were reinforced by such architecture and labor organization. Then I discuss how the architecture of Pomacocha's *obraje* fits within the general architecture of control of *obrajes*. I use spatial syntax methods to evaluate if the Pomacocha *obraje* functioned as an ideal Foucauldian prison. Finally, I discuss how the architecture of the *obraje* of Pomacocha informed the strategies of resistance adopted by the workers. I argue that at the height of the *obraje*'s profitability, the workers adopted non-violent strategies of resistance such as mass fleeing, manipulating censuses/tax rolls, petitioning for justice, defending "costumbre," and being resourceful with food in order to resist debt peonage.

9.1.1 Architecture and organization of *obraje* labor

Where does the Pomacocha *obraje* fit in with textile *obrajes* in general? Can it be considered a typical *obraje* in size, labor organization, and role in the colonial economy? In this section, I argue that Pomacocha can be considered a typical *obraje* in form and function. I show how the *obraje* racialized and engendered labor organization. First, I present a description of the archetypal *obraje* layout and labor organization. To show how Pomacocha is a typical *obraje*, I compare Pomacocha to other *obrajes* in terms of layout, labor organization, and role in the larger colonial economy.

First, what does the archetypal *obraje* look like and where does Pomacocha fit in? There were several types of *obrajes* (Table 9.1). The *obraje* of Pomacocha was an "*obraje* entero" because it functioned under royal license and was given a stipulation of sixty-eight tributary Indians. The most important *obrajes* of the province of Vilcashuamán were Cacamarca, Chincheros, and Pomacocha (Salas), all *obrajes enteros*.

Table 9.1 Main types of *obrajes*.

Type	Description
Obrajes de la comunidad	"*Obrajes* of the community": *Obrajes* installed in native communities for the express purpose of providing the tributaries means of earning cash to pay tribute tax (Borchart de Moreno 1995; Contreras Carranza 1999; Silva Santisteban 1964). They were generally run by a Spaniard (Contreras Carranza 1999: 389), though there were notable exceptions where native *curacas* or *casiques* owned or ran the *obraje*.
Obrajes enteros	"Complete *obrajes*": *Obrajes* that operated under royal license with a stipulated number of native workers. These *obrajes* have more than twelve looms and were often operated by religious orders (Silva Santisteban 1964).
Obrajes medios	"Half *obrajes*": These *obrajes* had six to twelve looms (Silva Santisteban 1964).
Obrajes abiertos	"Open *obrajes*": These are privately owned *obrajes*. They were often illegal and operated without royal consent (Borchart de Moreno 1995).
Chorrillos	"Small textile workshop": *Chorrillos* were not technically *obrajes* as they had fewer than 6 looms. They did not have a fulling machine (batán) and were often operated by nuclear families (Silva Santisteban 1964: 31).

An *obraje* was generally quadrangular (Salvucci 1987: 38). A chapel or church was always located in or near the premises of the *obraje*. A series of internal patios would subdivide the *obraje*. Each patio would have a series of rooms and/or a covered corridor around its perimeter dedicated to the diverse functions of the *obraje*. The main entrance of the *obraje* would lead into the principal patio, which was generally dedicated to administrative functions. The interior patios would be dedicated to the various stages of production. Every *obraje* needed to be near a water source, and running water by the way of canals would power the fulling mill and the grist mill. The canals also allowed for cooking food, washing and dyeing of the wool (Cushner 1982; Hurtado Ames 2006; Salas 1979, 1998a; Salvucci 1987; Silva Santisteban 1964). Usually, only the administrators, officials and prisoners had dedicated living spaces inside the *obraje*. Although illegal, administrators and majordomos of *obrajes* generally shut in the workers, sometimes through the night, to prevent escape (Descola 1968: 48-49; Mendizabal 1958; Salvucci 1987; Salas 1979, 1998a, 1998b; Silva Santisteban 1964: 39-40). The shutting in of workers lead to catastrophic death tolls during earthquakes, for example in Tacunga (Ecuador) in 1736[55] and in Pomacocha in 1716-1719. The people dedicated to the production of textiles would either sleep in the same spaces they worked or in the immediate vicinity of the *obraje* in simple huts (Salvucci 1987: 37; Salas 1998a: 409-410).

[55] AGI, A report on *obrajes* of the Audiencia of Quito by Don Joseph de Araujo y Rio, Quito 133, No. 26a, f. 15r, August 12, 1737.

The average number of looms in the *obrajes* of the Virreinato of Perú was twelve (Silva Santisteban 1964: 31). Obrajes, unlike smaller textile producing compounds such as *trapiches* and *chorillos*, contained spaces for all stages of textile production and residence for a substantial number of specialized workers (Salvucci 1987: 38). Although there were dedicated living spaces for the administrator and the *mayordomo*, the workers generally slept among their working tools (*ibid*: 37). The organization of labor was hierarchical and specialized; workers would generally have only one role and be paid a specific wage for that role (Salas 1998a: 242-303). At the top, the administrator took care of the account books, made sales, and handled the money. The administrator was almost always Spanish. Below the administrator was the *mayordomo*, or majordomo, who was in charge of the daily running of the *obraje*: distributing tasks and equipment, managing the work schedule for the day, recording the daily productivity of the workers, distributing rations, unlocking and locking the doors to the work rooms, jail, and storage rooms, and meting out punishment. The *mayordomo* was often a *mestizo,* because speaking Quechua was absolutely necessary for the job, and they sometimes taught the administrator necessary Quechua phrases to communicate with the workers (Salas 1998a: 322-323).

Below the *mayordomo* were various people ("maestrillos" or "guatacos") who acted as the "muscle" of the *obraje*, enforcing discipline, capturing escapees, guarding doors, and carrying out physical punishment, usually lashes to the back. The people employed as muscle were rarely indigenous; they were most often from the *mestizo*, *sambo*, or *negro* castes (Silva Santisteban 1964:85).[56] The widespread abuses carried out by the muscle of the *obrajes* prompted a series of royal decrees prohibiting the mixing of castes in *obrajes* (Santisteban 1964: 85). Because of little incentive for enforcement of these decrees, they were practically ignored.[57] Also below the *mayordomo*, but of higher status than the native workers or "indios," were skilled workers who repaired the tools of the *obraje:* blacksmiths and carpenters. A cook was also hired, usually female; at the nearby *obraje* of Cacamarca, a *sambo* female was hired as cook and was paid eight pesos a month (Salas 1998a: 341). The bulk of the labor force at *obrajes* in the colonial Andes were of the "indio" or "indian" caste, responsible for the manual labor related to textile production. Within that labor force, work was gendered depending on the task: for example, spinners were usually female, and dyers and fullers were always male; tasks that went to the men were compensated with higher pay (Salas 1998a). Tributaries were supposed to be paid 40 pesos and 4 *reales* a year for their work, but such decrees were not followed, and they were paid only if they fulfilled a daily quota (*ibid*). Children were supposed to be paid 24 pesos and 2 *reales* a year, but they were often not compensated because they were helping their parents make the unrealistic quotas (*ibid*). Women and men worked in different areas and even slept in different areas. The presence of jails,

[56] AGI, Fiscal en Vistta de esta Cartta del Presidenta de la Audiencia de Quito, en que dá quenta de las Vejaciones que padecen los Indios en los obrajes de aquella ciudad, Quito 133, No. 22, May 15, 1740.
[57] AGI, alos presid.tes de las Aud.s p.ta q informen sobre obrages y con q licencia estan fundadas, Lima 474, February 22, 1680, f. 3r.

with their humid flea-infested dungeons and stocks, in *obrajes* also incentivized the workers to obey. Both the spatial and labor organization became more complex as *obrajes* became more profitable: *obrajes* increased the number of specialized spaces and roles (Salas 1998a: 245-307). At the height of profitability, *obrajes* had satellite *hacienda*s to supply food and seeds for the workers of the *obraje* and ranches to ensure a stable supply of wool (Cushner 1982; Salas 1998a).

Pomacocha was a typical *obraje* that had all the essential features, and its importance is reflected in its numerous additional features. The *obraje* at Pomacocha was not unusual in its spatial organization (Figure 9.1; Table 9.2).

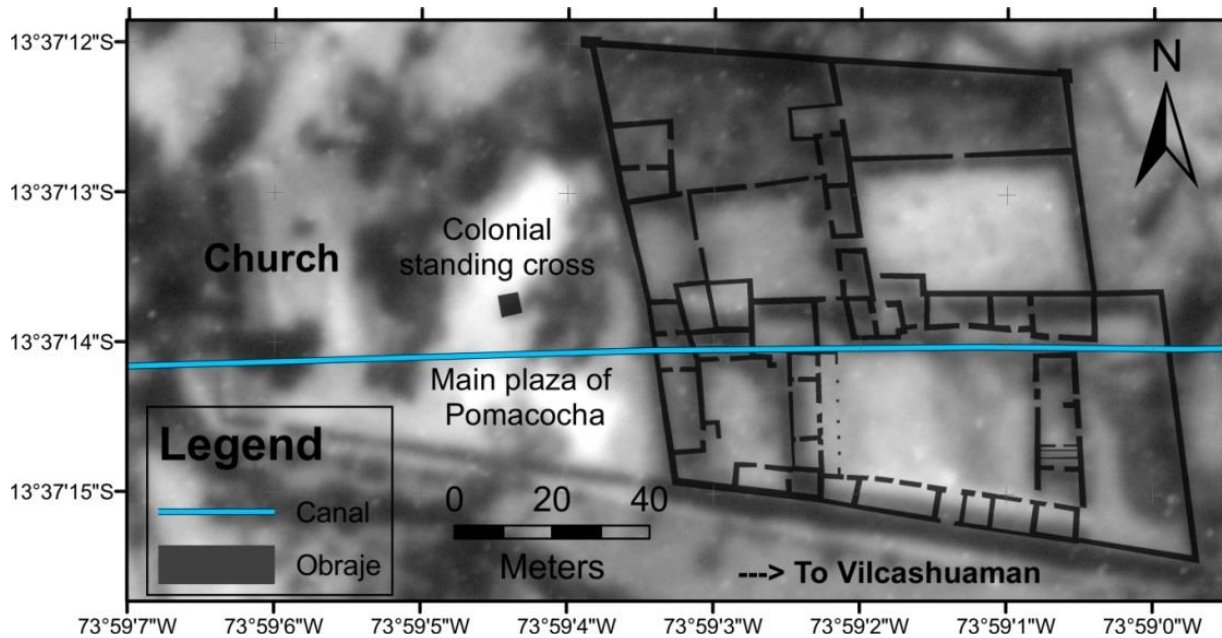

Figure 9.1: General configuration of the *obraje* of Pomacocha with a 1962 aerial photo backdrop.

Table 9.2: Components of an archetypal *obraje* (after Salas 1998a: 167-219; Salvucci 1987: 32-47; Silva 1964: 39-40) compared to Pomacocha (Salas 1998a: 213-217; ARAY, Arrendamiento, Notariales, Francisco Blanco de Cassazua, Leg 27, 1681, ff. 825r-829r; ARAY, Administración, Notariales, Benegas de Toledo, Legajo 20, Protocolo 27, 1689, ff. 263v-266v; ARAY, Compulsa de los autos que sigue Don Melchor José Mendoza, procurador del Monasterio con Don Alejos Lagos sobre cantidad de pesos Compulsas Ordinarias, Legajo 25, Cuaderno 3, 1793).

Type of space	**Essential?**	**Pomacocha**
Patio(s)	Yes	Yes
Chapel on or near *obraje* premises	Yes	Yes
Water source and canal(s) flowing through *obraje*	Yes	Yes
Batán (fulling mill)	Yes	Yes
Majordomo's room/house	Yes	Yes
Administrator's house	Yes	Yes
Corridors and rooms for spinning	Yes	Yes
Rooms for weaving	Yes	Yes
Warp room(s)	Yes	Yes
Press room(s)	Yes	Yes
Dye room(s)	Yes	Yes
Corridors or rooms for carding wool	Yes	Yes
Corridors or rooms for brushing and evening the nap	Yes	Yes
Corridors or rooms for final inspections	Yes	Yes
Room of work assignments (Tareador)	Yes	Yes
Kitchen and pantry	Yes	Yes
Storage room(s) for grains and food	Yes	Yes
Storage rooms for finished pieces	Yes	Yes
Storage rooms for raw materials and tools	Yes	Yes
Jail and dungeon	No	Yes
Mill for grinding flour	No	Yes
Forge	No	Yes
Carpenter's quarter(s)	No	No
Chaplain's quarter(s)	No	No
Jail guard quarter(s)	No	Yes
Garden	No	Yes
Animal pen(s)	No	Yes
Tannery	No	Yes
Hostel	No	Yes (Lanuza y Sotelo 1998: 116)
Hospital	No	No

In 1681, the Monastery of Santa Clara asked Captain Esteban de Maizondo to finish building the *obraje* within four years, and by 1686, the obraje was functional and the 68 Indians already working and living in the *obraje* and its haciendas of Paucarbamba and Chanin.[58] The 1686 census carried out by Duque de la Palata showed that the 68 Indian tributaries in the charge of Don Felipe Chuchón, *casique* of Vischongo were distributed

[58] ARAY, Arrendamiento, Notariales, Blanco de Cassazua, Leg. 27, 1681; AGI, Un exemplar de la Provisión de *retasa*…de la Provincia de Vilcas Guaman, Charcas 270, Roll 22A, 1686, ff. 25-27.

among the *obraje* (26), the fields of Paucarbamba (19), and the fields of Chanin (23). If we recall from chapter eight, Don Felipe Chuchón and other Condes of Vischongo were kicked out of their homes in Chacapampa and Molinopampa in 1674 and had fought from 1661 to 1681 to prevent the Monastery from taking their lands, to no avail. The promise made in the Monastery's royal petition of 1666 that the *obraje* would not harm any of the neighboring Indians had already been broken many times, unless they did not consider forcibly expelling and illegally usurping Condes land in Chacapampa and Molinopampa as doing harm to the Condes. One can imagine the humiliation of Don Felipe Chuchón and the Condes under his charge when they had to accept working at the new Monastery-owned *obraje* and *haciendas* in order to continue tilling their ancestral fields. Nevertheless, royal protection from the mines of Huancavelica and the proximity to their ancestral fields made working for the Monastery an acceptable arrangement. The nuns of Santa Clara saw themselves as protectors of its workers, emphasizing that the sixty-eight tributaries granted to work for them did not have to go personally to Huancavelica and only had to pay their *casiques* and *cobradores* [tax collectors] the tribute tax in cash and kind. Additionally, the workers did not pay those taxes personally because the administrators of the *obraje* and *haciendas* would pay for the workers' contributions. The nuns of Santa Clara offered paternalistic protection: "If any corregidor, casique, or cobrador wishes to do them [the workers] harm or cause them trouble, it is necessary to speak up and defend them, this monastery as the owners."[59] Before the end of the seventeenth century, the workers of Pomacocha became more politically separated from the leaders of Vischongo as the administrators and *mayordomos* of the *obraje* became their sole political authorities.

Pomacocha was built to its full physical size in 1689 and measured approximately 100 meters long and 94 meters wide. The planned dimensions were 110 *varas* long, 106 *varas* wide, 12 *varas* high, and half a *vara* thick, and the nuns of Santa Clara were satisfied that Captain Maizondo carried out their plan flawlessly.[60] The Spanish colonial *vara* measured approximately 33 inches or 84 centimeters long, but it varied significantly through time and across space (Ramírez 1998: 54). Comparing the measured proportions with the planned proportions, there is only a 2.5% error, showing that Captain Maizondo did indeed carry out the Monastery's plan almost to perfection. The Pomacocha *obraje* gives us a more accurate measure of the Spanish colonial *vara* in late sixteenth-century Huamanga: 90 centimeters. The *obraje* is not perfectly quadrangular, and the anomalous trapezoidal shape of its main patio probably dates to the Inka period. The reused Inka masonry in the *obraje* supports this hypothesis. There are unexcavated linear features from the magnetometry survey in the main patio of the *obraje,* and they may date to the Inka period or the early colonial hacienda of Paucarbamba (see Figure 3.5: B). Certainly, the main patio of the *obraje* was its oldest

[59] ARAY, Administración, Notariales, Benegas de Toledo, Legajo 20, Protocolo 27, f. 264r, 1689. Original: "…si algun Correxidor Casique o cobrador que siere haserles algun agrabio o molestia a de salir a la voz y defenza, este monasterio como dueño…"
[60] ARAY, Arrendamiento, Blanco de Cassazua, Leg 27, f. 827v, 1681.

component, and in 1666 when the nuns asked to put three or four looms in the hacienda, they referred to the main patio and its surrounding rooms. The three looms that the nuns installed in 1681 apparently made a great profit, hence the significant expansion of the *obraje* complex and the increase of the total number of looms to fourteen to sixteen. To support the *obraje's* growing working population and satisfy the Monastery's need for food, the Monastery established a *hacienda* called Pucaguasi (Q. "red house") in 1682 (Appendix D: 15), now a community called Pucaraccay (Q. "red ruined house"). Captain Maizondo was given all the necessary equipment and livestock to run Pucaguasi in 1681.[61] Because Captain Maizondo had constructed the *obraje* to the Monastery's wishes and was efficiently running the *obraje* and its *haciendas* for the Monastery, he was given favorable terms in the renting and running of the *obraje* for his own profit on January 15th, 1689.[62] Captain Maizondo was given a discount of 400 pesos in the first two years of rent, only paying 2600 pesos instead of the full amount of 3000 pesos.[63]

Comparing the 1681 inventory to the 1689 inventory of the Pomacocha *obraje*, one can see that the scale of operations greatly increased (Table 9.3). By 1689, the *obraje* of Pomacocha already needed to look further afield ("1000 arrobas of black wool from Bombón") for sufficient supply of wool. By 1689, the twenty-six tributaries living in the *obraje* certainly had their families working with them, because of the scale of operations evident in the inventory shows that there must have been at least one hundred workers. Assuming that the obraje was functioning at full capacity, which it should have been during this period, it would have employed around 240 natives between carders, spinners, weavers, warpers, dyers, pressers, fullers, and perchers. If we add the carpenter, blacksmith, majordomo, administrator, mule-drivers, and porters, there were around 260 people fully employed by the *obraje* by 1689. Because spinning wool was mostly done by women and children, the eighty spinning wheels show that there must have been over a hundred women and children at Pomacocha, because you need at least two people working each wheel. The large number of coins (16000 one *real* coins valued at 2000 *pesos*) in the 1689 inventory was presumably to pay the workers and for buying necessary supplies. By 1694, the number of Indian tributaries granted to the *obraje* of Pomacocha had increased from twenty-six to eighty, reflecting the glowing success of Captain Maizondo's administration (Salas 1998a: 392).

In the province of Vilcashuamán, the *obraje* of Pomacocha's working population was only second to Cacamarca's. Like Pomacocha, both Chincheros and Cacamarca *obrajes* greatly increased production from 1670 to 1700 (Salas 1998b: 270). Judging from the inventories, Pomacocha's production capacity was the greatest around 1717, when it had 19 looms, 100 spinning wheels, and 50 pairs of carding combs (ibid: 268).The inventories also give clues to the functions of the *obraje* and the organization

[61] ARAY, Arrendamiento, Blanco de Cassazua, Leg 27, 1681.
[62] ARAY, Administración, Notariales, Benegas de Toledo, Legajo 20, Protocolo 27, 1689.
[63] *Ibid*: 263v

of labor. Agriculture and raising livestock were integral to the functioning of the *obraje*. Between agriculture, raising livestock, and textile manufacturing, the workers of Pomacocha were occupied year-round in the activities of the *obraje*. The *obraje* was also where the workers received the seed for planting. The numerous locks and padlocks show the importance of locked doors at the *obraje*. By 1689, the *obraje* had all the necessary implements for complete self-sufficiency.

Table 9.3: Inventories of Pomacocha in 1681 and 1689.

Inventory in 1681	**Inventory in 1689**	**Inventory in 1689, continued**
26 oxen	103 oxen for plowing	2000 arrobas of white wool
10 plowshares (six worn and four new)	31 plowshares	1000 arrobas of black wool from Bombón
26 spindle whorls	80 spindle whorls (see below)	83 pounds of indigo
31 spinning wheels	80 spinning wheels with their spindle whorls and cranks	2 bronze bells for the chapel
21 cranks (for spinning wheels)	80 cranks (see above)	1 ax
10 pairs of carding combs (5 new and 5 old)	50 pairs of carding combs	1 pruning shears
6 crowbars? ("barretas")	8 crowbars?	2 pairs of scissors of the "Bergara" type
12 spits	14 spits	2 sacks for measuring seeds
1 hoe	1 hoe	27 fanegas of barley seed for planting
1 steelyard balance	2 steelyard balances	225 bovine (204 adults, 25 calves)
2 padlocks of the "fraile" variety	7 padlocks of the "fraile" variety	562 sheep (449 adults, 133 lambs)
2 locks with bolts	2 locks with bolts	57 horses, 5 foals, 1 mare having problems ("aviada")
1 bolt without a lock	(not listed in 1689)	30 donkeys
3 looms	16 looms (15 low and 1 tall for blankets)	30 tinajas for dyes
1 warp loom	1 warp loom (implied)	2000 *pesos* in denominations of *reales*
1 large chisel	1 large chisel	
2 adzes	2 adzes	
1 large copper dish weighing 400 pounds	4 large dishes for dyes	
1 copper cauldron weighing 100 pounds	2 cauldrons (100 pounds, 50 pounds)	
2 footrests ("escabeles")	2 footrests	
1 iron pick	1 iron pick	
1 flat iron	1 flat iron	
1 top and bottom ("macho y hembra") of pear wood for the clothespress	1 top and bottom ("macho y hembra") of pear wood for the clothespress	
1 small saw	1 small saw	
1 bronze die? ("dado")	1 bronze die ("dado") for the press	
1 bronze rod? ("gorrón")	1 bronze rod ("gorrón") for the press	
15 fanegas of wheat	53 fanegas of wheat seed	
1.5 fanegas of maize	51 fanegas of maize seed	
4 fanegas of potatoes	13 fanegas of potatoes	

9.1.2 The production of social hierarchies and divisions inside *obrajes*

What is the social purpose the archetypal *obraje* layout? While the high degree of specialization could provide opportunity for sabotage (Salvucci 1987: 52), it could also serve as a method of socially separating the workers to prevent sabotage. The *obraje* system was fragile, complex, inefficient, and costly; *obrajes* could only secure sufficient labor through coercion and the arm of the colonial law (Salvucci 1987). Given the *obrajes*' inefficiency, Salvucci (1987: 52) wondered why they persisted as long as they did. I argue that the *obraje* was primarily designed to control and discipline its working population and secondarily to make a profit. The hierarchical and specialized labor organization coupled with spatial and social division inside *obrajes* served to keep the potentially rebellious workers in check. By linking the hierarchies of social caste and work tasks, *obrajes* were places where social hierarchies were reinforced. The populace was divided because their interests were competing: the elevation of one group necessarily depended on the subjugation of another. People were paid to look out for their own self-interest and not to make alliances that would undermine the *obraje*'s profits. As each caste had distinct privileges, they fought to maintain those privileges. Fluidity of movement from one caste to another was not born of a sense of egalitarianism, but rather of the opposite. There was a distinct pattern in how people wanted to switch their caste identity: upwards toward more Hispanicization, because doing so would grant one more privileges.

In this section, I focus on two common ways *obrajes* divided people. First, I briefly discuss how the *obraje*, by using *mestizos* and people of African descent as the vehicles of punishment, reproduced stereotypes that people of different castes were natural enemies of each other, and that social mixing would lead to the exploitation of "helpless" and "miserable" Indians. Distinct, naturalized roles for the castes, while not reflective of social reality in most circumstances, were often reenacted in *obrajes* as a form of social control. The natives and their Spanish lawyers would use the language of caste animosity as a template in their legal pleas for justice. Second, I discuss the production of paternalistic relationships between the administrators, *mayordomos*, and the workers of the *obraje*, which crystalized into "costumbre" or customary obligations of all employees of the *obraje*. Costumbre resembled Inka-period obligations between the lord and his subjects, in which involved gift-giving masked exploitative working conditions. In a politically unstable world full of corruption, the stability and sense of community that "costumbre" offered to workers made certain *obrajes* relatively attractive places to work.

In Spanish colonial documents where natives petitioned for justice, a familiar trope was to emphasize the natural enmity of the *casta* (caste) categories (O'Toole 2012). One of the most common racial stereotypes was that of the black slave carrying out physical punishment on the Indian at the behest of the Spaniard (*ibid*: 160). Such stereotypes also extended to *mestizo-indio* casta relations. Although most social interaction between the different castes did not conform to this hierarchical racial stereotype, the language of "natural enmity" was invoked in native legal petitions for justice in order to fulfill the "proper" role as victim (*ibid*). If everyday relations were generally amicable between *mestizos*, *castas* of African descent, and *indios* (O'Toole 2012), where was this widely held stereotype reproduced? As *mestizos* and *castas* of African descent were used as the "muscle" of *obrajes*, and because *obrajes* employed a large sector of the native population, negative interactions fomented by the *obraje* labor organization, such as carrying out whipping and forcibly dragging native debtors to the *obraje*, reproduced "racial enmity." A contemporary prosecutor described obrajes as maintained like prisons because their doors were always shut and guarded by people of "bad condition and quality" (*maestrillos* or *guatacos*), who forced the natives to work by the threat of lashing. These *maestrillos* or *guatacos* were generally "mulatos, negros, zambos, or mestizos" who were "cruel men, and enemies of the Indians."[64]

At Cacamarca, the largest *obraje* of the Vilcashuamán region, poor young bastard Spaniards "mozos españoles" and *mestizos* were employed as the muscle (Salas 1998a: 429-436). Although paid the same as the native workers, the muscle had elevated status and authority because they were given nicer clothes (*ibid*: 432). Inside *obrajes,* only black slaves would be rationed tobacco (*ibid*: 438), which set them apart from the native working populace. A sense of community among individuals from different *castas* was not common in *obrajes*. For example, at Cacamarca, the oldest of the three slaves working there, Dionisio Pacheco, the guard of the main door, had escaped after many years of service when he was already about ninety years old and afflicted with gout. He probably escaped to his birthplace, the hacienda of Belén on the coast, according to the administrator. According to the administrator, the natives were terrified of the black slaves at Cacamarca, and the social rejection of the black slaves was enough to drive people like Dionicio away, risking punishment to escape to where they had happier memories of community (*ibid:* 435, 439). We do not have evidence that the Pomacocha *obraje* employed slaves, but we do know that their *mayordomos* were generally *mestizo*, so Pomacocha's muscle may have comprised of *mestizos* as well. Complaints of multiple broken ordinances regarding the prohibition of using *castas*, especially "negros" and "mestizos," to physically punish Indians in mines and obrajes attest to how these institutions divided people. When the natives' complaints were not directed against *negros* or *mestizos*, they would complain that they were being treated worse than *negro* slaves to appeal to the language of the proper social hierarchy.[65] People of the "indio" caste would try to pass as *mestizos* by wearing Spanish clothing and speaking a few

[64] AGI, Fiscal, Quito 133, No. 26A, f. 11r, 1737. Original: "…es tambien en gran manera perjudicial a la livertad y alibio de los Yndios q trabajan en dhos obrajes el q sus puertas estem siempre cerradas y q aya para ellas portero, ó Alcay de como en las carzeles publicas, y q estos ordinariamente son de mala condicion y calidad de los quales con el nombre de Maestrillos, ó Guatacos, tienen por oficio obligar a dhos Yndios al trabajo a fuerza de azotes, y q regularm./te aplican para estos oficios, mulatos, negros, zambos, ó mestizos a quienes p.r ser hombres crueles, y enemigos de los Yndios…"

[65] e.g., AGI, Dn Melchor de Caruajal against *obraje* of Llacsaca in the province of Tarma, Lima 495, f. 36v, March 1,'1725.

words of Castilian to avoid labor and tax obligations.[66] The pervasiveness of *indios* passing as *mestizos* led to many complaints and recommendations by employees of the state to require documentary proof.[67] Sweeping Bourbon economic reforms in the 1730s that subjected *mestizos* to tribute tax was the formal state response to passing, but was met with fierce resistance and the first conjuncture of the eighteenth century revolts (O'Phelan 1985).

Outside of *obrajes* and other coercive Spanish labor institutions, especially in urban settings, cultural and economic inter-caste interactions were generally amicable (O'Toole 2012: 116-121). The Spanish state did not approve and tried to ban non-Spanish petty merchants regarding the sale of cloth. State actors called urban spaces "disordered" because of the *negros*, *mulatos*, *sambos*, *mestizos*, and *indios* all mixing through the sale of merchandise, and that such economic activity was to the "grave prejudice to guild of the small-time Spanish traders."[68] In rural Andean settings, escaped slaves, or "simarrones," sometimes became highway robbers and would rob passing natives.[69] The rural highways were dynamic and diverse economic spaces, as attested by Vicente Morachimo in 1732, who complained of the numerous hagglers and petty merchants from the "negro," "mulato," "mestizo," and "español" castes who would force Indians to sell their goods at half the value, and if the Indians did not comply, they would be mistreated and physically harmed (Morachimo 2003 [1732]: 182). In colonial Huamanga, criminal and civil cases brought by people of the "indio" caste were most often against people of the same caste, showing that inter-caste conflict was not unusually frequent, only that many legal cases, if it involved people from other castes, often resorted to the legal tropes of protection against "natural enemies" of other castes (see ARAY, Causas Criminales and Causas Civiles; for Cuzco see Walker 1999: 82).

The second main way that *obrajes* divided people was through paternalistic relationships based on *costumbre*. Arguably, this was more the norm because it produced fewer legal complaints by the workers, was less expensive for the administrators because they did not have to hire extra muscle, and because *obraje* operations were less prone to sabotage. Workers defended *costumbre* and often established a sense of community, especially at *obrajes* where the administrators and *mayordomos* were adept at gift-giving and playing the role of the benevolent lord or father "taitita administrador (Salas 1998a: 523, 527)." Costumbre referred to any customary obligation, and the assumption was that *costumbre* should not be violated. For example, *costumbre* in native tribute obligations to the Crown only referred to payment in cash and kind, but when Spaniards forced native tributaries to work for free

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66 BNP, Provisión de retasa…Papres, C1132, ff. 14r-14v, 1717.

67 *Ibid*.

68 AGI, Aqui esta la Justificacion por la que resulta haverse pribado âlos Yndios de ser Mercaderes como âlos Negros y Mulatos, haz,do. â estos Yguales â los Yndios, Lima 495, paja 3, 1724. Original: "…desorden que sea introducido de salir por las Calles de esta Ciudad Negros, Mulatos, Zambos, Mestizos e Yndios, cargados de Mercaderias á comerciar con ellas en grave perjuicio del Gremio de los Mercachifles españoles..."

69 AGI, Lima 495, May 12th, 1726, f. 3

in their houses and *haciendas*, they violated *costumbre*.[70] Costumbre became the law of the land regarding labor justice. Complaints against Spanish institutions usually cited violation of *costumbre* and did not call for the abolition of those institutions. Costumbre was not necessarily compatible with fairness and often replicated hierarchies among the native workers themselves. At the *obraje* of Cacamarca, for example, the native workers elected leaders among themselves. The elected native leaders did most of the policing in the *obraje*, carrying out the orders of officials and sometimes abused their authority by obtaining favors and extorting workers (Salas 1998a: 346). The *obraje* of Cacamarca also employed *chasquis,* or runners, from the native populace to capture *simarrones*, or escaped slaves.[71]

The spatial division of society into the *República de Indios* and *República de Españoles* to "protect" the Indians was a legal reality, but in practice, people of all castes regularly lived together and interacted with one another (Owensby 2013: 149). This legal division was another form of *costumbre: "*Premised on the simultaneous protection and exploitation of native peoples, the practices of negotiated rule became costumbre, enshrined and established custom, especially within native villages, a principle prizing 'conservation' over change (*ibid*)." This type of *costumbre* was pervasive in legal documents involving native complainants against individuals from other castes, as mentioned previously. Violation of *costumbre*, especially when it involved local actors siphoning native labor away from the Crown's revenues, was a compelling enough reason for the state to act in favor of the native complainants. The language of *costumbre* was enshrined in Hapsburg ideology. With the dynastic change to the Bourbons in 1700, *costumbre* came under increasing pressure toward 1740 (Owensby 2013: 149). Underpinning the ideology of *costumbre* was the idea that law and justice were to insulate natives from the abuse of other castes. Once protected from the appropriation of their labor from other castes, they can be productive tributaries and loyal vassals to the Crown (*ibid*: 152). In *obrajes,* "costumbre" referred to a variety of obligations, including the daily quota of finished materials, amount of grain distributed to the workers for agriculture, ration amounts, punctual payment in cash and clothes, number of rest days, gifts on holidays (especially cloth for the naked workers of the *obraje*), and obligations for the administrators to contribute to funeral or baptism costs (Salas 1998a). The workers and *mayordomos* were especially resistant to changes in *costumbre*, and they often allied with one another when administrators threatened to act against *costumbre*; as a result, obrajes were not economically or technologically innovative places (*ibid*: 323-333). The lack of technological innovation would put obrajes at a distinct disadvantage with cheaper and higher quality cloth from Europe beginning in the latter half of the eighteenth century (*ibid*: 242).

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[70] AGI, Y otra de 1680 a el mismo y alos presid.tes de las Aud.s p.ta q informen sobre obrages y con q licencia estan fundadas, y otras cosas, Lima 474, Feburary 22, 1680.

[71] AGN, Libro de Cuentas Cacamarca, Temporalidades, Compañía de Jesús, Legajo 83, Cuadro 2, ff. 153v-154r, 1731-1761.

9.1.2 Costumbre in the *obraje* of Pomacocha and workers' tactics of resistance

At Pomacocha, *costumbre* was vehemently defended, and before 1780, the only lapse of *costumbre* occurred under the Spanish administrators Don Alonso García de Araujo and Don Domingo Lopes del Pozo, who rented and administered the *obraje* and its *haciendas* from 1701 until 1719.[72] These new administrators were immigrants from the Galician region in Spain and had rapidly climbed the ladders of power through the profits earned from the *obraje* of Pomacocha (Salas 1998a: 151). European immigrants were derisively called "Chapetones," and creole Spaniards and native commoners resented them for their general lack of respect for *costumbre* (see 9.2.1)**.** During their administration, several major disasters struck Pomacocha. The first was a major earthquake that destroyed the *obraje* in 1716, and another major earthquake shook the region in 1719, this time destroying both the *obrajes* of Pomacocha and Cacamarca. The second was the Great Andean Epidemic of 1718-1726, which arrived in the Vilcashuamán area in 1720 and did not end until 1726. Upwards of two thirds of the native population perished in the epidemic, probably of influenza and/or plague (Dobyns 1963: 512; Pearce 2001). Although we do not have statistics for Pomacocha, the nearby Cacamarca obraje lost three quarters of its workforce (three hundred workers out of about four hundred) due to the epidemic (Salas 1998a: 399), and Pomacocha would have seen similar devastation.

The administration of del Pozo and García de Araujo resulted in a formal complaint in 1729 by Nicolas Guamán, the elected *alcalde* of the community of Pomacocha (Mendizabal 1958; Appendix J). The 1729 complaint was probably written or dictated by Nicolas Guamán, because the Spanish lacked fluency. The main complaint of the 1729 document was that Don Alonso García de Araujo and Don Domingo Lopes del Pozo had repeatedly and illegally extorted the workers of Pomacocha for eighteen years, overworking them and preventing them from their customary days of rest on festival days and Sundays in order to pay off the personal debts of the administrators, which amounted to thirty thousand pesos. These debts, according to Nicolas Guaman and the workers of Pomacocha, were accrued due to the illegal trade in foreign cloths such as Britanny and Cambrics, which the administrators also forced the workers to buy (with their labor) at exceedingly elevated prices. The complaint was put forth because the now ex-administrators tried again to pass off their debts onto the workers of Pomacocha. Although his command of Spanish was limited, the structure of the 1729 complaint showed that Nicolas Guaman was familiar with the expectation that natives play the role

[72] ARAY, Ricvo El Cap/n D/n Luis de la fuente a fabor del Monasterio de Monjas de S/ta Clara de los Aperos y peltrechos del obrage de Pomacocha, Francisco Benegas de Toledo, Leg 79, Prot 99, ff. 422v-424r, January 15, 1701; ARAY, Arendam,/to el obraxe de Pomacocha al cap/n D/n Luis de la fuente a sus dos hermanos, Notariales, Juan Urbano de los Reyes, Legajo 128, October 5, ff. 1247v-1255r, 1705; ARAY, Sobre el Arrendamiento del Obraje de pomacocha, Notariales, Juan Urbano de los Reyes, Legajo 130, ff. 119r-125r, August 7, 1712; ARAY, Sobre Reservir 20 (2000) pesos en el Obraxe de Pomacocha, Notariales, Juan Urbano de los Reyes, Legajo 132, ff. 171r-173r, August 31, 1723.

of the helpless victim whose labor, and therefore contribution to state coffers, was being extorted by other castes. To fulfill their natural destiny as obedient and productive vassals, Guamán reasoned, they needed to ask for justice from the benevolent King or his representative.

The complaint started by trying to establish sympathy, referencing the earthquake that destroyed the *obraje*, which surely was a traumatic event for the workers, as more than sixty people, both male and female, perished. The vast majority of workers had perished in the 1716 earthquake: "having perished the original inhabitants of the [*obraje*], in the ruination and devastation that occurred sixteen years ago, more or less, due to an earthquake, or volcano...when the *obraje* was rented by the general Don Domingo del Poso and his brothers in law."[73] Only a few escaped with their lives: "the old *obraje*, which was destroyed with the earthquakes, when it was under the management of the renters, only had ten or twelve Indians who escaped with their lives."[74] If more than sixty people perished and only ten or twelve escaped with their lives, the *obraje* working population may have only been a little over seventy people at the time of the earthquake, which was much fewer workers, male and female, than before del Pozo and García de Araujo. The low number may be a reflection of the abusive working conditions encouraging workers to flee. The 1719 census, listed only twenty-eight tributaries, one *alcalde*, and the *casique* in charge of tribute collection, Don Lucas Chuchón of Vischongo.[75] A "Nicolas Guamani," aged forty, was listed as a tributary of the *obraje* of Pomacocha in the 1719 census and was certainly the same Nicolas Guamán of the 1729 complaint. An unbelievable forty-one individuals were exempt from tribute on account of being too old or sick, and it is certain that some of their ages were exaggerated by the administrators to siphon surplus profit from the Crown (see section 9.2). In all the censuses, there was a significant portion of the tributary population that was hidden for various reasons relating to the competition over native labor (Powers 1995).

Nicolas Guamán then continued on how the administrators had been involved in the illegal black market in foreign cloth and had illegally transferred the debts to the workers, forcing them to work without pay so that the thirty thousand peso debt could be paid. The implication was that the administrators had deprived the Crown of revenues from both sizable customs duties and tribute tax from the workers. Nicolas Guamán insisted that there was ample proof of their practices, and that a judge should be appointed directly from the Protector of Natives and the King to find out the truth. The workers were worried that if the judge was a *vecino*, or Spanish citizen, of the city of Huamanga, justice would be corrupted because del Pozo and García de Araujo were

[73] AAA, Títulos, Cuaderno 9, f. 32v, 1732. Original: "…por haverse muerto los originarios del, en la ruina, y a solasion que aora dies y seis años, pocos, mas o menos, padecio con vn temblor, o bolcan, el obraxe antiguo, quando lo tenian en arrendamiento el G,/l Don Domingo del Poso y Sus Cuñados…"

[74] *Ibid*: f. 38v. Original: "…el obraje Antiguo, que se arruyno con los temblores; estando empoder de los arrendatarios, solo le entregaron, dies, o dose Yndios, que escaparon con la vida…"

[75] BNP, Copia de la Numeración de Yndios hecha en la prov. de Vilcasguaman, C1924, 1719.

esteemed *vecinos* of that city. Nicolas Guamán said the workers were forced to work from four in the morning until midnight and were not given days of rest on Sundays and on festivals. They were probably locked inside to ensure complete dependence on the administrators and the *mayordomo* for food. Nicolas Guamán asked for justice and protection from the corrupt *vecinos* of Huamanga and peppered the petition with numerous flatteries of the benevolence of the King and the Protector of Natives. Tellingly, Nicolas Guamán ends with the complaint that even the children, ages eight to ten, were obliged to work in the *obraje* to pay off the debts of seventy or eighty *pesos* a year, which was about quadruple the official pay rate for children in *obrajes*. The children worked without the permission of the tutor of their school and unbeknownst to the Protector of Natives. The *repartimiento* of the Condes, as part of their tribute tax, paid 30 pesos a year for a tutor, or "preseptor de escuela," to teach their children to speak and write Spanish, and become fluent in Catholic *doctrina*, which was crucial to their success in the Spanish legal system.[76] By depriving their children of their right to learn, the administrators del Pozo and García de Araujo violated an important part of *costumbre* at the *obraje* of Pomacocha.

Other documents as well as archaeological excavations support Nicolas Guamán's account of del Pozo's and García de Araujo's corrupt administration. Archaeological excavations revealed a diet of desperation inside the *obraje* just before the 1716-1719 earthquakes, when del Pozo and García de Araujo were the administrators (see chapter eleven). Work at Pomacocha was suspended for a period of time shortly before 1712, pointing to conflict with the community of Vischongo.[77] The Monastery of Santa Clara and the administrators blamed sea pirates for hampering the acquisition of indigo and other materials. The deprivation of indigo and other materials forced the Monastery to suspend the administration of the *obraje* "for a considerable time…to the prejudice of the…renters."[78] Therefore, the Monastery felt it was just to allow the administrators to renew their lease for a period of nine years with an annual rent of 4500 *pesos*. What makes this reason odd is that none of the materials, including indigo, were impossible to acquire from terrestrial trade, and none of the accounting documents from the *obrajes* of Vilcashuamán ever showed a reliance on trade by sea. At that time, neither the *obraje* of Chincheros nor Cacamarca reported any suspension of work due to the lack of supplies (Salas 1979, 1998a). Furthermore, even though work was suspended, the administrators were able to convince the Monastery that they needed a new *batán*, or fulling mill, and canal, which had cost 2500 *pesos* to construct. Even more suspicious was the fact that the administrators had "purchased" the lands of Chacapampa and

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[76] BNP, C1610, Provisión, f. 20v, February 20,1753; also BNP C1950, f. 11, 1730 [1728].

[77] ARAY, Sobre el Arrendamiento, Notariales, Legajo 130, ff. 119r-125r, 1712.

[78] *Ibid*: f. 119v. Original: "atendiendo a que trabajar en dho obraje necesitan de tiempo considerable por aver deprebeñase de Añil y de otros materiales ultra marinos y que por falta deavios nos esuspenda la administración de dho obraje En perjuicio de los dhos arrendatarios y ser publica y notorio q los mares de estas Costas estan ynfestados de pirattas enemigos que Pueden apresar la condución de dhos materiales y que assi para haver el gastto en ellos que an de ser considerables quieren a Seguir a continuacion de dho nuebo Arrendamiento que son razones Justos Antes de Salir a este tratatado comboco./a a toda la comunidad…"

Molinopampa from the community of Vischongo for 200 *pesos* on which to construct the aforementioned fulling mill and canal, even though those lands legally already belonged to the Monastery for more than thirty years. The defensive language used in the rental agreement justifying the reasons for the suspension of work as well as reiterating that no one had the right to intrude on the lands of Chacapampa and Molinopampa suggests that conflict with the community of Vischongo and with the workers likely contributed to the suspension. The administrators and the Monastery obviously believed that having a permanent building on the contested lands would prevent further squatting by the Condes of Vischongo. The 200 *pesos* paid for the purchase of these lands was probably a bribe, as there was no legal necessity to pay for lands that the Monastery had already owned. It is also possible that the administrators had forced the workers of Pomacocha to build the aforementioned fulling mill, as Nicolas Guamán had complained about the administrators forcing them to work for free in *faena* projects.

The accusation that the administrators had traded in illegal cloth and had found themselves in considerable debt because of it also rings true. In 1723, Don Domingo López del Pozo and his cousins (relatives and heirs of his recently perished brother-in-law Alonso García de Araujo) settled a considerable sum of debt (125,115 pesos) in favor of Don Domingo Rodriguez de Muiñoss.[79] To put this amount of money into perspective, a dozen eggs at the time cost about a *real*, which was an eighth of a *peso*. The daily pay for *obraje* workers was two to four *reales* a day. The debt incurred by the administrators and their immediate families was equivalent to at least ten million dollars today. The administrators were unwilling or unable to pay the debt previously because the lender, Don Domingo Rodriguez de Muiñoss had to pay a considerable 1500 *pesos* in legal fees to force them to pay the debts. Nicolas Guamán's accusation is quite plausible because the illegal imported cloth was exorbitantly expensive, and the administrators probably borrowed the money to buy such cloth. The *obraje* was very profitable, so the administrators could not have fallen into debt because of their administration of it. In fact, the *obraje* of Pomacocha allowed them to extort the labor of the workers to pay off a thirty-thousand *peso* debt from their illegal trade. Once demand dried up for the luxury cloth, probably due to a combination of piracy, stricter laws, epidemics, labor shortages, and earthquakes depressing the economy, the administrators found themselves with considerable debt and not enough flow of capital to pay the debt promptly. As the *corregidor* of Vilcashuamán province, Don Alonso García de Araujo would have had great power to siphon off labor and tax from the hiding of native tributaries (see section 9.2). But with the severely reduced native population due to epidemics and earthquakes, the ability to siphon off labor and tax was greatly reduced. Corregidores forcing the sale of European luxury goods on native Indians was common during the 1730s and 1740s (Juan and Ulloa 1826: 236-250), and the 1729 complaint by

[79] ARAY, Finiquitto= el G/l D/on Dom Lopez del Pozo y sus Sobrinos A D/nomingo Rodriguez de Muiñoss, Notariales, Juan Urbano de los Reyes, Legajo 132, ff. 193r-194r, September 20, 1723.

the workers of Pomacocha showed how the dreaded practice of *reparto*, or the forced purchase of merchandise from *corregidores*, proliferated during economic depression.

Certainly, the Monastery should have heard murmurs of discontent from the workers in the eighteen years of López del Pozo and García de Araujo's administration, so why were the administrators so esteemed by the Monastery, who had promised to protect the workers? The Monastery was unanimous in their approval of the two administrators and praised them for their prompt payments and their dedication to defending their lands of Pomacocha.[80] With the community of Vischongo still bitter and resisting the loss of their lands, especially of Chacapampa and Molinopampa, and with the workers of Pomacocha still politically cohesive and linked through kinship to Vischongo, the nuns of the Monastery of Santa Clara were probably worried that conceding to any complaint against the administrators would drive the strong administrators away. Therefore, the Monastery, whose nuns were permanently cloistered, would have no one on the ground defending their lands. Also, as the administrators were some of the richest, most respected and powerful individuals of Peru, especially in the region of Huamanga and Vilcashuamán, the nuns would not have wanted to fall out of their favor. Paternalism gave way to economic and security interests. When Nicolas Guamán insisted that the judge investigating the case should not be from Huamanga because of the esteem of the administrators in that city, he and the community of Pomacocha showed great political awareness. With their military backgrounds, the administrators always had the threat of overwhelming force in their favor to keep the working population in check.

In their rental contracts, the administrators were supposed to pay for any repairs to the *obraje* structure and inventory themselves, including in the case of an earthquake. The administrators and their heirs, buckling under their debt after the earthquakes and epidemic, did not fulfill the terms of their rental agreement because the Monastery had to take out a *censo* loan for 4600 pesos to rebuild the *obraje*, putting their procurator Father Friar Don Lorenzo Gomez, in charge of reconstruction.[81] The power they were able to gain through the profits of the *obraje* also helped them to renege on the agreement without fear of punishment (Aguirre Cárdenas 2008: 255). From Nicolas Guamán's complaint, the ex-administrators' families were still in a lot of debt toward the end of the 1720s, because they tried to force the workers to take again on a portion of the debt.

What became of Nicolas Guamán's and the community of Pomacocha's complaint? A judge from Huamanga named Don Joseph Nicolas Chacon Ynfante was appointed by Don Juan Liendo y Ocampo to oversee the case. Liendo y Ocampo was one of the principal administrators and majordomos of the *cofradía* of Nuestra Señora de la

[80] ARAY, Sobre el Arrendamiento, Notariales, Legajo 130, ff. 119v, 124v, 1712.

[81] ARAY, Sobre Resevira Senzo quatro mill y seis sienttos pesos, Notariales, Juan Urbano de los Reyes, Legajo 132, ff. 125v-132r, June 11, 1723.

Soledad of the convent of San Francisco in Lima.[82] Because Santa Clara was the sister order of San Francisco, the case was overseen by the Franciscans. The Monastery of Santa Clara of Huamanga had meaningful contact with the order of San Francisco in Lima and would often send their petitions, accounts, and other documents there. No other documents specifically related to the results of the investigation were located (Mendizabal 1958: 273), but a 1732 document regarding the disputes over the lands of Pomacocha revealed clues to the aftermath of the 1729 complaint.[83]

The 1732 document detailed the outcomes of the various complaints against the *obraje* of Pomacocha, in particular against its administrator Father Friar Don Lorenzo Gómez of the order of San Francisco of Huamanga. Apparently, the 1729 complaint was only one of many complaints and was part of larger political struggles in the province of Vilcashuamán. Three main factions were apparent. The first faction consisted of people who allied with or supported Father Friar Don Lorenzo Gómez, and included Martin Acha, a Condes tributary who had moved from Vischongo to Pomacocha, and various Spanish *vecinos* of the town of Vilcashuamán. The second faction consisted of people who were allied to the new *corregidor* of Vilcashuamán, the general Don Gregorio de Vega y Romani and his father general Don Joseph Manuel de Vega y Cruzat (preceding *corregidor*), Don Bernardo Araujo, the *maestro de campo* and heir of Don Alonso García de Araujo (a former *corregidor* of Vilcashuamán), Don Melchor Juarez, the *casique*, tax collector, and governor of the *pueblo* of Vilcashuaman, Alonso de Ochoa, a *mestizo* mule driver, Benito Fernando Venegas de Cordova, the *sambo* secretary of the *corregidor* Don Gregorio de Vega y Romani, captain Esteban Costilla, *mestizo*, Brigida Rodrigues, Luisa de Ochoa Menchaca, and Bernarda Pujaico, *vecinos* and *hacendados* of Vilcashuamán who allegedy accused Friar Gómez of dispossessing them of their lands and harming the natives. The third faction consisted of the Condes governor and tax collector of Vischongo, Don Juan Canchumanta, representing the community of Vischongo's complaint that Martin Acha did not own the lands of Mishcabamba, which legally belonged to the community of Vischongo. Don Juan Canchomenta complained that although Martin Acha did have the lands of Mishcabamba distributed to him for his use, he forfeited all rights when he moved to the *obraje* of Pomacocha. Martin Acha claimed that his ancestors had purchased the lands and had the legal titles for it, but through "trickery," the titles were taken away from him by the native leaders of Vischongo. Friar Gómez defended Martin Acha's claim to Mishcabamba in hope that the lands of Mishcabamba would be annexed to those of Pomacocha. The legal proceedings were overseen by Don Manuel de Araínda, who was in charge of carrying out the 1729 Vilcashuamán province census, and judging from the glowing testimonies in favor of Friar Gómez, the administrator of the *obraje* of Pomacocha, Araínda was allied with him as well.

[82] AAL, Cofradías, Autos relativos a las cuentas presentadas por don Gonzalo Cayetano de la Torre y don Juan de Liendo y Ocampo, del segundo año de su mayordomía y administración de la cofradía de Nuestra Señora de la Soledad (convento de San Francisco), de 1726 a 1727, 1982, XVII: 2, 1727.
[83] AAA, Títulos, Cuaderno 9, 1732.

The accusations levied against Friar Gómez were numerous. We do not have copies of the original accusations, but the testimonies against the accusations revealed what they were. To attack his character, Friar Gómez was accused of having an illegitimate son, Matheo Gómez, who was the majordomo of the *obraje* of Pomacocha. The witnesses gathered by Araínda, all Spanish *vecinos* of Vilcashuamán or Huamanga, affirmed that this accusation was not true, that Matheo Gómez was born in the province of Jauja, where his parents still live, and even on occasion visited him in the *obraje*. Most related to the 1729 complaint of Nicolas Guamán were insinuated complaints that Friar Gómez imprisoned the workers illegally, mistreated them, starved them, and beat them. The testimonies supporting the good character of Friar Gómez revealed how the workers of Pomacocha on the contrary esteemed Friar Gómez and how the 1729 complaint was related to his removal from his post after political machinations of the ex-administrators' (López del Pozo and García de Araujo) families. According to the witnesses, Friar Gómez's treatment of the native workers of Pomacocha and even the *mestizo* prisoners from other provinces in the jail of the *obraje* was so good that when he was removed from his post by his enemy the *corregidor* general Don Gregorio de Vega y Romani the workers fled the *obraje* en masse and complained against his removal on two occasions to the Monastery of Santa Clara:

> This declarant said that the Indians so loved and adored the said Father Friar Lorenço Gomes, that when he left the post by order of the provincial [*corregidor*], of the administration of the said *obraje*, and even though his post was replaced by two other people of the religious order, the Indians fled the *obraje* and met with the Mother Abess of Santa Clara, telling her that if the Father Friar Lorenço Gomes was not restored to the *obraje*, they will leave for other parts; and that in two occasions the said Indians carried out this representation...[84]

The workers carried out their threat and everyone escaped and scattered. Only when Friar Gómez was restored to his position did the Indians voluntarily come back, after hearing news of his return.[85] The unusually high rate of absenteeism in Pomacocha in the 1729 census supports the claim that the workers fled en masse. Forty-six tributaries were listed as absent, out of a total of seventy-nine.[86]

Upon closer inspection, the corruption of the leaders of the first faction was readily apparent. All of the witnesses regarding the first faction's complaints, including the people who supposedly initiated the complaints, either affirmed Friar Gómez's good

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[84] *Ibid*: 32v. Original: "Dixo este declarante, que aman, y quieren tanto los Yndios, á dho Pe.fr Lorenço Gomes, que quando este fue de puesto, de orden de Su provincial, de la administrasion de dho obraje, aunque en Su lugar fueron otros dos religiossos, desampararon [sic] los Yndios el obraje ocurrieron ala M./e Abadesa de Santa Clara, Disiendole, que Si el P,/e fr. Lorenço no se restituia a el obraje, ellos se irian â otras partes; y que en dos ôcasiones, que hizieron esta representacion dhos Yndios"

[85] *Ibid*: f. 30r

[86] AGN, Padrón de los indios tributarios de la provincia de Vilcas-huaman, obispado de Huamanga, en que se comprenden todos los pueblos, ayllos, estancias, obrajes y haciendas de la dicha provincia, Campesinado, Derecho Indígena, Legajo 14, Cuaderno 248, [1729].

character or said that they never initiated any lawsuit against Friar Gómez, and that the *corregidor* of Vilcashuamán, with the help of *mestizo* Alonso de Ochoa and *sambo* Benito de Venegas, his secretary, had forged documents in their name against Friar Gómez. They even tried to formally recuse the documents after learning of their existence. According to witnesses it was "public and notorious" that the *corregidor* and his father had "mala voluntad" or "ill will" against Friar Gómez.[87] The Vega y Cruzats' "ill will" against Friar Gómez is entirely plausible, because the Vega y Cruzat family were administrators of the *obraje* of Chincheros, and would have been a direct competitor of Pomacocha (Salas 1998b: 264). The web of interests extended to Huamanga, where Don Bernardo de Araujo had overseen several of these complaints against Friar Gómez. Because Don Bernardo de Araujo was the son and heir of Don Alonso García de Araujo, Nicolas Guamán's complaint that the ex-administrators were trying to put the workers under their yoke again rang true. From the land titles of Pomacocha and Vischongo, the most common challenges to the Monastery's rights over the lands of Pomacocha came from the community of Vischongo and the *corregidores* of Vilcashuamán, and the conflicts of the late 1720s and early 1730s were further examples. Because of the conflicting interests among the Spanish themselves over land and native labor, inter-caste alliances frequently formed to bolster the claims of one or another group.

The only complaint that did not seem to be forged was that of Don Juan Canchumanta, the governor and tax collector of the community of Vischongo. None of the witnesses brought any proof that Mishcabamba belonged to Pomacocha. Mishcabamba was clearly titled to the communities of Vischongo and Tincoc and not to Pomacocha. Martin Acha was also unable to produce land titles or proof that he had purchased the lands of Mishcabamba, as he had claimed. Canchumanta's complaint, done in the name of the community of Vischongo, showed that Friar Gómez did act in favor of the workers of Pomacocha, defending their ancestral usufruct rights, but to the detriment of the communal lands of Vischongo. By attracting workers from nearby native communities, and subsequently defending their usufruct rights, administrators like Friar Gómez were able to use paternalism to further fragment native communal land and divide political loyalties in native communities.

Don Melchor Juarez, the Tanquihua *casique*, tax-collector, and governor of the pueblo of Vilcashuamán, who allegedly drafted a complaint against Friar Gómez for disposessing the Indians of Vilcashuamán of their lands in January of 1731, claimed that he made no such document, and that it was not true because the Indians of Vilcashuamán did not own any lands anyway. He said that Alonso de Ochoa had been trying to foment unrest among the Indians to start a lawsuit against Friar Gómez because he owned a considerable number of livestock and was using Pomacocha land. The previous administrators López del Pozo and García de Araujo allowed Alonso de Ochoa to use Pomacocha lands, but Friar Gómez did not allow Alonso de Ochoa's

[87] AAA, Títulos, Cuaderno 9, f. 33r, 1732.

continued use of Pomacocha lands.[88] Alonso de Ochoa was the former mule-driver of the *obraje* of Pomacocha under the administration of López del Pozo and García de Araujo, who had given him permission to use the lands for his animals. There was difficulty in locating Melchor Juarez to give his statement, because he had fled his post to a remote place called Raime shortly after the accusation came to light. Juarez may have fled Vilcashuamán to escape the heated political battles and possible aggression against him. According to a Spanish witness, the father of the *corregidor*, general Don Joseph Manuel de Vega y Cruzat had forced Juarez and other Indians to sign various documents out of fear that the general would harm them and kick them out of their homes (*ibid*: 37r). Melchor Juarez said that he only went to Huamanga to beg Don Bernardo de Araujo, who personally knew Friar Gómez, to ask Friar Gómez to allow the Indians of Vilcashuamán to use the common pastoral lands of Pomacocha, which at this point was extensive and had extended over the great *pampa*, or flat areas, around Vilcashuamán. He said that because he could not read nor write, he was not responsible for the contents of the lawsuit and that Friar Gómez had shown compassion to the Indians of Vilcashuamán in the past, giving them food and money to alleviate their heavy labor and tax burdens.

Don Bernardo de Araujo also oversaw another alleged forged document in the name of Esteban de Costilla, a *mestizo vecino* of Vilcashuamán, against Friar Gómez for allegedly dispossessing him of his lands and having an illegitimate son, Matheo Gomes. Esteban de Costilla also affirmed that the document was false and that he had no lands except for a small plot in the town of Vilcashuamán and that Matheo Gomes was not Friar Gómez's son. He reiterated that he had never initiated any lawsuit against Friar Gómez and only had positive interactions with him, and had travelled to Huamanga to recuse the document when he had found out it was done in his name. He blamed the *corregidor* Don Joseph Manuel de Vega y Cruzat, Alonso de Ochoa, and Benito de Venegas of forging the lawsuits done in his name. Apparently, even though Esteban de Costilla was *mestizo*, he did not speak Spanish well, and spoke in Quechua to give his testimony.[89] Mestizos and Spaniards alike were "indigenized" as much as the natives were Hispanicized.

Don Bernardo de Araujo was also involved in the falsified claims of Alonso de Ochoa against Brigida Rodrigues, Luisa de Ochoa Menchaca, and Bernarda Pujaico. The three women were the rightful owners of some land that bordered the lands of Pomacocha, around Huambalpa, a Tanquihua *reducción*, and were likely *mestizas* descended from high-ranking Tanquihua natives, judging by the surname of Pujaico, which was exclusive to the Tanquihua natives (Zuidema 1966). Contrary to the document that claimed Friar Gómez was dispossessing them of their lands, the three women claimed that they had no knowledge of such document and that they only asked Don Bernardo de Araujo to do a formal *deslinde*, or marking of the boundaries, between

[88] *Ibid*: f. 29v.
[89] *Ibid*: f. 27r.

their lands and that of Pomacocha when the previous owners, Salvador Moya and Francisco de Ochoa Menchaca, died, about thirty years prior to 1732. Don Bernardo de Araujo had sent Luis López to carry out the *deslinde*, at which point Alonso de Ochoa had presented a document to Luis López from the recently deceased Salvador Moya saying that Salvador Moya donated the lands to Alonso de Ochoa. Instead of having grievances against Friar Gómez, the three women were accusing Alonso de Ochoa of maliciously trying to usurp their lands. Alonso de Ochoa apparently forged these documents, because the signatories denied that the signatures were theirs, and Alonso de Ochoa confessed that he had forged the documents, and that his pretension was malicious.[90] The judge Araínda confirmed that those documents did not have a public stamp or the signatures of any public or royal notaries.[91]

One of the Spanish witnesses, Francisco Aruisuri of Vilcashuamán, was the tutor of the children of the *obraje* who taught them to read and write in Spanish until Father Gómez was removed from his post. Francisco Aruisuri said that Friar Gómez was so benevolent that even the prisoners, who were from other provinces, chose to stay in the *obraje* once their sentences were done, and were only incarcerated at night. Around the time of the 1732 document, witnesses reported that there were three “bruxos” or shamans who slept inside the obraje, and that prisoners often were sentenced of crimes against the Catholic faith.[92] If they were allowed outside of their dark and humid cells during the day, they may have commanded some respect among the working population, and the constant influx of prisoners from other provinces would have made Pomacocha a diverse workplace. In his 1729 complaint, Nicolas Guamán and the community of Pomacocha saw the tutor as an ally, and given that the tutor only had good things to say about Friar Gómez, it is clear that the workers of Pomacocha thought he was a good administrator. Friar Gómez respected *costumbre* through his prompt payments, lack of physical punishment, allowing a tutor, giving of gifts and money for special occasions and for his unwillingness to shut the workers in. Alliance-building across caste lines was strong under the administration of Friar Gómez, unlike at Cacamarca where social divisions were emphasized through preferential treatment and setting workers from different castes against each other.

The witnesses affirmed that if he were not as good as they claim, the workers would have fled, and given the extreme labor shortage at the time, one needed to attract labor with good treatment. There is no archival evidence that any administrator at Pomacocha ever used slaves or *mestizos* as “muscle,” but Don Alonso García de Araujo and Don Domingo López del Pozo did sublease the lands of Pomacocha to various *mestizos* and Spaniards, to the prejudice of the native workers who claimed traditional use, and their military leadership would have afforded them the facility to use force. García de Araujo and López del Pozo had allowed the use of Pomacocha lands to outsiders, violating

[90] *Ibid*: f. 43r
[91] *Ibid*: f. 43v.
[92] *Ibid:* f. 30r

costumbre of the *obraje* as well as of the state; when Friar Gómez tried to put a stop to this so that the workers could enjoy the use of Pomacocha's lands, he was the target of many accusations. One witness, the Spaniard Domingo de Gamboa, summed up the reasons for the lawsuits:

> …all of the lawsuits originated from the said Father's defense of the lands and pastures of the Monastery, and the vecinos of this *pueblo* [Vilcashuamán] wanted to appropriate [the lands], because they controlled those lands in the time when the renters [Araujo and del Pozo] administered the *obraje*; that the Father Friar Lorenzo treats the Indians well, and pays their daily wages on time, as he does with all the employees of the said obraje.[93]

The judge Araínda concluded the lawsuits with a new *deslinde* of the lands of Brigida Rodrigues, Luisa de Ochoa Menchaca, and Bernarda Pujaico. The *corregidor* Vega y Cruzat was not present at the hearings, citing sickness, and allowed Alonso de Ochoa to speak for him. Nothing was mentioned about any punishment for Alonso de Ochoa for forging documents, probably because of Vega y Cruzat's protection. Nothing was mentioned about the status of Mishcabamba, either, but by 1878, Mishcabamba was among the lands removed from the lands of Vischongo by usurpation of the *hacienda* of Pomacocha.[94] By 1734, Friar Gómez was reinstated to the administration of Pomacocha (Mendizabal 1958: 279), showing how successful the concerted escapes and alliances built by the workers of Pomacocha had been. The 1729 and 1732 documents also show that by this time, the workers of the *obraje* of Pomacocha acted as a separate political community to Vischongo, as now they had competing interests. Nicolas Guamán was not acting in the "voice and name" of the community of Vischongo, but of the Indian workers of the *obraje* of Pomacocha. The earthquake and epidemics also played a factor, decimating most of the original population of Pomacocha, who were politically unified with Vischongo, as well as bringing in people from other provinces. Because the *alcalde* position that Nicolas Guamán held was an elected position, it shows the esteem that he must have held as a long-time worker, one of only ten or twelve to survive the earthquakes, at Pomacocha. The inter-caste alliances and counter-alliances in the battles over Pomacocha lands reveal that the juridical trope of natural inter-caste enmity was not the dominant political reality in this setting.

The complaints and peaceful revolt of the workers of Pomacocha in 1729 and 1732 fit into a larger pattern of revolts, some violent, that happened around 1740, as a result of the 1725-1740 general census of Castelfuerte (Don Joseph de Armendariz Marquis of Castelfuerte), Bourbon economic reforms, epidemics, and labor shortages (Andrien 2001; O'Phelan 1985, 1995; Pearce 2001; Ramírez 2009). After the earthquakes and

[93]*Ibid*: f. 41r. Original: "…todos los pleitos se originan, porque el dho P./e defiende las tierras, y Pastos del Monasterio, que se querian apropriar los Vesinos de este Pueblo; por haverlos tenido a Sumandar, en los tiempos que ha hestado el obraje de Pomacocha, em poder de Arendatarios; que el P./e fr. Lorenco, trata vien a los Yndios, y les pasa com puntualidad sus jornales; como a todos los demas, que sirven en dicho obraje..."

[94] NMA, Título de la comunidad campesina de Vischongo, f. 4v, 1648.

epidemic, native labor became even more precious, and natives exercised their legal voice more often, knowing that they had more leverage. With competing Spanish interests, native workers had more power to vote with their feet, fleeing from one community, *hacienda*, *obraje*, mine, sugar mill, and ranch to another in search of better conditions. Pomacocha became a prime place to escape to after the great epidemic and earthquakes, because of the royal exemption from the *mita* of Huancavelica mercury mines for its workers and the able administration of Friar Gómez.

Pomacocha was so successful that the Monastery of Santa Teresa of Huamanga, the owners of the *obraje* of Cacamarca, complained about how rich the Monastery of Santa Clara became because of the royal exemption for all of their workers, and how they themselves were languishing in poverty: "We find ourselves poorer and with much less rent than the nuns of Santa Clara, because they quickly accumulate surplus thousands [of *pesos*] in their bank as a matter of fact, and what we receive from *censos* and nothing else, we cannot even get a *real* (a coin worth one eighth of a *peso*) to eat a piece of bread."[95] Of course, the nuns of Santa Teresa were speaking in hyperbole. The *obraje* of Cacamarca already had a royal exemption for forty-seven of their workers, but the working population had increased since Duque de la Palata's time.[96] The Monastery of Santa Teresa had to petition many years for all of their workers of their *obraje* to be exempt from the *mita* of Huancavelica, beginning in earnest in 1718 and finally receiving the full exemption in 1748 (Salas 1998a: 401).

The native revolts beginning in the 1730s and 1740s were generally not radical in their aims and did not seek to overthrow the entire colonial system (O'Phelan 1985). An important exception was the 1742 rebellion led by Juan Santos Atahualpa from the Peruvian jungles, who wanted to overturn the Spanish colonial order and install himself as the new Inka (Stern 1987**c**: 43-46). One of the rebels' central demands was calling for the abolishment of "*mitas* to obrajes and bakeries (O'Phelan 1995: 17)." Mostly, revolts pertained to local interest and maintaining ancient privileges and *costumbre*, which were under threat with the first concerted Bourbon economic and political reforms of the 1730s. Most of the other revolts occurred in areas where the Spanish state already involved a "costumbre" with its subjects. Certainly in the Vilcashuamán region, as an area with the some of the deepest levels of state penetration, some people subject to *mita* obligations had been fleeing to the mountains and jungles to escape the most coercive aspects of the Spanish colonial regime. The nuns of Santa Teresa, who owned the *obraje* of Cacamarca, noted how all the highland native communities were becoming

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[95] AGN, Obligación de *mita* en Huamanga, Derecho Indígena, Legajo 15, Cuaderno 264, f. 98v, April 12, 1740. Original: "nos ottras nos hallamos mas pobre y con muchisimos menos rrentas que las Religiosas de Santta Clara pues a esttas les sobre muchos miles en su caxa como de factto a poco tiempo que lo sacamos para inposicion de senzos y noottras aun no nos hallamos con un rreal para comer un pedazo de pan…"

[96] BNP, Provisión de retasa de un tributo que en cada un año deben pagar los indios originarios del repartimiento de Chavez Barrientos de la provincia de Vilcashuaman ya ha de correr esta cuenta desde el tercio de navidad inclusive del año pasado de 1737 por haberse acabado la revisita por el mes de setiembre de el como va prevenido, C108, f. 5r, 1739.

desolate because of the *mita* to Huancavelica, and people were fleeing to "pagan mountains and lands," which was the principal cause of the "loss of their souls."[97]

In 1742, by royal decree, the Santa Clara nuns confirmed their ownership and administration of the *obraje* (Aguirre Cárdenas 2008: 255). By the mid-eighteenth century, with fluctuations in mining productivity and competition from black market foreign textiles and domestic household industries, production began to slow at the *obraje* of Pomacocha (Salas 1998a; Urrutia 2014). Securing enough labor was perhaps the biggest challenge to productivity at Pomacocha, as the informal market became an ever more important part of the economic life of commoners from all castes. From 1753 to 1772, there was no real official increase in the number of tributary workers at Pomacocha.[98] A partial accounting record from the *obraje* of Pomacocha in the 1750s (probably from 1754) said, "First, thirty thousand *varas* of cloth was produced in said *obraje* this year, which were sold at four reales a *vara*, and yielded fifteen thousand pesos, with the current warning that there are years when fewer *varas* were produced because of the lack of people [to work]."[99] The total amount of money paid to the salaries of the native workers at Pomacocha in that year was 4727 pesos. A full-time adult worker at Pomacocha could earn about forty pesos a year, so the money paid for their salaries imply that the equivalent of 120 full-time working adults. In reality, because children made up a significant portion of the workforce and because real salaries were lower than the mandated salaries, the working population was probably approaching 200 workers. Compare this number with the thirty-two tributary workers recorded in the *retasa* of 1753. Even if we generously estimate that each tributary had a family of five people, this would still not account for the under-registration of workers in the census, showing that administrators hiding workers was indeed serious. If in a supposed bad year there were about two hundred workers, in good years, there may have been close to three hundred workers at Pomacocha. According to the census, there were about nine thousand people in total in the province of Vilcashuamán in 1753, including Indian tributaries, women, children, and people exempt from *mita* and tribute (most commonly applied to people above age fifty). Of the 9000 people, an estimated 7500 (Indian tributaries, *forasteros*, children above age eight, and women) were eligible to work in *obrajes*, which would mean that about four percent of the native working population in the province of Vilcashuamán was employed by Pomacocha alone. Obrajes also sought hand-spun wool (*maquipuska*) from women of surrounding communities, indirectly employing hundreds more (Salas 1998a).

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[97] AGN, Obligación, Derecho Indígena, Legajo 15, Cuaderno 264, f. 90r, 1740. Original: "A q se sigue otra mas lamentable e irreparable perjuisio como lo es, el q siendo forasteros se ausentar y dejan desolados los Pueblos estingiendose la probinsia de este numero de Gente, y lo peor q se pasar a montañas y tierras infieles en grabe perjuisio del R,/l aber, y maior de la q causa la perdida de sus almas."

[98] BNP, Provisión de retasa…Condes de Pacomarca, C1610, 1753; see also C2358 and C2763.

[99] ASF, Razon de la entrada y gasto que tiene el obrage de Pomacocha del Monasterio de Santa Clara de esta Ciudad de Guamanga, Registro I-10, No. 1; 5A, f. 25r, 1754 (?). Original: "Primeramente se han labrado este año en dho obrage treynta mill baras de ropa las quales se han vendido a quatro r./e vara, que importan quinze mill p./e con advertencia de p. ay año en que se labran menos v./s por falta de Gente."

At this time, there were about thirteen to sixteen looms functioning in the Pomacocha *obraje*, resulting in an average loom productivity of around two thousand *varas* per loom per year. At the *obrajes* of Chincheros and Cacamarca, average loom productivity began to steadily decline starting in the 1730s, from over three thousand varas per loom from 1640-1730 to around fifteen hundred *varas* from 1730-1760 (Salas 1998b: 270). Production at Pomacocha followed the same pattern of decline, but was more successful than its counterparts at Cacamarca and Chincheros: in the 1750s, Cacamarca and Chincheros only had an average loom productivity of 1099 *varas* per year, whereas Pomacocha had nearly double that in a bad year in the 1750s. Despite the pattern of decline, the *obraje* at Pomacocha was nevertheless very profitable, because after the costs of salaries and materials, the nuns made a profit of 5100 *pesos* even in that bad year in the 1750s.[100] Demand for cloth was still high in the 1750s, but the market diversified and the competition for labor, especially native labor, intensified.

Despite the profitability of the *obraje* of Pomacocha, the Monastery of Santa Clara had difficulty finding trustworthy renters after the 1730s. Their bad experience with López del Pozo and García de Araujo made them wary of outsiders' political games and desires for usurpation. Difficulty finding a renter was probably also compounded by the combative reputation that the workers of Pomacocha and the neighboring communities had. The irony was that good treatment of the workers actually led to higher productivity and profits, but Spanish attitudes against natives exhibiting agency were powerful. In all documents regarding native revolts or rebellions, the reasons behind their actions were always attributed to the influence of outsiders from other castes or from the noble classes, as if the native commoners were not capable of initiating resistance. When the Monastery finally found a renter in 1758, Antonio de Galbes, they were extremely wary and wrote that the nine-year contract could be revoked at any moment. A year later, to mitigate political machinations against their *obraje*, the nuns asked that Antonio de Galbes produce a guarantee. Galbes gave his mother's *cañaveral*, or sugar-mill, Cotabamba, worth 30,000 pesos, as a mortgage guarantee (garantía hipotecaria) with a *censo* of 1500 pesos (Aguirre Cárdenas 2008: 255-256; Salas 1998a: 154). Beginning in the 1760s, however, the *obrajes* of Vilcashuamán and in most of the Andes would begin a definite decline, and their activities focused more and more on agriculture (Hurtado Ames 2006; Salas 1998a, 1998b).

At Pomacocha, social control manifested in "costumbre" much more than in the explicit social division of its working populace along caste lines, which resulted in a degree of political unity among the native workers. This political unity was useful to counterbalance against administrators' abuses of "costumbre." Depending on whom the administrator was, strategies of control could be radically different, from the strategy of coercive plunder to upholding "costumbre." Both strategies at Pomacocha were profitable, but the latter strategy helped create a distinct political and cultural identity at the *obraje* of Pomacocha separate from the founding community of Vischongo. I show

[100] *Ibid*: f. 25v

in the next section (9.1.4) how easy it was for administrators, if they wished, to abuse *costumbre* and emphasize the first strategy of sowing discord among the castes because the *obraje*'s architecture was conducive to such social division. Conversely, the architecture of the *obraje* of Pomacocha was also conducive for social integration if the doors were kept open as opposed to locked. I showed how *obrajes* like the one at Pomacocha enticed workers away from their native communities through offering privileges and the legal power to continue using native communal lands as one's own even after joining the obraje. This led to further erosion of native communities, as their communal lands were gradually eaten away by the neighboring *obrajes* and *haciendas*.

9.1.3 The Pomacocha *obraje* as a Foucauldian prison factory, a spatial syntax analysis

The analysis of architectural plans to show how they affected social interaction and reflected dominant ideologies has been a fruitful avenue of research in archaeology (e.g., Deetz 1977; Jamieson 2000; Leone 1995; Moore 1996). Foucault's (1995 [1977]) theories in "Discipline and Punish," in particular, are well-suited to the spatial analyses of architecture to understand how social difference is reproduced within institutions during and after the age of Enlightenment (Leone 1995). Spatial syntax (or space syntax) is a set of quantitative methodologies used to describe the social potentials of built environments and is particularly suited to the analysis of architecture (Hillier and Hanson 1984; Hanson 1998). Bill Hillier developed more prescriptive foci of space syntax analysis with a focus on designing urban spaces, in which he believed that there were universal abstractable social principles from the space syntax of built environments (Hillier 1996). My focus, however, is not to recover universal principles of *obrajes*, but to use space syntax as a descriptive method in conjunction with other lines of evidence that provide social and historical context (after Hanson 1998 and Jamieson 2000: 62). The daily life of the workers at the *obraje* of Pomacocha was consumed by work. All aspects of their daily life was to a great degree dictated by the needs of the *obraje*, from eating, to sleeping, to social interaction, to political affiliation, and to daily tasks related to the *obraje*. While some workers did live outside the *obraje* walls, they were generally doing *hacienda*-related activities.

The main questions guiding this section are: 1) What can the combination of spatial syntax analysis and archival evidence tell us about control and surveillance inside the Pomacocha *obraje*? 2) From the spatial syntax analysis of the *obraje*, namely through axial lines, intervisibility, and access graphs, can we tell if the *obraje* was more conducive to social integration or social division?

Foucault (1995 [1977]) described the transition in European societies from the emphasis on corporal and spectacular punishment to punishment as internalized and carried out by all people in the eighteenth and nineteenth centuries. Foucault emphasizes the qualitative equivalence of the enclosed institutions where such punishment regimes are taught and practiced: "The prison is like a rather disciplined barracks, a strict school, a dark workshop, but not qualitatively different (*ibid*: 233)." Through enclosure, a docile and obedient work force could be created to make profit:

> [T]he possibility of accumulating time and activity, or rediscovering them, totalized and usable in a final result, which is the ultimate capacity of an individual. Temporal dispersal is brought together to produce a profit, thus mastering a duration that would otherwise elude one's grasp. Power is articulated directly onto time; it assures its control and guarantees its use (*ibid*: 160).

Therefore, the goal of disciplining punishment is to maximize utility of the worker (*ibid*: 137), to extract from the worker's body "maximum time and force" (*ibid*: 220). As such, labor could be rationalized and workers' bodies could be turned into machines, acting collectively as one (*ibid*: 158, 164-167).

Foucault used Bentham's design of a "panoptic" prison to illustrate his ideas (*ibid*: 201-208). Four key components of a "panoptic" institution are enclosed and manipulable space, pervasive surveillance (high intervisibility), spatial division of individuals to promote discipline (cellular division of space resulting in lateral invisibility), and the existence of ranks and the ability to ascend them within the institution through training. All components reinforce each other to produce self-policing, highly trained and habitualized individuals.

Architecture itself, like the legal system, may provide a framework for social action, but it does not determine social organization. How did the architecture of the *obraje* of Pomacocha make control and surveillance of the workers possible? From two colonial descriptions of the internal organization of the *obraje*, it is possible to identify the functions of most of the rooms and patios of the *obraje* (Salas 1998a: 213-217).[101] The *obraje*'s internal organization was quite complex, with multiple divisions and subdivisions (Figure 9.2). There were four quadrants, each with a different activity focus, and three patios related to the *obraje*'s textile production. The main patio (southeast quadrant) was where administrative activities, hosteling, blacksmithing, carpentry, and activities related to the later stages of textile production (i.e., dyeing) occurred as well as where the only entrance to the compound was located. The southwest quadrant was where the fulling mill, kitchen, animal pens, and eating area were located. The northwest quadrant was the main part of the textile workshop, where the spinning, carding, warping, and weaving occurred, and the jail cells were also located in this quadrant. The northeast quadrant was probably where the gardens of the *obraje* were located. One could live and work inside the *obraje* without leaving for the outside, and activities were spatially prescribed.

A justified access graph of the *obraje* shows that, overall, the architectural layout was more conducive to social separation than social integration because it was more "tree-like" than "ringy" (Figure 9.3). A tree-like justified access structure means that

[101] ARAY, Compulsa de los autos que sigue Don Melchor José Mendoza, procurador del Monasterio con Don Alejos Lagos sobre cantidad de pesos, Intendencia, Compulsas Ordinarias, Legajo 25, Cuaderno 3, 1793.

there was a hierarchy of spaces, going from more to less integrated, and that one had to pass through more integrated spaces to get to less integrated spaces, whereas a ringy justified access structure showed that the architectural layout had more flexibility in how people can circulate through the spaces (Hanson 2008). Despite its overall tree-like structure, the *obraje* of Pomacocha nevertheless demonstrated both hierarchical tree-like structure and integrative ring-like structure. The justified access graph represents the relationship of the spaces within the *obraje* when all the doors were open, showing significant integration. If, however, certain doors were closed, the structure would be more tree-like. The architecture of the *obraje* of Pomacocha, therefore, could promote both social integration and social separation given how one configures the doorways. Under administrators who used more coercion and shutting-in of workers, the spatial structure of the *obraje* would serve social separation, whereas under administrators such as Friar Gómez who relied more on *costumbre* to motivate the workers, the *obraje* could be a socially-integrative space.

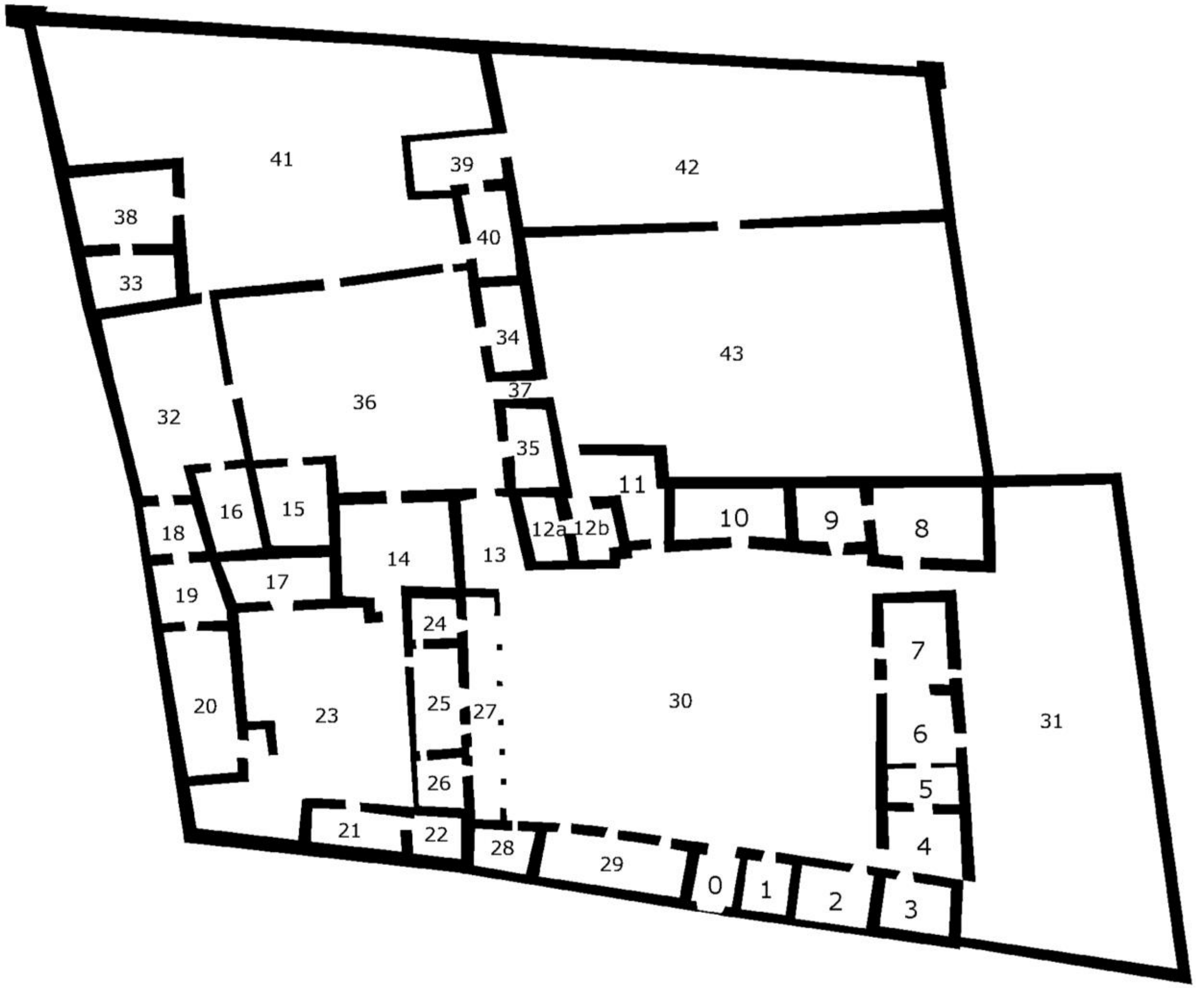

Figure 9.2: Architectural layout of the *obraje,* functions of the rooms reconstructed from colonial descriptions and archaeological excavations (ARAY Intendencia, Alejo de Lagos procurador del Monasterio de Santa Clara de esta ciudad inicia proceso contra Melchor Peralta- arrendatario del obraje de Pomacocha (Vilcashuamán) perteneciente a dicho Monasterio, por la deuda de una cantidad que debe por arrendamientos atrasados, Asuntos Ecclesiásticos, Legajo 49, Cuaderno 3, ff. 49r-53r, 1788; ARAY, Compulsa de los autos que sigue Don Melchor José Mendoza, Intendencia, Compulsas Ordinarias, Legajo 25, Cuaderno 3, ff. 188v-194r, 1793; Salas 1998a: 213-217) . Key: 0=main entrance; 1=majordomo's quarters; 2=granary/storage for blue dyes; 3=room for black dyes; 4, 5=rooms for dyeing wool and storage of ash; 6,7=unknown; 8,9=forge; 10=refurbished room; 11=hallway; 12a, 12b=rooms for officials and guards of the jail; 13=hallway; 14=spun wool storage room; 15=storage room of finished pieces; 16=storage room of wool; 17=Batán?; 18, 19, 20=worker eating/sleeping areas; 21=kitchen; 22=pantry; 23=Kitchen patio; 24, 25, 26=living quarters of the administrator; 27=porch of administrator's house; 28=guest room; 29=breadmaking room/dining room; 30=principal patio; 31=corral (washing, drying, raising the nap, and inspecting finished cloth area?); 32=weaving room; 33=tara storage room; 34=women's jail; 35=men's jail; 36=main work patio; 37=hallway; 38=storage room for "trosos de pañete," 39=tareador or work assignment room; 40=storage room; 41=secondary work patio/ tanning hides area; 42=gallery for spinning wool; 43=garden?

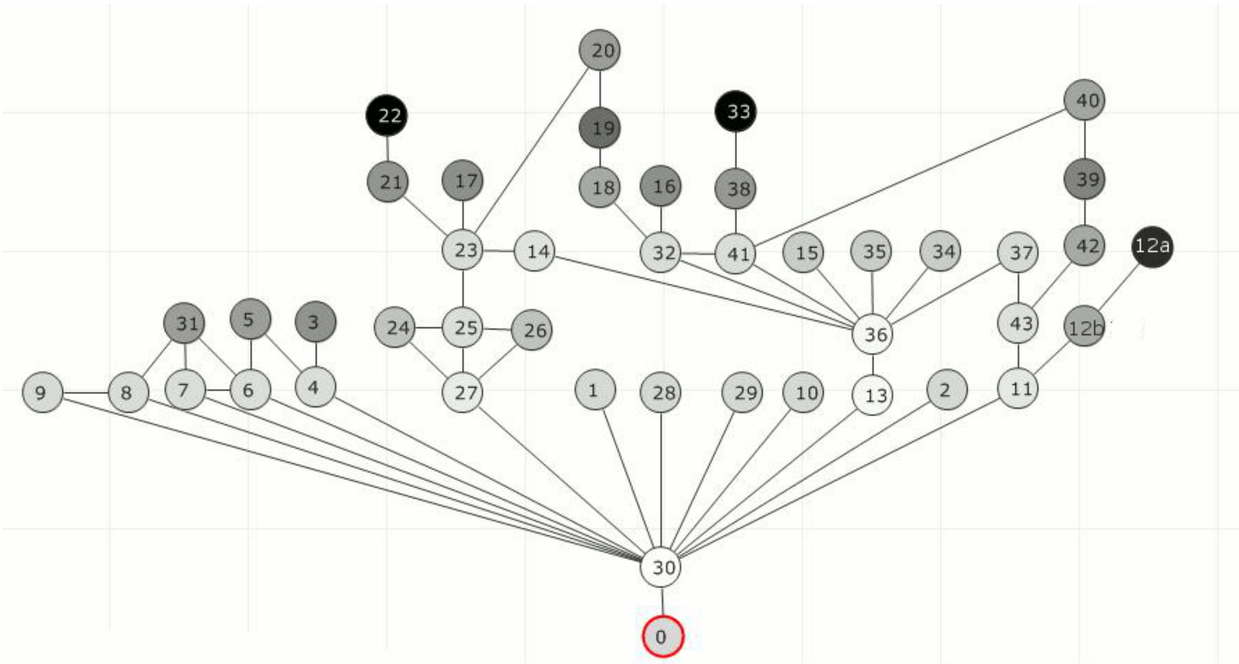

Figure 9.3: A justified access graph of the *obraje* of Pomacocha created with the AGRAPH application. Numbers correspond to Figure 9.2. Darker circles mean lower integration.

A space syntax analysis of the intervisibility showed that surveillance capacity of the architecture of the *obraje* was high. The intervisibility index of any 1x1 meter space in the *obraje* was measured by the number of 1x1 meter cells visible from that particular space. Inside the *obraje*, the architectural layout ensured high intervisibility in most areas (Figure 9.4 and Figure 9.5). This was due to the presence of large patios surrounded by rooms, and moving from one room to another generally necessitated going into the patio first. The patio that had the lowest intervisibility was the kitchen patio (23), and the patio that had the highest intervisibility was the principal patio, where later stages of textile production occurred and where the majordomo and the administrator's quarters were (30). The high overall intervisibility assumes that all the interior doors of the *obraje* are open. Therefore, the high capacity for on-the-ground surveillance would have been less relevant under administrations where overt coercion, such as locking all the doors to prevent workers from leaving, was emphasized. Nevertheless, because some of the structures inside the *obraje* had multiple stories, it would have been possible for overseers to monitor the activities of all of the patios of the *obraje*. Under administrators like Friar Gómez, however, there may have been more capacity for surveillance at the ground level, which is consistent with more self-policing by the workers.

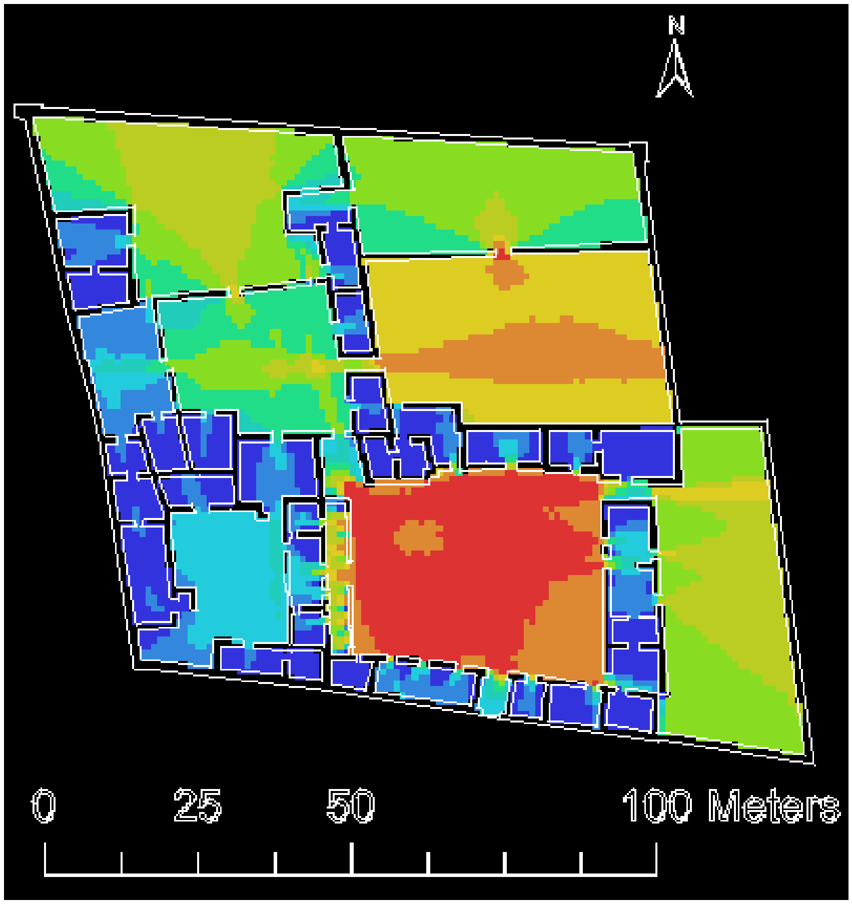

Figure 9.4: Intervisibility graph of the *obraje* of Pomacocha. Toward red is more intervisible, and toward blue is less intervisible. The unit of analysis is a 1x1 meter cell.

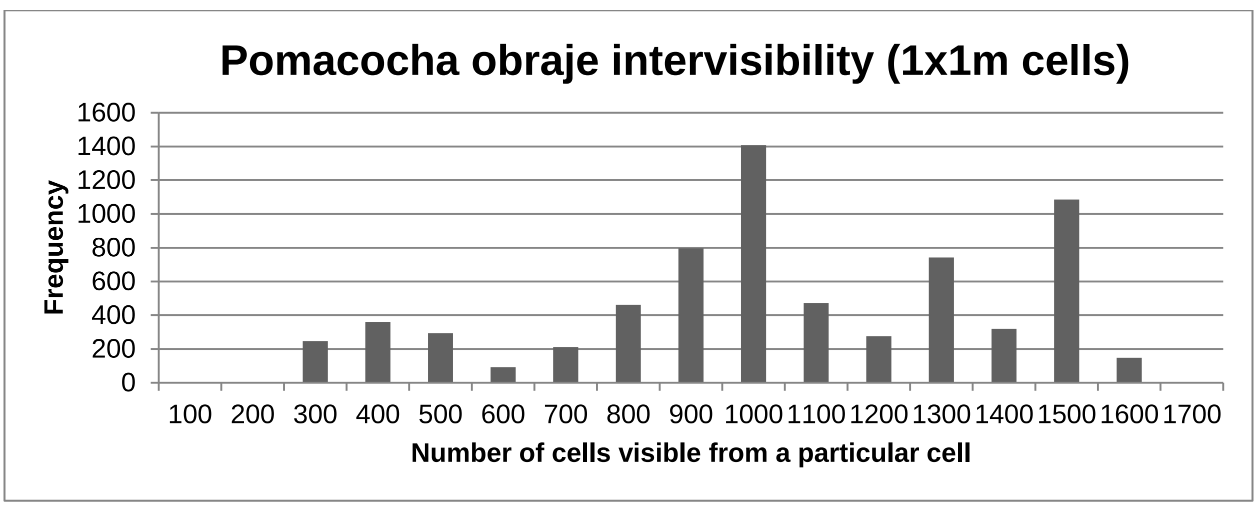

Figure 9.5: Histogram of intervisibility indices at the *obraje* of Pomacocha showing overall high intervisibility.

The architecture of the *obraje* also had a high capacity for control of the working populace. First, the walls were over six meters high (seven *varas*) and a meter thick, ensuring effective enclosure of the working populace and minimizing opportunities for escape. There was only one entrance to the whole compound, and the working populace had to pass through more than one door to exit the compound. An axial line analysis and convex space integration analysis of the *obraje* show that the most integrated and connective space was the main patio of the *obraje*, and the second most integrated and connective was the patio around which most of the textile production occurred (Figure 9.6 and Figure 9.7). The axial line and convex space integration analyses are consistent with the archival evidence that show that most of the daily activities centered on these two patios. Most of the axial lines pass through one or more doors, and because axial lines are good proxies for freedom of movement, movement, and therefore social interaction, inside the *obraje* could be easily regulated by the opening and shutting of doors.

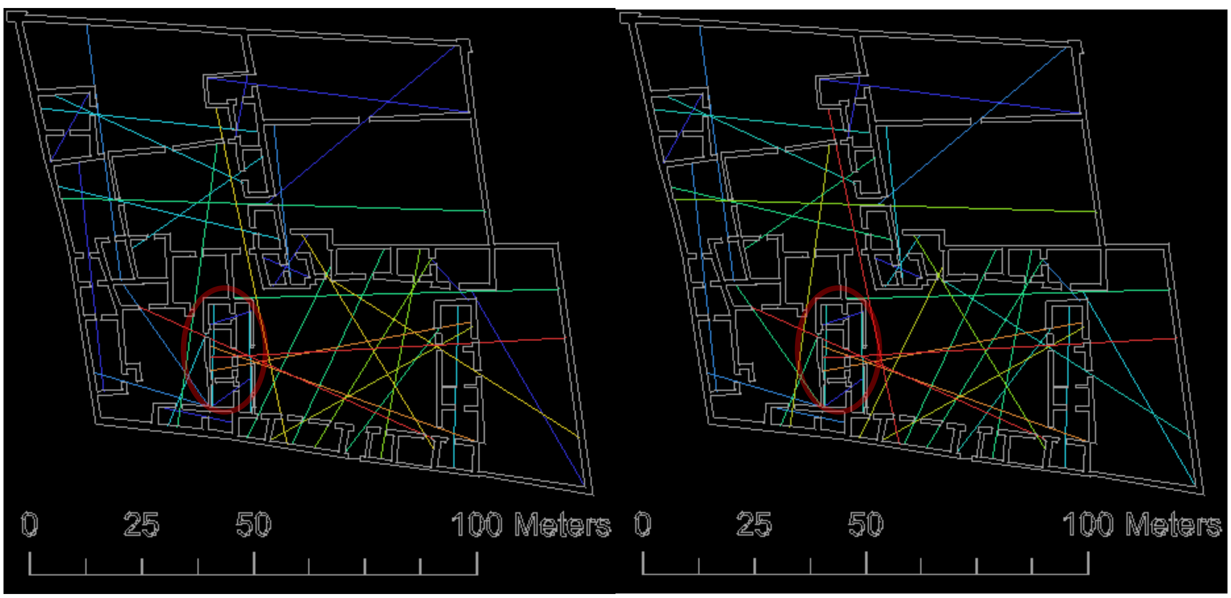

Figure 9.6: Connectivity (left) and integration (right) of axial lines. Most integrated path passes in front of the administrator's house (circled in red).

Considering the results of the justified access graph, intervisibility analysis, and axial line analysis, it appears that the areas where native workers, especially the women and children, worked the most frequently were more private, or further away from the more public areas of the principal patio. Generally, earlier stages of textile production occurred in deeper parts of the *obraje*, where the later stages, such as dyeing, which was usually done by men, occurred in shallower areas (closer to the main entrance). The principal patio was also the center of activity for people of more highly ranked castes: *españoles* and *mestizos*. The principal patio was also a male space, in that only activities associated with men occurred there. Thus, space inside the *obraje* of Pomacocha was organized to divide and rank people by occupation, caste, and gender.

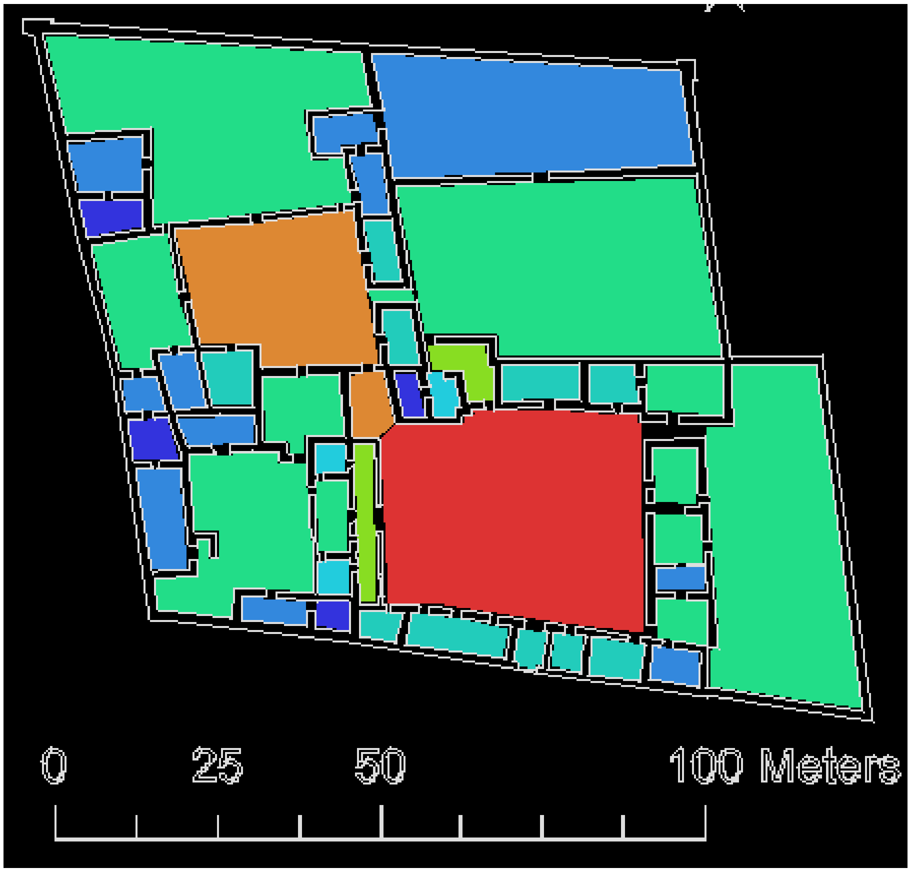

Figure 9.7: Integration of convex spaces at the *obraje* of Pomacocha. Toward red on the color spectrum=more integrated. Toward blue on the color spectrum=less integrated.

The space syntax analyses show that the *obraje* of Pomacocha was flexible in design. There was much room for human agency depending on the status of the doors. The *obraje* was self-sufficient, and under the administration of people like Friar Gómez, who respected *costumbre* and allowed workers freedom of movement, it was a socially integrative place. Thus, the configuration of the layout of the *obraje* contributed to the workers of Pomacocha developing a distinct political and cultural identity from the community of Vischongo under the administration of Friar Gómez, whereas before, under the administration of López del Pozo and García de Araujo, the workers of Pomacocha were still politically and culturally unified with the community of Vischongo. If we see the panoptic institution as a long-term process, as Foucault argued, rather than as realized or not realized, then I argue that *obrajes* were perhaps the most panoptic institutions of the New World, because the techniques of control and inscription of *costumbre* developed inside *obrajes* extended beyond its walls, and the workers themselves internalized the *costumbre*, habits and obligations learned inside the *obraje*.

The great epidemic that hit the area in 1720 and lasted until 1726 and the earthquakes of 1716-1719 also contributed to a radically new political identity for the workers of Pomacocha. In the next section, I describe some of the wider social changes that occurred after the epidemic and earthquakes in the province of Vilcashuamán, especially in regards to tribute extraction, census-taking, and migration.

9.2 The wider context of resistance: Migration and censuses

In the Andes, native migration was pervasive in the colonial period and underpinned significant cultural and political change (Cook 1990, 2002; Evans 1981, 1990; Minchom 1983; O'Phelan 1985; Pearce 2001; Powers 1990, 1995; Robinson 1990; Saignes 1995; Sánchez-Albornoz 1983; Spalding 1970; Wightman 1990a; Zulawski 1995). Although the reasons for migration were diverse, most were to escape or minimize tribute and labor obligations. Census documents in particular are useful to the study of migration. Far from accurate representations of demography, censuses were rife with statistical inconsistencies that reflected political negotiations over native tribute and labor, and Spanish contemporaries complained of manipulations of tributary ages, hiding of tributaries, and passing of Indian tributaries as *mestizos*, which all deprived the Crown of revenue (Evans 1981; Pearce 2001; Powers 1995). Often, censuses provoked social upheaval in the form of revolts and rebellions because they threatened disruptions to *costumbre* (O'Phelan 1985; Pearce 2001). No one, however, has systematically analyzed censuses at the individual level to see fine-grained patterns of migration and statistical inconsistencies. Such an analysis is necessary to understand patterns of resistance, especially those that reformulated kinship over the wider social landscape. As Saignes (1995) showed, migration was not as disruptive of wider native kinship networks (i.e. 'destructuration' of ethnic, or caste, identity and its replacement with class identity) as commonly assumed (e.g., Cahill 1994; Stavig 1999; Wightman 1990a). The particulars of social reformulation over the wider social landscape, however, are still not well understood. Ethnicity, caste, and class were not neatly separated, and I show how native Andeans in Vilcashuamán province rejected *state-imposed* caste and ethnic categories even as they created and reproduced new kinship based identity that cut across state imposed identities, both Inka and Spanish. Additionally, previous demographic analyses have focused on the period up to the great Andean epidemic of 1719-1726. Because the epidemic was a watershed for social consciousness, my analysis looks at the epidemic as a milestone and not as an endpoint to understand the dynamic changes surrounding native migration during the colonial period. This dissertation is also the first large scale study of diachronic change in migration in Vilcashuamán province and complements previous work elsewhere, such as the region of Cuzco (Wightman 1990a) and colonial Ecuador (Powers 1995).

Fortunately, two of the most comprehensive censuses (*numeraciones* or *padrones*) in the Spanish colonial province of Vilcashuamán occurred only about ten years apart, in 1717 (1719 copy) and in 1728-1729,[102] permitting fine-grained comparisons of both statistical inconsistencies and migrations. These two censuses also permit us to gauge the influence of major earthquakes and epidemics. While historians recognize that censuses were flawed documents for demographic reconstruction, there is no protocol for judging the reliability of censuses, as they were unreliable in different ways. Read carefully and compared with other lines of evidence, censuses can reveal competing interests at work and clues of how census statistics were manipulated. How reliable or unreliable were the 1719 and 1729 Vilcashuamán censuses in regards to demographic data? How do the different types of unreliability reflect political agendas of the time? The contemporary Spanish descriptions of native migration emphasized its chaotic nature and disruption to the civilized life of the native population. They emphasized how villages were left desolate and the migrants' whereabouts completely unknown and probably living outside of civilization. Was migration as chaotic as Spanish contemporaries made it out to be? Or was there a pattern in the migration that, on the contrary, strengthened native society over the wider landscape? By answering these questions, this section aims to contextualize the strategies of resistance at Pomacocha. How did Pomacocha, and *obrajes* in general, fit into larger patterns of resistance through migration in Vilcashuamán province?

In this section, I first describe contemporary Spanish attitudes and assumptions about native migration in the late seventeenth to eighteenth centuries, especially for migration in Vilcashuamán province. Second, I analyze how the tributary population changed from one census to another in a manner inconsistent with epidemic-related demographic collapse, which highlights the political, and not demographic, nature of these censuses. Third, I analyze statistical inconsistencies in the names and ages of the tributaries, which further supports historians' contentions that such documents were the result of political manipulations such as exaggeration of the ages of tributaries and hiding of tributaries to siphon off labor and tribute from the Crown. Fourth, I employ network analysis to reveal patterns of strategic migration and surname similarity between the two censuses. Such patterns of migration showed that the wider landscape was becoming more socially integrative and that *obrajes* were one of the engines in this reformulation. Furthermore, a detailed 1683 census return in the Vilcanchos Chocorbos *repartimiento* of Vilcashuamán province showed that male *forasteros*[103] tended to marry *originario*[104] women, thus gaining access to communal lands. Female surnames were passed down through the maternal line and showed less diversity than the male surnames, suggesting a pattern of matrilocality. Forastero men tended to migrate together from their original communities. Such a pattern was an ingenious strategy of avoiding onerous labor obligations for the male tributaries while still maintaining and

[102] BNP, Numeración Vilcasguaman, C1924, 1719; AGN, Padrón Vilcas-huaman, Campesinado, Derecho Indígena, Legajo 14, Cuaderno 248, [1729].

[103] Forastero means "stranger" or "outsider." Forasteros were people who were living in a community that was not their ancestral home (defined as Toledan-era ancestry) (Wightman 1990a; Zulawski 1985: 104).

[104] Originario means "native." Originarios were people who were living in their ancestral community (defined as Toledan-era ancestry) (Wightman 1990a; Zulawski 1985: 104).

creating kinship ties over the wider landscape. Rather than fleeing to pagan places outside of Spanish control, most natives who had migrated hid in plain sight in areas with the deepest political and economic penetration of the Spanish state.

9.2.1 Colonial attitudes toward native migration

Inspired by Classical thought on civilization as being centered on the well-ordered *polis*, or city-state, the Spaniards organized their social landscape around urban centers and towns (Kagan 2000; Lombardi 1981). Ironically, it was not until the Spaniards began conquering the New World did the Classical ideals, especially in regards to migration, architecture, labor, and settlement planning began to be imposed on the daily life of their subjects (Mumford 2012: 42-48). Similarly, Weber (2005: 29-31) argued that the origin of modern social sciences was when the human being became a specimen that could undergo social experiments to become "civilized" under Spanish colonialism of the seventeenth and eighteenth centuries. One of Toledo's primary motives behind the establishment of *reducciones* in the sixteenth-century was to civilize and spatially remake native colonial subjects in the Spanish image (Mumford 2012). Spanish cities and towns generally adhered to medieval plans, which were antithetical to the Classical gridded layout (Mumford 2012: 47; Scott 1998: 53-60). Given the wider latitude for social experimentation and site planning in the newly conquered territories, it is not surprising that the New World saw the wholescale introduction of gridded towns and cities before similar urban planning took off in the Old World at the beginning of the Enlightenment. Thus, proper government in the New World rested on the aggregation and surveillance of native populations in well-ordered urban spaces before such practices were widely implemented in the Old World (Mumford 2012).

Membership in an urban center such as a *ciudad* (city) or *pueblo* (town) constituted the ideal form of citizenship: for Spaniards, it was to take on the role of the "vecino" and for the male Indian, it was to be an "indio tributario originario," or an Indian tributary who lived in his ancestral village and had usufruct rights to land. The "indio tributario originario" was subject to communal and state labor obligations. The class of Indian tributary who did not have usufruct rights to communal lands was called the "forastero." The *forastero* did not have access to communal lands but worked in the community. They were officially not subject to communal or state labor obligations, but they do pay a cash tribute, generally five *pesos* a year, to the Crown. Due to onerous labor obligations, many "indios tributarios originarios" fled their natal communities to become *forasteros* in other communities, and in some colonial Andean towns, *forasteros* made up the primary sector of the native population (Powers 1995: 6-7). Everyone had to be connected to an urban center or be considered vagrants, outcasts, or worse (Lombardi 1981: 13-14). Native migration was difficult to track and therefore to control. Among both native and Spanish elites was widespread disdain for Indian tributaries who had fled or absented from their natal communities. Both Toledo and Guamán Poma, for example, believed that native tributaries should have their movement restricted (Mumford 2012: 154).

Underpinning the civilizing mission was a profoundly paternalistic attitude toward native commoners, among Spanish and native elite alike. The assumption was that native commoners did not have any agency, that their actions were instigated by more powerful actors, such as *mestizos*, native elites, and Spaniards. If they fled from their community, it was always in reaction to some injustice perpetrated by the more powerful or a force of nature, such as epidemics or earthquakes. In this section, I first describe how Spaniards, particularly in the Vilcashuamán province, saw Indian tributary absenteeism as an existential threat to the economic and moral pillars of colonial society. Their characterization of absenteeism as chaotic, causing desolation to the *pueblos*, and leading to the loss of souls highlights the premier importance of membership to *pueblos* in the civilizing process. The native Andeans were well aware of these Spanish attitudes toward absenteeism and strategically exploited Spanish fears to gain favorable results in a legal system that was stacked against them. Second, I show how the Spanish disregard for the agency of native commoners in Vilcashuamán province manifested in their explanations for why Indian tributaries fled their villages. The explanations always portrayed the Indian tributaries as helpless and reactionary. This portrayal was obviously false. However, because native commoners rarely made their mark in colonial documents, we do not have a clear understanding of exactly what range of tactics native commoners used and how patterned, as opposed to chaotic and random, the migration was. I show in the next sections (9.2.2, 9.2.3, 9.2.4) through detailed analysis of census records how native commoners were sophisticated in their strategies of migration: kinship networks over the wider landscape facilitated census "invisibility" through strategic migration.

Both Spaniards and native elites complained about tributary absenteeism. Contrary to complaints that tributary absenteeism threatened the civilized order of colonial society, native migration, including tributary absenteeism, was vital in colonial state formation (Powers 1995). The colonial censuses (*padrones* and *numeraciones*) and tribute tax assessments (*tasas* and *retasas*) of native communities were central to widespread tributary absenteeism and becoming *forasteros*. Sometimes, *forasteros* maintained community lands in their home community by paying tribute to their original *casique*. Tributary absenteeism presented different advantages and disadvantages, depending on which sector of colonial society one belonged. It enriched some and impoverished others (*ibid*). The tributaries absented to become *forasteros* or employees of Spaniards on ranches (*estancias*), *haciendas* and *obrajes*. The most obvious advantage of migration in *mita* obligated areas, which included Vilcashuamán province, was to escape from onerous labor obligations to the mines, especially the mercury mines of Huancavelica. However, the consequence was that they, at least officially, lost access to communal lands and had to subsist on wage labor. The native elite, local Spanish authorities, priests, and *corregidores* benefitted because *forasteros* were easy to conceal from the state, ensuring lucrative income through charging them various illegal taxes (Pearce 2001). The native elite, however, also were disadvantaged in cases where the revenues lost from absenteeism were not compensated by the number of *forasteros* attracted. Failure to produce enough revenue for the state could lead to the replacement of the *casique* and in some cases, imprisonment. The sector of society most disadvantaged by tributary absenteeism was mercury mining. Silver mines, such as the one at Potosí, had fewer problems attracting voluntary wage labor, but mercury mines were notorious for their health and physical coercion record and needed to rely on the *mita* system to secure labor.

Censuses always triggered a deluge of legal protests from native communities, most notably after the great epidemic of 1719-1726. Most legal protests concerned local abuses by priests or *castas,* and over counting or illegally hiding tributaries for personal gain. Because labor was in short supply after the epidemics, native commoners found more success in the legal system after the great epidemic than before. In other instances, resistance became violent (O'Phelan 1985). The richness and frequency of complaints from native communities and official responses, especially after the 1683-1686 general census commissioned by Viceroy Duque de la Palata, give insight into the attitudes toward justice and the various legal tropes of the time. At the same time, these documents reveal contradictions between social reality and the legal stereotypes. In particular, legal tropes upholding the naturalized separation of the castes were widespread, but in practice the various castes' economic interests began to converge, increasing the frequency of alliances in resistance to state extraction.

One of the central policies of the Bourbon reform was a series of general censuses starting in 1728 after the great epidemic (Pearce 2001). The censuses were meant to standardize tribute and labor extraction. Because they radically increased the number of Indian tributaries from the previous numeration in 1717, despite demographic collapse, a general wave of discontent swept through the Andes (*ibid*; O'Phelan 1985). At the same time, the Bourbon reforms imposed new tax obligations to castes previously exempt, in particular, the *mestizos*, opening up opportunities for inter-caste alliances in resistance to the new policies (O'Phelan 1985). Sometimes, Indian tributaries revolted against indigenous leaders who tried to extract more tribute and labor than the tributaries could handle, driving a deeper rift between indigenous elites and commoners. In 1749, in Sancos, a *pueblo* in Vilcashuamán province, for example, the indigenous leaders, the *casiques*, in collaboration with certain priests had been hiding Indian tributaries from the census and then illegally collecting taxes, and presumably at a higher rate, from the hidden tributaries. The tributaries had complained of this practice before, but had not received any justice and were then treated even worse by the *casiques* for complaining. The tributaries then revolted and took the *casiques* prisoner and forced them to confess their crimes. The tributaries then sought protection under the census takers, fiscal, and the Protector General (of Indians), who eventually confirmed the crimes of the *casiques* because the tributaries had threatened to cause more "ruída" or "noise."[105] Native commoners had competing economic interests with the native elite, and we should not automatically assume that "ethnic" ties were stronger

[105105] BNP C1610, Provisión de retasas de tributo que deben pagar los indios originarios y forasteros del Repartimiento de los Condes de Pacomarca, ff. 1r-3r, February 20, 1753.

than class loyalties in the mid- to late-colonial period. The native elite would aim higher up the social hierarchy, formally petitioning to be put in the same "bando" or faction as the "españoles" with all its privileges and not with the other castes such as "indio," "mulato," "sambo," and "negro." According to the indigenous elite, the *cacicazgo* (system of hereditary leadership in native communities) should be only one rung below Spanish nobility.[106]

In other instances, the native hereditary elite, the *casiques*, worked with the community members to petition for justice. The language of native victimhood was perfectly encapsulated in a late seventeenth century complaint by the principal *casique* and governor of the seven *guarangas* of Cajamarca province Don Luis Caruarayço, who described Indians as "settled, orphans, miserable, naked, skinny, defenseless, timid, covered with stains and themselves being the most humble, innocent, docile, friendly, unassuming, simple, calm, obedient, loyal, well-regarded, and the most grateful."[107] The complaint was about how Spaniards, *mestizos* and *mulatos* were usurping native lands in Cajamarca and asked for justice from the hand of the judge-visitor of *obrajes* and *haciendas,* Don Joseph Antonio Curiel. After detailing the abuses, Don Caruarayco employed rhetorical flourishes to subtly show the threat of tributary flight: "How could one stay? What relief will be had? How can one not cry over his misfortune?"[108]

Playing the role of obedient vassals to the King, the natives emphasized their powerlessness in the face of the evil machinations of Spaniards, *mestizos*, and *castas* of African descent. By doing so, native petitions for justice had a better chance of reaching a favorable decision, whether or not the language reflected reality. In particular, *castas* of African descent were maligned in various complaints put forward by indigenous leaders, even when the person behind the alleged injustices was Spanish. For example, in the province of Vilcashuamán in 1727, the indigenous leaders of the *pueblo* of Paras, the *casiques* and the democratically elected *alcaldes*, put forward a complaint against the priest Don Miguel de Amorin for allegedly confiscating the community's chickens and food for resale, illegally forcing tributaries to construct his house and to work in his ranch. When the leaders had complained to the bishop of Huamanga previously, without success, the priest ordered a *mulato* named Mathias Palomino and four Indians to physically punish those who had complained. Mathias Palomino and the four Indians, according to the leaders of Paras, had stomped on their throats and mouths until blood came out and yanked out their hair. They were punished in the door of the church and their houses were burned. By emphasizing the central role and vicious nature of the *mulato* Miguel Palomino, they had hoped to finally receive justice. As this complaint

[106] AGI, Diferentes Decretos de el Virrey y otros Papeles q Justifican la Nulidad de la Numeraciones de Yndios, Lima 495, ff. 49r-57r, 1728.

[107] AGI, Dn Luis Caruarayco Cazique pral y Gov/or perpetuo de los Yn/os delas siette Gurarangas de la Prov/a de Cajamarca la Grande, Lima 474, f. 2v, [1690?]. Original: "…abatidos, huerfanos, miserables, desnudos, flacos, desarmados, medrosos, cubiertos de baldones y probios siendo los mas humildes, ynosentes, dosiles, Tratables, Sensillos, simples, quietos, Ôbedientes, fieles, reconosidos, y los mas gratos…"

[108] *Ibid*. Original: "Como quedara? que alivio le tendra en pie? Como no llorara su desbentura?"

was lodged after the great epidemic, when indigenous labor became scarcer and therefore more valued, the leaders astutely complained that due to the bad treatment received, the *pueblo* had basically been deserted and the Indian tributaries had scattered to "strange" places, which was code for pagan areas.[109] Regardless of whether the accusations were true, indigenous complainants knew they had a better chance of receiving a favorable outcome in court if physical violence was perpetrated by *mulatos* or *negros*, even if the violence was ordered by a Spaniard.

Such strategies of highlighting the physically vicious stereotype of *castas* of African descent and *mestizos* were widespread. For example, in 1729, Pedro Muñoz, the newly elected *alcalde*, and the Indian community ("común") of Ica complained that a *mulato* named Juan de Balensuela, who served in priest's house and was considered a "familiar" or family member of the priest, had caused numerous "grave vexations," including physical violence, to the Indian community because he could not abide by the election results. Additionally, Pedro Muñoz complained that the priest had extorted the community through exposing bodies of the deceased until the family could fully pay for exhorbitant funeral costs. Although the priest was the main cause of the community's troubles, the petition asked that Juan Balensuela be the one removed from the *pueblo* of Ica "in order to avoid the burdens that the Indians of the said *pueblo* [of Ica] experience at the hands of the said *mulato* Juan de Balensuela."[110] The numerous complaints, although from different parts of the Andes, followed a similar template of emphasizing the physical abuse received from *castas* of African descent and *mestizos*; the resulting absenteeism from villages would deprive the Crown of revenue and labor. So consistent was this template that Vicente Morachimo, a *casique* from the north coast of Perú, also blamed the local priest for ordering *mestizos* to carry out physical punishment in front of the door of the church and burn houses if the Indians had complained. The result was that the Indians would absentee from the villages, thus depriving the Crown of revenue (Morachimo 2003 [1732]: 188).

The discourses of Indian justice described above were demonstrated in the famous *Noticias Secretas de América* written in 1749 (Juan and Ulloa 1826). The Crown commissioned a fact finding mission to Ecuador and Peru by Jorge Juan and Antonio de Ulloa (1737-1745), which resulted in a scathing indictment of endemic corruption and abuse of natives (McFarlane 1998; Ramos Gómez 1985). Juan and Ulloa's complaints centered on the endemic abuse of Indians by corrupt local authorities, such as *corregidores*, clergymen, and Spanish estate owners (Juan and Ulloa 1826). Obrajes in particular were singled out as responsible for the worst abuse of Indians (*ibid*: 275). According to Juan and Ulloa, systemic abuse was due to an unholy trinity involving the

[109] AGI, Vista al S./or Fiscal y Protector Grâl Lima 25 de Agosto de 1727, Lima 495, Paja 11, fs. 1r-6r, August 25, 1727.
[110] AGI, Vista al S./or Fiscal y Protector Grâl Lima 25 de Agosto de 1727, Lima 495, Paja 11, fs. 17r-17v, November 1, 1729. Original: "…y para que se eviten los Gravamenes quelos yndios de dho Pueblo experimentan de mano de dho, mulato Juan de BalenSuela…"

forced sale of European goods to Indians (*reparto*), the ensuing debt, and then imprisonment in *obrajes* as debt slaves.

In addition to *corregidores* imposing the *reparto* on their Indian subjects, there was a myriad of ways debt slavery in *obrajes* could occur. An Indian tributary could easily fall into debt if they are double charged for tribute or not paid high enough wages. The corrupt local authorities wanted to displace the *Protectores de Naturales*, or Protectors of Natives, who represented Indians in the legal system, claiming that "the Indians, availing themselves of the authority and protection conceded to them, would cast off fear, and rise in rebellion, constituting to themselves a king of their own nation (Juan and Ulloa 1851: 97)." The justification for the abuse of Indians, especially imprisoning them in *obrajes*, was that it kept them fearful in rebelling, but Juan and Ulloa did not subscribe to this explanation (Juan and Ulloa 1851: 69-70). On the contrary, they insisted that the abuse had triggered absenteeism to pagan areas and the 1742 Atahualpa rebellion (Juan and Ulloa 1826: 250). Juan and Ulloa demonstrated paternalistic attitudes toward the Indians, saying that they were naturally docile and loyal to the Crown and would only rebel as last desperate resort against corrupt local authorities (Juan and Ulloa 1826: 313). They argued that Indians much preferred free labor and were naturally industrious when not abusively exploited (Juan and Ulloa 1826: 71-72). Juan and Ulloa exemplified common attitudes among reformists, who held much contempt for creole governance and forced labor.

Although the devastating earthquakes of 1716-1719, the great epidemic of 1719-1726, and the general 1728-1737 census of viceroy Castelfuerte undoubtedly facilitated significant social change in the Andes, the language used in census documents characterizing native society remained remarkably consistent. Native migration was consistently characterized as chaotic reactions to local Spanish and *castas'* abuse of native tributaries and as an existential threat to the colonial political order and the spiritual salvation of the natives. Natives themselves were characterized as naturally lazy, who needed coerced labor obligations, especially to the mines, in order to overcome labor shortages. The central government vacillated between abolishing forced labor altogether or extending it to newly "manifested" tributaries (Zavala 1979: 183-184; Zulawski 1990: 116-117, 350). The reasoning was that if *mita* did not exist, even good pay could not overcome natural laziness of the natives. Spanish authorities, especially those with interests in the *mita*, liked to depict natives as passive, and naturally prone to drunkenness and idleness.

I will show how the census documents of Vilcashuamán province exemplify these attitudes. The province of Vilcashuamán, given its centrality to the colonial economy, was in many ways a testing ground for new state policies of native labor and tax extraction. Vilcashuamán province was subject to numerous *retasas* (reassessment of tax obligations) and general censuses because of the demographic and economic dynamism of the province. Vilcashuamán province was divided into eleven *repartimientos*, roughly based on ethnic groups that existed in Toledan times, around which labor and tribute tax was assessed (see section 9.2.2). Vilcashuamán province underwent general censuses in 1570-1575, 1646, 1683-1684, 1717, and 1728-1729. Only summaries exist for most censuses. Individual tributary-level information exists for the censuses of 1683-1684 (*repartimientos* of Condes de Pacomarca and Vilcanchos Chocorbos), 1717 (all eleven Vilcashuamán *repartimientos*), and 1728-1729 (all eleven Vilcashuamán *repartimientos*), which were analyzed in detail for attitudes, information about native migration, age, sex, and surname affinity among the *repartimientos*. The unevenness of the kinds of information as well as level of coverage provided by the three censuses precluded certain comparisons. All sixty-six available tax assessments (*retasas*) at the Biblioteca Nacional del Perú ranging from the year 1717 to 1772 were also analyzed.

One of the most striking patterns to emerge from these documents regarding attitudes toward native migration is that mining guilds and local Spanish authorities in Vilcashuamán had markedly different explanations for tributary flight. They also depicted native tributaries differently: local Spanish authorities tended to depict native tributaries as overburdened and pitiable, whereas the mine owners portrayed them as lazy and dishonest. These differences in attitudes toward natives permeated continuous debates over proper government over the natives. Those supporting extending *mita* service were generally miners and clergy whose income was based on fixing tributaries into *mita* towns, and those supporting abolishing the *mita* to the mines in favor of free movement and wage labor were generally local authorities (Wightman 1990a). These debates led to the passing of laws that often contradicted each other, and decrees were sent out and retracted soon after (*ibid*: 23-44). Implementation of laws that hurt local enterprises was lax. Censuses were carried out by local officials and were easy to manipulate to maximize income for local actors (*ibid*: 23). Both mine owners and local officials and businesses, however, emphasized the passivity (as well as latent capacity for violence) of the Indian tributary and adopted patronizing attitudes that the native tributaries never knew what was best for themselves. Each side argued that they were acting in the best interest of the natives, who needed protection from the vicious exploitation of the other side. Just as native society was far from static and homogenous, control of the Spanish state in the colonial Andes was hotly contested by different alliances of interests.

Late sixteenth-century Peru's population structure differed dramatically from the time of the Toledan reforms in the previous century. Not only did population dramatically decline (Cook 1981), the rise of the *forastero* class meant that about half of the total native population was not officially counted in censuses (Wightman 1990b). In his 1683-1684 general numeration and census, Viceroy Duque de la Palata (1681-1689) added *forasteros* to the tributary lists of the community that they currently resided in, and not their original communities. The *forastero* status was also hereditary, meaning that one could have been born and raised in a particular community, but not be an *originario* of it (Wightman 1990a: 53). Judging from the only available Palata census return that included information about *forasteros* from the Vilcanchos Chocorbos *repartimiento* in Vilcashuamá province, most *forasteros* did not recognize nor pay tribute to any *casique*, which effectively meant that they were free from both labor and tax obligations to the state (Huertas 1976b). Therefore, the addition of *forasteros* to the tax rolls of the *casiques* of their residences greatly inflated the number of eligible tributaries. As an example of some of the Spanish attitudes toward natives, Viceroy Duque de la Palata in a 1686 letter to the Crown justified carrying out the census and adding *forasteros* to the tribute rolls because "the laziness of these natives hates any personal service, and to free themselves of it, they readily leave their pueblos, their wives, and their children, because they love nothing, except laziness."[111] The viceroy reasoned that without adding *forasteros* to the same category as *tributarios originarios*, the *mita*, especially to the unpopular mines of Huancavelica, would collapse. Showing the importance of the province of Vilcashuamán, the viceroy added an example of a census from the *repartimiento* Condes de Pacomarca, to which Pomacocha belonged. As of 1686, the census was mostly finished and had already cost around 5000 *pesos*, with the Vilcashuamán province census alone costing 160 *pesos*.

Palata's reforms were immediately resisted by most sectors of colonial society when announced (Cole 1985: 50; Wightman 1990b). Because Palata's reforms threatened to upset the status quo, traditional enemies allied with each other to reverse the policies: *hacienda* owners, mine owners, *obraje* owners, and priests (Wightman 1990a: 31). Almost everyone was disadvantaged by the new policies because it triggered even more migration and tributaries becoming *forasteros*, leading to loss of income for those who had been profiting from their cheap labor (*ibid*: 34). For the *repartimiento* of the Condes, to which Pomacocha belonged, Palata's census had more than doubled the number of tributaries from the previous *retasa,* from 216 to 481 eligible tributaries.[112] We also have evidence of a few people who had fled their communities just days before the census takers arrived, for example, in the *repartimiento* of Chocorbos in the province of Vilcashuamán (Huertas 1976b: 32). Palata also gave confusing and hard to follow instructions for carrying out the census, and because the census was carried out by local *corregidores* and by the people the *corregidores* appointed, the process itself was subject to grave inconsistencies (Evans 1981: 36). The *obraje* of Pomacocha by royal decree was exempt from the new provisions, and their workers remained exempt from *mita* duty. The other *obrajes* in Vilcashuamán, however, did not have the same exemptions and the owners would have been resistant to Palata's reforms. Not all mines were opposed to Palata's reforms. The mercury mines of Huancavelica had the most trouble attracting voluntary labor and relied on *mita* labor to function. The mine owners of Huancavelica were in favor of Palata's policies because it greatly expanded the pool of eligible *mitayos* (Huertas 1976b).

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[111] AGI, El Virrey del Peru Da quenta a VM. del buen estado enque se halla la Numeración, Charcas 270, Roll 22, f. 4, 1686. Original: "…la floxedad destos Naturales aborrece qualquier servizio personal, y para librarse del dexaran con grande facilidad sus Pueblos, sus Mugeres, y sus hijos, porque á nada tienen amor; sino es al ocio."
[112] *Ibid*: f. 29.

In a revealing legal case over the competition for native labor, a Spanish merchant named Don Alonso García de Mere, who owned three thousand heads of cattle and ran a profitable salt and food supply business to the mines, petitioned that the *forasteros* who worked for him should remain exempt from the *mita* to Huancavelica, but be added to his own *mita* (Huertas 1976b: 72). He argued that in exchange for "manifesting" thirty-six previously unregistered *forasteros*, most of whom had not paid any tribute their whole lives, he should be given the privilege of receiving *mita* labor: one seventh of the new tributaries should provide cheap or free labor on a rotational basis. The *forasteros* and their families numbered 231, a sizable population, and their hometowns were geographically diverse (see section 9.2.4). The forasteros had originally congregated and settled in a site in the neighboring province of Castrovirreyna called Hayauí, a trading post with many *bodegas* or shops, which were also the properties of Don Alonso García. Seven years prior, many of them migrated en masse from Hayauí to a place called Urancancha in Vilcashuamán province because of the business needs of Don Alonso. Because most of the *forasteros'* origins were from Huancavelica *mita* provinces, they most likely congregated at Hayauí after escaping from the *mita* of Huancavelica or fulfilling their *mita* service and then deciding not to return home for whatever reason.

Don Alonso García displayed a profoundly paternalistic attitude toward the *forasteros*: "...having spent much on those who had congregated and settled in the site of the *bodegas* of Ayauí [Hayauí] in my own lands, where they farmed and were settled, and they multiplied voluntarily due to the good treatment and pay that I gave them, continuing to this day [the good treatment and pay] in the place called Urancancha..." (Huertas 1976b: 72).[113] García argued that the Crown should award him the *mita* service of the *forasteros* that he manifested for three main reasons. First, his business was essential to the functioning of the mercury mines of Huancavelica; without his business, workers would not have the supplies they need to subsist since they cannot farm in the harsh environment surrounding the mines. Second, he should be awarded for coming forward and obeying the laws of the new census, unlike presumably many other businessmen who continued to hide *forasteros*. Third, his good treatment of the *forasteros* had led to their proliferation, as the *forasteros* started families with one another, and García claimed that this good treatment was costly, so he should be remunerated for their care.[114]

Don Alonso García de Mere's plan to secure cheap labor failed miserably. Don Nicolás de Esplana, representing the professional association of Huancavelica mine owners, eviscerated García's petition, accusing him of previously hiding the *forasteros* for his personal gain. The mine owners reiterated that the purpose of the census was to

[113] Original: "…haber gastado mucho en los que se han congregado y reducido en el sitio de las bodegas de Ayauí en tierras propias mías donde siembran y se hallan reducidos y se han ido multiplicando voluntariamente por el buen tratamiento y paga que les hago continuandolo hoy actualmente en el paraje de Urancancha..."

[114] The language García used to describe the act of taking care of the *forasteros* and increasing their numbers was reminiscent of animal husbandry.

add previously hidden or ineligible tributaries and *forasteros* into the pool of eligible *mitayos* (*ibid*: 93). The Viceroy Duque de la Palata supported the petitions of the miners of Huancavelica, which had called for strict enforcement of the policy to add *forasteros* to the *mita* rolls and to demand written proof of births, deaths, and receipts to prevent fraud. Nicolás de Esplana and his mining association had a deprecating view of natives who had testified that certain tributaries had died in the absence of written proof. The natives would testify that the names were not in the book of the dead due to the forgetfulness of the priest. Esplana argued that these testimonies were too vague and without substance because they were "made with barbarous Indians and they do not know the gravity of swearing in court, as well as being in league with one another…" (*ibid:* 40).[115] As Wightman (1990a: 71) showed in the bishopric of Cuzco, *forasteros* were more reluctant to settle in *repartimientos* that were subject to the Huancavelica *mita*. The mines of Huancavelica required state intervention in securing labor in order to function because their horrible reputation, which in some cases inspired infanticide and maiming of male babies to avoid service (*ibid*: 50). Although Palata's reforms were favorable for the miners of Huancavelica, it was unfavorable for just about everyone else. Not surprisingly, his reforms did not outlast his tenure as viceroy (Wightman 1990a; Cole 1985; Evans 1981). After reviewing numerous complaints from all sectors of colonial society, Viceroy Conde de la Monclova (1689-1705) reversed Palata's reforms, reasoning that "[w]age labor was much more 'just and Christian'; it also guaranteed a more stable work force… (Wightman 1990a: 34)." Powerful local business interests like those of Don Alonso García de Mere and the increased rate of flight migration after Palata's census put enormous pressure on the central government to reverse Palata's policies.

Viceroy Monclova halved the number of tributaries obligated to go to Potosí (Wightman 1990a: 35), but the number required to go to Huancavelica remained the same, 620. Monclova mandated that *forasteros* be assessed four *pesos* in cash per year as tribute, the same rate assessed to *yanaconas*, dependent employees of Spaniards. In the periodic *retasas* that followed, inspectors (*visitadores*) of Vilcashuamán province were sensitive to the burdens of the native tributaries and displayed attitudes closer to García's paternalism than the Huancavelica miners' contempt. The officials responsible for the *retasa* played up the pitiful circumstances of the tributaries in an effort to lessen labor obligations to the Huancavelica mines and to mitigate some of the abuses by *corregidores*. In 1717, inspectors lamented that the *corregidores* of Vilcashuamán province imposed "the most grave punishments" when native tributaries could not afford to pay the elevated costs of paying for a replacement in the mines of Huancavelica.[116] Already by this time, out of forty-two Vilcashuamán province tributaries who were supposed to be at Huancavelica at any given time, half of them fulfilled their duty in person and half with cash to pay for a replacement. Traditionally,

[115] Original: "…hecho con indios/ barbaros y que no saben en que consiste la gravedad del juramento demás de estar los unos con los otros coligados…"
[116] BNP, Provisión de retasas…de los indios Tanquihuas, C1130, 1717.

the tributaries paid thirty-two *pesos* and four *reales* for a replacement, but the *corregidores* demanded one hundred *pesos*, impoverishing the tributaries and forcing them to flee their homes to pagan areas:

> "...the excess which has resulted in the sale of the few livestock, seeds, and other goods that [the Indians] have for their sustenance...had caused them to absentee from their *pueblos* leaving by the hundreds, and leaving *pueblos* bereft of people, due to having gone to distinct provinces, and many to lands of the unbelievers lacking spiritual care..."[117]

The Vilcashuamán *repartimientos* most hard hit by *mita* obligations to Huancavelica, such as the Tanquihua, were also some of the least profitable. In none of the Tanquihua *retasas* did the *repartimiento* make profit for the state, and if people fled, the priests and local authorities lose profit.

During and after the great epidemic of 1719-1726, paternalistic protectionism was common in written documents. The epidemic was cited at every opportunity to increase sympathy for the plight of the natives. For example, in the 1739 *retasas* of Vilcashuamán, already many years after the epidemic, the great epidemic was described as a "tragic event" and that the "miserable natives of all Provinces...are ravaged, their *pueblos* desolated and ruined."[118] To the inspectors, the epidemic was a grave threat to civilized settled life in *pueblos* because it had "left the provinces totally deserted of Indians who lived there and the provinces exhausted of the parishioners who comprised them, this desolation happening in some having died of the rigors of this ruin [epidemic] and others by fleeing from the tragic epidemic travelled to different and remote places..."[119] Furthermore, the epidemic had caused a great decline in the revenues of the *Real Hacienda*.[120]

The demographic crisis made portrayals of suffering Indian tributaries more salient, as labor was even in shorter supply, and on April 20th, 1720, a royal decree abolished the *mita* to Huancavelica altogether. Because of powerful local mining interests, however, the decree was not enforced, and by 1733, the *mita* was officially reestablished (Pearce 2014:108). Viceroy Casaconcha's justification for not carrying out

[117] *Ibid*: ff. 1v-2r. Original: "…de cuyo exceso les havia resultado vender los pocos Ganados, Zemillas, y demass Vienes, que tenian para su sustento…havia resultado el ausentarse de sus Pueblos quedando de Zienttos con la falta de Gente, por haverse Ydo a distintas Provincias, y muchos a tierras Ynfieles Carreziendo del Pasto spiritual…"

[118] BNP, Provisión de retasa del tributo que deben pagar los indios originarios del repartimiento de Tanquihuas, C111, f. 1v, 1739.

[119] *Ibid*: ff. 1v-2r. Original: "…aver quedado las Provinzias totalmente desamparadas de los Yndios que las havitaban y las Provinzias exhhaustas de los feligreses que las /f.2r/ componían succediendo esta desolasion en Unos por haverse muerto arrigores del estrago y otros que Vllendo de tan lastimosa epidemia se transportaron a parajes distintas y remotas…"

[120] BNP, Provisión de *retasa* del tributo que deben pagar los indios originarios y forasteros de Totos de Quispillatas, C2073, ff. 1v-2r, 1738.

the 1720 decree was that it was impossible to find enough voluntary labor.[121] According to Viceroy Casaconcha, the epidemic decimated native populations, so labor was scarce and "it was not possible to mine the necessary metals called mercury that this Kingdom needs with voluntary workers...and no amount of money can increase their numbers."[122] Royal decrees of 1732 and 1733 also extended *mita* obligations to previously exempt *forasteros*, but, of course, these decrees were not enforced locally, as evidenced by numerous complaints from the mine owners (Pearce 2001: 83). In addition to the Huancavelica mercury mines, there were local mines in the Vilcashuamán province that also relied on *mita* labor. Local officials noted that the Indians complained the mines were one of the principal causes of the "annihilation" of the native labor force: "by fear or horror they have towards the mine of San Juan de Lucanas, where seven Indians of *mita* suffer every two months, they absentee from their pueblos and do not return to them....[123] Overall, the pattern is of a constant struggle between mining interests and local business interests. The epidemic made competition over native labor even more acrimonious for all, but native commoners were able to leverage the competition to gain better working conditions.

In the long run, state policies failed to turn Vilcashuamán into a profitable province for the Crown even though the province was highly profitable for private, or in the case of Pomacocha, religious business interests. Local influential Spaniards siphoned off most of the profit from the labor of native commoners (Juan and Ulloa 1851: 76-79). The costs of providing local salaries to officials and services for the natives almost always exceeded the income from tribute tax. I analyzed all available profit data from sixty-two *retasas* from all eleven Vilcashuamán *repartimientos* from 1717 to 1772. Out of the sixty-two *retasas* analyzed, only fifteen returned a profit at all. The Real Hacienda lost an average of 317 *pesos* per *repartimiento* (Table 9.4). The lack of profitability of Indian tribute for the Crown was further compounded by the costs of carrying out the *retasas* and *padrones*. Legal costs from native petitions for tax and labor adjustments and exemptions also exacerbated the financial situation for the central government. Of course, one could say that on balance the Crown did benefit from native labor in the province of Vilcashuamán, because it contributed tributaries to the *mita* of Huancavelica. Nevertheless, the province of Vilcashuamán would have still been overall unprofitable for the Crown because it contributed very few *mitayos* at any given time. In 1726, only 18 *mitayos* out of a total of 447 were from Vilcashuamán province,[124] and this number remained stable and then declined to zero towards the end

[121] AGI, El Marq./s de Casaconcha, En consequencia del Rl. Despacho de 5 de Abril de 1720-representa la dificultad insuperable que halla en mantener aquella Mina sin Mita, y con Yndios voluntarios, Lima 469, 1729.
[122] *Ibid*: f. 1v. Original: "…no era possible sacar de la Mina los metales necessarios que diessen el Azogue que este Reyno necessita con la gente voluntaria… y que por ningun dinero podia aumentarse…"
[123] BNP, Provisión de retasas…Paras Canchacancha, C2070, 1739. Original: "…por temor u horror que tienen a el mineral de San Juan de Lucanas a donde sufragan con siete Yndios de *mita* cada dos meses, se ausentan de sus Pueblos y no buelben mas a ellos…"
[124] Eighteen were serving at any given time, the number of tributaries eligible for the *mita* was a much higher number.

of the eighteenth century (Zavala 1979: 162, 175). Local pushback against fulfillment of the Huancavelica *mita* in person contributed to its dramatic decline, and in the case of Vilcashuamán province, to its eventual replacement in the late eighteenth century with cash substitution (Povea 2014). The Condes were perhaps the most successful *repartimiento* in Vilcashuamán province because of the presence of *obrajes*, which were successful in gaining royal exemptions from *mita* service for its workers. In fact, it was the only *repartimiento* that generally produced a profit for the state.

Table 9.4: State profits (Real Hacienda) in *retasas* from Vilcashuamán province, 1717-1772, in *pesos*.[125]

Repartimiento	1717	1728-1730	1737-1739	1753	1758	1772
Condes de Pacomarca	N/A	683.4	299.9	482.5	-113.6	67.3
Hananchilques	-952.4	-398.1	-435.4	-455.8	-435.4	-714.1
Huamanquiquia	N/A	305.4	-207.1	165.3	-175.9	N/A
Hurinchilques	-852.5	-938.8	-330.3	6.3	-920.1	-593.3
Pabres	-465.7	392.4	-368.3	264.9	-325.8	N/A
Paras Canchacancha	-275.1	257.8	-84.5	155.5	-149.1	-114.1
Quichuas Quilla Sacsamarca	-1629.7	-147.6	-1026	-759.3	-1582.4	-1172
Sancos	-207.1	316.6	-76.5	-76.5	-76.5	-91.6
Tanquihuas	-1021.4	-880.1	-910	-713.9	-920.8	-626.6
Totos Quispillactas	-488.1	52.6	-178.1	152.3	-233.6	-147.5
Vilcanchos Chocorbos	-351.3	2	-210.9	-41.8	-203.9	-154.7
Sum	*-6243.3*	-354.4	-3527.2	-820.5	-5137.1	*-3546.6*

Far from the lazy image high-ranking Spanish officials in colonial documents had, native Andeans worked long hours in laborious tasks with minimal compensation to the detriment of their health. Native Andeans in Vilcashuamán province were also savvy in bettering conditions for themselves, playing alliances against each other and utilizing strategic migration to leverage better working and living conditions. In contrast to the Spanish depiction of migration in colonial documents, most migration was not chaotic and did not involve fleeing to pagan frontiers outside of Spanish control (Wightman 1990a). In Vilcashuamán province, as elsewhere in the highland Andes, most migration occurred within kinship networks that cut across *repartimiento* and provincial lines, which would help ensure census invisibility due to the difficulty of comparing census rolls from one province to another's. In the next sections, I show how legal petitions after censuses were immediate, coordinated, and consistent (9.2.2). Migration was constant, not just episodic reactions to censuses, although it may have

[125] BNP C1130, C1212, C1132, C982, C66, C1133, C1211, C64, C1131, C1950, C1953, C2077, C2053, C1939, C2052, C2062, C2054, C1937, C1949, C1952, C113, C1962, C115, C114, C2074, C2070, C109, C108, C111, C2073, C2065, C1610, C2171, C2341, C2169, C2350, C2168, C2165, C2349, C2347, C2166, C2167, C2358, C2359, C2360, C2154, C2153, C2333, C2449, C2361, C2357, C2763, C1602, C2791, C2485, C2792, C2433, C1599, C1601.

accelerated immediately after censuses. I also show non-migratory strategies of census evasion (9.2.3) as well as the cyclical patterns of migration that maximized autonomy and created/reinforced kinship networks over the wider landscape (9.2.4).

9.2.2 Tribute population statistics

In this section, I show how colonial censuses gave unreliable statistics for demographic information. We should, therefore, be careful about taking colonial census statistics at face value. While not reliable for accurate demographic information, the inconsistencies of the censuses do reveal political struggles, mostly at the local level. Specifically, the number of tributaries did not reflect demographic changes, but rather the whims of the census takers and local Spanish and native authorities. The Crown rarely figured in the practical day-to-day running of the colonial state; when they did, it was in the form of decrees that were rarely enforced the way the Crown intended them to be. Although mandated from above, censuses were carried out by local authorities who were themselves entrenched in local politics and had their own agendas. More importantly, native commoners may have wielded the most power to affect census taking and imperial policy through their ability to migrate. Native communities were also active in lodging legal petitions for adjustment of tribute and labor obligations. Far from passive, native commoners set the pace for on-the-ground reforms and reassessments of tax obligations (*retasas*). Decrees, therefore, could be seen as state reactions to native resistance to the most exploitative forms of labor.

The *retasas* of Vilcashuamán from 1717 to 1772 show that increases and decreases in tributary population probably do not reflect real population growth or decline. Currently housed in the Biblioteca Nacional del Perú in Lima, the *retasas* contained information about the number of tributaries and in most cases, the number of reserved tributaries (due to privilege, age, or sickness), children, forasteros, and women. Each *retasa* also summarized the number of tributaries from the previous *retasa*, which was useful in the few cases where the data was not available in the Biblioteca. Thus, we have an almost complete record of the number of tributaries by *repartimiento* in the province of Vilcashuaman from 1694 to 1772 (Table 9.5). The number of tributaries includes both *originarios*, natives of the community, and *forasteros*, those who were born elsewhere or whose ancestry is from elsewhere for all of the *retasas*, so theoretically, the *retasas* should be comparable.

Two striking patterns emerge from a graph of the tributary numbers through time (Figure 9.8). First, for the only interval of time that we are sure there was significant population decline, from 1717 to 1728, there was a dramatic increase in the number of tributaries, almost double. The dramatic increase was due to Viceroy Castelfuerte's reforms to increase the number of tributaries liable for the *mita* and tax, first by ordering that *mestizos* who could not prove their mestizo status be categorized as Indian, and second by extending *mita* and tax obligations to *forasteros* (Pearce 2001). Reactions to the 1728-1729 census and tax assessments were swift and vociferous, complaining of over-counting and other abuses, leading to reassessments in

1737-1739 in Vilcashuamán province (Pearce 2001: 84-86). The question is, was the 1728-1730 census and tax assessment an accurate depiction of the tribute population or, as the numerous complaints suggest, a result of over-counting? If the 1728-1730 census and tax assessment was indeed more or less accurate, this would imply that the 1717 and 1737-1739 tax assessments undercounted dramatically. I will show in the next section (9.2.3) that while the 1728-1729 census in Vilcashuamán did exhibit a few cases of possible over-counting, the population statistics, in terms of age distributions, were much more realistic than the 1717 census. The 1717 census showed strong evidence of undercounting of eligible tributaries through inflating their ages.

Table 9.5: Number of tributaries (*originarios* and *forasteros*) from Vilcashuamán province *retasas* 1694-1772. See Table 9.4 for archival sources.

Repartimiento	1694	1717	1728-1730	1737-1739	1753	1758	1772
Condes de Pacomarca	N/A	283	337	270	309	200	226
Hananchilques	89	53	150	33	63	69	89
Huamanquiquia	N/A	43	137	51	111	56	N/A
Hurinchilques	100	60	168	108	159	45	104
Pabres	302	103	286	134	231	127	N/A
Paras Canchacancha	27	20	111	52	93	41	40
Quichuas Quilla Sacsamarca	202	165	418	166	308	156	226
Sancos Chavez Barrientos	39	20	126	54	131	67	73
Tanquihuas	46	36	61	56	91	54	104
Totos Quispillactas	47	34	142	66	162	81	98
Vilcanchos Chocorbos	26	10	67	32	59	33	37
Total	N/A	827	2003	1022	1717	929	N/A

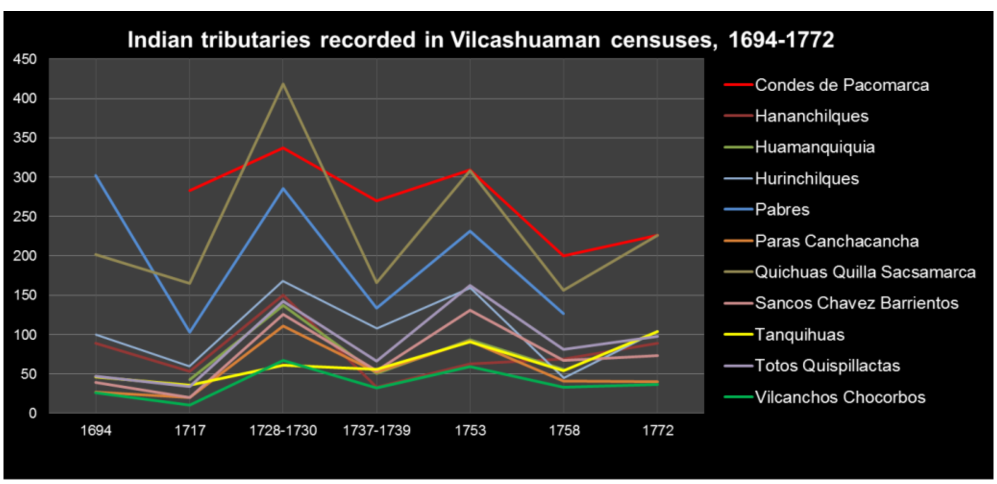

Figure 9.8: Indian tributaries (*originarios* and *forasteros*) in Vilcashuaman *retasas* 1694-1772. See Table 9.4 for archival sources.

The second striking pattern to emerge from the tribute population statistics is the consistent increase and then decrease of the number of tributaries. Two forces were probably at work to produce this pattern. First, the pattern may reflect tributary flight after harsher assessments and tributary in-migration after low assessments. Second, as with the 1717 to 1728-1729 discrepancy, the increases and decreases may have reflected changing policies and local political struggles. In *retasas* that showed a decrease in the number of tributaries from the previous *retasa*, the census officials generally noted that the cause was either from fleeing the horrors of the mines, from the great epidemic of the 1720s scattering people, or from the unbearable burdens placed on the tributaries by local officials. Because the weight of tribute and tax obligations can be alleviated if there is a significant hidden or exempt population to spread the burden, migrants may have targeted *repartimientos* with few tributaries and a lot of available land. The fact that almost all the *repartimientos* of Vilcashuamán exhibited synchronous rises and falls in tributary population may mean that the circuits of in- and out-migration occurred at the provincial level: tributaries would flee outside the province and *forasteros* would migrate from another province to escape census-taking. Furthermore, the officials responsible for the tax assessments and censuses could determine how much of the population would remain exempt from tribute. Officially, they were instructed to collaborate with priests to collate and compare data available from registers of baptisms, marriages, and deaths. This was to prevent fraud such as hiding tributaries or exaggerating their ages. The native authorities of each village were responsible for summoning everyone to the plaza and for ensuring the veracity of the names, ages, and status orally given by each tributary. Implementation, however, was very uneven, and it appears that most Vilcashuamán censuses had inexact ages (see section 9.2.3). The census officials did not carry out their instructions faithfully, but some officials were more conscientious than others (Evans 1981). The amount of work required to compare oral declarations with written documents discouraged census officials who tried to do their jobs as quickly as possible (Pearce 2001). There was no benefit to doing a careful job, and on the contrary, they ran the risk of running afoul of powerful local interests who preferred to have a hidden population of Indian tributaries. Rises and declines in censuses reflected the individual choices of priests, which led to inconsistencies between censuses and was a common problem in Spanish Latin America (Jackson 1999: 29).

Migration was prevalent among the labor force of *obrajes* of Vilcashuamán. For example, in the 1719 and 1729 censuses, Chincheros had people from "different parts" and other provinces. Recalling the instances of fleeing from and in-migration to the *obraje* of Pomacocha (section 9.1.4), the *obraje* would constantly attract people as well as push them out depending on the state of labor conditions. We know that some migration must have been short-distance and within the province because people like Martin Acha moved from nearby villages to the *obraje* of Pomacocha. In the next section (9.2.3), I show how most of the male tributary population was hard to pin down for the Crown, either through hiding close to home or through migrating elsewhere. Obrajes in particular were engines of migration in Vilcashuamán province. Because they attracted people from diverse locales, they also provided opportunities for the creation of new kinship networks and alliances over the wider social landscape. Familiarity and friendships developed at *obrajes* would aid in migration strategies. Migration did not always result in the loss of rights to communal lands. Communal land could be secured through the generations on the female side, as single females did not need to migrate to escape the labor obligations placed on men. The male tributaries, therefore, would circulate and earn cash in Spanish enterprises while the females could stay in their origin villages to maintain usufruct rights. In section 9.2.4, I present further evidence of this migration model through careful comparisons of individuals listed in the censuses.

9.2.3 Irregularities in age, names, and sex

In this section, I analyze the returns of three censuses (1683-1684, 1719, 1729) from the province of Vilcashuamán for irregularities in the age structures, names, and sex ratios. Analysis of the censuses, even the most detailed and complete ones, indicates systematic and purposeful inaccuracies. First, regarding age irregularities, there was significant bunching of ages at the tens markers (20, 30, 40, etc.), a phenomenon reported elsewhere in the Andes (Evans 1981: 40). The census officials and priests were supposed to cooperate in the checking of ages against baptismal records, but the statistics clearly show that there was significant disregard for the royal instructions (*ibid*). This shows that the ages of the tributaries were liable to manipulation. While not following instructions could have been due to carelessness or laziness, even the returns that saw the most monetary and time investment showed significant irregularities, and the irregularities, such as the underrepresentation of children ages 10-17, were consistent with the agenda of hiding, and not manifesting, tributaries. These irregularities were present even under viceroys and census officials who were sympathetic to mining interests in manifesting as many hidden tributaries as possible, which shows the limits of enforcement at the local level and the active resistance by various local stakeholders. Second, regarding irregularities in names, many tributaries were "missing" in the 1719 census. The "missing" tributaries were ones who showed up in the 1729 census, but should have been present in the 1719 census as well given their age and the geographically limited surname. Such irregularities further support widespread hiding of tributaries, especially in the 1719 census. Third, sex ratios varied significantly through time, and the pattern of variation suggests that during times of heightened economic and demographic disruption, especially after the great Andean epidemic of 1720-1726, recorded sex ratios were significantly unequal. During these times of disruption, females generally outnumbered males. I offer several hypotheses for why sex ratios were unbalanced during these times of disruption before concluding that hiding and tributary absenteeism probably accounted for most of the imbalance.

The three censuses, unfortunately, vary in level of detail. Thus, the only population subset comparable in all three censuses was tributaries ages 18-49. The first census analyzed was commissioned by Viceroy Duque de la Palata. There are only two surviving Palata returns from Lower Peru (modern Peru), both of which are from Vilcashuamán province. The returns from Upper Peru (Bolivia) have mostly survived intact (see Evans 1981). The two surviving 1683-1684 returns from Vilcashuamán province are from the *repartimientos* of Chocorbos and Condes de Pacomarca. Of the two, the Chocorbos return is much more detailed, as it includes the age, sex, status of tributaries, females, those reserved due to privilege, age, and disease, *forasteros*, and absentees (Huertas 1976b). The Condes return, which Duque de la Palata personally included in his letter to the King, only included the male tributaries and *forasteros* of tributary age (theoretically 18-50, but this return only had tributaries below age 50).[126] The second census is from 1719, though the data was probably collected at the time of the 1717 *retasa*.[127] The document itself seems to be a copy used by the local priest in the *repartimiento* of the Condes de Pacomarca because it included markings (crosses, minuses, and the letter M) next to the names of tributaries of only that repartimiento. Such markings may have indicated who attended mass or who had perished. The 1719 census included all males above the age of eighteen.[128] The 1729, commissioned by Viceroy Castelfuerte and carried out by Manuel de Arandía (or Araindía) census included tributary males (*originarios* and *forasteros*) ages 18-50.[129]

Irregularities in age structure

The 1683-1684 census of the Chocorbos *repartimiento* showed significant bunching at the tens marker (20, 30, 40, etc.), with secondary bunching at the fives marker (Figure 9.9). Evans (1981) also reported significant bunching at the tens and fives. Below the age of eighteen, however, there was not much bunching because those ages were actually checked against baptismal records. It is clear that ages twenty and above, age assignation was subjective, and the tens and to a lesser extent the fives were overrepresented by far. For males, 115 out of 452 (25.4%) of the ages was a multiple of ten. For females, the bunching was even more egregious, with 194 out of 418 (46.4%) of the ages a multiple of ten. Overall, for both males and females, 35.5% of the ages were a multiple of ten. The non-tributary status of women could explain the greater irregularity with female ages, because their ages did not matter as much for state purposes. Almost one fifth of women were aged thirty.

[126] AGN, El Virrey, Charcas 270, Roll 22A, 1686.
[127] BNP, Numeración Vilcasguaman, C1924, 1719.
[128] There were three tributaries who were below the age of eighteen. One was fourteen, another was sixteen, and the third was seventeen.
[129] AGN, Padrón Vilcas-huaman, Campesinado, Derecho Indígena, Legajo 14, Cuaderno 248, [1729]. There was one tributary who was seventeen.

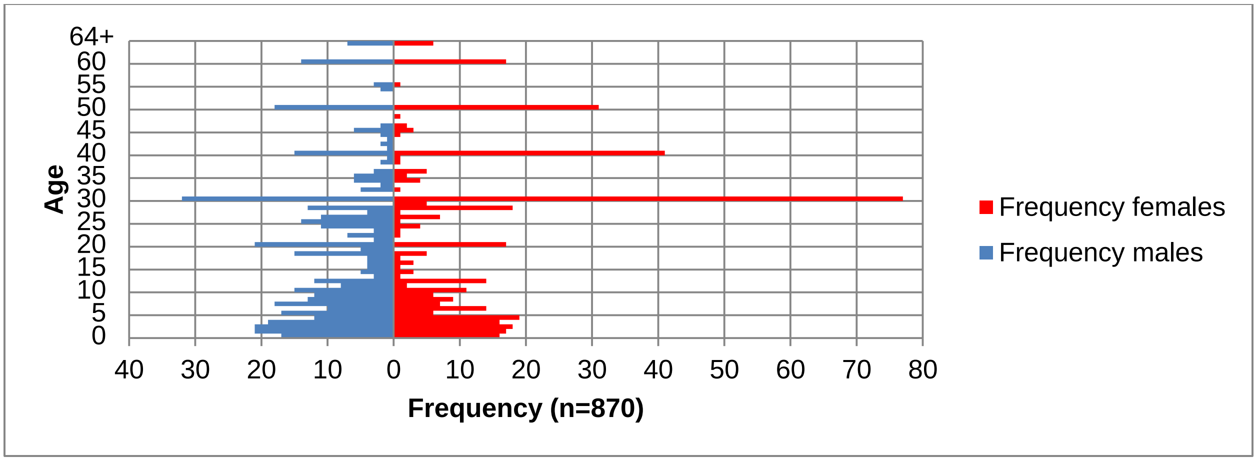

Figure 9.9: Distribution of age values among males and females, Chocorbos repartimiento 1683-1684.

A population pyramid of the Chocorbos *repartimiento* suggests that there was high fertility as well as high mortality, which is consistent with Evans' (1981) findings in Upper Perú (Figure 9.10). Evans (1981: 42) said that life expectancy was 25 years or less so there was little natural increase in population. Nevertheless, because age values above 20 were suspect, it is difficult to tell whether the population was growing, stable, or contracting. Certain age values were implausible, for example, a couple aged 45 and 50 having a child of less than one year old. Complicating matters more is the looming probability that a significant portion of the eligible tributary and female population was hidden from the census. Evans' (1981) population pyramid of select census returns from Upper Peru (Bolivia) showed a similar pattern of underrepresentation of children ages 10-17 (Figure 9.11). The underrepresentation of this age group, for both males and females, is puzzling assuming that the state would pay particular attention to this age group as they are about to enter tributary status for the men or married status for the women. This underrepresentation was not due to any epidemics because there were none recorded in the 1670s (Evan 1981: 40). Because this curious underrepresentation also occurred in the provinces of Upper Peru, the phenomenon was not localized. A possibility is that, as Robinson (1990: 15) put it, "the best, the brightest, the risk-takers, the entrepreneurs, the young" left first. Oddly, the underrepresentation of females ages 10-20 in the Chocorbos return was greater than that of males.

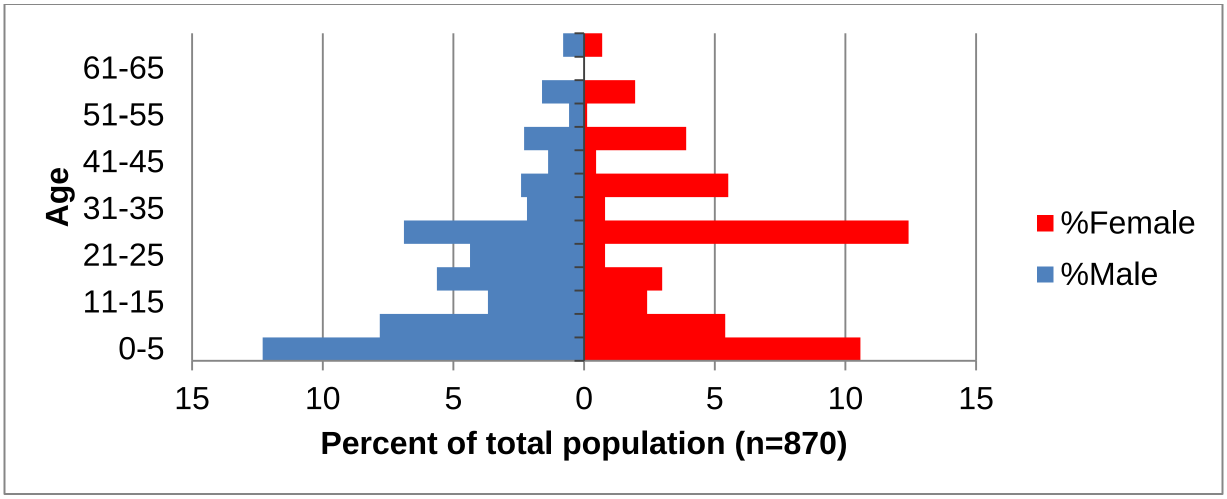

Figure 9.10: Population pyramid of the Chocorbos *repartimiento*, 1683-1684.

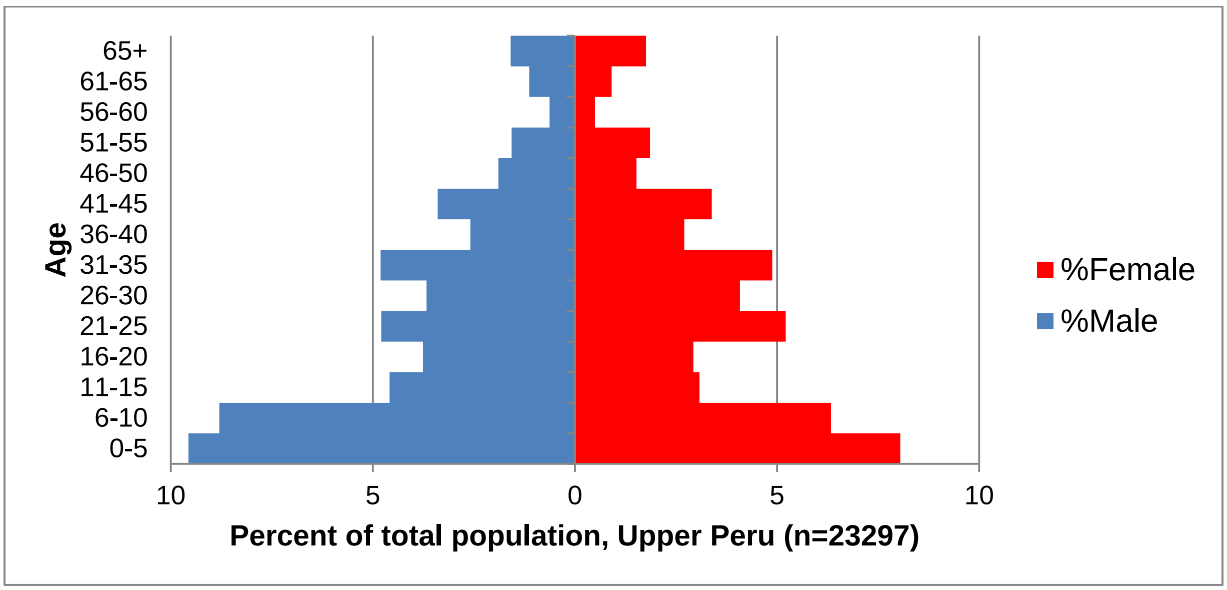

Figure 9.11: Population pyramid of select census returns, Upper Peru, 1683-1684. After Evans (1981).

Zulawski (1985), in a more fine-grained analysis of the 1683 return from Oruro (Upper Peru) also noted an underrepresentation, especially of females, of ages 10-19, which Evans (1981) showed held true for the available data from Upper Peru in general. Zulawski (1985: 99) attributed the sex discrepancy to the fault of the census takers, who only paid particular attention to the males who would be future tributaries. In addition to census manipulation, young adults and their families fleeing their *pueblos* with the intent of becoming *forasteros* probably also contributed to the depressed numbers of children and young adults. An analysis of the available data on the *forasteros* of Chocorbos *repartimiento* showed that they were mostly young (average of 20.5 years old) when they arrived (Figure 9.12). Some of them were even younger when they left their natal *pueblos*, because the *repartimiento* of the Chocorbos was not the first destination of many of them. Evans (1990: 82-83) reported similar patterns in Upper Peru, where most people also migrated in their adolescence or early adulthood.

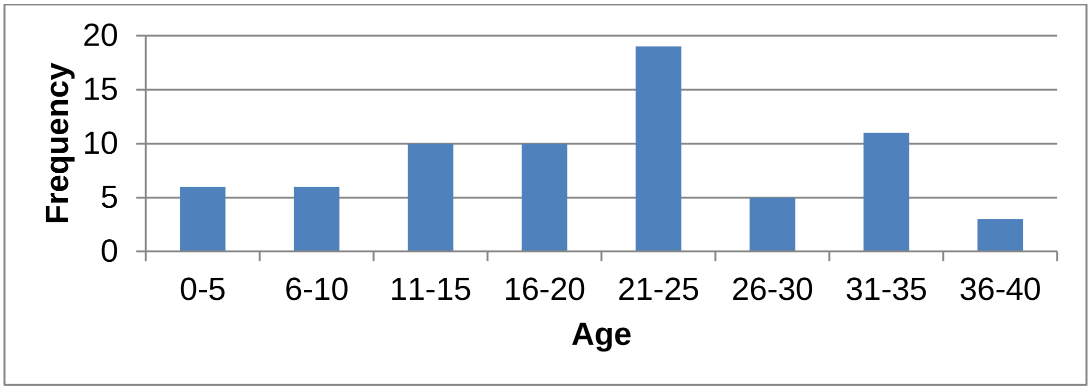

Figure 9.12: Histogram of the age of *forasteros* at the time they arrived in the Chocorbos *repartimiento*.

Both Zulawski (1985) and Evans (1981) believed that by the time of the census, the population of Upper Peru had reached a demographic equilibrium in which population decline had stopped. Zulawski (1985: 100) showed that married couples in Oruro had an average of 2.07 children, barely above replacement rate. The available data for Vilcashuamán paints a different picture. The Chocorbos return showed much smaller families overall (1.70 children per couple), although we should be aware that undercounting of children was a real possibility. Although most of the Chocorbos population was below the age of thirty, high mortality may have contributed to fertility being below replacement rate. Another possibility is that the census vastly undercounted children, and given the odd underrepresentation of girls, manipulation of censuses could have concealed a population that was slowly growing at this point. The fact that for the age group above thirty, women outnumbered men consistently, for the Chocorbos as well as the Upper Peru provinces, shows that census takers were mostly interested in recording married, not adolescent, females. Another line of evidence for census manipulation is that *forastero* couples had more children than *originario* couples: 1.81 versus 1.61 children per couple.

How representative of Vilcashuamán province was the 1683-1684 Chocorbos return? The only other Vilcashuamán province return was from the *repartimiento* of Condes de Pacomarca, to which Pomacocha belonged. Because the Condes return only listed male tributaries below the age of fifty (theoretically tributaries should be 18-50), I compared the age distribution and population pyramids of only this subset of the population. The age distribution comparison shows that the Condes and Chocorbos returns were more similar than different (Figure 9.13). Both *repartimientos* showed significant bunching at the tens markers (20, 30, 40) and a bit of bunching at the fives markers (25, 35, 45). However, it appears that Chocorbos may have had more bunching (68/193=35%) than the Condes (126/482=26%) at the tens markers (Z-Score: 2.3585, two-tailed p-value: 0.018). One may assume that *forasteros'* ages were more easily manipulated because a significant portion of them were not born in their villages of residence, where their baptismal records were located. Because the Chocorbos *repartimiento* had significantly more *forasteros* than the Condes (44% versus 10%), one could reasonably hypothesize that the increased bunching of ages on the tens markers for the Chocorbos was a result of the higher proportion of *forasteros*. Statistically, however, there was no difference in the proportion of ages at the tens markers for *originario* versus *forastero* status. The *forasteros'* age bunching in the Chocorbos *repartimiento* was 35% (29/83), virtually identical to the overall percentage of 35%. For the Condes *repartimiento*, the percentage was 28% (13/46), also statistically indistinguishable from the overall percentage (26%). Thus, we have to reject the hypothesis that the difference in bunching was due to the differential presence of *forasteros*. Another possibility is that because Duque de la Palata esteemed the returns of the *repartimiento* of Condes de Pacomarca as an ideal example to show to ask for more funding, there may have been more oversight in the recording of ages. Unfortunately, given available data, we can only speculate the causes for the differences and if the differences were substantial at all.

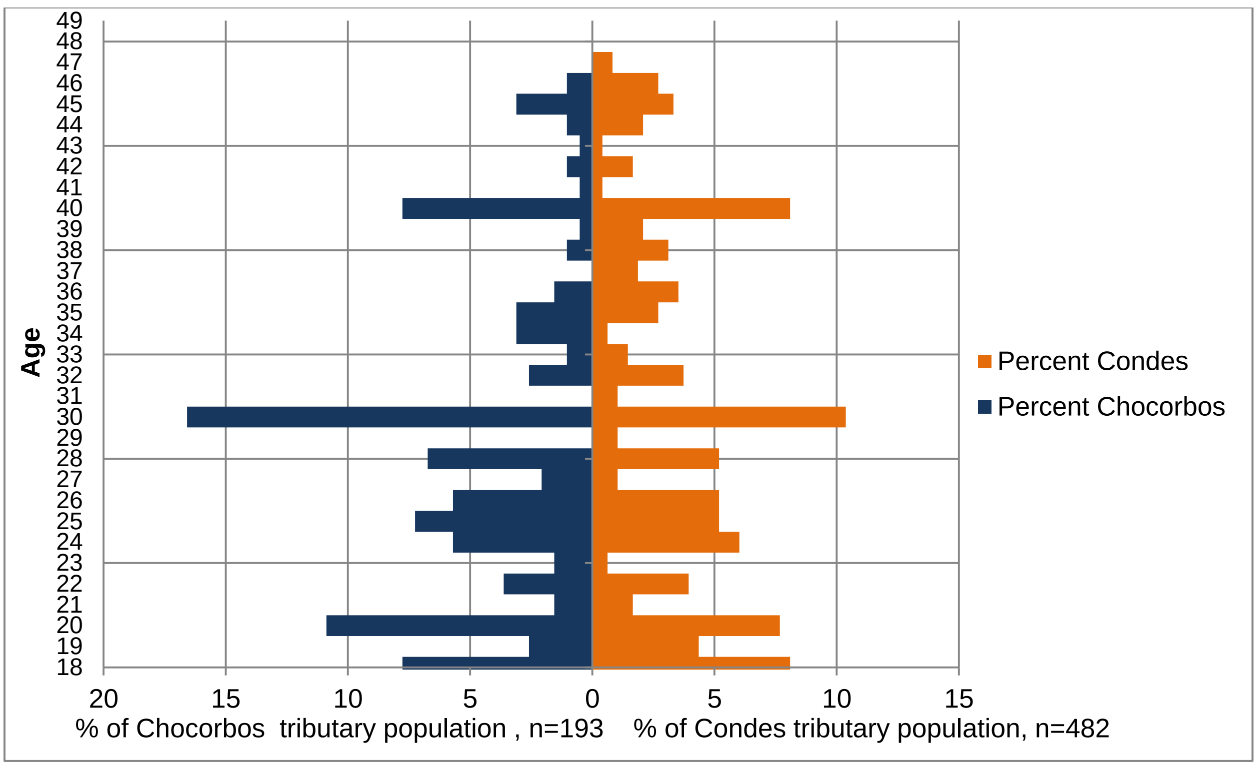

Figure 9.13: Distribution of age values of male of tributary age (18-49), *repartimientos* of Condes and Chocorbos, province of Vilcashuamán, 1683-1684.

The population structures of the Chocorbos and Condes *repartimientos* were statistically indistinguishable, lending support to the hypothesis that the Chocorbos *repartimiento's* overall population structure was not an anomaly for Vilcashuamán province (Figure 9.14).

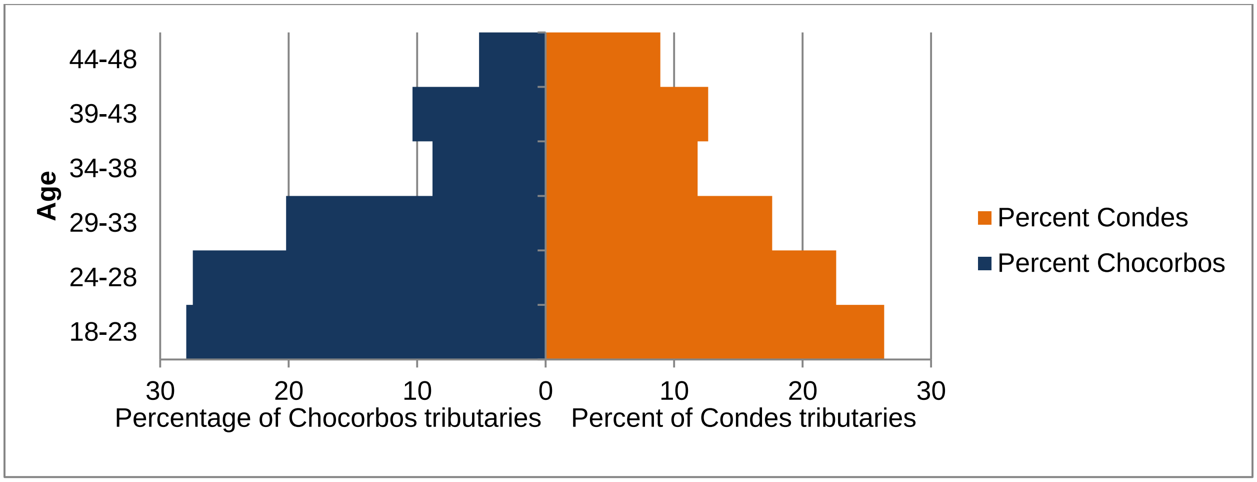

Figure 9.14: Population structure of male tributary population ages 18-49, *repartimientos* of Chocorbos (n=193) and Condes de Pacomarca (n=482), 1683-1684.

Bunching in ages continued in the subsequent censuses of 1719 and 1729. The census of 1719 showed a supposedly much older male population than the 1683 census, which was implausible given the low life expectancy during the colonial period (Figure 9.15). Out of the three censuses analyzed, the 1719 census showed the most irregularities in age values. The 1719 census had the most bunching in ages out of the three censuses, which is not surprising given that the *corregidor* responsible for the census at this time was the allegedly corrupt Don Alonso García de Araujo (Table 9.6). If we recall from section 9.1.3, Don Alonso García de Araujo and his family were accused by the native workers of Pomacocha of extortion. The workers' allegations were probably true, especially in light of the especially corrupt 1719 census, which certainly exaggerated tributary ages and hid a sizable proportion of the population. The 1729 census had the most realistic age distribution and the least age bunching of the three (Figure 9.16 and Figure 9.17). The 1729 census was also the census least beholden to local interests, as the person responsible, Manuel de Arandía (or Araindía), was more allied with Huancavelica mining interests. Thus, manifesting hidden tributaries was a top priority. Furthermore, the Great Andean Epidemic of 1719-1726 also killed many Spaniards, which would have disrupted to some extent the local networks of corrupt collusion that the workers of Pomacocha had complained of.

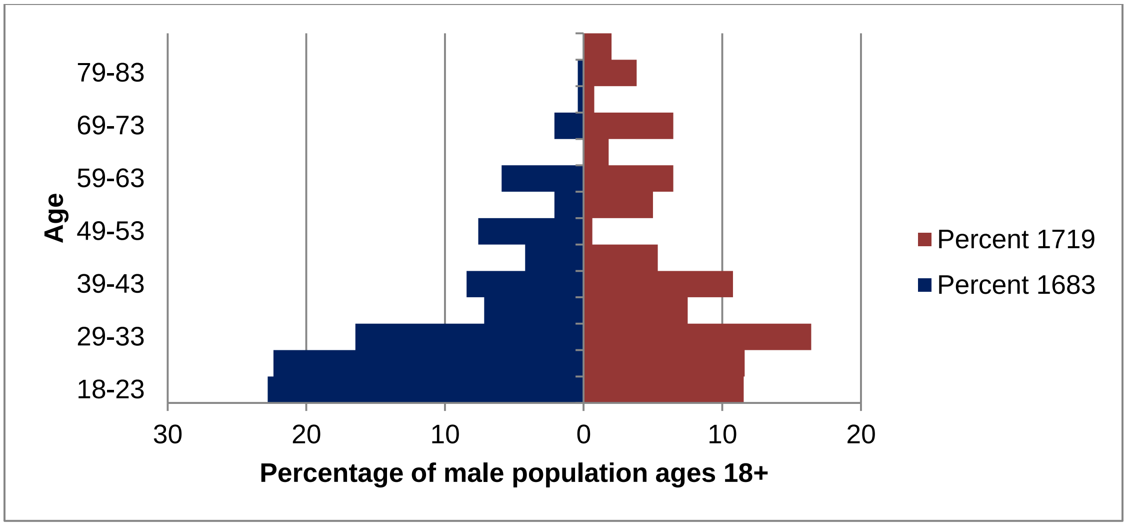

Figure 9.15: Comparison of population structure of males above age eighteen in the 1683 Chocorbos (n=237) and 1719 entire Vilcashuamán province (n=1438) censuses. The 1719 census has many more individuals above the age of fifty and fewer individuals below the age of twenty-eight than the 1683 census.

Table 9.6: Percentage of ages on the tens place among males of tributary age (18-49).

	1683 census	**1719 census**	**1729 census**
Percentage of tributary ages on 20, 30, and 40	35% (n=193)	37% (n=909)	20% (n=2297)

Figure 9.16: Distribution of age values of male of tributary age (18-49), Vilcashuamán province 1719 and 1729 censuses.

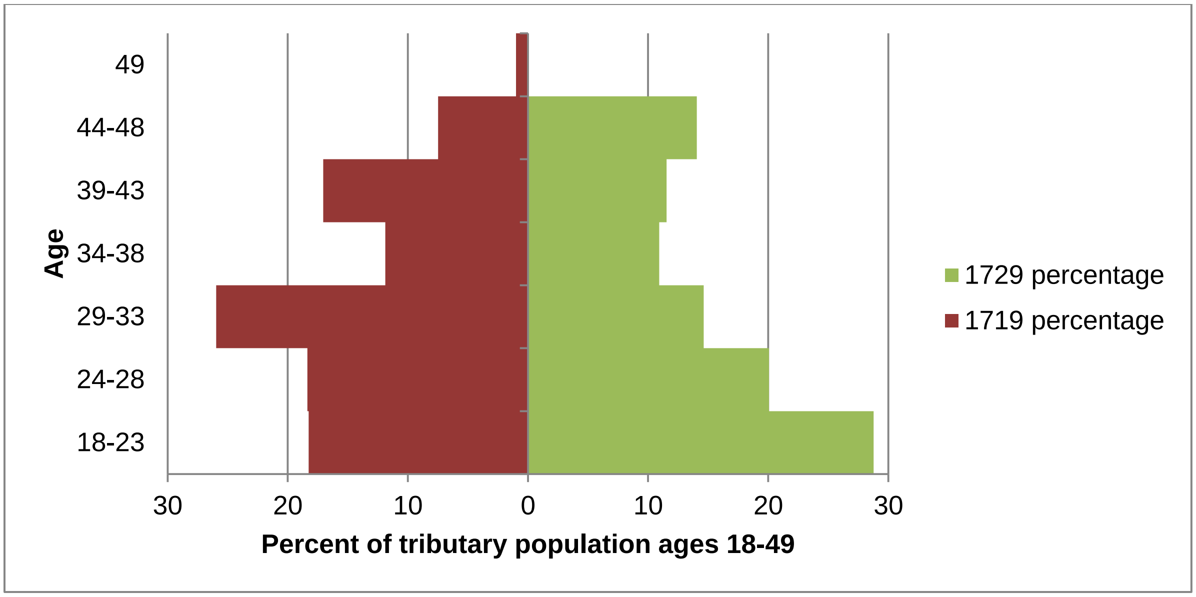

Figure 9.17: Population structure of males of tributary age (18-49), Vilcashuamán province 1719 and 1729 censuses.

Due to the significant manipulation of the census ages by various actors, we unfortunately do not have a reliable estimate of the true demographic decline caused by the epidemic. What we do gain, however, is an understanding of the competing interests over native labor. The Crown's interests were often at odds with the local interests, both Spanish and indigenous, and census takers themselves were not immune to such pressures. It appears that the census taker in 1719, Rodrigo de Lázaro, was more aligned with local interests, especially with the *corregidor* who appointed him (Alonso García de Araujo) than with the mining interests of further afield. With the epidemic, many of the alliances and much of the collusion at the local level must have broken down given the massive migrations and the high mortality, exposing the moral economy that was based on "costumbre" to radical change. We saw in section 9.1.3 the specific way in which this manifested at Pomacocha, when the workers finally filed formal complaints in 1729 and fled en masse to achieve better labor conditions. While we do not know the formal result of the legal proceedings, we do know that the workers were able to prevent the Araujo family from running the *obraje* again, and the popular administrator Friar Gómez was reinstated. The example of Don Alonso García de Mere employing hundreds of previously unregistered *forasteros* shows that a significant portion of the native population was effectively hidden by Spanish businesses. Salas (1998a: 396) reiterated that the censuses vastly undercounted the workers in the *obraje* of Cacamarca in Vilcashuamán province. The Spanish and native elite who hid tributaries probably did not see themselves as exploiters, as they themselves described their roles as protectors of the Indians from the rigors of the mines. Many native commoners also effectively hid themselves from those who wished to exploit their labor coercively. Native women, in particular, took proactive approaches to hiding future tributaries. They hid offspring from priests and census takers; at baptism they would say that the babies' fathers were absent Spaniards so that the babies could be classified as *mestizos* (Powers 2005: 178). Everyone benefited from hidden tributaries except mercury mine owners who relied on cheap coerced labor.

<u>Irregularities in names as evidence for the hiding of eligible tributaries</u>

In this analysis of the 1719 and 1729 Vilcashuamán province censuses, I show evidence of hiding within one's origin community. Such hiding would have been beneficial for both the families who wished to stay in their origin communities as well as their *casiques*. Migration outside of one's origin communities would have deprived their *casiques* of revenue. There were numerous examples of individuals who showed up in the 1729 census who, given their ages, should have been present in the 1719 census. Migration from outside the Vilcashuamán province was not the reason for the appearance of these new individuals, because their rare surnames were geographically limited to only one pueblo in both 1719 and 1729. It would be highly improbable for a new individual to migrate to the only pueblo where his particular surname existed. Furthermore, if the new individuals had indeed migrated from other provinces, they would be registered as *forasteros*, not as *originarios*. The more parsimonious explanations are that the individual was hidden in the 1719 census, or that his age was greatly exaggerated in the 1729, thereby becoming invisible due to the 1729 census only registering tributaries up to age 49. Hiding is a more likely explanation given that the 1729 census had systematically younger ages than the 1719 census, which greatly exaggerated true ages.

There were at least eighteen cases in the 1729 census where it was probable that certain individuals were hidden in the 1719 census (Table 9.7). These particular examples further support the contemporary literature that complained of *corregidores*, *hacienda* and *obraje* administrators, indigenous leaders, and individual families hiding eligible tributaries, depriving the crown of much revenue. There were numerous cases of individuals who appeared in the 1729 census who should have also been in the 1719 census. Although probable examples of hiding, their surnames were not geographically limited to only one pueblo in 1719, so one cannot distinguish hiding from in-migration from outside Vilcashuamán province and then zealously registered as *originarios*. Nevertheless, hiding must have been prevalent in the 1719 census, as the 1729 census revealed significantly more individuals, which would have been impossible due to the major epidemic of the early 1720s. These results support the previous analysis of age irregularities that point to the hiding of tributaries.

Table 9.7: List of examples of individuals from the 1729 census who were probably hidden in 1719. All of the surnames were restricted to the same pueblo in both 1719 and 1729, with the exception of Uscata, which was almost all located in Gualla, with one individual in Cangallo in 1729. The rarity of these surnames also precludes in-migration from a neighboring province.

Surname	**Name**	**Age**	**Pueblo**	**Names in 1719 (age)**
Aroni	Juan	44	Chuschi	Francisco (25), Joseph (90)
Aroni	Simon	31	Chuschi	Francisco (25), Joseph (90)
Arotoma	Ambrosio	32	Huancaraylla	Baptista (25), Joseph (40)
Arotoma	Clemente	44	Huancaraylla	Baptista (25), Joseph (40)
Arotoma	Marcos	46	Huancaraylla	Baptista (25), Joseph (40)
Arotoma	Zipriano	30	Huancaraylla	Baptista (25), Joseph (40)
Asto Anampa	Francisco	44	Huamanmarca	Bartholome (40), Lorenzo (90)
Rumisonco	Ascencio	32	Huambalpa	Agustin (58), Joan (71)
Rumisonco	Yldefonso	34	Huambalpa	Agustin (58), Joan (71)
Ucharima	Francisco	48	Hualla	Blas (20), Calisto (22), Joseph (40)
Ucharima	Juan	38	Hualla	Blas (20), Calisto (22), Joseph (40)
Uscata	Asencio	38	Hualla	Carlos (21)
Uscata	Francisco	30	Hualla	Carlos (21)
Uscata	Francisco	32	Hualla	Carlos (21)
Uscata	Jazinto	31	Cangallo	Carlos (21), in Gualla
Uscata	Pedro	40	Hualla	Carlos (21)
Utari	Francisco	44	Totos	Gabriel (35)
Uta	Pablo	36	Huancarama	Joan (66)

Irregularities in sex ratios

Sex ratio imbalances can indicate social disruption and rampant migration (Evans 1981: 83). While the reported sex ratios may not reflect real sex ratios, the imbalances do indicate real social phenomena such as outmigration of male tributaries or systematic hiding. The less stable a group, the smaller the family unit and more unbalanced the sex ratio (*ibid*). Sex ratios may also indicate whether mothers systematically committed infanticide of their male babies. One of the controversial claims made by Silverblatt (1987) and Powers (2005) was that native women, who bore the brunt of colonialism more than their male counterparts, commonly resisted by committing male infanticide. Certainly, there were contemporary accounts of this practice, and the Spanish who recounted such stories said that the mothers justified infanticide to not "reproduce the Spanish workforce by having large numbers of children, especially males (Powers 2005: 178)." Infanticide may have occurred more frequently near especially exploitative Spanish labor institutions, such as *obrajes*. For example, in the village of Tacunga in the Audiencia of Quito (Ecuador), there was an allegedly abusive *obraje*.[130] One of the Spanish witnesses said that Tacunga had an inordinate number of blind male Indians, and that the local folktale attributed the blindness to "the effect of the mermen of the surrounding lakes."[131] When the witness

[130] AGI, El presidente de Quito da quenta a V Mag./d de lo que padecen los Yndios en los Obraxes de esta Provincia y de lo que contravienen a las leyes y Ordenansas de V. Mag/d. los Dueños de ellos, Quito 133, No. 26a, 1737
[131] *Ibid*: f. 22v. Original: "…aefecto de los serenos(sic) de las Lagunas inmediatas…"

asked one of the blind Indians, however, the blind Indian said that the blindness was not due to the mermen but to their own mothers, who "seeing that they were born male, those [mothers] who were more pious blinded them, others killed them so that they would not be subjugated to the said *obraje*.[132]" The mines of Huancavelica had a worse reputation than that of Potosí, and the horror inspired some native mothers to maim their male children: "[T]he Indians fear the labor at the mine of Guancavelica so much that many mothers maim their infant sons in the arms or legs so that when they are older, they will be exempt from that duty (Wightman 1990a: 50)."

Generally, there were significantly more women than men, although one year, 1753, had systematically higher numbers of men compared to women (Table 9.8). What could account for such imbalances in the sex ratios? What is clear is that the province of Vilcashuamán always was demographically dynamic. The nature of the dynamism, however, is not entirely clear. The general overrepresentation of women could be caused by any combination of the outmigration of male *originarios*, the hiding of eligible tributaries, or male infanticide. I believe that outmigration and the hiding of eligible tributaries account for most of the underrepresentation, because if male infanticide was systematic, we would not see the many instances where men actually outnumber women. For example, in 1753 men generally outnumbered women, but this was demographically impossible given the overwhelming underrepresentation of men just fourteen years prior (1737-1739).

The changes in sex ratios from one to the next were sometimes too drastic to be due to natural demographic shifts over time; migration, hiding and irregular census-taking must have accounted for much of the discrepancies. In fact, the 1758 retasas were commissioned because of complaints that the 1753 *retasas* were fraudulent. The conversion of *originario* tributaries into *forasteros* not captured by the censuses probably contributed to the general trend of overrepresentation of women in censuses. The Chocorbos return, for example, indicated that *originario* women outnumbered their male counterparts, whereas *forastero* men outnumbered their female counterparts. The sex ratio for *originarios* was 0.92 males per female (n=521), whereas for *forasteros*, the sex ratio was 1.83 males per female (n=291). In fact, because many of the *forastero* men married women who were *originarios*, the true sex ratio of *forasteros* was even more skewed toward males. Of the people who had absented from their communities, the majority was also male because most were unmarried men when they had fled (27/32=84%). In the next section (9.2.4), I discuss more implications of the sex ratio discrepancy for strategic migration.

[132] *Ibid*. Original: "…viendo, q nacian varones, vnas q eran mas piadosas los cegavan, otras los matavan porq no quedasen subyugados a dho obraje."

Table 9.8: Summary of available sex ratios (men to women) from censuses and tasas. Toledo (1975); AGI, Numeración, Charcas 270, No. 22A, 1686. For sources from the Biblioteca Nacional del Perú, see Table 9.4. None of the *retasas* from 1758 included demographic information on the number of women, children, and men over the age of fifty.

Repartimiento	**1570-1575**	**1630**	**1683**	**1717**	**1728-1730**	**1737-1739**	**1753**	**1772**
Condes de Pacomarca	0.95	1.27		N/A	0.73	0.93	1.58	1.00
Hananchilques	1.02	1.42		1.92	0.77	0.68	0.63	1.01
Huamanquiquia				N/A	0.88	0.84	2.48	N/A
Hurinchilques	0.89	0.90		0.78	0.86	0.64	1.88	0.83
Pabres	0.98	0.81		0.83	0.76	0.71	1.15	N/A
Paras Canchacancha				N/A	0.90	N/A	0.50	0.74
Quichuas Quilla Sacsamarca	0.89	1.32		0.93	0.83	0.59	1.14	0.83
Sancos				0.59	0.92	0.60	N/A	1.01
Tanquihuas	0.88	0.87		0.47	0.59	0.77	1.64	1.07
Totos Quispillactas	0.82	0.62		0.61	1.04	0.90	1.90	0.99
Vilcanchos Chocorbos	0.93	0.83	1.08	0.67	0.73	0.65	0.68	0.75
Overall			1.08	0.82	0.74	0.74	1.25	0.92

There also appears to be a pattern in the way that the overall sex ratios for Vilcashuamán province changed over time: lower ratios of men to women correlate with periods of higher social disruption, such as the years after the Great Andean Epidemic of 1719-1726. This pattern is fully consistent with the Chocorbos analysis that *forastero* populations were more male than female and remained hidden from state labor and tax obligations for many years. When *forasteros* became liable for tribute after 1683, they were only assessed a cash tax, not labor tax, and many still remained unregistered. When the *mita* was extended to *forasteros* after the Great Andean Epidemic, *forasteros* absented in large numbers and hiding became more prevalent. The explosion of complaints all over the Andes after 1719 of illegal exploitation of native laborers indicated the intensity of social change and pressures for native migration. Migration became an even more powerful tool for native commoners after the epidemic because of the severe labor shortages, and legal complaints of exploitation were taken more seriously by the Crown.

9.2.4 Evidence of strategic migration from network analysis and Lasker distance surname analysis

In this section, I present evidence showing the surprisingly well-organized patterns of strategic migration. In contrast to the contemporary Spanish attitudes of the reactive and chaotic nature of native migration, I show how patterns of strategic migration remained fundamentally consistent from at least the late seventeenth-centuries to after the Great Andean Epidemic. The longevity of these patterns contributed to long-term buildup of civil society over the wider landscape, eventually enabling alliances that would pose a serious threat to the colonial order in the late colonial period. I start with the most complete census of Vilcashuamán province, the Chocorbos return of 1683-1684 to identify the patterns of native migration. I then analyze evidence of migration in the censuses of 1719 and 1729 to test whether the patterns identified from the Chocorbos return held true. The three most important insights from the analyses of the censuses are:

1) Native migration was intimately linked with Spanish businesses. The more penetration of the Spanish economy, the more migration. The Huancavelica mines, while creating incentives for tributaries to absentee from their villages, also created vibrant economic spaces for other Spanish businesses to flourish. Such businesses were sustained by native labor and were crucial to providing places of refuge as well as monetary capital. Obrajes such as the one at Pomacocha were examples of businesses that flourished because of the mining sector markets, but they were also its competitors over native labor.
2) Absenteeism was not chaotic and did not desolate native communities. People seemed to migrate in cycles and kept in touch with their natal or ancestral origin communities. Absenteeism was calculated and preempted policies of labor exploitation, rather than just a reaction to them. The cycles of migration also created kinship bonds among different provinces and across *repartimiento* and *ayllu* distinctions, expanding social horizons.
3) Patterns of migration differed for men versus women. Men were more likely to migrate outside of their home provinces to escape tribute obligations, whereas women generally did not migrate or migrated within their home provinces. The complementarity is also evident in the apparent bilateral descent of Vilcashuamán native communities, where many men inherited surnames from their fathers and women inherited surnames from their mothers. The exogamous migration pattern on the male side complemented the endogamous pattern on the female side, ensuring a strategy that mitigated the effects of demographic decline and labor exploitation. Women may have played a big role in keeping communal lands within their control and found stable marriage partners in *forasteros* who were exempt from labor obligations.

First, let us examine the evidence of migration in the 1683-1684 Chocorbos return. As the most detailed existing census return from Vilcashuamán province, it provides the clearest clues to patterns of migration. The Chocorbos census detailed the known birthplaces and ancestral origins (*naturaleza*) of male *forasteros*. *Forastero* status was inherited, so even if someone was born in a particular community and lived there all his life, he would still be considered a *forastero* (Wightman 1990a: 53). In the Chocorbos return, a significant portion of *forastero* males were born in their current place of residence (96/188=51%). Technically, the ancestral origins should have referred to Toledan-era (1570s) ancestry (Zulawski 1985: 104), but the Chocorbos census return sometimes recorded *naturaleza* as simply where the father or grandfather was from, reflecting the loss of information over the generations. Spanish businessman Don Alonso García de Mere stated that the natives under his charge "had not recognized any *casique*, and as such had not paid tribute, because time immemorial made them lose the antiquity of their *naturaleza*...(Huertas 1976b: 94-95)."[133]

What is clear is that the native population of south-central Peru, as elsewhere in the colonial Andes, was constantly on the move. Even the small communities of the Chocorbos *repartimiento*, numbering a few hundred at most, were made up of people from diverse birthplaces and origins (Figure 9.18). The diversity of birthplace and origin of the Chocorbos *forasteros* was due to Spanish economic centers, such as the supply business of Don Alonso García de Mere, attracting people escaping from the Huancavelica mining *mita*. The origins of the *forasteros* generally coincided with Huancavelica *mita* provinces.[134]

Almost all the *forasteros'* origins were from outside the province of Vilcashuamán, which makes a great deal of sense if one wanted to evade census takers, who did not compare census returns from other provinces. Only five *forasteros* had their origins from within Vilcashuamán province (Cangallo and Huamanquiquia). Often, *forasteros* moved from their birthplaces in small groups, usually as brothers or parents and children. Many of the same *pueblos* supplied *forasteros* over different generations, indicating some sort of web of knowledge of where kin had migrated to generations before. The three individuals whose origin was the *pueblo* of Huamanquiquia were born in Hayauí, a commercial center belonging to Don Alonso García de Mere in the province of Castrovirreyna. Hayauí was the birthplace of a significant portion of *forasteros* who had moved with Don Alonso García de Mere's business to found a new community in Urancancha in Vilcashuamán province.

[133] Original: "…no han reconocido *casique* y así no han pagado tributos por que lo inmemorial del tiempo hizo perder lo antiguo de su naturaleza…"

[134] The following provinces had to supply a certain number of tributaries (*mitayos*) three times a year for a period of two months each rotation (1645): Chinchacochas (58 *mitayos*), Xauxa (22 *mitayos*), Hananguancas (24 *mitayos*), Luringuancas (57 *mitayos*), Taramas (13.5 *mitayos*), Angaraes (25 *mitayos*), Vilcashuamán (20 *mitayos*), Chocorbos (10.5 *mitayos*), Huanta (58 *mitayos*), Lucanas Soras y Andamarcas (47.5 *mitayos*), Andahuaylas (250 *mitayos*), Cotabambas (207 *mitayos*), Aymaraes (225 *mitayos*). AGI, Copia del asiento que el Marquez de Mançera mis.or Virrey del Piru/ celebro con los mineros dela mina de azogue dela Villa de Guancavelica, Lima 271, f. 12v-13r, September 6, 1645.

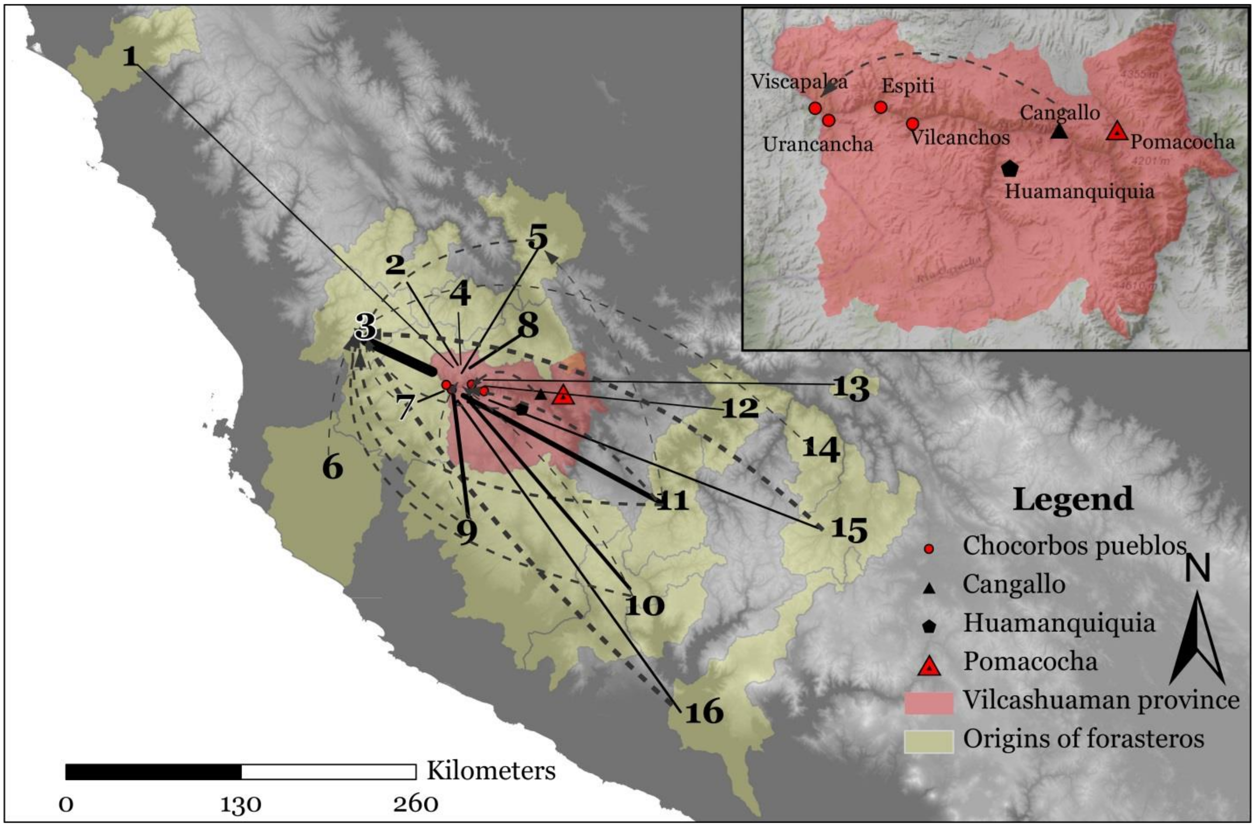

Figure 9.18: Origins at the provincial level of forasteros residing in the *repartimiento* of Chocorbos (Espiti, Urancancha, Vilcanchos, Viscapalca). Solid lines indicate places of birth and dotted lines indicate places of origins/ migrations of ancestors. Thickness of lines is proportional to the square root of the number of invididuals. Inset is detail of Vilcashuamán province. Key of provinces: 1=Lima, 2=Huancavelica, 3=Castrovirreyna, 4=Angaraes, 5=Huanta, 6=Ica, 7=Huaytará, 8=Huamanga, 9=Lucanas, 10=Parinacochas, 11=Aymaraes, 12=Abancay, 13=Cuzco, 14=Cotabambas, 15=Chumbivilcas, 16=Condesuyos.

Of the few who had absented from the Chocorbos *repartimiento*, they had allegedly fled to generally the same provinces where the *forasteros* had come from, indicating a circulatory migration pattern in these particular provinces (Figure 9.19). Those who had fled to places inside the province of Vilcashuamán fled to the *repartimiento* of the Condes de Pacomarca, perhaps due to the *repartimiento* being entirely exempt from the Huancavelica *mita* in 1683 as well as home to many Spanish enterprises. Don Lorenzo Ninas, *casique* of the Chocorbos *repartimiento*, was the source of information for the known destinations of absentees, but it seems his knowledge was imperfect. For example, according to Don Lorenzo Ninas, Sebastian Sullca, age twenty, absented from the pueblo of Vilcanchos to go to the the pueblo of Concepción (*repartimiento* of the Condes de Pacomarca) in the same province. However, the only Sebastian Sullca registered in the census was age thirty-five and resided in the *obraje* of Pomacocha. Another advantage of absenteeism, even within the same province, was the ability to change one's age because one would be moving to a different *doctrina* under the charge of a different priest and therefore not be listed in the books of baptism. In Sebastian Sullca's case, he might have exaggerated his age to shorten the length of time he was eligible as a tributary. The other two adult male absentees who had allegedly fled to places within the Condes de Pacomarca *repartimiento* were missing from the census, but may have tweaked their names and ages since absenting from their communities (Table 9.9). Changing one's name to avoid tribute was not unheard of in the colonial Andes (Minchom 1983: 30). Thus, absenteeism was an effective way to manage one's identity and status, effectively distancing oneself from the knowledge of *casiques* and other local authorities from one's original community.

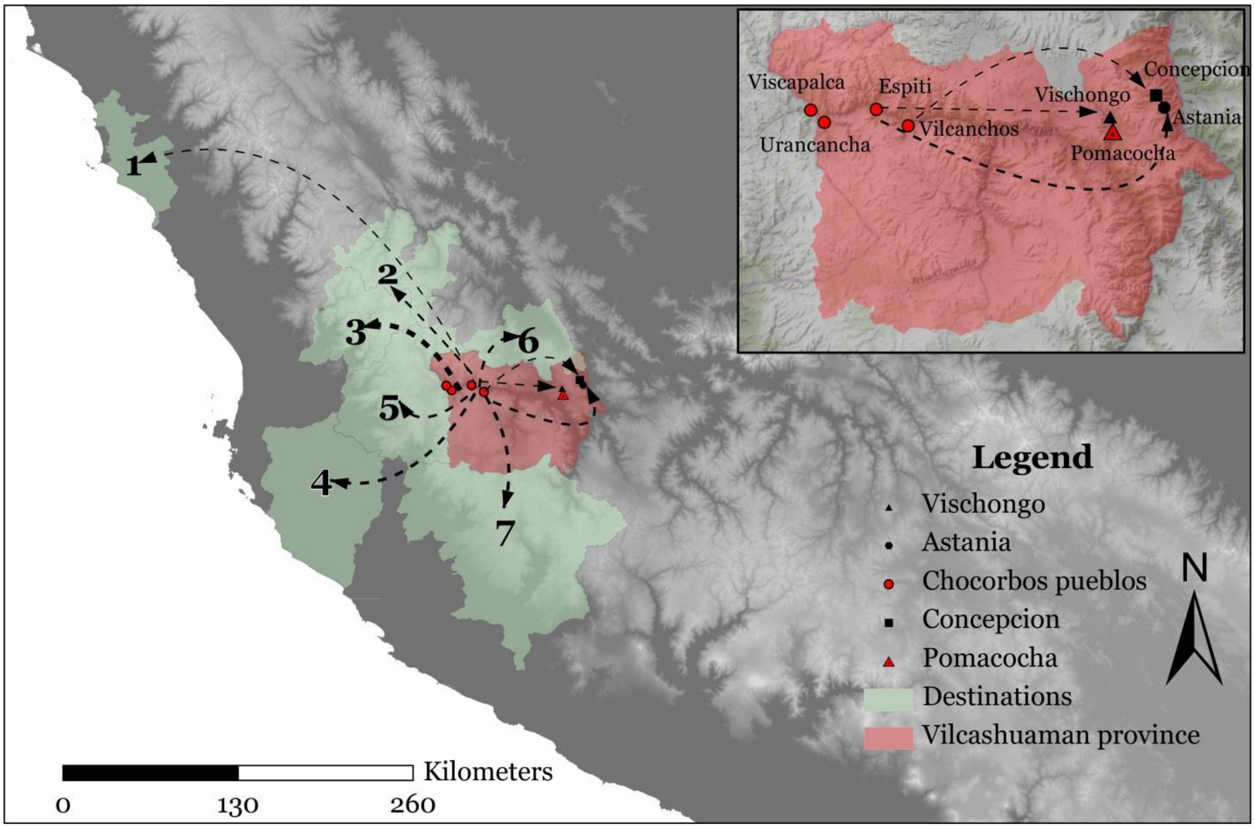

Figure 9.19: Known destinations (at the provincial level) of absentees from the *repartimiento* of Chocorbos, province of Vilcashuamán. Line thickness is proportional to the number of individuals. Inset is detail of the known destinations within Vilcashuamán province. Key: 1=Lima, 2=Huancavelica, 3=Castrovirreyna, 4=Ica, 5=Huaytará, 6=Huamanga, 7=Lucanas.

Table 9.9: Absentees from the *repartimiento* of Chocorbos and their corresponding possible entries in the Condes de Pacomarca census (1684-1684).

Name and surname	Pueblo	Age	Name and Surname	Alleged pueblo	Registered pueblo	Age
Sebastian Sullca	Vilcanchos	20	Sebastian Sullca	Concepción	Obraje of Pomacocha	35
Pedro Anay Guaman	Espiti	34	Pedro Guia(?)	Astania	Chumbes (indios forasteros)	42
Lorenzo Ritis	Vilcanchos	20	N/A	Vischongo	Missing	N/A

An important discovery from the Chocorbos return was that surnames were inherited bilaterally: fathers passed down their surnames to their sons and mothers passed down their surnames to their daughters. This phenomenon was consistent across birthplace, origin, status (*originario* versus *forastero*), and *ayllu*, suggesting it was not a localized phenomenon. Complementarity was an important principle in the division of labor between men and women in the pre-Hispanic and colonial Andes (Silverblatt 1987), and such bilateral inheritance may have been one manifestation of complementarity in the colonial Andes. Surnames did not exist in the pre-Hispanic Andes, but it appears that masculine and feminine native names started becoming heritable toward the end of the sixteenth century, effectively functioning as surnames (e.g., Alfaro *et al.* 2005). In another example of names or surnames reflecting male and female lines of inheritance, Frank Salomon and Sue Grosboll demonstrated that in the settlement of Sisicaya in Huarochirí province in the late sixteenth and early seventeenth centuries, males and females were given gendered names based on the names of male and female ancestral *huacas* and according to birth order. There was also a geographic distintction between lowland *yunka* female *huacas* and highland male *huacas* (Salomon and Grosboll 2011). Bilateral inheritance of surnames may have been common in the colonial Andes, especially in the sixteenth, seventeenth, and early eighteenth centuries. Census returns from Casabindo (puna of Jujuy, Argentina) in the sixteenth and seventeenth centuries show evidence of the heritability of female and male native names (*ibid*). The sister of the *casique* of the Condes de Pacomarca repartimiento in the late sixteenth century, Don Juan Huchapaucar, Doña Beatriz Inquillay Guarcay's surname was Inquillay, a common female surname also present in the 1683 Chocorbos census. Female surnames such as Sissa or Inquillay were never assigned to males in Vilcashuamán censuses. The meanings of both surnames are related to flowers. The Spanish probably tolerated this practice because women did not need to be individually identified for the labor draft system. Nevertheless, if the female has Spanish paternal ancestry, Spanish surname conventions always applied.

As with surnames in Casabindo, bilateral heritability of surnames was gradually replaced by the Spanish convention sometime in the eighteenth century. In the province of Vilcashuamán, we have evidence that by 1716, children started inheriting only their father's surname, which led to the decline of female surnames such as Inquillay and Sisa (AGN, Obraje de S/n Juan de cacamarca Anexo de la Doctrina de Bischongo, de esta

Prov./a de Bilcasguaman...Revisita que en Veinti quatro de febrero de mil setesientos y diez y seis, Derecho Indígena, Legajo 14, Cuadro 238, 1729). The changing naming conventions did not necessarily imply that male versus female migration patterns were affected. Because the evidence we have for changing naming conventions came from a census of the *obraje* of Cacamarca, it raises the possibility that administrators of obrajes may have encouraged or imposed Spanish naming conventions on their workers.

Female children, like male children, were almost all born in the *repartimiento* of Chocorbos. Compared to adult men, adult women's origins were overwhelmingly local to the *repartimiento* of Chocorbos. Information about birthplace and origin for adult females married to *forastero* men was less systematically recorded. For the information that does exist, adult females married to *forasteros* were also overwhelmingly *originarias* from the Chocorbos *repartimiento* (27/28=96%). Another line of evidence that the vast majority of the adult females were likely local natives was that surnames of the females with uknown origins were the same as those who were local natives. Furthermore, female surnames exhibited lower diversity than male surnames, supporting the hypothesis that there was more female endogamy, but the difference was not drastic. Males had 84 unique surnames to a total of 188 surnames, resulting in an index of 0.48 (91/188). Females had 55 unique surnames to a total of 144 surnames, resulting in an index of 0.38 (55/144). The difference is statistically significant (two-tailed p-value=0.037). The Chocorbos return also showed how family structure was diverse. Grandparents, uncles and aunts, or unrelated adults often had non-biological children under their charge as "intenados." An inconsistency mentioned before was that some couples were too old to have the babies listed as their biological children, raising the possibility that many hidden tributaries had given old couples official charge of their children to better hide themselves from the census. Thus, native society in Vilcashuamán province was complex, but not chaotic. The complexity frustrated census takers and lent flexibility in resisting exploitation. The Chocorbos return showed strong evidence of circulatory patterns of migration. Migration did not have to be long-distance to be effective against labor exploitation or census-taking. Fleeing to local Spanish businesses or even moving elsewhere on communal lands can frustrate census takers (Wightman 1990a).[135] Most migration, for men, involved circuits among neighboring provinces, which had intense Spanish economic and political penetration, and generally was not fleeing to pagan places outside of Spanish control (Evans 1981; Powers 1995; Wightman 1990a; Zulawski 1985).

From the 1683-1684 Chocorbos census data, one can construct a plausible general model of native migration in Vilcashuamán province. Contrary to the notion that all natives preferred staying in one's ancestral community unless other pressures were brought to bear (e.g., Mumford 2012: 58), it seems that migration was not reactive, but proactively pursued, especially by young adult males, as a general practice. A

[135] See also AGI, Respuesta fiscal de 19 de Octub/e de 1696 sobre la *mita* de Guancabelica, R.or Villagutierrez, Lima 469, 1696.

significant portion of the population was hidden in censuses or were vagabonds not resident anywhere (Wightman 1990a). The fact that *forasteros* made up on average a quarter to a third of the total censused population shows that perhaps half or more of the adult male population had migrated or were migrating. Migration was rampant, but did not "destructure" native society. Migration was also patterned, in that people migrated to places where kin had already migrated to, and migration occurred in a circulatory manner, hopping from province to province. Knowledge regarding favorable working conditions travelled in this manner. Because the major economic activities all involved long-distance trade, migration, short-term and long-term, was an essential part of the economic activities of native populations. The regional pilgrimages, such as the one to Cocharcas, drew people of all castes from the same areas and were prime occasions to reconnect with kin from distant areas. As more people migrated, the more attractive migration became because the web of knowledge of favorable living conditions expanded and knowledge travelled more quickly with a larger migrating population.

Women were more likely to remain in the general vicinity of their origin and birthplace, and it is probable that women played a paramount role in keeping communal lands under their control. In the land title documents relating to Pomacocha, we found incidents of native and *mestiza* women owning land that had belonged to their native ancestors (see chapter eight). Forasteros marrying *originario* women could have been one of the mechanisms to eventually acquire usufruct rights to communal land. For example, in the *doctrina* of Sancos (Vilcashuamán province), a community of Indians from the province of Jauja had lived there since at least the 1680s as an *ayllu* called Luringuanca.[136] In the 1729 census, they were listed as the ayllu of "Xauja, Luringuancas y Hananguanca," suggesting that by this time, more had migrated from the province of Jauja (note the additional *ayllus* of 'Xauja' and 'Hananguanca'). They were *forasteros* without access to communal lands.[137] Eventually, by 1772, the *forastero ayllu* had become an *originario ayllu* called "Sauxa" with access to communal lands.[138] The persistence of certain *ayllus* through many generations even as migration was rampant may be explained in part by the stabilizing presence of native women, who held a place, literally, for migrating men in native communities. We know that elite Tanquihua women were fighting against encroachment of their ancestral lands (see 9.1.3). Commoner native women must have occupied communal lands to preserve usufruct rights and provide incentives for *forasteros* to marry and eventually gain rights to communal lands. It is important to note that this pattern of migration may have been an innovation around the mid-seventeenth century or not practiced everywhere. Salmon and Grosboll (2011) argued that in Sisicaya in Huarochirí province in the central highlands, kin-based society was endogamous and a 'shrinking web' toward 1600.

[136] ARAY, Los Indios de la Provincia de Villcas Guaman al D/r D. Thomas Alexo del Cepedaza D. Manuel Juan de Zarate, Notariales, Francisco Blanco de Cassazua, Legajo 28, ff. 1249r-1250r, 1682-1685.
[137] BNP, Provisión de retasas…Totos de Quispillatas, C2073, f. 8v, 1738.
[138] BNP, Provisión de retasas…Sancos, Chávez, Barrientos, C2792, ff. 5v-6r, 1772.

The longevity of *ayllus* can be seen, for example, in the *pueblo* of Vischongo, which had many *ayllus* listed in 1683: Atapillo, Secos, Conde, Collana yauri, Quero, Antta, Yunga Muchic, Pariamarca, and Paras. The presence of so many *ayllus* for a population of ninety-nine *originario* tributaries, or a total population of around four to five hundred people, suggests that the community was an aggregation of diverse groups. In 1772, nearly one hundreds later, two of the Vischongo *ayllus* persisted: Collana and Antta.[139] Thus, the complementary strategies of native men and women helped ensure cultural and biological persistence in the face of overwhelming exploitation. Far from disruptive to native society, migration continually revitalized it, allowing people to anticipate, not just react to, changing conditions. Migration worked hand-in-hand with legal strategies of resistance, and both showed remarkably consistent knowledge of effective strategies and language over the whole Andes. Great changes occurred in native society, but such changes worked to preserve the heart of traditional moral economies and *costumbre*.

Does the model of migration based on the Chocorbos census apply to later Vilcashuamán censuses? Unfortunately, none of the later censuses were as detailed as the Chocorbos census, so we do not have information about origins, birthplaces, and ages of women and children. Theoretically, it should be possible to track migrations within the Vilcashuamán province between 1719 and 1729 by comparing the names and ages of the tributaries, but there was little continuity between the 1719 and 1729 censuses. In fact, only 391 out of 1457 individuals in 1719 even had their name and surname combination exist in the 1729 census. Out of the 391 individuals whose names and surnames were present in the 1729 census, only 213 of those likely referred to the same person and not just a coincidental match. There were 690 individuals in 1719 ages 18 to 39, individuals who should have shown up in the 1729 census, but only 163 of the 690 had probable matches in 1729. The individuals whom I judged to be a match between the censuses were judged along the following characteristics: 1) in both censuses, the name and surname combination was unique, 2) in both censuses, the individual lived in the same pueblo or a nearby pueblo, and 3) the age difference of the individual between the censuses was reasonable. The 213 individuals I identified obeyed at least two out of the three characteristics. Due to the high proportion of unique surnames and the relatively low tributary numbers, it was generally easy to match individuals because two individuals sharing the same name and surname was unusual. The biggest obstacle to comparison was the negligent registering of ages, as we had discussed before. Many individuals were younger in 1729 than they were in 1719. Even if we account for high mortality due to the epidemic and aging population, continuity between the censuses is much lower than expected. The lack of continuity between censuses was likely due to a combination of high mortality, migration to other provinces, and hiding of tributaries in 1719.

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[139] BNP, Provisión de *retasa*…Condes de Pacomarca, C2763, ff. 6r-6v, 1772.

Out of the 213 individuals who existed in both the 1719 and 1729 census, thirty-seven were listed in a different community in 1729. To better understand the networks of internal migration, I used the software Gephi version 0.8.2 for network analysis. The two specific analyses run on the migration network were betweenness centrality and modularity (cluster) analysis. Each node on the network is a community and each edge (line) represents migrations. The thickness of the line is proportional to the number of migrations made between the two nodes/communities. Betweenness centrality is a measure of how central to the entire network a node is and is quantified by the number of times that particular node is encountered between any other two nodes (Jenkins 2001: 663). High betweenness centrality is a good index of how central a community was in migration networks. The modularity algorithm in Gephi identifies clusters of nodes that are more densely connected to each other than to other nodes in the network (Blondel *et al.* 2008). For our purposes, the resolution of the modularity analysis was set at the default value of 1.0. The purposes of the network analysis are two-fold. First, it can give clues to how internal migration within Vilcashuamán functioned. Because the devastating earthquake of 1719 and Great Andean Epidemic of 1719-1726 occurred between the two censuses, we can also test whether the migration patterns identified from the 1683-1684 Chocorbos census were similar to the patterns identified through network analysis. Specifically, did men tend to migrate outside of their *repartimientos*, which would have frustrated census-taking in the reassessment of tax and labor obligations? Second, the network analysis can identify communities that were more central in the migratory circuits. The hypothesis from the Chocorbos analysis was that Spanish economic enterprises such as *obrajes* and *haciendas* were engines of migration, both drawing people in and pushing people out.

Results of the network analysis are consistent with previous analyses: the migration communities (clusters) were not geographically clustered (Figure 9.20). In just a ten-year interval, at least 17.4% (37/213) of the adult male population who remained in Vilcashuamán province migrated to a new community. The real percentage is likely much higher, given the pervasive hiding and number of discrepancies in census-taking between the two censuses. Migration within one's home province has several advantages to migrating longer distances. First, one can remain close to one's fields and kin, ensuring that the lands will not be usurped by others. Second, travel time in evading census-taking is reduced, making it less costly to evade the census. The reassessments of tax occurred between the infrequent general censuses and were carried out independently for each *repartimiento*. Thus, one could evade tax assessments by migrating temporarily to a new *repartimiento* within the same province. Recalling Pomacocha's example, workers temporarily fled the *obraje* only to return en masse when Friar Gómez was reinstated as the administrator, which suggests that they could not have migrated far. It also means that when Friar Gómez was reinstated, news travelled quickly and the workers returned.

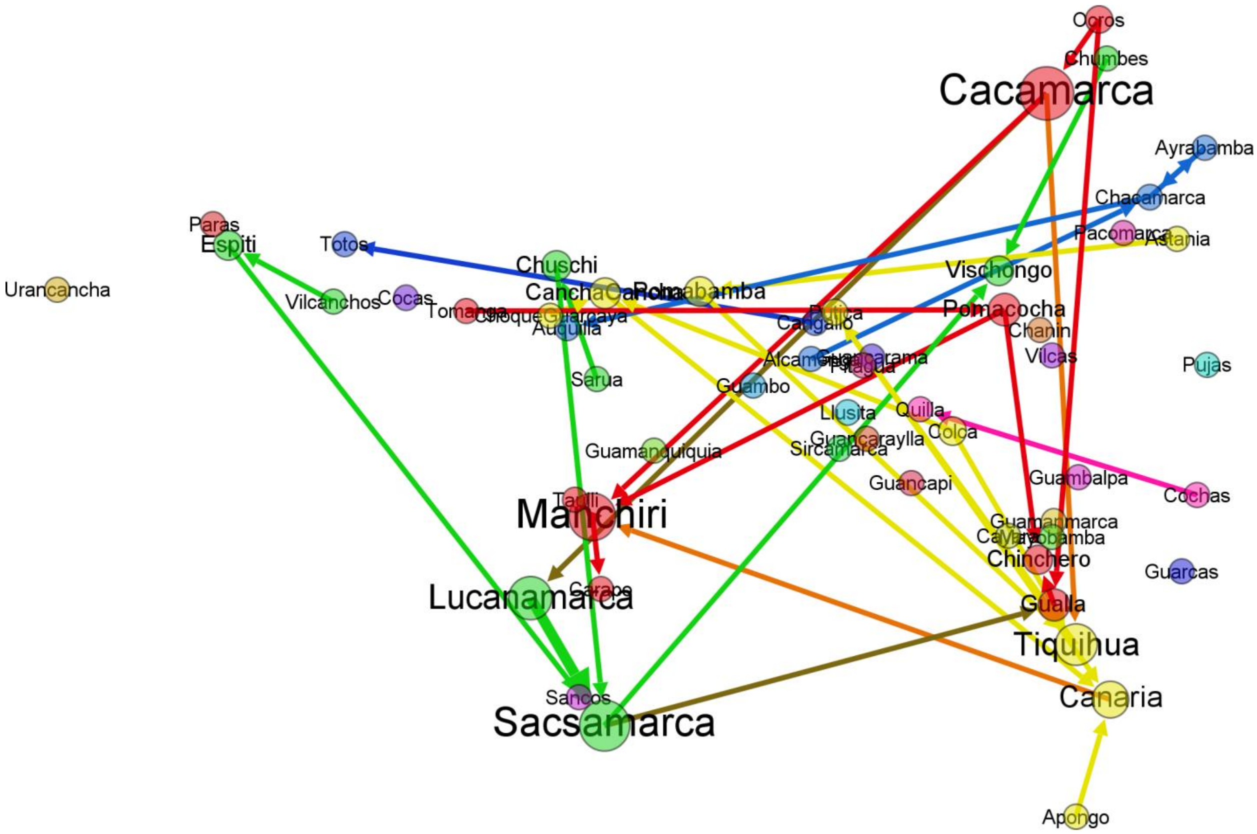

Figure 9.20: Migration network of internal migration in Vilcashuamán province depicted in geographic layout (1719-1729). Size of nodes and names of community is directly proportional to betweenness centrality. Colors represent different clusters of densely connected groups of nodes.

Another view of the network, applied through the Force Atlas option in Gephi, shows that all the *obrajes*, Cacamarca, Chinchero (Chincheros), and Pomacocha were part of the same migration cluster (Figure 9.21). This migration cluster (in red), was situated between the two other main migration clusters in green and yellow, showing the centrality of obrajes in driving migration between 1719-1729. We know that in times of economic prosperity and *costumbre*-respecting administration, *obrajes* attracted people from all over, including from other provinces. The migration network presented here sheds light on the nature of migration in times of hardship when people generally fled *obrajes*.

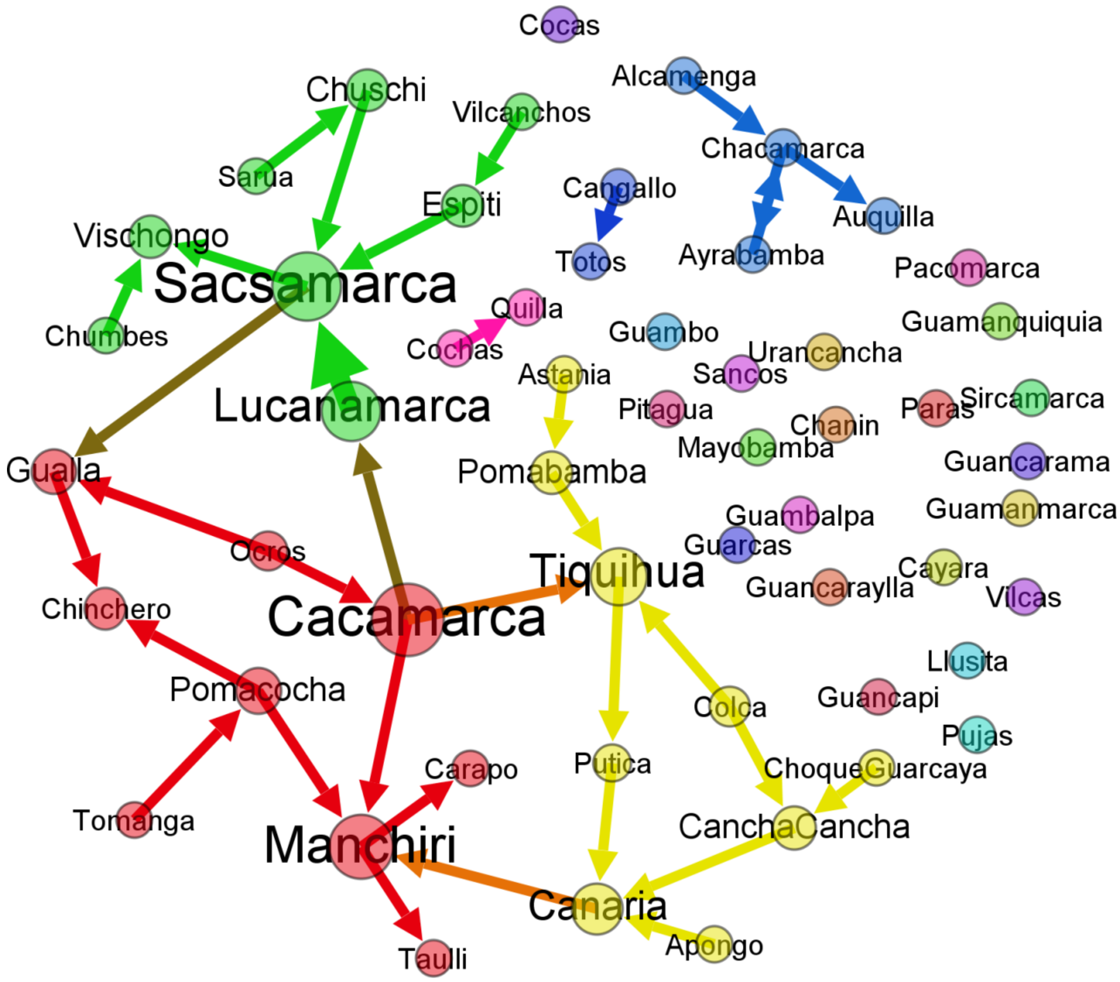

Figure 9.21: Network of internal migration in Vilcashuamán province depicted in Force Atlas layout (1719-1729). Size of nodes and community names is directly proportional to betweenness centrality. Colors represent different clusters of densely connected groups of nodes.

The communities with the highest betweenness centrality were Cacamarca (*obraje*), Manchiri, Lucanamarca, Sacsamarca, Tiquihua, and Canaria. People mostly migrated away from the large Spanish economic enterprises after the earthquakes and epidemic, which is fully consistent with historical data about the ruin that these enterprises were in at this time. People aggregated in native communities that already had sizable populations, suggesting that the demographic collapse may have encouraged people to abandon the smaller demographically desolated *pueblos* to *pueblos* that still had some people. Migration was mostly exogamous. We find that for Vilcashuamán province, most migrations, at least 68% (24), were to different *repartimientos* (Figure 9.22). Five out of the eleven migrations to the same *repartimiento* pertained to the Condes de Pacomarca. As the Condes de Pacomarca *repartimiento* had the lightest labor obligations to Huancavelica, this could explain why more people were willing to remain. There were also four internal migrations pertaining to the Quichuas Quilla Sacsamarca *repartimiento*. However, all the individuals who had migrated were native leaders exempt from the *mita* to Huancavelica to begin with, so they would have no strong incentive to move *repartimientos*.

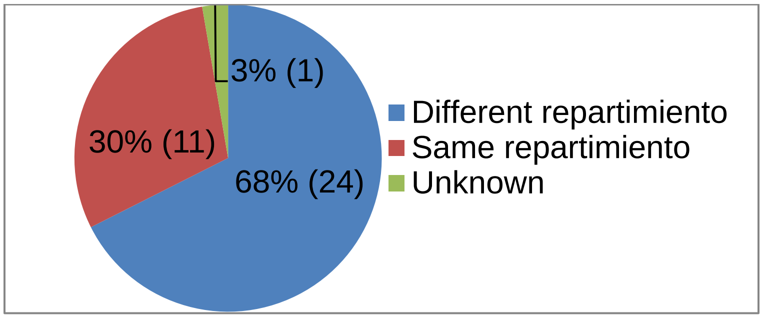

Figure 9.22: Pie chart of migration destinations by *repartimiento* in Vilcashuamán province.

A network analysis of the migrations among Vilcashuamán *repartimientos* shows the circulatory and exogamous nature of migration (Figure 9.23). To generate three clusters, the resolution was set at 0.7, but as one can see from Figure 9.23, the thickness of connections among the repartimientos resulted in weak clusters. Overall, the *repartimiento* of Quichuas Quilla Sacsamarca saw the most in-migration after the demographic crisis of the 1720s and had the highest betweenness centrality, which makes sense because it was also the most populous *repartimiento* in the 1729 census. The *repartimiento* of Condes de Pacomarca was the second most populous and had the second highest betweenness centrality. The migration network presented here is only the tip of iceberg, as most migration was visible in the censuses because many simply disappeared or were never recorded.

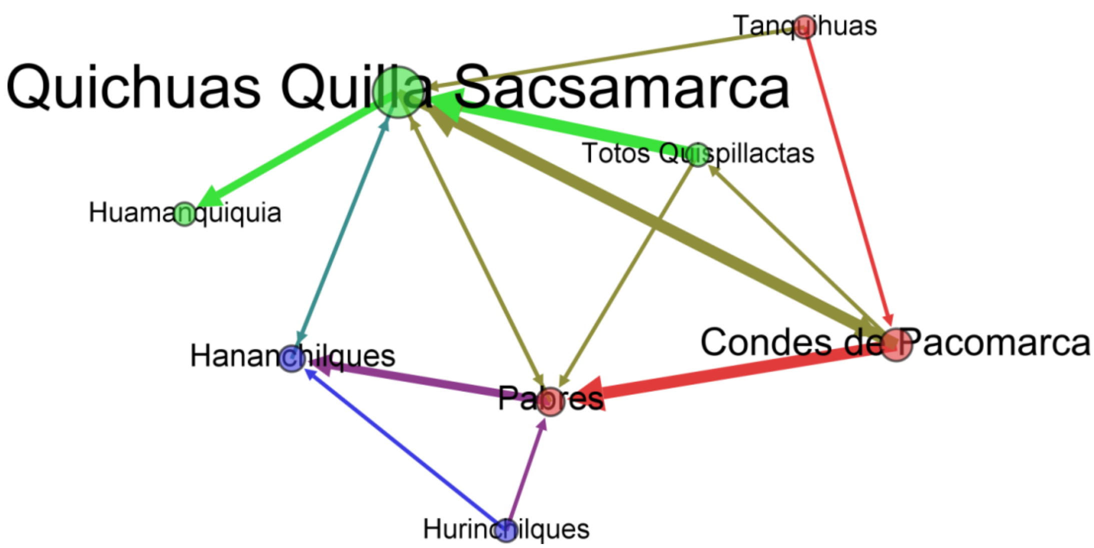

Figure 9.23: Network of migrations among different *repartimientos* in Vilcashuamán province (1719-1729). Size of nodes and names of *repartimientos* is directly proportional to betweenness centrality. Node colors represent different clusters.

The exogamous population structure, at least for males, was also evident in an analysis of surname similarity among the *repartimientos*. To analyze the degree of surname similarity, I employed Lasker Distance analysis. Lasker Distance is based on the Lasker coefficient of isonymy, which was defined as "the probability of members of two populations or subpopulations having genes in common by descent as estimated from sharing the same surnames (Lasker 1985:142)." Lasker Distance is a measure of dissimilarity or distance between any two populations of surnames and is calculated as:

L_{AB}= -ln(2R_{AB}), where R_{AB}=(p_{iA} x p_{iB})/2 and where "p_{iA} is the relative frequency of the *i*th surname in population A and p_{iB} is the relative frequency of the *i*th surname in population B (Longley *et al.* 2011: 575)."

Because heritable surnames were the norm in Vilcashuamán province from at least the early seventeenth century, Lasker Distance analysis is an appropriate methodology to use to delineate cultural or genetic similarity (Cheshire *et al.* 2011; Longley *et al.* 2011). Great Britain, for example, shows remarkable endogamy in surnames, with clearly delineated geographic clusters emerging from surname similarity (Longley *et al.* 2011). The surname regions corresponded to cultural and genetic regions of similarity (*ibid*). We know that at least some Andeans, for example in Colcatona (Cuzco), recognized that surname similarity meant kinship and friendly relationships (Stavig 1998: 113). Surname analysis revealing cultural similarity also has precedent in studies about the colonial Andes; Frank Salomon and Sue Grosboll (1986) analyzed names and surnames in Incaic Quito to reveal cultural changes and dissimilarity.

To calculate a Lasker Distance dissimilarity matrix, I first standardized alternative spellings of surnames (e.g., Puma and Poma being the same surname) of the relevant censuses. I then ran the package "Biodem" in the statistical software R, which has a function (lask.kin) to calculate a matrix of Lasker coefficients of isonymy. I then converted the Lasker coefficients into a matrix of Lasker Distances. I then loaded the Lasker Distance matrix into the statistical software PAST (Paleontological Statistics software package for education and data analysis) version 3.04 to generate a Principal Coordinates Analysis of *repartimiento* similarity. I then used the first three principal coordinates to generate a ternary plot of all the *repartimientos* that had a large enough sample size to compare (Figure 9.24). The first Principal Coordinate's eigenvalue is 169.9 (70.9%), the second Principal Coordinate's eigenvalue is 20.0 (8.3%), and the third Principal Coordinate's eigenvalue is 14.3 (6.0%).

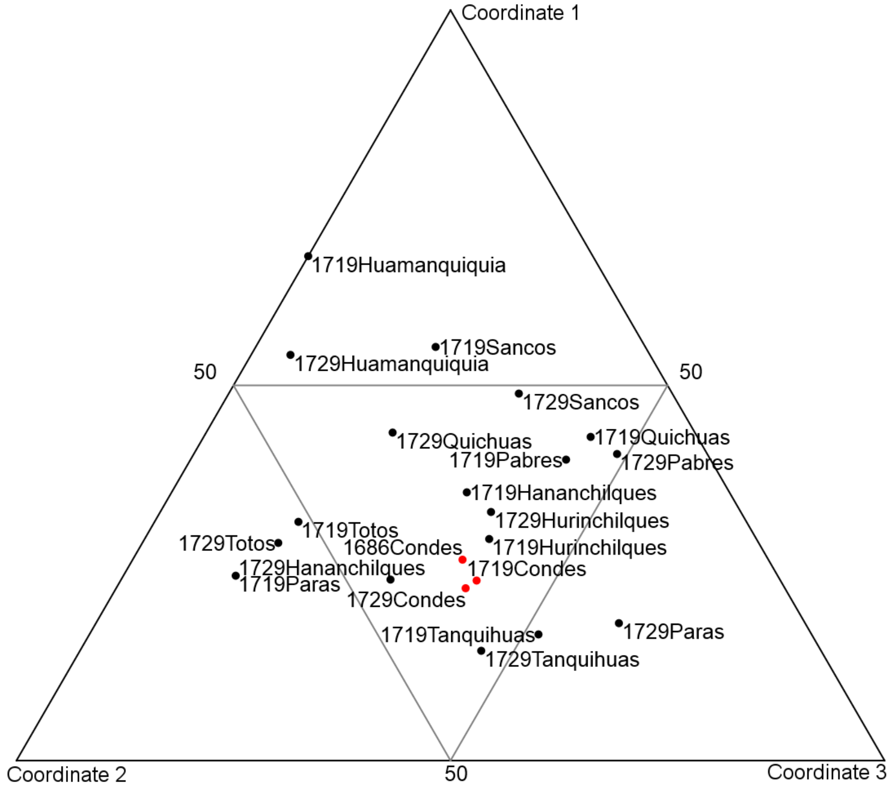

Figure 9.24: Ternary plot of *repartimiento* similarity (1719 and 1729 censuses) derived from the first three Principal Coordinates of Lasker Distance analysis. The repartimiento of Condes de Pacomarca is highlighted in red and includes data from 1683 as well.

In the ten or so intervening years between the 1719 and 1729 censuses, some *repartimientos* experienced more dramatic changes than others. What is clear, though, is that the distance between the same *repartimientos* over time is comparable to the distance between different *repartimientos* in the same census year. Overall, the *repartimientos* were quite similar based on their surnames, which is consistent with exogamy. The *repartimiento* of Condes de Pacomarca showed remarkable continuity through time, which is consistent with previous analyses showing that due to the Condes' privileged status regarding exemption from the Huancavelica *mita* and other mining obligations, tributaries of this *repartimiento* had more incentives to stay. Most migration done by males in the Condes *repartimiento* may have been internal. The *repartimientos* that diverged the most from the others were the Tanquihua and Huamanquiquia; both *repartimientos* were heavily burdened by the *mita* to Huancavelica as the vast majority of their male tributaries were eligible for this labor draft (100% and 88%, respectively, of male tributaries were eligible in 1739), so migration to those *repartimientos* may not have been attractive to outsiders. Even these two *repartimientos*, however, became more similar to the others in the interval between 1719 to 1729. Although migration occurred at all times, the demographic crisis of the

1720s may have accelerated it. The demographic crisis also accelerated long-term processes of building new kinship networks over the larger social landscape, breaking down any regional Inka-period ethnic boundaries. Thus, even though intra-community and intercommunity tensions arising from differences in ethnic origin may have continued, there was little geographic contiguity in such tensions due to the numerous overlapping exogamous kinship networks over the wider landscape. The new kinship networks also accompanied more vocal and frequent legal challenges to labor exploitation, and the seeds for a wider political consciousness among native laborers were planted for the age of rebellion in the late eighteenth to early nineteenth centuries.

9.3 Conclusion: *Obraje* of Pomacocha as both prison and refuge

In this chapter, I explored two facets of the *obraje* of Pomacocha, as a labor institution and as part of larger, long-term processes of social change. Pomacocha, and similar *obrajes*, were both prisons and refuges against even more exploitative labor institutions such as the Huancavelica mercury mines (Salas 1998a). First, I closely examined how labor organization and architecture of the *obraje* of Pomacocha and of *obrajes* in general was organized by administrators to turn its workers into dependents with limited mobility. Practically, however, daily life in the *obraje* of Pomacocha was dramatically different depending on the strategy of control employed by the administrator. Strategies of control ranged from paternalism, to divide-and-conquer strategies promoting inter-caste animosity, to brutal incarceration and corporal punishment. The degree of success of the strategies varied, with paternalism resulting in the most economically viable approach (Salas 1998a: 527). When coercive strategies were used, workers threatened absenting en masse. Second, I showed how *obrajes* and other Spanish economic enterprises were engines of continuous migrations. Contrary to contemporary Spanish attitudes that native migration desolated native society, it helped counteract the effect of periodic epidemics, high mortality, and death trap mines. Furthermore, migration culturally revitalized native society, as strategic migration helped keep dynamic native traditions alive in the heart of Spanish colonial economy in the highland Andes.

Like other Spanish labor institutions, *obrajes* like the one at Pomacocha aimed to turn natives into a stable, dependent *yanacona* workforce, a process that began at the beginning of the seventeenth century (Salas 1998: 372-374; Stern 1993: 143, 190). Despite the crude technology of the *obraje*, the social and spatial engineering of racialized labor hierarchies for maximizing profit was sophisticated. Although the *obraje* did not share the same rationale or economic efficiency as a true capitalistic factory (Salvucci 1987: 43-44), it foreshadowed the techniques of control of the prisons and factories that came later. The racialization of labor organization was inscribed on several levels. First, the *obraje* was a manifestation of the same Enlightenment ideals of reforming the soul through orderly work (Casella 2007: 8; Foucault 1995 [1977]). Second, violent actions, such as whipping, forcible capture and conduction of workers to the *obraje*, were the responsibility of people from the *mestizo*, *mulato*, *sambo* or *negro* castes. The public corporal humiliation naturalized the animosity between the *indios* and the other castes. Third, by categorizing all males of the *indio* caste as lazy, prone to drunkenness and violent rebellion, the Spaniards could rationalize exploitation by arguing that the *obraje* benefitted the natives spiritually and protected the Spaniards from physical harm.

The strategies of resistance at Pomacocha show that the workers were not the lazy, unintelligent brutes that the Spaniards both feared and pitied. The workers of Pomacocha capitalized on whatever opportunity there was to lessen the burden of the colonial system. When there were severe labor shortages after the Great Andean Epidemic and earthquakes, they coordinated filing a legal complaint and fled the *obraje* en masse. Although all workers at Pomacocha were considered *forasteros* when the *obraje* first opened, they quickly developed a distinct political identity from Vischongo, their parent *pueblo*, and became *originarios* of Pomacocha by the 1719 census. Their leaders were elected and well educated in the proper forms of legal discourse, which was helped by the formal training of a Spanish tutor provided by the central government and reinforced by long-distance kinship networks. The workers defended a *costumbre* that emphasized paternalistic relationships between the administrator and the workers. Protection from the Huancavelica mines, payment of the workers' cash tribute, punctual and transparent payment, rest on Sundays and holidays, and reasonable work hours were the customary duties of the administrator. Day in and day out they worked together, ate together, slept on the same premises, were taught Spanish by the same teachers, went to mass together, and celebrated holidays together. Working in confined quarters with the same people every day helped the workers of Pomacocha develop solidarity with one another, which helped morale even at the most abusive of times.

The pervasive attitude that native migration was essentially a passive reaction to exploitation did not match social reality. Contrary to the colonial stereotype that most natives absented to pagan areas outside of Spanish control, the vast majority of absentees became *forasteros* in neighboring areas, especially in the heart of the Spanish colonial society (Wightman 1990a). A significant number were also hidden within their own communities. In contrast to Scott's (2009) emphasis that people fleeing the exploitation of state societies flee to areas outside state control, the data from Vilcashuamán province and elsewhere in the Andes show that fleeing and hiding *within* areas of state control was probably more prevalent in pre-Industrial societies. Borchart de Moreno (1995) had a similar thesis. She argued that in fleeing from the *mita*, natives attached themselves to *haciendas* and *obrajes*. Becoming a more capitalistic proletariat was a form of resistance. For the natives of Vilcashuamán province, ritual ties to local landscapes were very strong. Their social and physical landscapes provided spaces for natives to maneuver in the Spanish state. Because of the difficult, mountainous terrain of Vilcashuamán province, it was relatively easy to hide close to home, and one only needed to flee a short distance to enjoy the full benefits of becoming invisible to the state. Men may have been more mobile than women, who likely stayed around their natal communities to secure land rights. Thus, the wider social landscape became more integrated, and loss of communal lands was mitigated after the late seventeenth century. Indeed, in the land title documents of Pomacocha and Vischongo, none of the native or *mestiza* female proprietors were responsible for the loss of ancestral lands, always the men. Vischongo did not lose any more significant chunks of land to the Spaniards in the eighteenth century, when this migration pattern would have been in full effect.

Native resistance in Vilcashuamán province was not passive. Passivity implies reacting to something that already happened, but we see that native workers anticipated and preempted exploitative policies. They actively protected *costumbre* and employed diverse strategies, legal and migratory, to achieve their aims. Furthermore, their strategies and legal complaints do not coincide well with the height of abuse, but rather with whenever opportunities presented themselves. Native workers at Pomacocha and at other Spanish economic enterprises were well aware of the proper *costumbre* of labor conditions, and the threat of flight combined with almost perpetual labor shortages actually led to better labor conditions overall. Labor shortages were caused by demographic crises resulting from epidemics, but they were also actively maintained by strategic migration. Thus, rather than the Spanish colonial state acting on passive subjects, the complex political and economic negotiations that happened on the local level forced the state to react, and mostly unsuccessfully so. The implications are that Spanish society in Vilcashuamá province changed as much as or even more than native society as a result of the negotiation between strategies of control and resistance, as we will explore more fully in chapter ten.

Just because the native workers developed a diverse array of strategies to resist exploitation does not mean we should underestimate the exploitation of the colonial system. By emphasizing the workers' agency, we must be careful to not underestimate the effectiveness of a profitable *obraje* lest we trivialize the horror that was the *obraje*. An *obraje* at the height of profitability can absorb the losses incurred by worker sabotage and resistance as well as offer monetary rewards to loyal enforcers and bribes to officials. Hard liquor (*aguardiente*) was provided to the workers to increase dependence and to help take some of the sting out of exploitation (Salas 1998a: 432). Coordinated violent resistance could carry a high cost: one needed to weigh the threat of punishment by lashing, imprisonment or death with the relatively privileged position of workers in a *costumbre*-respecting *obraje*. The infrequency of coordinated violent resistance at the height of profitability, not just at Pomacocha, but at *obrajes* in general, attests to the effectiveness of the architecture of control and social division of *obrajes*. According to Owensby (2013: 149), the widespread acceptance of *costumbre* during Hapbsburg rule could explain the infrequency of rebellions during this period: "The infrequency of rebellions in a place lacking a standing army or a permanent constabulary suggests that the matrix was widely accepted." In the next chapter, I refute the Spanish colonial idea that coerced labor in *obrajes* was necessary to suppress treachery and laziness in the natives. Obrajes unwittingly did more to facilitate social landscapes that were more suited to resistance and hastened the economic decline of the Spanish colonial empire.

10 Pomacocha and the globalization of revolt 1760-1840

The 1770s-1780s was a time of serious challenges to colonial regimes globally. The Andes saw a wave of forceful revolts and rebellions that began to be more coordinated among various groups, most famously as the Tupac Amaru II rebellion in Lower Perú (modern Perú) and the Tomás Katari/Tupac Katari rebellions in Upper Perú (modern Bolivia). A defining characteristic of the period 1770-1840 was the globalization and regionalization of revolts. I argue that the *obrajes* such as the one at Pomacocha helped reinforce long-distance social ties, which did not break down when *obrajes* began to decline in profitability due to the Industrial Revolution in Europe. The absolute number of workers subject to coercive, hierarchical labor declined because fewer workers were shut inside *obrajes* and had more freedom to move over the landscape. During the long period of *obraje* profitability (1680-1760), long-distance social networks were created through the conduction of resources, finished goods, prisoners, and native labor. The social ties developed in the time of economic profitability underpinned alliances that would later pose serious forceful challenges to the functioning of the *obraje* of Pomacocha and other *obrajes* like it. Thus, alliance-building among castes improved in the absence of *obrajes* reifying inter-caste animosity. The alliance-building among castes and the wider social networks over the landscape were also strengthened by frequent local revolts, which in turn made coordinated rebellion more likely.

First, I explore how policies of the mature Bourbon period (post-1760) interacted with the decline of *obraje* profitability. The growth of a sizeable informal economy coincided with the growth of the native population not subject to large, coercive labor institutions such as *obrajes*. Second, I review forceful resistance in Vilcashuamán province prior to the forceful revolts at Pomacocha, specifically the 1774 Cacamarca *obraje* uprising, the 1780-1782 Tupac Amaru rebellion, and the 1787-1788 Vischongo revolt. Third, I review the revolts and participation in general rebellions of the workers of Pomacocha. Specifically, I explore 1) the 1793-1794 worker revolt that burned down of part of the *obraje*, 2) the usurpation and conversion of Pomacocha into an important rebel base during the Wars of Independence (1821-1824), and 3) the subsequent usurpation of the *obraje* of Pomacocha and its extensive lands by the native communities of Vischongo, Vilcashuamán, and Carhuanca from 1824 until at least 1833. To contextualize the revolts and rebellions, I discuss the economic networks of Vilcashuamán *obrajes* to understand how regional political alliances could have been possible in the first place.

In this chapter, I describe how alliance-building among the castes and over the wider landscape accelerated as the informal economy grew, and more recent immigrants from Europe became the common enemy of poor Spanish creoles, *mestizos* and natives.

Peninsular Spaniards dominated posts of power, were more economically successful and often did not respect the delicately balanced demands of *costumbre*. Peninsular Spaniards also brought with them a more racialized and adversarial view of natives, sparking further animosity among native commoners against them. Resistance became global in scope as well. Revolutionary ideas about equality and justice from France colored the narratives of commoners and elite alike, and news of other revolutions in the Caribbean and the United States emboldened those who were deeply unhappy about losing former privileges. I present a view from the bottom-up, from the perspective of the native commoners who were bore the brunt of exploitation. Specifically, I want to show how the native commoners of Vilcashuamán province, which was far from the Cuzqueño elite social world, participated widely in the Tupac Amaru II rebellion. While long-standing animosities among different native elite families did motivate much of the conflict at the elite level, the commoners who fought were motivated by the general groundswell of anger against violations of *costumbre*, the increase of taxes, and the *reparto* system of forced sale of merchandise. I show that although commoners cited local grievances for participating in general rebellion, they were unified by shared ritual understandings and common political culture (Flores Galindo 1987). Thus, social mobilization was underpinned by innovations in shared culture and social ties over the wider landscape.

The repeated activation of alliances over the landscape strengthened shared political consciousness among different native communities, which was crucial in the recruitment of natives and *mestizos* in social movements. In Vilcashuamán province new hybrid identities, such as the Morochucos who fought against the Crown, were forged in this long process of alliance building (Igue 2008). Pomacocha itself became a Morochuco rebel base in the Wars of Independence, and Simón de Bolívar, who championed the liberation of the Indian class, stayed there at least once.

10.1 Reforms of the mature Bourbon period and the globalization of conflict

Mature Bourbon period (post-1760 to Independence) reforms were reactions to the declining power of the Spanish Empire, both from foreign enemies and from local challenges to state power (Andrien 2001). Reeling from defeat by England in the Seven Years' War (1756-1763), the Crown was desperate to raise revenue and keep a tight hold on its colonies. French Enlightenment ideas about rational economics, emphasizing the taxability of all classes and the free market, gained currency (Ludlow 1995: 258). The Crown's desire to centralize political power provoked ire among all castes of colonial Perú against Europeans. The Crown's centralizing reforms were motivated by three main considerations. First, rampant corruption and disobedience of royal decrees deprived the Crown of significant revenue (see chapter nine). Second, the insecurity caused by the general decline of the prestige and power of the Spanish empire led to sweeping and heavy-handed reforms that negatively affected all non-Peninsular Spanish castes and led to a widening rift between rich and poor. Bourbon reforms rejected emphasis on *costumbre* and special privileges for different social groups, favoring rationalization and standardization of economic and political policy (Fisher 1970; Marks 2007; Owensby 2013). Third, animosity between Peninsular Spaniards and groups who considered themselves Peruvians or Americans (mainly creole Spaniards, indigenous natives, and *mestizos*) continuously increased from the mid-eighteenth century to Independence. Mestizos and creole Spaniards were indigenized to a greater extent in the late colonial period, which distinguished them culturally from the recent immigrants from Europe (Juan and Ulloa 1826; McFarlane 1998). Many creole Spaniards were impoverished and had to work in the same *obrajes* as the native commoners, which generated more shared hatred toward the Peninsular Spaniards who dominated positions of money and power (Salas 1998a: 435).

The main reforms were the legalization and expansion of *reparto*, the increase and extension of taxes, and the establishment of the Intendancy system. Perhaps the most hated reform was the legalization of the *reparto* (*reparto de mercancías* or *reparto de comercio*) in 1751-1756 (Andrien 2001: 202-203; Hurtado Ames 2006: 102; Jacobsen 1993: 93). Taken together, the reforms "angered virtually every group in Peru (Walker 1999: 23)." Reparto was a favorite practice of *corregidores*, the chief magistrates of provinces, to enrich themselves, and the practice expanded especially during economically depressed times of low demand for luxury goods. The two most common goods *corregidores* forced their native subjects to purchase were cloth and mules (Juan and Ulloa 1826). Given Juan and Ulloa's vehemence and previous royal decrees against this practice, why was the *reparto* then legalized? The practice of *reparto* had existed since at least the late seventeenth century (Robins 2002: 42). The illegality of the *reparto* did not dissuade its practice, because the same people charged with carrying out the laws were the ones who benefited the most from *reparto*: the *corregidores*. The Crown, seeing that a lot of potential revenue was lost, wanted to legalize *reparto* so that the practice could be regulated. The logic behind legalizing *reparto* was to stem the corruption of the *corregidores*, who spent hundreds and sometimes thousands of *pesos* to acquire their post and subsequently tried to recover costs by illegally imposing *reparto*. By legalizing *reparto* and setting a limit to the value of merchandise distributed, the Crown hoped it would be sufficient to dissuade *corregidores* from the worst abuses that led to localized revolts and rebellions in the 1740s (Garrett 2005: 122-123; Jacobsen 1993: 93-94).

Far from alleviating abuses and protecting revenue, the legalization of *reparto* concentrated more power in the hands of *corregidores* and *casiques*, who at this point were often *mestizo* and Spanish outsiders. The *corregidores* and *casiques* regularly far exceeded the value of goods they were allowed to distribute and continued to falsify tribute lists (*ibid*). The legalization of *reparto* led to another series of localized short-lived revolts (Elliott 2006: 357). The legalization of *reparto* destabilized elite cohesion because *corregidores*, *casiques,* priests and other elites all competed to extract money from native commoners and even *mestizos* and poor creole Spaniards. Native commoners often leveraged this competition in their legal complaints against abuses through alliances with one set of elites to effectively uncover abuses committed by another group of elites (Jacobsen 1993: 96). The legalization of *reparto* also increased the rift between the rich and poor, because of the intense competition of elites over capturing any surplus from native commoners. The increase in native population also increased class-based social conflict within native communities over the distribution of limited communal lands, which were already constricted by centuries of attrition (Hidalgo Lehuedé 1995; Stavig 1999). The important role of the *reparto* in triggering revolts and rebellions is a general consensus among scholars, but the social mechanisms that enabled the general, coordinated rebellions of the late colonial period are not well understood.

Overall, revenue from native tribute was never profitable for the Crown due to local corruption. The mountains of the Andes were high, and the emperor was far away. Because the incentives for corruption were great and enforcement of laws depended on local compliance that did not exist, the Crown had to find other ways of increasing revenue. To make matters worse, the Crown also expelled Jesuits from the colonies in 1767. Jesuits were widely regarded as efficient and *costumbre*-respecting administrators of economic enterprises such as *haciendas* and *obrajes* (Brown 1987; Juan and Ulloa 1851: 145). They were also less corrupt than other local officials and had been a reliable source of revenue for the Crown. The Crown saw the Jesuits' stunning economic success, respect for local customs, and overall autonomy as threats to economic centralization and rationalization (Ballériaux 2016). Their expulsion and replacement with European administrators with little respect for *costumbre* added to resentment against Europeans, especially among native workers who had enjoyed the *costumbre*-respecting administration of the Jesuits (see section 10.3). To increase much needed revenue, the Crown increased and vigorously enforced the sales tax of goods traded by non-Indians (*alcabala*) from two to six percent from 1772 to 1776 (Jacobsen 1993: 44; Walker 1999: 23).

The combination of imposition of European power, erosion of *costumbre*, and worsening labor demands on native commoners spectacularly backfired on the Bourbons in 1780s in the form of the Tupac Amaru II and Katarista general rebellions. As *obrajes* were both the source of many of the *reparto* products and the enforcement of punishment from *reparto* debts, they became prime targets of revolutionary anger among native commoners (Golte 1980; Walker 2014: 43). Among all groups of people who participated in the rebellions, the loss of old privileges was cited as one of the main reasons for joining. The proliferation of local grievances, common ritual horizons, and the speed by which mule drivers communicated the rebellions all contributed to popular participation (Flores Galindo 1976, 1987).

The general rebellions, as with Taki Onqoy in the sixteenth century, spurred emergency reforms. Most notably, the *corregidores* system was replaced by the Intendancy system and *reparto* was formally abolished after the General Andean Rebellions of the early 1780s (Walker 1999: 59-62). Corregidores were replaced by royally-appointed bureaucrats called Intendants who oversaw subdelegates, a system modelled after France. The new Intendancy system, established in 1784, was supposed to make local government more answerable to the Crown, but in practice, it was unsuccessful in stemming corruption by local elites and stamping out the again illegal *reparto* (Soule 2014: 94; Walker 1999: 61). As a part of the rationalization of society and in reaction to the indigenist rebellions, the Crown wanted to Hispanicize Indians by banning commemorative plays about the Inka and the wearing dress that distinguished them as Indian or Inka (Soule 2014: 94). The declining prices of locally-produced goods (especially *obraje*-produced cloth) owing to increased competition less expensive and higher quality foreign goods put additional pressure on local elites to increase the coerciveness of forced labor and use of *reparto* to maintain profits (Walker 1999: 24). The reforms did not stem the frequency of localized revolts and the potential for coordinated regional rebellions (Nuria i Vila 1996).

Debates over economic rationalization versus forced labor and distribution of goods dominated political discourse on governance since at least the seventeenth century. The proponents of an unfree economy usually won because coerced labor had benefitted the central government through mining revenues. Obraje owners, as they began to rely more on prison labor, also became more aligned with mining interests concerning the perpetuation of coerced labor. After the General Andean Rebellions of the early 1780s and with the worsening economic situation, however, arguments for economic rationalization became much more appealing to the Crown. The Viceroy Francisco Gil de Taboada Lemos y Villamarin in 1796 summarized the main political debate at the time:

> There is a debate between politicians, if it was, or can be beneficial, or prejudicial to the Indian, the widespread legalization of *repartos*; those who adopt the first opinion sustain their argument on the natural desire of this Nation requiring the motivation of debt, so abandoning laziness they dedicate themselves to work. Others feel, that those authorities connected to commerce, have the accurate end [being against] the condemned usury…by which the unhappy Indians receive goods at elevated prices, and that they do not need them for their agriculture, daily grinds, and other operations, [which is] against the principles of moral health, and politics, solid fundamentals of freedom.[140]

The two factions of the debate became associated with the acrimonious creole/European divide, with creoles favoring the traditional form of governance based on coerced labor,

[140] BL, Relation…by Francisco Gil de Taboada Lemos y Villamarin, Viceroy of Peru, Add MS 17582, ff. 45r-45v, 1796. Original: "Se ha hecho un problema entre los Políticos, si era, ó puede ser beneficio, ó perjudicial al Yndio, el amplio permiso de los repartos, fundandose los que adoptan la primera opinion, en que la Natural desidia de esta Nacion exhije el estimulo de la deuda, para que abando-/f.45v/ nando el ocio se dedique al travajo. Los otros sienten, que la autoridad enlasada con el Comercio, tiene por termino preciso la repovada usura, por que obligado por medio de aquella, á que los infelises Yndios reciban efectos á subidos precios, y que no necesitan para su Agricultura, tragines, y demas relatibo á sus operaciones, se exercita el gravamen, contra los principios de la sana moral, y Politica, solidos fundamentos del permiso."

and Europeans favoring more economic rationalization. Europeans disdained the creoles, whom they blamed for mismanagement of the colonies and oppression of Indians, calling them lazy, entitled, mixed-bloods, corrupt, greedy, resistant to innovation, prideful and jealous (see Juan and Ulloa 1826; McFarlane 1998). Creoles felt that Europeans were unfairly placed in most positions of power and were arrogant and incompetent immigrants who knew little of proper *costumbre* (McFarlane 1998; Walker 1999). Creole Spaniards, who were often considered "mestizos" by the Peninsular immigrants, often claimed royal Inka heritage to distinguish themselves from the Peninsular Spaniards and started to insist that they were "Americans" (McFarlane 1998: 322). With the racialized view of heritage, however, Peninsular Spaniards only held these genealogical sources of pride with contempt, hence the derogatory characterization of creole Spaniards as "mixed-bloods (*ibid*)."

Enlightenment-inspired ideas about race colored conflicts of the late colonial period, and Spaniards, *mestizos*, and natives alike used the language of extermination and caste war in their conflicts. Such attitudes were not entirely a European export. Spanish attitudes about the inherent character of natives as lazy and prone to treachery and native attitudes concerning the rejection of Hispanic culture and wiping out Spanish rule existed since the sixteenth century, but the invocation of race became more frequent and central in the late colonial conflicts than before. The *sistema de castas* "System of Castes" became more like a racial science during the late colonial period because it became concerned with precise terminology and attendant natural characteristics reflecting percentage of admixture (Martínez 2008). With most previous revolts, the native and Spanish elite generally treated native commoners as children who were led astray by other castes, especially *mestizos* and Spaniards (Owensby 2013). With the native rebellions of the late colonial period, we see people on all sides invoke the language of caste war and extermination, which raised the stakes for even local conflicts (Robins 2002; Stavig and Schmidt 2008: 183).

Native commoners were especially receptive to the language of caste war, something that the Katarista leadership had embraced, but the Tupac Amaru II leadership had rejected (Andrien 2001: 219; Walker 2014: 56). The language of caste war was allegedly invoked during the 1814-1815 general rebellion of the creole Spaniard José Angulo and native *casique* Mateo García Pumacahua. A contemporary had noted: "It had been declared the extermination of all people known as the class of Spaniards, so that only Indians remain in this province (Nuria i Vila 1996: 238)."[141] During the early part of the nineteenth century, a Spanish colonel (*teniente coronel*) named Don Fernando Cacho described the Indians as "very untrustworthy, false, liars, thieves, [and] bloodthirsty"[142] who waged "a war of desolation, a war of extermination, in which the

[141] Original: "…tenía decretado el exterminio de toda persona conocida de clase de Españoles, para que sólo quedasen indios en esta provincia…"

[142] Bancroft Library [BANC], Sobre el carácter de los indios del Perú segun lo pinto un militar español europeo, nombrado Dn. Fernando Cacho, teniente coronel, que sirvió en aquel pais en la guerra de la independencia de

color of the face would be the signal of destruction"[143] against all whites. According to him, Pumacahua told his followers before battle, "in defeating the troops, we should not let even white dogs live, and if our women are white, or if by some lineage descend from whites, they also have to die."[144]

If anything, the motivations of participants in the social movements of the late colonial period were contradictory. The language of caste war coexisted with French anti-monarchical thought, as well as the language of inter-caste cooperation to regain former privileges. In practice, creole Spaniards had become indigenized, many speaking Quechua, eating same foods, sometimes even doing menial labor in the same *obrajes*, and their economic interests converged with the reforms of the mature Bourbon period (Salas 1998b: 330). Participation in social movements did not necessarily mean one had to subscribe to a unified ideological platform. Most participants were motivated by local grievances, even if they used more general language. The social conditions enabling widespread participation and inter-caste alliances are important to understand how coordinated regional rebellions were possible.

10.2 Antecedents to Pomacocha revolts in Vilcashuamán province, 1770s and 1780s

The first evidence of armed or forceful resistance by workers against the *obraje* of Pomacocha occurred in the early 1790s, but there were antecedents of armed unrest in the 1770s and 1780s in Vilcashuamán province. Resentment against *obrajes*, *reparto* and taxes fueled the unrest. As the local textile economy declined because of competition from inexpensive and higher quality continental cotton (Salas 1998a: 242), *obrajes* declined in importance as smaller domestic workshops called *chorillos* began to replace the unreliable and unpopular *obrajes* (Escandell-Tur 1997; Hurtado Ames 2006). Obrajes also diversified their products in the late colonial period. For example, at Pomacocha, grain storage for agriculture and tanning hides became more important in the late eighteenth and early nineteenth centuries.[145] At the Chincheros *obraje*, activities also turned to agriculture and crafts such as making buttons, rosaries, spoons, combs, and *mates* (gourds to contain liquids).[146] The diversification of the economic activities of *obrajes*, especially agricultural activities, meant that a smaller proportion of the native population were shut inside the *obraje* compounds, offering more opportunity for political activities away from the eyes of the administrators and majordomos (Salas 1998a: 520, 522). The workers of Pomacocha had to send surplus maize, barley, beans,

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Buenos Ayres contra el alto Perú, BANC MS Z-D 123, f. 63, Copy of British Library Add MS. 17588. Original: "…muy desconfiados, falsos, mentirosos, ladrones, sanguinarios…"

[143] *Ibid*. Original: "…una guerra de desolacion, guerra de exterminio, en la que el color del nostro seria la señal de incendio…"

[144] *Ibid*. Original: "…en derrotando las tropas, no hemos de dejar ni perros blancos entre nosotros, y si nuestras mugeres son blancas, ó las que por alguna linea deciendan de blanco, tambien an de morir..."

[145] see ARAY, Intendencia, Compulsas Ordinarias, Leg. 25, Cuad. 3, 1793.

[146] ARAY, Libro Matriz del Obraje de San Marcos de Chincheros, Cabildo-Libros, Legajo 16, Libro 24, 1798.

potatoes, and cheese, among other foods to the Monastery of Santa Clara on a regular basis (*ibid*: 155).

The ability to secure a reliable labor force was always a challenge for *obrajes*, and when coercion was used extensively, always provoked a strong response from the workers. As the market became oversaturated with local goods, the Spanish businesses relied more on the *reparto* to find a market (Walker 1999: 24). Alcabala taxes, because they were imposed by the Crown on goods produced by Spanish businesses, also hurt the profitability of *obrajes*. Coerced labor became more emphasized as *obrajes* became less profitable: they could no longer offer material incentives to attract willing workers and still remain competitive with *obrajes* that relied on prison labor and debt slavery. Obrajes were a principal target of armed insurrections of the late colonial period because of their association with forced labor and debt slavery (O'Phelan 1985; Walker 1999). During the Bourbon period, the official paternalism of the Hapsburgs declined as the long-standing contempt against natives became more viciously framed in racial terminology among the Peninsular elite. As one Spaniard in 1771 put it, Indians were "victims of their race ... born to poverty, bred in destitution and controlled through punishment" (McFarlane 1998: 320). After the Tupac Amaru II rebellion, coercion in *obrajes* and mines was further justified for security reasons.[147] As Peninsular Spaniards gained control of more and more *obrajes* and mines to secure money to "win" political posts, natives, creole Spaniards, and *mestizos* resented them all the more.

The unintended consequences of the Bourbon economic reforms were the antagonization of all sectors of society and the growth of a sizeable tax-dodging informal market. Bourbon reforms pre-1760, however, also negatively affected multiple castes, but did not trigger coordinated general rebellions. In this section, I explore the reasons why the mature Bourbon period (post-1760) saw a significant increase in coordinated general rebellions. Other than a few references to the involvement of the Vilcashuamán area in the rebellion of Tupac Amaru (e.g., Huertas 1976a; Salas 1998b: 302), our current understanding of the motivations of non-Cuzqueño commoners who joined the rebellion is unclear. Why would commoners from an area far from the local political intrigues and allegiances of Cuzco enthusiastically participate? In the same vein as Salas (1998a, 1998b), I argue that ritual and economic circuits played an important role in popular mobilization in the Vilcashuamán area post-1760.

10.2.1 1774-1775 revolts against administrator and desertion of Cacamarca

In April 1774, Don Carlos Rodríguez Carvallo, the administrator of Cacamarca *obraje*, discovered that the workers customarily kept a portion of the yarn that was distributed to them to weave and that the mule drivers of the *obraje* had been sabotaging his *reparto* of mules (O'Phelan 2012: 105-106; Igue 2008: 39-40). Having

[147] AGI, Descripción General de la América Meridional, MP Libros Manuscritos, No. 9, 1789, ff. 10r-12v; BL, Viceroy, Add MS 17582, f. 46r, 1796.

recently been appointed to his post in 1773 by the central government, Rodríguez wanted to affirm his power and put a stop to these practices at once. He dismissed the worst offenders and charged them for the "stolen" yarn (Salas 1998a: 346). The majordomo Joseph Pareja, a *mestizo* who had worked in the *obraje* since childhood, allegedly threatened the administrator in a loud voice within earshot of all the men and women of the *obraje*: "if this is done, they will revolt (O'Phelan 2012: 105)."[148] After this confrontation, Rodríguez continued with his heavy-handed administration by charging a four *reales* penalty for those who had not attended mass, unilaterally lowering wages from three *reales* a day to two *reales* a day, and lowering their food rations (*ibid*; Salas 1998a: 480; 1998b: 242). He sent enforcers to collect the penalties for not attending mass, and workers' roosters and hens were also confiscated if they could not pay. When Rodríguez entered the *obraje* the next day, the workers surrounded him and chanted in unison that they had "nothing with which to pay the penalties, not even garments they could give (O'Phelan 2012: 105)." The women spinners of the *obraje* were especially vocal, threatening that because the administrator had mistreated their majordomo (Joseph Pareja), they needed to defend him, and if the majordomo was fired, they would desert the *obraje* to go with him (*ibid*). Rumors of open riot circulated, and Joseph Pareja advised the workers to not revolt because "all would be lost, Indians and Spaniards alike (*ibid*)."[149] Rodríguez assumed that Joseph Pareja, being a creole *mestizo*, was naturally behind the agitation of the workers and fired him to suppress any further talk of revolt. Rodríguez asked that Pareja be replaced with "one of ours," referring to a Peninsular Spaniard (*ibid*).

Rodríguez's actions backfired spectacularly, and the workers deserted the *obraje*, just as they had threatened (Salas 1998a: 480, 570). Embarrassed by his failure to get the workers to cooperate, Rodríguez blamed Joseph Pareja, saying that he was corrupt and in league with the Indians to enrich himself (*ibid*: 325-326). He blamed the "bad customs" of the Indian workers and *mestizo* mule drivers and majordomo for his troubles, and said he would rather be among 500 black slaves than 50 highland Indians (*ibid*: 322; Salas 1998b: 331). The Indian authorities of the *obraje* sent a formal complaint to Rodríguez's employer in Lima, the *Temporalides*. The complaint detailed the heavy-handed and tone-deaf measures taken by Rodríguez:

> We complain against the administrator Don Carlos Rodríguez Carvallo who threatened to kill us, arming soldiers with metal pieces and other arms in the presence of my majordomo, saying that we are a poor lot and that we are ignorant...because he wanted to charge us a penalty of four *reales* each Sunday for Mass and Catechism because we sometimes lack our necessities (to live) (Salas 1998a: 333).[150]

[148] Original: "que si eso se hiciese se levantarían…"
[149] Original: "todos quedaban perdidos, indios y españoles"
[150] Original: "…nos querellamos contra el administrador Don Carlos Rodríguez Carvallo que nos tiene amenazados de quitarnos la vida harmando soldados con chafalonía y otras armas en presencia de mi mayordomo diciendo que

Rodríguez sent a resignation letter on May 12th 1774 and left his post in 1775. Workers of different castes united against Peninsular Spanish arrogance. The workers came to share a similar culture, with the *mestizos* and poor Spaniards speaking primarily Quechua and sharing the same cuisines as the native workers (Salas 1998a: 333, 435, 1998b: 330). Rodríguez exemplified Peninsular Spanish arrogance by disrespecting *costumbre* and using coercion. Contrast his administration with that of the previous administrations of the *obraje*. The La Maza family and later the Jesuits had administered Cacamarca for over a hundred years beginning in 1634 and had adhered to the principles that good treatment of and punctual payment for the Indians was "very necessary… because even if the provisions and money were abundant, if the conditions are harsh, the *obraje* would decline, and furthermore would cause much ruin in the rents… (*ibid*: 405).[151] After Rodriguez's removal from his post, more was spent on religious festivals and the number of Indian authorities increased to satisfy the workers (*ibid*: 570). Costumbre, for example giving chocolates and meat on special occasions such as the birth of a child, was crucial to the well-ordered *obraje* and created friendly, if hierarchical, relationships among the employees of the *obraje*, from the administrator all the way down to the native workers and African slaves (*ibid*: 527).

10.2.2 1780-1781 Tupac Amaru II rebellion in the Ayacucho region

The Tupac Amaru II rebellion found a lot of popular support in the Ayacucho region due to dissatisfaction with onerous tax, labor, and *reparto* burdens (Huertas 1976a, 1978; Stern 1987b: 69). Revolts and rumors of revolt were recorded in Cacamarca, Chiribamba, Chungui, Huanta, Mansanayoc, Vilcashuamán, and Vischongo, Huanta, and Quinua (Huertas 1976a: 95, 103; Salas 1998a: 608; Stern 1987b: 69). The revolts were also triggered by the draft of sympathetic commoners to suppress the Tupac Amaru II rebellion in Cuzco (Huertas 1976a: 93-94). According to the administrator of Cacamarca *obraje,* Manuel Ruiz de Ochoa, almost all of Vilcashuamán province was in revolt (Igue 2008: 19; Salas 1998a: 608-609). Notably, the workers of the *obrajes* of Vilcashuamán did not support Tupac Amaru II, even though the mule-drivers linked to the *obrajes* did (*ibid*). Why was this so?

At this time, the workers of the *obrajes* of Vilcashuamán were exempt from *reparto* and even benefitted from it as the *reparto* was a major source of profits for the declining *obrajes* (Salas 1998a: 609). Surrounding communities resented the privileged non-prisoner workers of the *obrajes*, which by the late eighteenth century had included exemptions from the Huancavelica *mita* and from the *reparto*. People also resented being sent to *obrajes* for their prison sentences, usually for debts incurred by *reparto*. The terrible working conditions of prison *obraje* labor and conflicts of interest that swelled the prison population were major grievances that garnered sympathy for the

nosotros somos un pobrecito y que somos ygnorantes…porque nos quiere pedirnos multa en cada domingo quatro reales de la misa de salve y de la doctrina porque faltamos algunas veces nos falta nuestra necesidad…"

[151] Original "…buen tratamiento de los yndios es tan necesaria…porque aunque los avios y plata estén abundantes si la condición es áspera, se menoscabará el obrage, y aun Le causara mucha ruyna consiguientemente en las rentas…"

rebels in Vilcashuamán province (Salas 1998a: 422-423, 426). Mule-drivers, who were mostly *mestizos* or poor Spaniards, were not exempt from the *reparto*, which mobilized them in support of the Tupac Amaru II rebellion (Igue 2008: 19). The divide between native communities and *obraje* communities was evident in a 1758 complaint by the native leaders of communities surrounding Cacamarca *obraje*. They complained that the authorities of the *obraje* were pressuring people to work in the *obraje* against their will due to an outbreak of measles causing a labor shortage.[152] The workers already resident in Cacamarca for generations did not complain about working there, as the *costumbre*-respecting La Mazas and later Jesuits were the administrators. Although conditions were reasonable in the *obraje*, authorities in native communities and native commoners resented coercion into *obraje* employment.

In the case of Pomacocha, the workers had enjoyed a generous administrator who had died in 1780, just as the Tupac Amaru II rebellion was picking up in the area. Thus, they were not predisposed to joining the rebels. The administrator from 1772 to 1779 was cleric Don Luis Suárez.[153] Judging by the generosity and kind words of his written will toward the Indian workers of Pomacocha *obraje*, Luis Suárez was a well-liked administrator.[154] He had paid workers' taxes, paid them punctually in grains, *aguardiente* liquor, and cloth at fair valuations. Notably, he donated twenty-four *varas* of cloth to each Indian worker in the Pomacocha *obraje* and its satellite *hacienda* Chanin. Each *vara* was worth 3.5 to 4 reales, so he was giving each Indian worker the equivalent of at least a month's labor. Afraid that his instructions regarding the Indian workers would not be fulfilled, Suárez ordered that the executor of his will make sure the accounts with the workers were fulfilled before the *obraje* was turned over to the Monastery. Suárez's will was unusual because his instructions regarding the Indian workers came early in the will, showing how much he had cared for their well-being. Suárez had donated all his wolrdly possessions to either the Indian workers or to the Monastery of Santa Clara. His own words revealed the importance of ethics in his life: "I never with malice have thought to harm anyone."[155] As the workers were in a time of transition and probably mourning for their deceased administrator, they were disinclined to join with the disaffected surrounding communities. Furthermore, joining the rebels would jeopardize their access to the privileged *costumbre* of the Pomacocha *obraje*.

Pomacocha was surrounded by native communities sympathetic to Tupac Amaru. Vischongo, only four kilometers away, was the hotbed of rebel sympathy and activity in Vilcashuamán province (Huertas 1976a: 95; Stern 1987b: 69). In August of 1781, when

[152]AGN, Real provisión sobre aprobación del empadronamiento de indios en el obraje de Cacamarca, Derecho Indígena, Legajo 17, Cuaderno 292, 1756.

[153] ARAY, 3 tratados de Nra. Madre S./ta Clara sobre nombrar Administrador en Pomacocha, Notariales, Bartholome García Blasquez, Legajo 88, ff. 343r-345v, May 6, 1772.

[154] ARAY, Autos Seguidos contra el Presbítero Dn. Luis Suarez, administrador del obraje de Pomacocha, por multiples deudas que contrajó en vida, Corregimiento, Causas Ordinarias, Legajo 15, 1780.

[155] *Ibid*: f. 29r. Original: "…yo nunca con malicia hé pensado perjudicar á nadie…"

Tupac Amaru was already dead, the inhabitants of Vischongo held a great festival celebrating him. Spanish merchants passing through Vischongo overheard and decided to beat up the attendants, after which the people of Vischongo immediately rioted and "took to the hills because they were rebellious" (Huertas 1976a: 95). During the Tupac Amaru II rebellion, the workers of Cacamarca were ready to fight against those of Vischongo if the *obraje* was threatened (Salas 1998a: 608-609). The workers of Cacamarca were allied with the administrator Manuel Ruiz de Ochoa, whose father, Cayetano, was the main general leading troops from Ayacucho against the Tupac Amaru II rebellion. Cayetano's tenure as administrator in the late 1760s and early 1770s was respected (or feared) by the workers, and his son provided provisions for the infantry against Tupac Amaru (*ibid*: 610). According to Huertas (1976a: 103), Cacamarca was one of the communities where authorities were murdered in 1780, showing that *obrajes* were a prime target of the rebels in Vilcashuamán province. In Vilcashuamán province, and in the Ayacucho region in general, the Tupac Amaru movement was populist and organized from the bottom-up. Even after the rebellion was squashed in 1781, the rebellion continued to capture the imagination of native commoners and *mestizos* in the Ayacucho region. Two escaped itinerant native *curanderos* (healers) named Diego Jaquica and Pablo Chalco continued their preaching of Tupac Amaru's accomplishments and a future order without *corregidores*, judges, priests, and taxes (Huertas 1976a: 95-102; 1978: 10-16).

How was the Tupac Amaru II rebellion able to gain so much sympathy and support in the region of Ayacucho? In the Cuzco region, the supporters and detractors of the movement generally fell along long-standing lines of enmity between noble native families (Stavig and Schmidt 2008: xxix). In both regions, we do not have a good understanding of the folk religious practices and leaders who mobilized the masses. The available clues point to the central role of religious events and *curanderos* in the dissemination of rebel rhetoric. Language about fertility contrasted with Spanish extractive rule and dominated popular narratives about revolt. The idea of a new order, with the return of a benevolent Inka king, also captured the political imagination of the populace (Campbell 1987). These narratives were not new. Rather, they were cogent reformulations of local folk narratives that had existed since the sixteenth century. Apart from the narratives, the material culture and the specific practices related to the dissemination of these narratives is currently not well understood. Diego Jaquica attended public celebrations such as marriages and religious festivals to preach, and Pablo Chalco and his mother Maria Sisa were already famous healers when they proselytized in support of Tupac Amaru.

In the case of Pablo Chalco, we have an intriguing glimpse into the ritual aspects of rebellion and the central role of women (Huertas 1976a).[156] According to a 1780 census, Pablo Chalco was a *forastero* with access to the community lands of Chungui in the

[156] ARAY, El corregidor Dn. Pedro García de la Riestra, contra el insurgente: Pablo Chalco, Corregimiento, Causas Criminales, Legajo 19, 1781.

eastern highland jungles of Ayacucho.[157] The forty-year old Chalco was living with his wife, Petrona Canchari (51 years old), his daughter Paula Chalco (20 years old), and his mother Maria Sisa. Pablo Chalco was originally from the province of Cuzco, but had settled in Chungui as a coca farmer, livestock raiser, and agriculturalist. Pablo Chalco had lived in Chungui since at least 1762.[158] His wife, Petrona, was originally from the city of Huamanga, not far from Chungui. Pablo Chalco's family was successful in their new home and resided at their lower elevation coca plantation in the mountains of Guarancanqui part of the year. They owned considerable livestock, cloth, and foodstuffs for native commoners. Pablo Chalco exemplified the *forastero* who had "made it." His case shows that it was not just the poor and marginalized who had flocked to the Túpac Amaru II rebellion; the Chalco family had much to lose if the movement was not successful.

The court case against the Chalco family accused them of various acts of idolatry and witchcraft.[159] The specific accusations against Pablo Chalco were that he was the head of a conspiracy against the Spanish state in support of Tupac Amaru, that he was a notorious idolater who publicly healed livestock by scattering coca leaves in the air, and that he had incited the masses to throw stones at the ex-*corregidor* Don Raymundo Necochea, the local priest Nicolas Alvares, and at other Spanish authorities. Pablo Chalco was accused of thanking the mountains instead of God for the healed livestock, saying that the healed livestock was produced by the mountain. According to native witnesses, he frequently proclaimed in public, especially during festivals, that Tupac Amaru had been crowned king and ordered people to not pay tribute tax, that there would no longer be priests nor *corregidores*. The agitations of the Chalco family did not escape notice of the viceroy Don Manuel Guirior. In his summary of all the revolts related to the Tupac Amaru II rebellion, he noted that the doctrina of Anco was in open rebellion "over ancient privileges that the Indians enjoyed in not being a part of the enrollment of tributaries."[160]

Viceroy Guirior described the revolts in Anco as "very reprehensible demonstrations of tumult, fomenting with each day disobedience and disturbance of its people, with anonymous papers conceived in terms of great audacity and alluding to the general objective of the communiqué and misery that originated the oppression."[161] In addition to the hated census of January 1780, the revolts were also triggered by the 1778

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[157] ARAY, Numeras./n y Empadronam./to Probisional hecho en la Capital de Anco, Notariales, Jose Medina, Legajo 125, f. 8r, January 27, 1780.
[158] ARAY, Padrones de los tributarios de la Doctrina de Anco, Corregimiento, Asuntos Administrativos, Legajo 39, No. 655, f. 2v, 1762.
[159] ARAY, El corregidor, Causas Criminales, Leg. 19, 1781.
[160] BL, Relation of the state of the kingdom of Peru, written by the viceroy [Don Manuel de Guirior] for the instruction of his successor, Egerton MS 1811, f. 71r, August 23, 1780. Original: "…sobre antiguos privilegios que gozavan sus Yndios de no ser compreendidos en la Matricula de Tributarios…"
[161] *Ibid.*: f. 71v Original: "…mui repreensibles demostraciones de Tumulto, fomentadose cada dia la inovediencia, y alboroto de su Pleve, con papeles Anonimos concevidos en terminos de grande audacia y alusivos al obgeto general del Despacho y miseria que originava la opression."

prohibition of the "production and commerce of socks, stockings, and caps of cotton, in force of the orders concerning similar foreign effects by the royal decree of 14 of July of 1778."[162] This prohibition negatively affected local informal economies, but propped up the *reparto-obraje* complex.

Petrona Canchari and Maria Sisa were accused of being witches. In the list of items confiscated from their house, there was a yellow bag with an assemblage of strange items inside. The items were sea shells, coca, bread, sweets (*chancaca*), chili pepper, ashes, "various small stones in diverse figures, ground chuño, pigs, young corn cobs, gold dust, rosary beads, knucklebone, *lipe* rock, bird excrement, camelid grease, a comb, and many other rubbish...as well as a bit of grass from the *puna* in round figures, each tied with belts of different colors, and a black stone made of volcanic rock shaped like a bone, which she said was of the Inka."[163] The sea shells, coca, small stones, grease, and young corn cobs were integral parts of domestic ritual all over the Andes for thousands of years to the present, and the incorporation of rosary beads show how incorporative and enduring these practices were. The two women were given lashes to extract confessions about the function of the items. The lashes could not make Maria Sisa confess, but Petrona Canchari confessed that the items inside were purchased by her husband Pablo Chalco under the influence of his mother Maria Sisa. She confessed that her husband, her mother-in-law, and other relatives of hers made her believe that those items would provide happiness and freedom from the persecution by the justice system, as well as increase agricultural and livestock fertility. Petrona Canchari cited evidence for the fertility, saying that in only five years, three females had given birth to around twenty healthy offspring. Canchari's explanation was as follows:

> [T]hat the sea shells and the coca, with everyone said that one would be free from misfortunes, and that it would not be harmful to the judges, and that no one had to be afraid: that the corn cobs were useful for the increase of her livestock. That as for the stone, she discovered a mountain that was reverberating in the sun, and that she had kept the stone [from the mountain] for the increase of her potato harvests. That the other rock, she kept with the other items because they looked like a bone of gentiles.[164]

Petrona Canchari also confessed that her mother-in-law was a famous witch, and that it had been "public and notorious" that people had attributed the witchcraft of Maria Sisa

[162] *Ibid.* Original: "…su labor, y Comercio de Calcetas, medias, y Virretes de Algodon, en fuerza de lo dispuesto sobre iguales efectos estrangeros por Real Cedula de 14 de Julio de 1778…"

[163] *Ibid*: ff. 3r, 17r. Original: "…barias Piedresillas en diversas Figuras, chuño molido, cerdas, Masorcas de Mais, oro Pimienta, cuentas de Rosario, tava de Gueso, piedra lipe, estrielcól de sierto Paxaro, cevo de Carnero de la tierra, un Peyne, y otras muchas porquerías…como tamvien un poco de Paxa de Puna en figuras redondas, forradas cada una con sintas de distintos colores, y una Piedra negra de Alaymosca en figura de gueso, la q./e dijo ser del Ynga"

[164] *Ibid*: f. 17r. Original: "…que las conchas, y coca, con todos dijeron que estaria libre de desgracias, y que no seria perjudicada de los Juezes, y que tenia temer a nadie: que las masorcas de Mais era util para el aumento de sus Ganados. Que la piedra hallo un serro q./e estaba reberberando en el sol. y que le havia guardado para q/e aumentase su sementera la Papas. Que la otra Piedra la guardó con las demas expecies por paresense un Gueso del Jentil…"

to the death of a certain man who had disputes with her. Pablo Chalco, Petrona Canchari, and Maria Sisa were all sent to prison.

From prison, Pablo Chalco protested his innocence by saying that his accusers were all jealous of him and concocted the accusations so that Chalco's property could become theirs. While Chalco's characterization that his accusers were motivated by jealousy was probably true, his sympathy for Tupac Amaru was certainly true as well. Pablo Chalco subsequently escaped from the prison of Ninabamba, a notorious *hacienda-obraje*, and continued his rebel activities (Huertas 1976a: 98). Pablo Chalco certainly did not work alone. Pablo Chalco's personal defense was in fluent Spanish with assured penmanship, showing he was familiar with Spanish institutions. The great quantity and quality of cloth in his possession showed that he participated in the informal cloth economy.[165] I conservatively estimate the total value of his cloth-related items at two hundred *pesos*, a significant sum for a native "commoner." The prohibition of the commerce of certain items of clothing and the 1780 census enrollment of Anco gave rise to inter-caste alliances because natives, *mestizos*, creole Spaniards were all negatively affected. The frequency of anonymously written political lampoons against royal authority placed in public areas all over Perú shows widespread anti-government sympathy that had cut across caste lines.[166]

The case of Pablo Chalco showed that popular mobilization was made possible by shared domestic ritual language. People were primarily concerned with the efficacy of the Chalco family magic, which had lent them great authority in the region. Pablo Chalco, Petrona Canchari, and Maria Sisa were all effective healers who had increased their agricultural and livestock yields, despite their humble beginnings. Thus, their proclamations held great weight among the populace. The syncretism in folk religious practices underpinned resistance since the Taki Onqoy movement in the sixteenth century. The imprisonment of shamans and healers like Pablo Chalco in *obrajes* also increased ire against this institution. Their mingling with the prison population, who were from diverse places, further regionalized revolutionary language. The prison in the *obraje* of Pomacocha often housed shamans (see section 9.1.3), and under *costumbre*-respecting administrators, they brought doses of Andean cosmopolitan religiosity as they mingled with the general population. Under particularly coercive administrators, however, the abuse of prisoners led to rising ire against *obrajes* and their generally Peninsular Spanish administrators (Salas 1998a: 425-426). Religious pilgrimages and festivals were prime contexts for the dissemination of revolutionary rhetoric. The popular participation of the masses outside of Cuzco was made possible by the

[165] Of the cloth-related items, Chalco had four balls of woolen yarn, two blankets, a vara of blue paño cloth from Quito, three new pleated sashes, a paño with a yellow neck, twelve varas of blue belts, five balls of cotton yarn, two new cumbi ponchos, ten ponchos of sheep and llama wool of different colors, five bed coverings of different colors, another blanket, two paños of vicuña wool, a llama wool saddle blanket, a black woollen saddle blanket, two more saddle bankets, two thin pieces of Brittany, a brown woollen paño, two girdles, a green skirt (pollera), and a small cumbi cushion (ibid: 6v-6r).
[166] BL, Relation, Egerton 1811, ff. 57r-79r, 1781.

expanding ritual horizons of native, *mestizo*, and even creole Spanish commoners. The general Andean rebellions of the late eighteenth century marked the beginning of a period of open, coordinated armed resistance (see Nuria i Vila 1996). The Tupac Amaru II rebellion failed because of existing tensions within and between native communities and caste-war rhetoric:

> Moreover, the widespread ethnic violence of the rebellion undermined alliances between Peruvians: Creoles were terrified by Indian uprisings, while the Indian rebels—themselves a heterogeneous force, divided by regional and ethnic differences—were unable to find any unity of purpose, and were defeated area by area [McFarlane 1998: 322].

Divisions within native society undermined Pablo Chalco's movement. Many community members, especially the authorities, had resented his rise to prominence and wealth despite his *forastero* status. All the witnesses against him, including the *alcalde*, were native members of his own community. Although the Tupac Amaru II movement was a failure in maintaining the kinds of inter-caste alliances necessary for success, inter-caste alliance building continued to gain strength as *obrajes* declined (see section 10.3).

10.2.3 1787 revolt against tax collectors in Vischongo and 1788 mass abandonment of Pomacocha by its workers

Although Túpac Amaru II was executed in 1781, pacification of the numerous Amarista-inspired revolts was difficult and continued for years (Sala i Vila 1996: 24). During the tumult, tribute tax and *reparto* were laxly enforced. When things calmed down a little, renewed efforts to impose the *reparto* and collect back tribute taxes were met with resistance. In the case of Vischongo, a hotbed of Túpac Amaru sympathy, many tax collectors had been rebuffed forcefully (*ibid*: 60). Resistance turned violent when Felix Lisbona entered Vischongo on Christmas day to collect three hundred *pesos* in back taxes and debts from the *reparto* of mules (*ibid*: 60-61). Lisbona arrogantly detained whomever he came across, regardless of whether they owed any debts. The community also denied Lisbona ten mules to transfer some prisoners. That very night, a community authority (*regidor*) released the prisoners and three Indians untied and freed Lisbona's and his team's mules. They also tried to imprison Lisbona, but Lisbona attacked with his saber and cut the face of the *regidor*. The *regidor* subsequently rang the church bells to call Vischongo community members to his aid. Over two hundred people showed up to stone Lisbona, who fled toward Vilcashuamán for safety and reinforcements. Lisbona was quickly recaptured only a couple of miles away. The community removed his saber, his watch, and his buckle and marched him back to Vischongo barefoot, treating him like a thief. They also rounded up the other Spaniards who had accompanied Lisbona in the same manner, but Lisbona managed to escape to the priest's house where he was rescued by the priest Melchor Peralta (administrator of Pomacocha *obraje*). The church bells rang again to assemble the community to stone

Lisbona and his team and recaptured him. The leaders of the community then marched Lisbona to Huamanga, a three-day journey, to bring Lisbona to justice in court. During their march, the leaders were drinking *chicha* and saying that they will "liberate themselves of those swindling thieves (*ibid*: 61)."[167]

Vischongo was sympathetic to the plight of prisoners they liberated, saying that they were men of valor (*ibid*). As Vischongo was close to the prison inside the Pomacocha *obraje*, many community members may have been placed inside for unpaid debts, hence their hostility toward Melchor Peralta, the administrator of Pomacocha, during the altercations with Lisbona. Melchor Peralta was also an unpopular administrator at Pomacocha who did not regularly pay the workers and had forced the workers to live inside the *obraje's* walls, which provoked more than fifty of the workers to flee the obraje in 1788. Thus, Peralta became insolvent and unable to pay the rent in full to the Monastery of Santa Clara. Peralta was subsequently removed from his post and Alejo Lagos and his sons took over the administration.[168]

In the end, Vischongo's revolt was not radical in that they did not intend to overthrow Spanish rule, only free themselves from excessive tax and *reparto* debts. The boldness of their armed resistance, however, was radical in that no armed resistance against Spanish tax collectors or officials had ever occurred in the area apart from the Tupac Amaru II rebellion. Clearly, the general rebellion shifted acceptable forms of resistance toward more directly forceful means. Their lack of success in court, however, would inspire Vischongo and surrounding communities to participate in more radical movements in the coming decades. Because the Bourbon regime, especially after the general Indian uprisings, became more hardline in controlling the Indian population through punishment and imprisonment, natives rarely found success anymore in the justice system.

10.3 Revolts, rebellions and forceful resistance at Pomacocha 1793-1833

From 1793 to Peruvian Independence in 1824, the *obraje* of Pomacocha and its lands saw violent confrontations for the first time since the Spanish conquest. The *obraje* of Pomacocha also played a large role in the battles against royalist forces from 1814 onward. In this section, I summarize the recorded incidents of coordinated forceful resistance in the *obraje* of Pomacocha or on its lands. I show how Pomacocha was involved in all the important regional movements and explore the reasons why. Why did coordinated forceful resistance in or immediately surrounding Pomacocha *obraje* occur only after the Tupac Amaru II rebellion? Resistance against *obrajes* at Pomacocha and

[167] Original: "…librarnos de esos picaros ladrones…"

[168] ARAY Intendencia, Alejo de Lagos procurador del Monasterio de Santa Clara de esta ciudad inicia proceso contra Melchor Peralta- arrendatario del obraje de Pomacocha (Vilcashuamán) perteneciente a dicho Monasterio, por la deuda de una cantidad que debe por arrendamientos atrasados, Asuntos Ecclesiásticos, Legajo 49, Cuaderno 3, 1788

in Vilcashuamán province never resulted in actual violence against Spanish business owners or the state, only threats and rumors, until during and after the Tupac Amaru II rebellion. Furthermore, resistance became coordinated, most often involving inter-caste alliances and several communities at a time. We should consider four general trends that contributed to forceful resistance in Pomacocha and its environs after the Tupac Amaru II rebellion.

First, declining local economies and increasing taxes cut into the profits of small-time merchants, especially textile merchants, of all castes. Obrajes, even with *reparto* profits and cheap prison labor, also declined due to the bottom dropping out of locally produced inferior cloth. A report in 1794 summarized the abysmal state of the local textile economy in the Ayacucho region:

> The baizes and *tocuyos* that were produced in the past were sold at good prices in the coast, they sell them now at the same price that one pays in the city [of Huamanga], and the few Indians who commerce with these effects, they content themselves with the small profits from each *vara*, that is bought with the name of a *pulgada* [inch], because in the places where they take [the small pieces of cloth], they sell only enough for personal use; but this is so unprofitable that afterward, the Indian, before having paid *alcabala* taxes, or any other fee, and after having experienced the most miserable treatment in his journey, does not earn even an eight percent profit; the Spaniard would not gain anything, thus as Your Honor yourself have seen with the rest of those same Indians, that they have travailed to little fortune, they have not been able to repay their contracted debts in that commerce [of textiles], and in the end, the creditor and debtor were both lost.[169]

The added transportation costs to the urban textile markets made rural, large-scale *obrajes* like the one at Pomacocha even less competitive with the small household level workshops called *chorillos*. Securing labor was always a challenge for *obrajes,* but with a declining economy, it became even more difficult. More of the local economy became informal, further creating social space for inter-caste alliances instead of animosity, which often occurred inside *obrajes*. In a booming textile economy, *obrajes* were competitive because of economies of scale, but with locally produced textiles garnering

[169] ARAY, Memorial dirigido al Yntendente de Guamanga por los dueños y poseedores de Casas y Haciendas de esta Yntendencia, para que se redusca el Canón del 5% al cual están afectos, Intendencia, Legajo 47, Cuaderno 59, f. 5r, 1794. Original: "Las Bayetas y Tocuyos que se Labran y que en tiempos pasados se vendían a buen precio en la Costa, se venden hoy al mismo que se paga en la Ciudad, y los pocos Yndios q.e comercian con estos efectos, se contentan con el corto exeço q.e llevan en cada Vara, que compran con el nombre de pulgada, por que en los lugares donde las llevan, los venden sin ese exeso que utilizan; pero esto es tan corto, que el Yndio después no haver pagado Alcavalas, ni otro Derecho, y después de haverse acomodado al mas misero trato en su viage, no adquiere ni áun un ocho por ciento; el espan(y)ol no ganaría cosa alguna, pues como V.S. mismo ha visto los mas de esos mismos Yndios, que han trabajado con ageno caudal, no han podido satisfacer las deudas contratadas, para áquel comercio, y al fin acretiedor, y deudor se han perdido."

so little profit in the late colonial period, *obrajes* could not afford to incur any loss from an unstable labor force, which brings us to the second consideration.

Second, *obrajes* became more coercive, and prisoners became a larger part of the workforce. With the firmly established *reparto* to *obraje* prison pipeline, *obraje* labor became more uniformly coercive than before, when different *obrajes* could have radically different administration styles. Punishment was rationalized in that people from all castes could end up in an *obraje* prison to work, not just native commoners. The divide between the *República de Indios* and *República de Españoles*, while never a social reality, ceased to become a legal reality as well. The Bourbon regime was never wedded to the idea of *repartos*, but by legalizing it, they had little recourse to regulate its worst abuses. The *reparto* was firmly ensconced in local economics and practiced by creole Spaniard and Peninsular Spaniard alike, and the imposition of the *reparto* secured Indian labor through debt (Igue 2013: 10). When the Intendant of Huamanga (Ayacucho region), Demetrio O'Higgins complained about the dissatisfaction that the *reparto* caused, especially of textiles and mules, the Viceroy called him a disturber of good order (O'Higgins 1953: 509). The general attitude in Spanish America was that the Indians were naturally lazy and prone to violence if not controlled through supervised labor (Owensby 2013: 153). The Viceroy of Perú Francisco Gil de Taboada Lemos y Villamarin said that the whole Indian nation was lazy and vicious, with the "exception of those who work in the obrajes, and in the mines, whose bosses are careful to have them subjected to the chains of debt from where the injury is born: all the rest of this nation is given to a reprehensible laziness."[170] The general worsening of working conditions in *obrajes* and the introduction of poor prisoners from all castes reinforced the widespread resentment against this institution. The humiliating conduction of prisoners to *obrajes* was done in public sight, inspiring the pity and sympathy of many onlookers.

Third, the former elites of colonial society, those with Spanish or noble indigenous heritage kept losing more and more of their ancient privileges. Peninsular Spaniards and European immigrants, on the other hand, acquired the most powerful government posts and amassed fortunes, lands, and businesses. They were appointed to their positions as bureaucrats, but in practice, they generally behaved as corruptly as the creole *corregidores* before them. A stronger "American" or "Peruvian" identity formed in opposition to the European "Chapeton" identity. New local identities, such as the Morochucos, were based on a mixture of creole Spanish and native customs.

Fourth, the 1780s were a general time of Andean and global rebellions, which expanded the imagination of creoles and natives alike that the Spanish Empire was not invincible. As the Viceroy said, "the atrocious events of the French Nation" in 1789

[170] BL, Viceroy, Add MS 17582, f. 46r, 1796. Original: "…á excepcion de aquellos que laborean en los Obrajes, y en las Minas, cuyos Dueños tienen el cuidado de tenerlos sujetos á la cadena de la Deuda de donde nace el agravio: todo el resto de esta Nacion está entregada á una reprehensible ociosidad."

brought "agitation to all the land."[171] As the justice system had even fewer checks and balances when under Peninsular control, overthrowing the whole system became more attractive than before. Many working relationships and alliances formed between natives and poor creole Spaniards, whose cultures were similar in the late colonial period. They shared the same grievances against taxation and prison labor in *haciendas*, mines, and especially *obrajes*. The general attitude was that Indians were naturally passive unless they were drunk or in the company of *mestizos* or other *cholos* (young Indians with *mestizo* culture). In the company of *mestizos* and other castes, according to this popular stereotype, they gained the courage to be rebellious.[172] Native women, however, were considered humble and hardworking, unlike their male counterparts.[173] Although the stereotypes were incorrect to assign passivity to native men and women, they did reflect how revolts and rebellions generally involved inter-caste alliances. While inter-caste alliances characterized nearly all coordinated forceful resistance in the late colonial period, such alliances were not sufficient to cause coordinated forceful resistance. Nevertheless, the existence of inter-caste alliances in political action greatly increased the probability of coordinated forceful resistance.

10.3.1 1793-1794 Workers' revolt and desertion of Pomacocha

In keeping with the general trend of coordinated forceful resistance involving intercaste alliances, the first direct forceful challenge by the workers of the Pomacocha *obraje* involved alliances with an ex-administrator and the priest of Vischongo.[174] The workers' grievances were against the priest named Bernardo de Mendoza, who was the administrator of Pomacocha from 1791 to 1795. The grievances included lashing, false imprisonment, and violations of *costumbre*. The case had caused great scandal in Vilcashuamán and Huamanga provinces, which were now called *partidos* under the Intendancy system. The case even caused dissension among the nuns of Santa Clara and the clerics of Huamanga. The case was complex with its webs of alliances and strategies of resistance. The case also revealed the cooperation of members from several native communities and the increased mobility of the *obraje's* workers. Before exploring in detail the complex particulars of the case, we need to explore its immediate historical context.

After the death of Luis Suárez in 1780, it appears that the *obraje* of Pomacocha was without a proper administrator appointed by the Monastery of Santa Clara until 1782. From Suárez's death until 1782, the *obraje* was temporarily under the charge of the Cacamarca *obraje* administrator Manuel Ruiz de Ochoa and his father Cayetano Ruiz de Ochoa, who was the head of the infantry divisions sent to suppress the Tupac Amaru II rebellion. The Ruiz de Ochoas took advantage of the Tupac Amaru II rebellion

[171] BL, Viceroy, Add MS 17582, f. 65r, 1796. Original: "Los espantosos sucesos de la Nacion Francesa, que traen en agitacion á toda la Tierra…"
[172] AGI, Descripción, MP Libros Manuscritos, No. 9, f. 85v, 1789.
[173] *Ibid*.
[174] BNP, Querella de los indios de Pomacocha contra Don Bernardo Mendoza, C2011, 1793.

to manipulate more property into their own hands, including that of the Monastery of Santa Clara. For example, they usurped, although with compensation, the house and ranch that Luis Suárez had donated to the Monastery.[175] Under their administration, the prison populations of both Cacamarca and Pomacocha swelled illegally.

In February of 1782, the viceroy Agustín de Jáuregui ordered that Cacamarca and Pomacocha should be inspected because of "the reports that have been made about how much the Indians and servants have suffered, that in those [obrajes] they are imprisoned against what is proscribed by laws and by the same humanity...(Salas 1998a: 426)."[176] Manuel Ruiz de Ochoa, however, did not obey the order, and the viceroy decreed on May 20th, 1782 that the administrators of the two *obrajes*, specifically Don Cayetano Ruiz de Ochoa and Don Manuel Ruiz de Ochoa "with no motive nor pretext should order to serve in the obraje that is under their charge, nor admit as prisoner anyone without notice and knowledge of the corregidor of the province or in the case of his absence...the major justice or the person who exercises the royal ordinary jurisdiction... (*ibid*)"[177] Although the decree did not put an end to the illegal practices of imprisoning people in *obrajes* without due process, it did allow the Monastery to reassert their ownership of the *obraje* of Pomacocha.

From 1783 to 1787, the administrator of Pomacocha was Melchor Peralta, the same priest who had unsuccessfully tried to rescue the tax collector Felix Lisbona from the community of Vischongo in 1787. The profits from the *obraje* of Pomacocha was much less than before the Tupac Amaru II rebellion because the *obraje* infrastructure was in a "ruinous" state and needed significant capital to refurbish and to replenish supplies.[178] The capital was provided by Don Alejo Lagos, an important creditor from Huamanga and the administrator of the *obraje* of Chincheros. According to Melchor Peralta, Lagos' "machinated" to make Melchor Peralta insolvent by accusing Peralta of being late on his payments and of being an ineffective and unprofitable administrator to the Monastery.[179] Peralta insisted that he had been administrator without any complaints and had paid the Monastery the 4500 pesos a year required of him in his nine-year contract without any delays. According to Peralta, Lagos manipulated the Monastery to usurp his position as the procurator of the Monastery of Santa Clara and the administrator of Pomacocha *obraje* for the benefit of his sons and to ruin the Monastery. From 1788 to 1791, the son of Alejo Lagos, José Lagos, was the

[175] ARAY, Autos, Corregimiento, Causas Ordinarias, Legajo 15, ff. 38r-42v, 1780.

[176] Original: "...por motivo de los informes que le habían ministrado de lo mucho que padecen los yndios y sirvientes que en ellos se encierran contra lo prevenido por leyes y a la misma humanidad..."

[177] Original: "...que con ningún motivo ni pretexto ordenen a servir en el obraje que esta a su cargo ni admitan en el preso alguno sin que proceda la notisia y consentimiento del corregidor de la Provincia o por su ausencia...justicia mayor o de la persona en ello exersa la Real Juisdicción ordinaria..."

[178] ARAY, Auto seguido por don Melchor Peralta contra los Herederos de don Alejo Lagos sobre prejuicios y atropellamiento, Intendencia, Causas Civiles, Legajo 5, Cuaderno 12, f. 5r, 1794.

[179] *Ibid*: f. 5r; ARAY, Compulsas de los autos que sigue Don Melchor José Mendoza, procurador del Monasterio con Don Alejos Lagos sobre cantidad de pesos, Intendencia, Compulsas Ordinarias, Legajo 25, Cuaderno 3, ff. 90r-92r, 96r-99r, 1793.

administrator of the *obraje* of Pomacocha and Alejo Lagos became the Monastery's procurator. Peralta's complaint, which was first put forward in 1791, coincided with the removal of Alejo Lagos and José Lagos from their posts because of the continued lack of profitability of the *obraje* and a number of other irregularities of their administration.[180]

The Monastery of Santa Clara appointed a priest named Bernardo de Mendoza as the new administrator of Pomacocha *obraje* in 1791. He was the brother of the new procurator of the Monastery Melchor José de Mendoza. As bringing the *obraje* up to profitability was Bernardo de Mendoza's primary objective, he quickly violated hallowed *costumbre* and drew the ire of the workers. According to the workers of Pomacocha *obraje* and its satellite *hacienda* Chanin, Bernardo de Mendoza was remiss in adjusting the account books of the workers, had elevated by double the value of cloth and seeds given as wages, and did not pay the workers consistently, giving some more wages than others.[181] Bernardo de Mendoza was also accused of being a brutal administrator who violated the law. He resorted to lashing the workers at the smallest provocations, such as having relations with an Indian woman or complaining about the elevated prices. As an example of his brutality, when one of the workers, Feliz Rojas, was put on the ground and given one hundred lashes, his mother came to plead for her son, but was forcibly brought to the ground for standing up for her son. Although a priest, he ordered the workers to work every single day, even on Sundays and religious holidays. Apart from the workers' complaints, an Indian from Huamanga, Manuel Delgado, was falsely imprisoned by Bernardo de Mendoza when he went to the *obraje* to pick up a mule his mother purchased from a worker named Yldefonzo Taype.[182] Bernardo de Mendoza accused him of stealing the mule and imprisoned him for over nine months, forcing him to work inside the *obraje*. He was only released after his mother's petition to the bishop of Huamanga had succeeded.

The list of violations of *costumbre* committed by Bernardo de Mendoza provides us a good understanding of what was traditionally expected of the administrator. The workers complained that he did not give: 1) twelve reales' worth in cheeses during customary times, 2) an *arroba* of dried meat to each individual, 3) aid in seeds, liquor and candles during times of sickness, 4) two *reales* to each individual for each of the four major festivals of the year, 5) six *collos* of seeds during planting season to each individual, 6) for All Saints' a *real's* worth of bread and a *real's* worth of candles, 7) for Lent, two *reales'* worth of candles, and 8) payment for burials, marriages, and other religious services to the priest of Vischongo. The complaint ended with a petition to remove Bernardo de Mendoza from his post as administrator, to investigate his unlawful actions, and to correct the accounts in the city of Huamanga in front of the Protector of Natives. The workers had testified that previous administrators had respected

[180] *Ibid.*; BNP, Querella, C2011, f. 10v, 1793.
[181] BNP, Querella, C2011, ff. 1r-4r, 1793.
[182] *Ibid.*: ff. 6r-8v.

costumbre, and said that the administration of the previous administrator, José Lagos, was "more gentle" than that of Bernardo de Mendoza.[183]

Bernardo de Mendoza's defense was full of ad hominems and evasive language. His rather incoherent responses could be divided into three categories. The first category involved discrediting the character of the workers who had complained, calling them drunkards and co-conspirators.[184] The second category involved accusing Alexo Enciso, the priest of Vischongo, as the principal agitator. Mendoza said Enciso was his "capital enemy who has perturbed and incited all the people, seducing them against me without cause or motive other than to exercise his rebellious genius."[185] His characterization of the workers as essentially passive unless put up to bad behavior by other castes demonstrated the exactly kind of arrogance the workers found so off-putting. Mendoza blamed Enciso for the workers' complaints. According to Mendoza, Encisco had intended for him to become the workers' enemy by promising to "denigrate and aggravate whenever possible [Mendoza's] conduct and at the same time defend them [the Indian workers] and to espouse [their cause], and with this shield they [were] incorrigible and insolent, neglecting their respective tasks in the said obraje to the prejudice of the interests of the poor nuns...thus with this motive they [went] about like lazy vagabonds in those places [around Pomacocha] as well as in this city [Huamanga]..."[186] Contrary to Mendoza's narrative, the workers had initiated the political actions by telling all the Spaniards who lived nearby, including the priest, the truth of what was transpiring in the *obraje*.[187]

The third category of his responses involved justifications for why he was not able to uphold *costumbre* and pay the workers regularly. Bernardo de Mendoza never directly answered the charges that he physically punished the workers and even admitted to most of the accusations that he had not paid them in a regular manner, blaming the dire financial straits that the *obraje* was in when he had taken over as administrator.[188] Mendoza promised that his brother, the procurator Melchor José de Mendoza, will pay the workers in full. He specifically denied only a couple of the accusations, including the accusation that he had not paid for the workers' religious services. He claimed that Enciso had double charged the workers and that he had the receipts to prove it (but he did not produce the receipts). He also denied that he exaggerated the value of the cloth and seed used to pay the workers, saying that all the

[183] *Ibid.*: f. 1r; ARAY, Compulsa, Intendencia, Compulsas Ordinarias, Leg. 25, Cuad. 3, ff. 123r-123v, 1793.
[184] BNP, Querella, C2011, f. 10v, 1793.
[185] *Ibid.*: f. 10r. Original: "...mi Capital enemigo quien tiene pertubada, y alboratada toda aquella Jente seduciendolos en contra mia sin mas causa ni motibo que exerser su Jenio Reboltoso..."
[186] *Ibid.* Original: "...Denigrar y agravar quanto pueda mi conducta y asimismo de Defenderlos y Patrocinarlos, y con este escudo estan Yndomitos é Ynsolentes sin asister a sus Respectivas tareas en dho Obraxe en perjuicio de los Yntereses de las Pobres Religiosas... pues con este motibo andan vagando ociosos asi en aquellos Lugares como en esta ciudad..."
[187] *Ibid.*: f. 1r.
[188] *Ibid.*: f. 10v

values had been pre-approved by the Monastery of Santa Clara and was done according to custom.

The Monastery of Santa Clara defended Bernardo de Mendoza's administration, not by denying that the abuses had happened, but by saying that the Indian workers of the *obraje* had been incited to revolt by Alejo Lagos and by the priest of Vischongo, Alexo Enciso.[189] In their petition to prohibit Alejo Lagos from interfering with the administration of Pomacoha, the Monastery detailed the various aggressive acts committed by the workers. Previous legal decisions were in favor of Lagos and the workers. To emphasize Lagos' alleged manipulative genius, the petition stated that Alejo Lagos had used "accustomed iniquities" to trick "the Judges with his [appearance of] concern."[190] First, they accused Alejo Lagos and his son José of allying with Alexo Enciso to influence all the Indian workers of the *obraje* to be against Bernardo de Mendoza for the purpose of taking over the *obraje*. The paralysis of the *obraje*'s operations had already cost the Monastery 1,500 *pesos*. After saying that the *obraje* was their only source of food for daily sustenance, the Monastery accused Lagos of "wanting to return to our obraje to kill us by starvation as he had done during the time of his administration working only for himself, taking his advantage of the products and fruits of the hacienda."[191]

According to the Monastery, Lagos had influenced all of the Indian women of the *obraje* to rise up and say that they will burn the *obraje* down with the administrator inside. Lagos' sons, José and Alejandro, had forcibly evicted two of the Monastery's allies from the *obraje* with punches and lashes and threatened others against testifying in favor of the Monastery. Lagos encouraged all the workers to leave the *obraje* to be present in the city of Huamanga to file various complaints against Bernardo de Mendoza. To garner sympathy for their argument, the Monastery said that because all the workers left for Huamanga, they no longer went to church and confession.[192] Even worse, one of the Indian women named Maria had forcibly entered the Monastery to convince the servants of the Monastery to lose respect for Bernardo Mendoza. The Monastery petitioned for Maria to be put in prison as "an example to the other revolters."[193]

Given the Monastery's official duty to protect the Indian workers from harm, why did the Monastery defend Bernardo de Mendoza's conduct? First, Bernardo de Mendoza's stinginess did result in higher profits for the Monastery, and it is uncertain

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[189] ARAY, Expediente iniciado por Doña Manuela Galbes Abadesa del Monasterio de Santa Clara de esta ciudad contra Alejo Lagos para que no se entrometa en la Administración del obraje de Pomacocha, Intendencia, Pedimentos, Legajo 47, Cuaderno 50, 1793.

[190] *Ibid.*: f.1v. Original: "…usando de sus acostumbradas iniquidades engañando a los Señores Jueces con su Cabilacion…"

[191] *Ibid*. Original: "…su fin es el querer volber a nro Obraje para matarnos de anbre como lo hiso en todo el tiempo q/e administró trabanjando solo para si, áprobechandose de los productos, y frutos de la Acienda…"

[192] *Ibid*: 1r.

[193] *Ibid.*: f. 2r. Original: "…para exemplo de las demas tumultuantes…"

whether such profits could be maintained while still honoring *costumbre* in a declining cloth economy. Because the Monastery had depended on the profits of the *obraje*, they were inclined to defend Bernardo de Mendoza. Comparing the salaries paid to the workers of Pomacocha in 1788-1790 (3534 *pesos* per year) versus the 1750s (4727 *pesos* per year), the work force of the *obraje* had shrunk significantly.[194] In 1788, under the administration of José Lagos, the adult working population of the Pomacocha *obraje* was only fifty-five, and each owed an average of twenty-four *pesos,* showing the lack of surplus capital among the workers.[195] The labor force was more unstable, requiring the hiring of "guayras" or temporary workers to make up the labor shortages.[196] Productivity per worker also seemed to have decreased. In the mid-1750s, Pomacocha would typically exceed 30,000 *varas* of cloth, but in 1789, the *obraje* only produced 12,431 *varas*, which was a more dramatic decline than the decline in the number of workers.[197] Clearly, the *obraje* of Pomacocha was much less profitable than before. The decline was worse for Cacamarca *obraje*, formerly the largest in Vilcashuamán province. In the 1750s, the average annual production was 56,078 *varas* per year, but from 1786 to 1799, the average was only 7,526 *varas* per year (Salas 1998b: 270).

Second, the abbess Manuela Galvez, the primary author of the petition, shared the same attitudes about the Indian workers as Bernardo de Mendoza. They both saw the Indian workers as essentially passive unless put up to bad behavior by Spaniards, which then should be swiftly punished to set a good example for the other workers. Both saw complaints as showing a loss of respect and unbefitting for an Indian's station. The workers had no place to complain against their superiors. Judging from their written defenses, it never crossed the minds of the abbess and Bernardo de Mendoza that perhaps the workers themselves originated the political action because of legitimate grievances. The workers said that they tried to convince whomever they could of the abuses committed by Bernardo de Araujo. The Monastery and Bernardo de Araujo automatically assumed that because Alejo Lagos and Alexo Enciso provided support to the workers that the revolt must have been the Spaniards' machinations. Because the court system and general public opinion was in favor of the Indian workers and Alejo Lagos, the abbess was incensed that the Indian workers had caused such scandal in the whole region and had embarrassed them, which only made the abbess become more defensive.

Third, the case had exacerbated long-standing political tensions within the enclosed community of nuns of the order of Santa Clara in Huamanga. In the petition, Manuela Galvez specified that José Lagos be notified that he should not set foot on the premises of the Monastery "to avoid dissension between the nuns because of the discord

[194] ASF, Razon, Reg. I-10, No. 1, 5A, f. 25r; ARAY, Compulsa, Intendencia, Compulsas Ordinarias, Leg. 25, Cuad. 3, ff. 14v-15r, 1793.
[195] ARAY, Auto, Intendencia, Causas Civiles, Leg. 5, Cuad. 12, ff. 11r-11v, 1794.
[196] ARAY, Compulsa, Intendencia, Compulsas Ordinarias, Leg. 25, Cuad. 3, f. 15v, 1793.
[197] ASF, Razon, Reg. I-10, No. 1, 5A, f. 25r, 1754 (?); ARAY, Compulsa, Intendencia, Compulsas Ordinarias, Leg. 25, Cuad. 3, ff. 205r-218r, 1793.

that will be put against our procurator, and incite the Monastery."[198] Manuela Galvez was not respected by many of the nuns. For example, in 1783, many of the sisters had filed a formal complaint against Manuela Galvez and her biological sister Inés.[199] Certainly, there were nuns who were more sympathetic to the Indian workers or to Alejo Lagos, and Manuela Galvez, recognizing the influence the Lagos family had, wanted to prevent them from setting foot on the premises of the Monastery and give political ammunition to her detractors. The political tensions would have made the abbess loath to admit any mistakes in her leadership.

The justice system supported the claims of the Lagos family and the Indian workers. The Bishop of Huamanga's decision regarding the workers' complaints emphasized that Bernardo de Mendoza had not cooperated fully with the investigation nor had he provided written proof of his claims.[200] The Bishop's independent investigation had supported the workers' claims. The Bishop decreed that because the priest Bernardo de Mendoza had been "managing interests that were improper for his high status" that he be notified that "not even with the pretext of being a chaplain should he return to set foot in that hacienda [of Pomacocha]" and that he needed to satisfy "what is justifiably earned by the miserable Indians in their accounts."[201] Calling the *obraje* of Pomacocha, "a disguised prison,"[202] the Bishop implied that Bernardo de Mendoza had been illegally imprisoning people for his own profit. The Bishop also decreed that Alexo Enciso, the priest of Vischongo, be transferred elsewhere after the accounts of the Indian workers were satisfied and that he no longer be involved in "either good or bad in exciting people in their pastoral ministry in matters so contrary to the fulfillment of their obligation."[203] In concordance with the workers' wishes, the Bishop decreed that a new administrator should be appointed to the *obraje* of Pomacocha. According to the Bishop, the new administrator should have the duty of giving Mass, teaching the Christian doctrine, explaining the sacred evangelism, correcting the vices, and giving a good example to the people without being involved in "cartels, punishments, imprisonments, [which] are so far from the celestial state..."[204]

[198] ARAY, Expediente, Intendencia, Pedimentos, Leg. 47, Cuad. 50, f. 2r, 1793. Original: "…para ebitar disencion entre las Religiosas por la sisaña que biene ameter contra nro Procurador, y Alborotar el Monasterio."

[199] ARAY, Causa promovido por las madres religiosas de Santa Clara, contra sus hermanas Inés y Manuela Galvez, Corregimiento, Causas Ordinarias, Legajo 16, No. 265, 1783.

[200] BNP, Querella, C2011, ff. 11r-11v, 1793.

[201] *Ibid.*: f. 11r. Original: "…manexando intereses, impropios de su alto estado, se le hara saver, que ni con pretexto de Capellan vuelva á poner los pies en aquella en aquella Hacienda, satisfaciendo, lo que justamente al canzasen los miserables Yndios en las cuentas..."

[202] *Ibid.* Original: "…Obraxe de Pomacocha, que es un disimulado Presidio…"

[203] *Ibid.*: f. 11r Original: "…en bueno ni en malo en enfaginar á las gentes de su Pastoral ministerio en asuntos tan contrario al cumplimiento de su obligación…"

[204] *Ibid.*: 11v. Original: "…consorcios, en castigos, y prisiones, tan ajenas del estado Celesiar./o…"

Because of the decree and the unwillingness of the workers to return to the *obraje*, Bernardo de Mendoza was replaced by Friar Gregorio González Buenosvinos.[205]

The 1793-1794 workers' revolt at Pomacocha demonstrated many of the social trends of the late colonial period. First, the case demonstrated geographic expansiveness of inter-caste alliances. The workers had travelled to Huamanga to plead their case. People from the population centers of Pomacocha, Vischongo, Vilcashuamán, Cangallo, and Huamanga were part of the workers' alliance against Bernardo de Mendoza.[206] Some of the workers were even housed by Lagos while they were in Huamanga.[207] Second, the visibility in the archival record of women's leadership in late colonial revolts and rebellion was clear in Pomacocha's case as well. Contrary to the highly gendered Spanish thinking that native women were incapable of political action, both the nuns of Santa Clara and the Indian women of Pomacocha *obraje* were arguably the real leaders on both sides.

Third, the coordination of the workers' revolt meant that they were effective in leaving the *obraje* en masse. The working population in 1793 was sharply divided between free labor and the surging prison population. The free labor travelled relatively frequently because they needed to send the Monastery the fruits of agricultural labor on a regular basis, creating ample opportunities for inter-caste alliances across the wider landscape. As the *obraje* focused more of its activities on agriculture, it became harder to police the free labor (Salas 1998a: 522), and the *reparto* and growing prison population added resentment from the poor of all castes. The alliances activated over the landscape in this particular revolt correlated with the geographic and ethnic composition of a new identity known as the Morochucos, which means multi-colored hats in Quechua (Aguirre Cárdenas 2008: 489). The Morochucos were Quechua-speaking *mestizos* and Indians who dedicated themselves to animal husbandry and mule-driving. Their core area was the *pampa* of Cangallo, which included the western lands of Pomacocha. Their economic and cultural origins were the mule-drivers of the *obrajes* of Vilcashuamán (Igue 2008, 2013). They would start to develop a political identity after the 1814 indigenist rebellion of Angulo and Pumacahua and become fearsome rebels in support of Peruvian independence. It was through the participation in the War of Independence that the Morochucos, a diverse conglomeration of peoples, were recognized as a unified identity after independence (Igue 2008: 38). The inhabitants of Pomacocha were among the Morochucos and their supporters during the Wars of Independence. The *obraje* of Pomacocha became an important rebel base during the Wars of Independence (see next section).

[205] ARAY, Auto seguido por Don Bernardo Mendoza Presvítero con el Procurador del Monasterio de Santa Clara de esta ciudad sobre liquidación de Cuentas, resultiva de la administración del obraje de Pomacocha, Intendencia, Pedimentos, Legajo 47, Cuaderno 72, 1796.
[206] ARAY, Compulsa, Compulsa, Intendencia, Compulsas Ordinarias, Leg. 25, Cuad. 3, ff. 121v-126v, 1793.
[207] BNP, Querella, C2011, f. 1v, 1793.

10.3.2 From Angulo-Pumacahua rebellion (1814-1815) to Pomacocha as a Morochuco rebel base during the war of independence (1821-1824)

Around the time that José de San Martín declared Peruvian independence on July 28th, 1821, Don Ignacio Oré petitioned to not pay the Monastery of Santa Clara of Huamanga for his rental of the *obraje* of Pomacocha and its *haciendas* Chanin and Champacancha (Carhuanca) because they "had been appropriated by the enemy dissidents called Morochucos."[208] Shortly after, on February 12th, 1822, a major battle between rebels and royalists occurred in the "heights of Pomacocha." A force of thirty rebels from Ica had joined eight hundred Indians and *mestizos* in Pomacocha and fought the royalist forces of José Carratalá. The royalists had "won" the battle with only four injured and in a letter to the viceroy on February 18th, 1822, Carratalá boasted:

> Most excellent Sir: The twelfth of the present [month] I was able to meet on the heights of Pomacocha a team of thirty enemies from Ica, to those which had united around eight hundred Indians and mestizos, all whom were well situated in three strong positions. I advanced with sixty infantry from the first Regiment and thirty horsemen of San Carlos, and penetrating speedily in the center of the enemy line I divided in two halves the cavalry, which at the charge effectively surrounded the rebels putting them in hasty escape, and causing them in brief moments the loss of forty [lives] and many wounded: they also left in our power five rifles, six lances and some horses.[209]

Carratalá may have won the battle, but the royalists could not maintain control because the rebels used guerrilla warfare tactics (Igue 2008: 74; McFarlane 1998: 332). From Carratalá's own description of the battle, the hasty retreat of the rebel forces after a quick initial confrontation was indicative of guerrilla tactics. The overwhelming majority of Indians and *mestizos* in Pomacocha and its surrounding areas supported the rebel cause. To put the number of 800 Indians and *mestizos* who fought against Carratalá at Pomacocha in perspective, the total number of adult men (Indian, *mestizo*,

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[208] Archivo Regional de Cusco [ARC], Real Audiencia, Expediente sobre la remisión de las relaciones de causas criminales y civiles que envió de mutuo propio el el juzgado de la ciudad de Guamanga provisionalmente al Tribunal de la Audiencia de Cusco, Administrativo, Legajo 178, Folio 32, Expediente 31, f. 9v, 1822. Original: "Año de 1821.... D./n Ygnacio de Ore ha promovido, instancia sobre no debe pagar a la comunidad de las Monjas de Santa Clara los arrendamientos del obraje, y Hacienda de Poma Cocha en virtud de haberse apropriado los Enemigos disidentes llamados Morochuchos…"

[209] José Carratalá al virrey La Serna. Huamanga, 18 de febrero de 1822. Original letter printed in the *Gaceta del Gobierno Legítimo del Perú*. Cuzco, March 1st, 1822. Excerpt of transcription from *Colección documental de la independencia del Perú*, Tomo XXII, vol. 3, p. 142, Horacio Villanueva Urteaga, editor. Original: "Excmo. Señor: El 12 del actual pude encontrar sobre los altos de Pomacocha a una partida de treinta enemigos procedentes de Yca, a los que se habían unido como ochocientos Yndios y Mestizos, colocados todos en tres fuertes posiciones. Me adelanté con sesenta infantes del primer Regimiento y treinta Caballos de San Carlos, y penetrando velozmente por el centro de la línea enemiga dividí en dos mitades la caballería, que a la carga embolvió acertadamente a los rebeldes poniéndoles en precipitada fuga, y causándoles en pocos momentos la pérdida de quarenta muertos y muchos heridos: dejaron también en nuestro poder cinco carabinas seis lanzas y algunos Caballos…"

and Spanish) in the *partido* of Vilcashuamán in 1829 was only 3427.[210] Almost exactly two months after Carratalá's self-congratulatory letter, the military commander Colonel Don Gabriel de Herboso wrote about the impossibility of collecting tribute tax (*única contribución*) in the *partido* of Vilcashuamán (formerly known as Vilcashuamán province before 1784, also known as the *partido* of Cangallo).[211] From 1820 to 1822, Herboso and his team tried to collect tribute tax from the communities of Vilcashuamán, but the heavy insurgency in all parts of Vilcashuamán had almost cost him his life:

> ...[M]iraculously I had been able to save my life, or at least I had escaped from falling prisoner in the hands of the rebel dissidents. Do not ignore, your Lordship, that from the moment I acquired the order I had exposed my life to eminent danger of losing it; neither doubt that [Vilcashuamán] partido and all its neighboring places are and have been the most agitated points...[212]

The rebels were in clear control of Pomacocha and its neighboring areas from 1821 until after independence. The *obraje* of Pomacocha ceased to function during this time and became an important rebel base. The *obraje* of Pomacocha was situated on the main highway known as the "camino de las tropas" and was a choke point because it was also next to a bridge (Figure 10.1).[213] Its proximity to the royalist base of Vilcashuamán ensured that the royalists would have difficulty maintaining control of the countryside. Pomacocha was in a highly defensible location because it was surrounded by mountains and rocky places of refuge, allowing for continuous potential control of the whole area even in retreat.

According to the subdelegate of Lucanas in 1821, the people of the *partido* of Vilcashuamán "had always been rebellious people, and addicted to insubordination

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[210] AGN, El Contador General de la contaduría de contribuciones hace presente ni el sub-Prefecto de Cangallo, D. Miguel Garcia, ni el Apoderado Fiscal han remitido las matrículas de contribuyentes de esa Provincia, como también el descubierto en que se halla el susodicho Garcia, Ministerio de Hacienda, PL-9, Documento 239, August 14, 1829.

[211] BNP, Razón y lista que yo don José Joaquín de Garayoa, Juez Comisionado del partido de Vilcashuamán, formo del dinero que he recaudado perteneciente al ramo de la única contribución especial designación de los pueblos, estancias, pagos y haciendas y con distinción de las cantidades que han pagado, y de quanto restan los suso dichos que no han satisfecho á pesar de muchas recombenciones, por oficios, recados, propios y demas diligencias por la combulsion del tiempo, y p./r la imbasion de los disidentes, cuya cobranza se ha hecho con arreglo al Padronsillo que seme há entregado p./r los señores e Ministros de la caxa adicional, D620, ff. 3r-3v, April 22, 1822.

[212] *Ibid*. Original: "…milagrosamente he podido salvar mi vida, ó al menos hé escapado de caer prisionero en manos de los rebeldes disidentes./f. 3v/ No ignora VS. q/e desde el momento q./e me posecioné del mando he expuesto mi vida al eminente peligro de perderla; tampoco duda que aquel Partido y todas sus comarcas son y han sido los puntos mas alterados…"

[213] AGI, Mapa original de la Intendencia de Guamanga en el Perú. Dividida en sus seis partidos o subdelegaciones, y subdividida en 56 doctrinas. Levantada de orden de su Gobernador Intendente don Demetrio O'Higgins, por varias observaciones astronómicas y demarcación general de ella, hechas sobre el terreno en 1803 y 4, siendo el primer plan que se ha levantado metódicamente de estos países, Mapas y Planos, MP-PERU_CHILE,158BIS, 1808.

(Igue 2008: 65).”[214] Rebel control and sympathy in the *partido* of Vilcashuamán paved the way for military operations by Simon de Bolívar in 1824. On September 20th, 1824, Simón de Bolívar stayed overnight in the *obraje* of Pomacocha while on his way to Vilcashuamán (Bolívar 1950 [1824]: 25). The next day, a battalion of Bolívar's troops led by General Bernardo O'Higgins also stayed in the *obraje* of Pomacocha peacefully (O'Higgins 1916 [1824]: 119). The governor of Pomacocha who had fed O'Higgins' troops was the leader in the 1821 takeover of Pomacocha, acting under the orders of the rebel general and Englishman William Miller. Later that day, O'Higgins and his troops left Pomacocha and arrived in Chanin, where they met up with locals whom he called “guides.” They had usurped all of the buildings of Chanin and formed a part of the cavalry (*ibid*: 120).

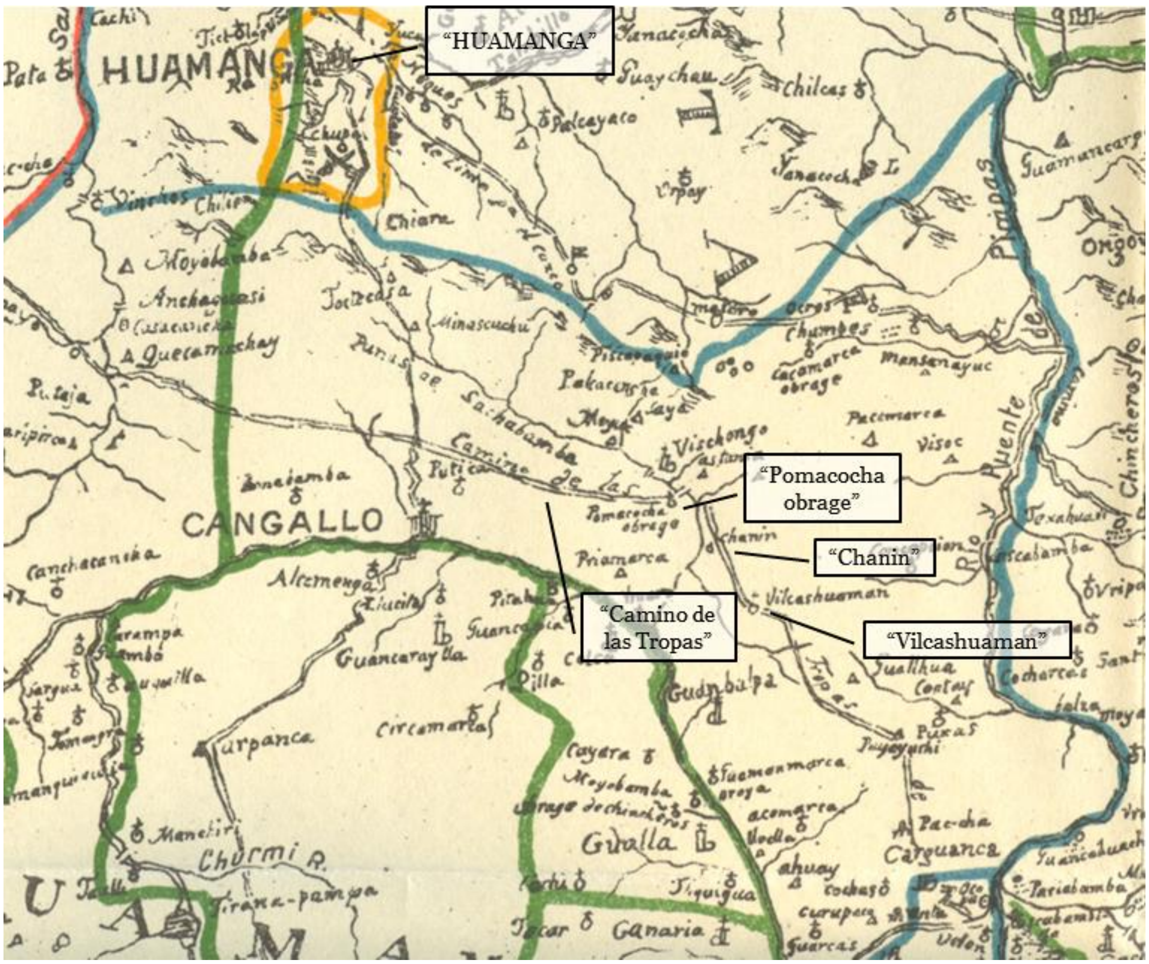

Figure 10.1: Excerpt of a facsimile of an early nineteenth century map of the Intendancy of Huamanga by Intendant Demetrio O'Higgins (Saavedra 1906: 36). Original map: AGI, Mapas y Planos, MP Peru_Chile, 158BIS, 1808.

[214] Original: “…siempre ha sido de gente altanera, y adicta a la insubordinación.”

In the early nineteenth century, Pomacocha was a barely functioning and deteriorated *obraje* and *hacienda*. The *obraje* had a free working population of only thirty-four adults in 1821.[215] How did a sleepy *obraje* community become so central in South American Independence and mount anticolonial resistance that was so cosmopolitan in its composition? What were the economic factors that gave rise to coordinated populist movements in the early nineteenth century? Who were the Morochucos who took over Pomacocha? In this section, I first explore how the economic circuits that *obrajes* had promoted over hundreds of years were critical in the geographic scope of who participated in coordinated resistance, even as the *obrajes* themselves declined in importance. Second, I explore how major social movements of the early nineteenth century preceding the wars of independence would have affected social cohesion in Pomacocha and its surrounding areas. I explore the mechanisms of popular participation in these movements, particularly the rebellion of Angulo and Pumacahua in 1814-1815. Third, I trace the origins of the rebel Morochucos who had taken over Pomacocha in 1821. I argue that contrary to the popular whitewashed narrative that Morochucos were homogenously descendants of creole Spaniards and *mestizos* (e.g., Dolinger 1958; Mendívil 1968; Pozo 1924), they were in fact a conglomeration of diverse peoples, primarily of the "Indian" caste, who had allied politically during the wars of independence from 1820 to 1824.

The *obrajes* of Vilcashuamán were shells of their former self in the early nineteenth century. In their prime, their geographically far-flung economic circuits integrated markets all over the Andes, from Panamá to Potosí in southern Bolivia and Tucumán in northwestern Argentina (Salas 1998b: map 5; see chapter 9.1). After about 1770, however, the geographic extremes of their economic circuits, such as Oruro and Potosí in Bolivia, were no longer economically viable places to receive or send goods, in part due to lower prices and in part due to rising *alcabala* taxes (Salas 1998b: 392-394, 501). In the case of Pomacocha, Potosí ceased being a market to send textiles in the 1790s due to the *alcabala*. Customs houses strictly imposing the *alcabala* led the Monastery in 1789 to petition to revindicate their long-standing exemption, which had existed since the 1730s, from *alcabala* tax, but apparently without success (Mendizabal 1958: 276-282). Smaller, domestic textile manufactories called *chorillos* became more economically viable because they produced for local markets (Salas 1998b: 405). Unfortunately, the woolen cloth produced by *chorillos* were generally inferior to those produced in *obrajes*, giving rise to worker discontent when they were paid in *chorillo* rather than *obraje* cloth (*ibid*:413-414).

Although *obraje* economic circuits of the early nineteenth century were more geographically contracted than before, they still integrated regional markets. Thus, *obrajes* were still indirectly contributing to far-flung markets by way of more local

[215] ARAY, Don Ignacio Ore vecino de esta ciudad arrendatario del obraje de Pomacocha en el Partido de Vilcas huaman, propia del Monasterio de Santa Clara, reclama sus derechos Locatario de dicho obraje, Intendencia, Pedimentos, Legajo 48, Cuaderno 152, July 24, 1824.

regional markets. Furthermore, the economic circuits of Vilcashuamán *obrajes*, even in their decline, had generated and reinforced social relationships over the wider landscape. Some of the social relationships, especially at the regional level from which labor was drawn, produced and reinforced kinship networks, and others reinforced the networks of popular communication over long distances. Economic circuits created by the *mita* labor draft of Huancavelica, for example, facilitated linguistic boundaries based on the geographic scope of the draft (Pearce and Heggarty 2011). Likewise, the geographic distribution of where the Vilcashuamán *obrajes* drew their labor would have also created zones of cultural affinity. The speed at which news travelled to the populace of rebellion over thousands of kilometers was a matter of weeks due to the thickly integrated economic networks. Mule-drivers, such as those connected to or employed by *obrajes*, were especially effective harbingers of news (Flores Galindo 1987). Pomacocha fared well compared to Cacamarca in terms of cloth production in the early nineteenth century, perhaps due to its convenient location on the main highway and the astute business practices of the nuns of Santa Clara (see Burns 1999). In 1814, the *obraje* of Pomacocha was commanding 1100 *pesos* in rent each year compared to only 500 *pesos* each year for the *obraje* of Cacamarca.[216] In the early nineteenth century, the *obraje* of Pomacocha was still receiving wool from a ranch called Tucle, 250 kilometers to the northwest in Junín (Urrutia 2014: 63). As late as 1791, Pomacocha had been receiving wool from the valley of Jauja, 300 kilometers to the northwest, from Collao 550 kilometers to the southeast.[217] During Pomacocha's prime, it was receiving wool from the aforementioned places as well as Bombón in Apurimac, which was twenty-five kilometers to the northwest.[218] Markets also regionalized in the early nineteenth century, with Cocharcas, Huamanga, Cerro de Pasco, Ica, and Lima becoming the most important outlets for Vilcashuamán *obrajes* (Salas 1998b: 413; Urrutia 2014: 105-107). The geographic scope of the general Andean rebellions of the late eighteenth and early nineteenth century coincided perfectly with the economic circuits of *obrajes* during the time of rebellion. I doubt the concordance was coincidental. With each general rebellion, political action was activated among diverse groups along these economic circuits, which further strengthened networks of coordinated political action in the future. Local animosities no longer prevented coordinated political action over the wider landscape because one could plug into a network of political cooperation, which does not require a socially or politically homogenous landscape.

After the Tupac Amaru II and Katarista general Andean rebellions, the next major indigenist general rebellion was initiated by the creole Spanish José Angulo and the prominent *casique* Don Mateo García Pumacahua in 1814 in Cuzco. At its height, the

[216] ARAY, Arrendam./to el Monas/o de S./ta Clara, a fabor de d/n Ygnacio de Ore del Obrage de Pomacochas y sus tierras, Notariales,Esteban Morales, Legajo168, Protocolo 202, ff. 172v-174r, August 16, 1814. ARAY, 1o Tratado la comun/d de Religiosas del Monast/o de Santa Teresa de Jesus sobre la venta en enfiteusis del Obraje de Cacamarca, a D/n Gaspar Mendieta, Notariales, Esteban Morales, Legajo 168, Protocolo 202, ff. 186r-193r, September 10, 1814.

[217] ARAY, Compulsa, Intendencia, Compulsas Ordinarias, Leg. 25, Cuad. 3, 1793, f. 37v.

[218] ARAY, Ricvo, Notariales, Benegas de Toledo, Leg. 79, Prot. 99,1701, f. 424r.

rebellion found popular support and participation in the Intendancies of Cuzco, Huamanga, Huancavelica, Arequipa, Puno, and La Paz, roughly the same geographic scope as the Tupac Amaru II and Katarista rebellions over thirty years before (Sala i Vila 1996: 228). The natives of the Ayacucho region were infamous for their revolutionary fervor. In 1815, the bishop of Huamanga said, "The Indians were the most addicted to the revolution…and their independence their principal attraction (Sala i Vila 1996: 231)."[219] Indian women brought the city of Huamanga to its heels during the rebellion. When 400 Indian commoners were forcibly drafted by the government to put down the Angulo/Pumacahua rebellion, their wives, mothers, and sisters revolted and broke the doors of their cells, commandeered arms, and sacked stores and houses in Huamanga. They attacked the house of the Intendant, and the Europeans along with some creole Spaniards had to flee the city toward Huanta for refuge (Sala i Vila 1989: 657). Women seemed to play an active role in the rebellion (Glave 2013). In a letter dated February 25th, 1815, the abbess of Santa Clara, Sor Maria Antonia del Sacramento y Tapia, complained that the nuns were starving to death without any bread or meat for six months because *all* of their rural properties were "found sacked and in power of the insurgents…"[220] Given that the *obraje* was considered a rural property or "finca" by the Monastery and that it supplied food on a regular basis, it is highly likely that Pomacocha was among the properties sacked, especially as the area surrounding Pomacocha, and indeed almost all rural areas of Ayacucho, was sympathetic to the rebellion.

The 1814 Angulo/Pumacahua rebellion was sparked by the crisis of political authority that began when Napoleon invaded Spain in 1808 and forced King Charles IV and his son Ferdinand out of the throne (Andrien 2001: 226). A new constitution was ratified in 1812 by the Spanish government in exile. Known as the Constitution of Cádiz, it abolished the Indian head tax (Walker 1999: 94). Viceroy Abascal ignored the new constitution and refused to enforce it (Andrien 2001: 227). In Vilcashuamán province, the head tax continued to be collected (Bonilla 2005: 1070). Although the abolition of the Indian head tax would have meant the loss of state protection of communal lands of native communities and have made Indians subject to various sale taxes, the majority of Indians supported the abolition (Walker 1999: 95). Because illegal usurpation or sale of communal lands and subjecting Indians to *alcabala* taxes were already the status quo, I suspect that the Indians who had supported the abolition of the head tax thought there was little to lose.

The Angulo/Pumacahua rebellion's beginnings were complex and involved tensions between the creole Spanish and the Peninsular Spanish over the implementation of the 1812 constitution. The Peninsular Spanish were generally opposed to its implementation and the creole Spanish were generally in favor, as it would have allowed Indians, who were more sympathetic to the creoles, to vote and

[219] Original: "Los Yndios fueron las más adictos a la revolución… y su independencia su principal atractivo."
[220] BNP, Cuentas y otros papeles pertenecientes al Monasterio de Santa Clara de la ciudad de Huamanga, Z75, ff. 24r, June 16, 1817. Original: "Nuestras fincas todas ellas se hallan saqueadas y en poder de los insurgentes…"

count in representation. José Angulo was the leader of a group of prominent creole Spanish *cabildo* members (municipal council) who had been imprisoned by the Peninsular Spanish-dominated *real audiencia* (Royal Audience) for allegedly harboring revolutionary sympathies (*ibid*: 97). After Angulo and the other *cabildo* members escaped from prison, they fomented a revolt among the lower classes, imprisoning many Spaniards. Don Mateo García Pumacahua, the prominent cacique of Chincheros, joined the rebellion because the *real audiencia* had humiliated him two years earlier. Pumacahua had been a loyal royalist who had led forces against the Tupac Amaru II rebellion and other anti-government insurgencies. He was rewarded for his service with the appointment as president of the *real audiencia* of Cuzco, but was quickly and unceremoniously stripped of his post, in part due Peninsular Spaniards' disdain for his "nature" or Indian heritage (*ibid*: 98).

As the rebellion gained momentum in other regions and among the masses, contradictions emerged between the original goals of the leadership and the goals of the Indian commoners who had supported and participated in the rebellion, especially outside of the region of Cuzco (*ibid*: 103; Sala i Vila 1996: 228-238). The leadership, as Tupac Amaru II had done, emphasized inter-class and inter-caste cooperation, but the Indian commoners often harbored radical goals of expelling all despised authorities, completely abolishing all taxes, and establishing a new Inka order (*ibid*). Inter-class cooperation faltered because the creole Spaniards, middle-class *mestizos*, and even the native elite became alarmed at the language of caste war and radical revolution fearing that the rebellion would spiral out of their control and threaten their elevated status in society (Walker 1999: 103; Sala i Vila 1996: 231-238, 261-263). Both the Tupac Amaru II and the Angulo/Pumacahua rebellions demonstrate that the original ideological platform of the leader was not as important as social mechanisms in explaining popular mobilization, especially outside the original bases of support. While the abolition of the head tax was universally popular among Indian commoners, they had diverse reasons for actually participating in the rebellion. Thus, understanding the social mechanisms, local conditions and consequences of mobilization is important. What were some of the social mechanisms that facilitated popular mobilization in the Intendancy of Huamanga? How did the rebellion affect social cohesion over the landscape for Pomacocha and its surrounding areas?

First, legal complaints against mistreatment and revolts or rumors of revolts had proliferated in the Intendancy of Huamanga after 1800 (Aguirre Cárdenas 2008; Igue 2012). Although the complaints and revolts had diverse causes, they shared a similar undercurrent of dissatisfaction with paying tribute and proliferating economic pressures. Walker (1999: 82-84) has shown that Indians' use of the courtroom went hand-in-hand with forceful mass political actions such as rebellion. That is, the use of the courtroom did not preempt any forceful resistance. The connection between legal complaints and forceful resistance was also demonstrated in the first conjuncture of Andean revolts and rebellions from 1730 to 1750 (O'Phelan 1985). Legal means of resistance activated the same kinds of social networks that make coordinated forceful resistance possible. Because one needed various alliances to furnish witnesses and mobilize the wider community, the social network needed for organized protests or forceful action would already be in place if the legal outcome was not favorable (Walker 1999: 82). Furthermore, the use of the courtroom also activated generalized political language for both sides (see 9.1.2), automatically contextualizing local grievances in acrimonious wider political debates. In the early nineteenth century, the political debates became increasingly international and revolutionary, which colored local grievances. Thus, legal and forceful resistance increased the activation of social networks conducive to mass political action, which in turn increased the likelihood of future legal and forceful resistance. In all the areas that participated in the Angulo/Pumacahua rebellion, the rebellion was preceded by rumors of anti-government conspiracies and rebellions (Igue 2013; Sala i Vila 1996; Walker 1999). For the *partido* of Vilcashuamán, native communities were among the most organized political entities in the countryside, and when the Angulo/Pumacahua rebellion spread to there, the political organization of native communities, reinforced by centuries of coordinated legal action, facilitated popular participation.

Second, the circulation of anti-government proclamations in Quechua bolstered efforts to mobilize the Quechua-speaking masses, both Indian and *mestizo* (Durston 2011; Igue 2008, 2012). Pasquines or political lampoon leaflets were common in Spanish America from the latter half of the eighteenth century, but they were written in Spanish. The proliferating use of Quechua after 1808 expanded the political horizons of both Indians and non-Indians (Igue 2013: 13). The circulated proclamations often demarcated a boundary between "Americans" and Peninsular Spaniards. For example, the rebel general responsible for military action in Huamanga in the 1814-1815, Manuel Hurtado de Mendoza "Santafecino," wrote in a proclamation: "[T]he glorious American Nation, Indians as well as Creoles, that all enjoy the Union, and true brotherhood, to shake off the yoke, and tyrannical government of the Chapetones, pucacuncas, chupasapas (*ibid*: 17)."[221] Later, during the wars of independence, a rebel proclamation invoked native pride of notable descendants, especially Inkan:

> [I] take pride that you will demonstrate your dignified ancestry from Manco Cápac, from Guayna Cápac, from Túpac Yupanqui, from Paullo Túpac, relatives of Túpa Amaro, from Tambo Gaucso, from Puma Cagua, parishioners of Dr. Muñecas and that you will cooperate with all your strength to triumph in the expedition of liberation, on which your liberty depends, your fortune and your gentle repose, likewise the good perpetuation of your children. Have complete

[221] Original: "la gloriosa Nacion Americana, así Yndios como Criollos, que todos gosamos de la Union, y verdadera hermandad, para sacudirnos del yugo, y govierno tiranico de los Chapetones, pucacuncas, chupasapas." Pucacunca is a derogatory Quechua term for whites, especially Peninsular Spaniards, meaning "redneck."

trust in the protection of your friend and countryman the General José de San Martín (Igue 2008: 48).[222]

Although many Indians could not read, the materiality of written documents was held in high regard because of the importance of land titles, receipts, and court decisions. The rebel colonel Segundo Roca wrote that General San Martín had sent secret emissaries to print proclamations in both Spanish and Quechua. Once acquired by Indians and others of slightly higher social status, they were kept with a "reverent faith and enthusiasm as if a valuable acquisition, and were used by them as a passport or title, which showed to us [rebels] proof of their patriotism and adhesion to the cause of independence (Igue 2008: 46)."[223] Circulating proclamations before military action worked brilliantly, and almost everywhere the rebel patriots were met with enthusiastic popular support, accompanied by music in Quechua (*ibid*: 45-46; see also Miller 1829a, 1829b and O'Higgins 1916 [1824]).[224] Compare the generally warm reception of the rebel forces to the royalist forces avoiding entering villages while on the march (Miller 1829b: 189). A major reason most rural population centers supported the rebels and not the patriots was because of heavy-handed massacres and burning of villages suspected to be sympathetic to the rebels. For example, the community of Cangallo was burned and razed to the ground four times, and many of its community members were indiscriminately slaughtered by the royalist General Carratalá (Aguirre Cárdenas 2008: 435-475).

The third mechanism of popular mobilization was the respect for "American" *costumbre*. During the war for independence, respect for *costumbre* and relative egalitarianism was practiced by the generals most active in the *partido* of Vilcashuamán: Bolívar, O'Higgins and Miller. Rebel forces, eager to recruit popular support despite meager funds, relied heavily on cultural respect and promoted egalitarianism among its diverse recruits. For example, General Miller was famous for chewing coca, which won him many recruits among the Indians. Miller's brother wrote:

> Nothing obtains the good will of an Indian sooner than his being requested to spare a little *coca*. He pulls out his pouch with an air of the utmost satisfaction, and seems anxious to have it supposed he feels the honour most sensibly. Miller often chewed it during the campaign of 1824; and this circumstance produced so favourable an impression among the aborigines that it procured him many

[222] Original: "…lisonjeo de que os mostraréis dignos descendientes de Manco Cápac, de Guayna Cápac, de Túpac Yupanqui, de Paullo Túpac, parientes de Túpa Amaro, de Tambo Guacso, de Puma Cagua, Feligreses del Dr., Muñecas y que cooperaréis con todas vuestras fuerzas al triunfo de la expedición libertadora, en la cual están envueltos vuestra libertad, vuestra fortuna y vuestro apacible reposo, así como el bien perpetuo de todos vuestros hijos. Tened toda confianza en la protección de vuestro amigo y paisano el General José de San Martín."

[223] Original: "…los guardaban con una fe reverente y entusiasta como una valiosa adquisición, y se servían de ellos como de un pasaporte o título, que nos enseñaban para comprobar su patriotismo y adhesión a la causa de la independencia."

[224] In the Intendancy of Huamanga, only the areas of Huanta, Quinua, Luricocha, and Huamanguilla posed armed resistance from the native populace against the rebel patriots (Miller 1829: 191; Sala I Vila 1996).

> volunteers. An English merchant travelling in the interior, found it convenient to announce himself as 'the countryman of Miller,' because the usual answer was, 'a country-man of Miller's must have the best house and the best fare that an Indian village can afford (Miller 1829b: 229).'

The officers of the rebels took the same pay cuts as the common soldier, and unlike royalist forces, paid the soldiers promptly, even after pay cuts. All soldiers, Spaniards, Europeans, *mestizos*, Indians, and *mulatos* ate from the same stew pots steaming with a mix of rice, vegetables, lard, and meat. Four or six soldiers at a time ate from the same roasted joints of meat (Miller 1829b: 109-110). A typical night in a rebel camp was described thus:

> The music beguiled many a tedious hour, and in the evenings and the moonlight nights the Indians would chant their *yaravis* (plaintive melodies), while the loquacious mulattos related stories, or, with the whites, sang the favourite airs of Lima, for which dissipated city the natives cherish an enthusiastic attachment. The officers on the quarter-deck sang patriotic and national songs; most of them having good voices, and great taste for music (Miller 1829b: 10).

Despite common royalist Spanish stereotype that Indians hated all whites simply because of their race, the cosmopolitanism of rebel forces, in this case Miller's, show that Indians reacted violently not to the skin color as much as the disdain for their *costumbres*.[225] Castes who were supposedly "natural enemies," were as easily natural friends through shared cultural values and mutual respect. Rebel forces statistically reflected the demographic composition of Peru. About three-quarters were Indian. The next largest group consisted of *mulatos*. The rest were blacks and a few white Creoles (Miller 1829b). Miller contrasted the egalitarianism of the rebel forces to the royalist forces strict hierarchy and distant leadership style:

> They would often converse with their officers, and speak of their native villages and the pleasures they had left behind…[T]he condescending familiarity of the officers heightened the affection of the soldiers, without decreasing their respect. These ties of regard between officers and men are often found to be, in time of peril, more strong and effective than the defence produced by cold severity…(Miller 1829b: 11).

Although Miller's brother would have naturally had a positive portrayal of the general, there must have been a large grain of truth as the people in Pomacocha had remembered him fondly from 1821, when they had usurped the *obraje* under his orders. The native *costumbre* of having women lead and fight alongside men in coordinated resistance also applied to the rebel forces. A famous leader of bandits from the *partido* of Vilcashuamán, Marcelino Quiros, had fought alongside his wife and counted on a woman named Maria Parado de Bellido, whose husband was a postmaster, for

[225] See Sala i Vila 1989, 1996 for examples of disdain for native customs, especially during religious festivals.

intelligence on the movements of royalist troops (Aguirre Cárdenas 2008: 456-457; Miller 1828: 341). Quiros was a leader of the "montoneros" of the rebel forces, who were in charge of guerrilla warfare and picking off royalist stragglers after battles between Huamanga and Jauja (Miller 1828: 328). The "montoneros" from the Intendancy of Huamanga were commonly called "Morochucos."

Who were the famous Morochucos who had valiantly fought for the rebels? What were their origins? The Morochucos had long been exclusively associated with poor creole Spaniards or *mestizos* of the Vilcashuamán area, but in fact, during the war of independence, the term had referred to the diverse groups of the *partido* of Vilcashuamán, also known as Cangallo (Igue 2008). The most famous Morochucos were indeed Quechua-speaking *mestizos* who had been involved in banditry, but there were just as many important Indian Morochuco leaders (*ibid*: 69-72). Morochuco habits were the same as the Indians of Vilcashuamán, and they preferred to speak in Quechua, but they looked like *mestizos* or Spaniards. After independence, "Morochuco" was an ethnonym that became more associated with *mestizos* and poor creole Spaniards of an area in the *partido* of Vilcashuamán called Pampa Cangallo. These particular Morochucos were granted privileges and tax exemptions due to their service (*ibid*: 38). The recognition of only the *mestizos* or poor Spaniards as Morochucos after independence may have reflected the continuing racial biases against Indians' capacity for political agency.

The memoirs of General Miller and the rental documents of Pomacocha (1824-1833) show that the "Morochucos" who had usurped the *obraje* of Pomacocha were local Indians from the communities of Vischongo, Vilcashuamán, and Carhuanca. General Miller called the Morochucos who served him in 1821, "Morochucos Indios" (Igue 2008: 58; Miller 1829a: 356). It was clear that he was referring to a different group than Quiros' bearded bandits, because Indians were considered to have no beards. When Carratalá defeated 800 Indians and *mestizos* and thirty rebel troops from Ica in February 1822, he defeated a conglomeration of local Indians and *mestizos* from multiple communities. Currently, we know that Morochuco leaders mainly hailed from the communities of Cangallo, Chuschi, Pomabamba, Putica, and their surrounding ranches, which puts Pomacocha in the core geographic base of the Morochucos (Figure 10.2). Remember that many workers in the Pomacocha *obraje* in the 1793 complaint were from Cangallo, the community with the most Morochuco leadership activity. On April 20th, 1824, when the war of independence was still raging, the Monastery of Santa Clara managed to find a willing renter for the *obraje* of Pomacocha. In the conditions, the Monastery stipulated "it will be to the account of the renter to restore at his cost all the lands that the Indians of the pueblos of Vischongo, Vilcas[huamán] and Carhuanca have usurped..."[226] The Monastery's description of the status of the *obraje* of Pomacocha

[226] ARAY, Arrendam./to el Monasterio de Santa Clara y en nombre la M./e Abadesa y Difinidoras en fabor de D./n Antonio Garcia del Obraje de Pomacocha, por 9. años y en 800 p./s por año, Notariales, Esteban Morales, Legajo 171, Protocolo 205, f. 581r, April 30, 1824. Original: "..Que sera de cuenta del arrendatario restaurar a costa suya; todas las tierras que los Yndios de los Pueblos de Vischongo: Vilcas y Carhuanca tienen usurpadas…"

and its satellite haciendas clearly identifies the people who had usurped the *obraje* since 1821: the Indian community members of Vischongo, Vilcashuamán, and Carhuanca. Far from the invasive pillaging reputation of the Morochucos, the case of Pomacocha demonstrates that more likely, Morochucos were diverse residents of the *partido* of Vilcashuamán who had supported the rebels so they could reclaim their ancestral lands. Pomacocha was the ancestral property of the community of Vischongo. Chanin was the ancestral property of the community of Vilcashuamán. And Champacancha was the ancestral property of the community of Carhuanca. All three communities banded together with rebels from further afield (including internationally!) to achieve success. In the next section, I briefly reconstruct the fate of the Pomacocha *obraje* after independence.

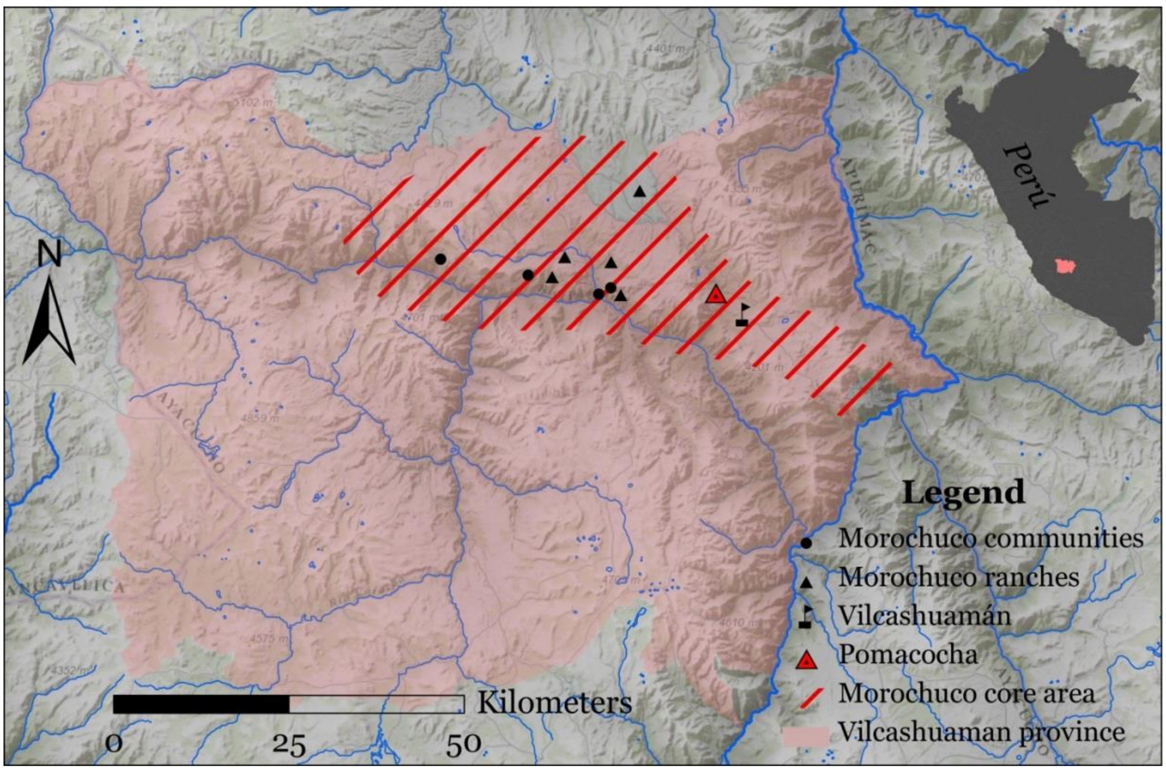

Figure 10.2: Map of the communities and ranches from where notable Morochuco leaders were from.

10.3.3 1824-1840 Usurpation of Pomacocha obraje by the communities of Vilcashuamán, Vischongo, and Carhuanca

How did civil society in Pomacocha and its surrounding areas change after independence? And how may have such changes contributed to the renewed loss of indigenous community autonomy and lands after 1840? In the twenty years after independence, indigenous communities took back lands lost to *haciendas*, the Quechua language gained prestige for the indigenous and Spaniards alike, indigenous economies diversified and expanded, especially in the wool industry, and a strong indigenized civil society flourished in the countryside (Méndez 2005; Pearce 2011). In the area of Huanta, Méndez (2005) deftly showed how indigenous communities were politically and economically dynamic in the early Republican period. The indigenous, *mestizos*, and Spaniards all lived in the same villages and there were ample opportunities for political alliances among them (*ibid*: 132). In the *partido* of Vilcashuamán after independence, the presence of Spaniards in indigenous communities seemingly skyrocketed. In 1792, the *partido* of Vilcashuamán only had sixty-two Spaniards out of a total population of 12,747 males and females, representing only 0.5% of the total population.[227] In 1829, however, 665 out of a total of 3427 tax contributors (adult males) in the *partido* of Vilcashuamán were Spaniards, making up 19.4%. The Spaniards lived in thirty-three out of a total of fifty *haciendas*, *estancias*, and native communities.[228] What prompted this huge demographic change? I present two possibilities. The first possibility is that there was indeed a massive influx of Spaniards from the cities into the indigenous countryside. The second, and more likely, possibility is that the "Spaniards" in the 1829 matrix of taxpayers may have included both the "Spaniard" and "mestizo" categories of 1792. There was no separate category for "mestizo" in 1829, but in 1792, *mestizos* were differentiated from Spaniards and comprised 18.5% (2363/12747) of the total population. At the end of the 1829 matrix, the total number of Spaniards were tallied as "Spaniards or *castas*," lending support to the interpretation that the 1829 matrix lumped Spaniards and *mestizos* together. If this is true, then there was no significant change in the percentage of "Spaniards and mestizos" living in rural indigenous communities from 1792 (19.0%) to 1829 (19.5%). Thus, Spanish and *mestizo* presence was always significant in the Vilcashuamán area, which accounted for the frequency of inter-caste alliances there.

Regional economic circuits continued to flourish in the early Republican period and enhanced the power of local mule drivers (Méndez 2005: 151). The wool trade in the early Republican period flourished due to British industrial demand (Walker 1999: 143-144). A combination of increased land holdings and engagement with trade meant that natives controlled the rhythm of the economy. Just as in the colonial period, they "supplied the major mining centers with vital necessities, such as llamas, fuel, and salt," but unlike before, they did so under their own terms (Walker 1999: 143). Internal demand for foreign products and increased wealth in indigenous communities sustained the early Peruvian economy. The area of Vilcashuamán had always been crossroads for the Andes due to its strategic central location. In the early nineteenth century and the early Republican period, the Vilcashuamán area was a center of trade, with many communities holding *ferias* or markets to sell and trade their products. To this day, communities in Vilcashuamán province have staggered market days that promote a healthy local economy and opportunity for inter-community exchange. The proliferation of native markets in the Vilcashuamán area mirrored larger trends elsewhere in the

[227] AGI, Virrey del Perú acompañando Estado de la Población del Perú, Estado, 73, No. 40, ff. 16r-16v, November 5, 1792.
[228] AGN, El Contador, Ministerio de Hacienda, PL-9, Documento 239, August 14, 1829.

Andes where native wool markets became very successful regionally and globally (Pearce 2011).

In the new nation, Indians were supposed to be called "Peruvians," as a sign of equal rights of citizenship. By 1840, however, the exploitation of Indians that characterized the colonial period continued much the same. Most of the liberal reforms regarding Indian citizenship and treatment were overturned by 1840, reflecting the general conservative tenor of the new Peruvian government (Walker 1999: 189). For example, the head tax on Indians was reinstated in 1826 and the hated practice of *reparto* continued unchallenged. African slaves fared no better because the 1839 Constitution "defended slavery, centralized power in the presidency, and eliminated any remnant of social reform (*ibid*: 145)." The period after independence generally favored Conservatives, who supported "protectionist trade policies, severe social control measures, centralist institutions, and xenophobia (*ibid*)." Liberal policies that granted individual parceling and titling of community land also hurt native communities (Pearce 2011: 137). After independence, the division between creole Spaniards and Peninsular Spaniards was de-emphasized and the term *español* gained the national connotation that continues to this day (Méndez 2005: 130). Generally, scholars have emphasized the continued repression of Indians in the early Peruvian Republic (1824-1850) (Pearce 2011: 136-137). Despite the unfavorable government policies toward Indians and their communal lands, some historians have argued Indians played a large role in the making of Republican civil society and that indigenous economies, population, and political life actually expanded and diversified after independence (e.g., Méndez 2005; Pearce 2011). In this section, I show that up until around 1840, Pomacocha and surrounding Indian communities enjoyed a period of autonomy.

After independence, Pomacocha and its satellite haciendas Chanin and Champacancha were still under the control of local indigenous[229] communities. This situation continued to at least 1834 because in a rental agreement from November 7th, 1833, the lands of Pomacocha were still "usurped by the indigenous of Vischongo and Carhuanca."[230] Notably, in 1833, Pomacocha was only referred to as a *hacienda,* no longer an o*braje-hacienda*. From 1825 to 1833, the annual rent for Pomacocha and its lands and *haciendas* was only 400 *pesos* per year due to the deteriorated condition of the *obraje* and the usurped status of the lands, a paltry sum compared to before.[231] In 1821, shortly before the *obraje* and *haciendas* of Pomacocha were usurped by the

[229] I follow the naming convention of the time, in which "Indian" was generally replaced by "Indigenous" in state discourses.

[230] ARAY, 1./o Tratado el Monasterio de Santa Clara para el arrendamiento de la Hacienda de Pomacocha y sus pertenencias a favor de D. Rudecindo Garcia y su mujer, Notariales, Esteban Morales, Legajo 174, Protocolo 208, f. 836v, November 7, 1833. Original: "…usurpados por los Yndigenos de Vischongo y Carhuanca…"

[231] ARAY, Arrendam./to por el Monasterio de Santa Clara á favor de Don Miguel Garcia de la Hacienda Obrage de Pomacocha, Notariales, Esteban Morales, Legajo 172, Protocolo 206, ff. 29v-32r, February 22, 1825; ARAY, Arrendamiento de d/n Marcelo Castro economo del Monasterio de S./ta Clara del Obraje y Hac./a de Pomacocha ad./n Miguel Garcia, Notariales, Esteban Morales, Legajo 173, Protocolo 207, ff. 3r-4r, January 23, 1828.

Morochucos of the local communities, there were thirty-five workers in the *obraje* of Pomacocha, twelve workers in the *hacienda* of Chanin, and seven workers in the *hacienda* of Champacancha. All the workers had owed considerable debt to the renter at the time, Don Ignacio Oré, averaging over 44 *pesos* of debt per person.[232] In July of 1824, only six months before independence was won by the rebels, Don Ignacio Oré complained that the new renter was unwilling, and probably unable, to collect the debts from the former Indian workers. The excessive debt probably encouraged the workers to join the rebels, and they succeeded in liberating themselves from their debts by forcibly taking the lands and *obraje* for themselves beginning in 1821. During the early Republican period, state capacity was low due to the political crises and frequent wars, so unscrupulous governors would not dare antagonize local indigenous communities by collecting beyond what was stipulated. Little tax was successfully collected from the Vilcashuamán area from 1821 to at least 1830. Miguel García, the sub-prefect of the *partido* of Vilcashuamán, had rented Pomacocha from 1828 to 1833, and was in charge of collecting the head tax from the indigenous and Spanish alike of the *partido* of Vilcashuamán. Due to the strong civil society of the indigenous and the Spanish living in the province and the relative weakness of the state during the first ten years after independence, Miguel García had not been able to collect the taxes in 1829.[233]

In 1833, new conditions regarding liability were introduced into the rental agreement. Before 1833, the rental agreements only included natural misfortunes (locusts, worms, other insects, weather, lightning, earthquakes, etc.) as liabilities not covered by the Monastery. The new 1833 conditions included political misfortunes as well. The Monastery stipulated that the renters could not ask for any discount due to the "[renters'] enemies or of the state who may cut or burn..."[234] The inclusion of the new conditions in 1833 and not before implied that after independence, people from local indigenous communities had maintained their control of the lands through force, incurring significant costs for the Monastery and the renters.

It appears that state capacity around Pomacocha increased toward 1840, because the community of Vischongo had complained about abuses in the collection of the head tax by the governor in 1838 (Urrutia 2014: 217). The retaking control of Pomacocha's lands appeared to have begun at the defunct *obraje* compound because it was the most accessible point of entry on the main highway. Efforts to take back Pomacocha from the local indigenous communities began in earnest after 1833. Seeing that the renters were either unwilling or unable to do so, the Monastery took charge of the necessary legal and forceful tasks required to restore Pomacocha and its lands to their ownership. They wrote, "[T]hus it is obligatory that this Monastery is in charge of its [Pomacocha's]

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232 ARAY, Don Ignacio Ore vecino de esta ciudad arrendatario del obraje de Pomacocha en el Partido de Vilcas huaman, propia del Monasterio de Santa Clara, reclama sus derechos Locatario de dicho obraje, Intendencia, Pedimentos, Legajo 48, Cuaderno 152, Pedimentos, ff. 1r-1v, July 24, 1824.

233 AGN, El Contador, Ministerio de Hacienda, PL-9, Documento 239, August 14, 1829.

234 ARAY, 1./o Tratado, Notariales, Esteban Morales, Leg. 174, Prot. 208, f. 836r, November 7, 1833. Original: "…enemigos suyos ó del Estado que lo talen o quemen…"

restitution [by] throwing out the intruders, and having done this task, these lands will be of more benefit to the renters."[235] For these actions, the Monastery asked for 200 *pesos* a year, which raised the rent from 400 to 600 *pesos* a year. By 1841, the Monastery had regained control of the *obraje* and its lands because the people of Pomacocha and Chanin, Pomacocha's satellite *hacienda*, brought a case against the renter of Pomacocha for "depriving individual liberties," "expelling [the workers] from [their] homes and land," and "reducing [the workers] to the condition of beasts."[236] Among the accusations were that the administrator Rudecindo García had forced children to work, had physically beaten the workers, had refused to pay the workers' wages, had forced workers to do unpaid domestic work inside the administrator's house, had threatened to kill workers, and had forcibly thrown workers from their houses. Clearly the administrator had at his disposal considerable muscle as well as the support of the legal system to carry out these actions. The prosecutor (*fiscal*) reviewing the workers' case against the administrator ruled in favor of Rudecindo García, saying that García had not violated the terms of his rental contract with the Monastery, so there was no legal recourse for the workers. Chillingly, the final ruling also conceded to García's wish that the indigenous workers of Pomacocha and Chanin be "perpetually silenced" in the court of law.[237] In Cuzco during the same period, militia leaders were often prominent *obraje* owners and used their militias to "enforce social and labor control (Walker 1999: 138)." Increasing state capacity at the expense of indigenous lands seemed to have occurred earlier at Pomacocha than elsewhere in the Andes (see Pearce 2011).

The increased economic opportunities in the countryside may have benefitted the indigenous elite, *mestizos* and Spaniards more than indigenous commoners. People in middling stations in life, such as mule-drivers, indigenous leaders, and Spanish petty merchants, benefitted from trade more than native commoners who still focused on agricultural subsistence. The differential success may have exacerbated social inequality. Structural inequalities also existed. In 1829, both the indigenous and the Spaniards were required to pay the head tax, but Spaniards were only supposed to pay only 2 *pesos* 4 *reales* yearly, only half of the 4 *pesos* 6 *reales* the indigenous needed to pay.[238] Despite the generous discount, Spaniards and *castas* still refused to pay the tax and it was abolished three times for Spaniards and *castas* from 1829 to 1840, further reinforcing the racial dichotomy between the indigenous and other castes (Walker 1999: 191-192). It was in this social context that the Monastery started to take back the lands they lost to

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[235] *Ibid*: f. 836v. Original: "…pues es obligatoria de este Monasterio tratar su restitucion lansando a los intrusos, y hecha esta dilig./a servirán estos terrenos mas aveneficio de los arrendatarios…"

[236] ARAY, Expediente criminal promovido por o los indígenas de la hacienda de Pomacocha y Chanin (Propiedad de las Religiosas del Monasterio de Santa Clara de esta ciudad) contra el arrendatario actual Don. Rudecindo García, por la constante hostilización y maltratos que ejecuta con los indígenas de esta hacienda, Juzgado de Primera Instancia, Causas Criminales, Legajo 49, Cuaderno 976, 1841.

[237] Ibid: f. 10r. Original: "con la legal solicitud de qe se la imponga perpetuo silencio á los indigenas de Pomacocha y Chanin, que mal aconsejados, y peor dirigidos presentaron el calumnios"

[238] AGN, El Contador, Ministerio de Hacienda, PL-9, Documento 239, August 14, 1829.

the indigenous communities of Vischongo, Vilcashuamán and Carhuanca. What happened to Pomacocha toward the beginning of the 1840s was part of a larger trend in the region of Ayacucho and possibly elsewhere in the Andes. Historian Jaime Urrutia (2014: 225) wrote that between 1835 and 1855 in the region of Ayacucho (Huamanga), the "great properties strove to monopolize communal resources."[239] Thus, the case of Pomacocha demonstrates that the situation for indigenous communities was not as suppressed as some had feared, but less successful after 1840 than others had assessed.

10.4 Conclusion: Rebellious networks and ethnogenesis

This chapter challenged several popular assumptions and offered new perspectives about late colonial society in Perú. The first common assumption is that nativist rebellions culminated with the Tupac Amaru II/ Katarista rebellions, and that revolts afterward were parochial and did not influence other revolts. On the contrary, the General Andean Rebellions of the 1780s had a profound effect on native commoners' political networks and expanded ritual and political horizons. People overemphasized the effectiveness of Spaniards stamping out neo-Inka and Andean culture after Tupac Amaru II rebellion (Walker 1999). As with the extirpation of idolatries in the sixteenth and seventeenth centuries, traditional Andean ritual was not eradicated and in fact became more dynamic and integrative, as the case of the Chalco family showed. The subsequent revolts and rebellions were made possible by the strengthened networks of political cooperation over the wider landscape. Thus, it is more accurate to see the General Andean Rebellions of the 1780s as the beginning rather than as the culmination of Andean mass movements. The previous chapters show the importance of contextualizing revolts and rebellions in long-term processes of social change. Otherwise, we put too much emphasis on proximate causes, which do not sufficiently explain the timing of general rebellions.

Related to the previous assumption is that the native sector of society was not politically active in the War of Independence even though they made up most of the fighting forces on both sides. The assumption is that the War of Independence arose from the conflicts and factions in Spanish society (notably Creole versus Peninsular) or had resulted from crises in political authority in Spain itself, rather than originating in the colonies. Unfortunately, these assumptions are consistent with the pervasive colonial attitudes, and thus propaganda, that native commoners lacked political agency. As Méndez (2005: 5-6) incisively pointed out, the motivations and political networks of natives were not taken seriously by many historians because they had assumed that their mobilization did not need explanation, or that it was easily explained by patriotism to the nation or local loyalties to creole elites. On the contrary, native commoners mobilized not because they were put up to it by other castes, but because they had their own diverse political agendas. In the case of Pomacocha, it was to regain the ancestral lands lost to the Monastery of Santa Clara in Huamanga. Another related assumption is

[239] Original: "…que entre 1835 y 1855 la gran propiedad tiende a acaparar los recursos comunales…"

that native groups that banded together with the rebels lacked political coordination and military effectiveness due to the lack of a hierarchical centralized command. While it is true that there was no formal hierarchical centralized command, native groups were effectively able to control the countryside due to guerilla tactics and because they knew the lay of the land much better than the royalists. They were also able to effectively coordinate with rebel generals such as Bolívar, Miller, and O'Higgins, merging forces at crucial moments and harassing royalist stragglers. Rebel native groups also had higher morale because they were fighting to regain their ancestral lands, and many native conscripts on the royalist side deserted.

Another assumption is that *obrajes* were homogenously abusive and economically and socially stagnant institutions. As Salvucci (1987) put it, it is a wonder how these backward institutions survived for so long. The *obraje* has become a proxy for the worst abuses of colonialism, which has contributed to the "Black Legend" of Spanish colonialism. At the same time, the coercive effectiveness of the *obrajes* has been overstated. Miriam Salas (1979; 1998a; 1998b) was perhaps the first scholar to seriously challenge these assumptions, showing how *obrajes* were dynamic places of cultural exchange and played a big role in bringing about societal changes leading to rebellion. She showed how administrators were not all-powerful, how worker resistance was frequent and effective, how relationships among workers, majordomos, administrators, and the nuns who owned the *obrajes* were most often based on a respect for negotiated *costumbre*. Otherwise, *obrajes* did not function well. My contribution in these past three chapters was to systematically trace the networks of social cohesion that the economies of the *obrajes* of Vilcashuamán, and of Pomacocha in particular, had created and reinforced over a long time. I also showed how dodging tax and labor obligations manifested in various strategies of resistance, most commonly migration or hiding in plain sight. These strategies also created and reinforced kinship networks and networks of cooperation in dodging state demands. The long-term cultural rapprochement of different castes inside *obrajes* helped pave the way for the kinds of inter-caste political alliances crucial to coordinated rebellion. I showed how political and ritual horizons kept expanding after the General Andean Rebellions of the 1780s, which had facilitated cohesion in the rebel troops, who were a mix of Indians, *mestizos*, *mulatos*, Spaniards, and Europeans.

This chapter also offered a new perspective on mass mobilization of native commoners. While historians have inferred the importance of pilgrimages and common ritual horizons in coordinated rebellion before (e.g., Flores Galindo 1987; Huertas 1976a), the mechanisms were not well understood. Specifically, the materiality of rebellion in relation to ritual had been neglected. Political geography, economic circuits, ritual circuits on one hand, constituted the materiality of social relations, enabling political cooperation over the wider landscape. On the other hand, material paraphernalia such as proclamations, lampoons, ritual items, coca, and cash silver created and reinforced rebellious networks. Through the detailed analysis of the Chalco family as insurgents for the Tupac Amaru II rebellion, I showed how there may not be a contradiction between what some scholars refer to as the Andean Utopia in the rhetoric of native commoners and the lack of real political coherence in specific goals (Méndez 2005: 11). The case of the Chalco family showed that there were elements of utopianism (or messianism) in their message about an Inka-ruled new world order without taxes, judges, or *corregidores*, but real political rifts within native society, often within the same communities, showed that there was no single unifying ideology that motivated people. What did mobilize people en masse, however, was less the utopianism and more the demonstrated effectiveness, the materiality, of fertility rituals that the Chalco family practiced. Revolt and rebellion also had effects on the materiality of social landscapes, making such landscapes even more conducive to political mass action. Shared political purpose and participation, in turn, combined with the increasingly similar cultural and ritual practices among diverse castes to invigorate identity formation, or ethnogenesis, as I showed with the case of the Morochucos. The Late Intermediate Period ethnic distinctions that were reinforced under the Inka and used as the basis for tax and tribute obligations under the Spanish no longer had salience for the natives themselves in the eighteenth and nineteenth centuries in Vilcashuamán. Thus, the materiality of rebellion, whether it be social networks enabling certain kinds of cooperation or paraphernalia that reinforces common ritual and political horizons, should be emphasized just as much as ideology, if not more so.

This chapter also demonstrated the importance of women in mass mobilization. Women were often leaders and sometimes even fought alongside men. The most famous example was the central role that Micaela Bastidas Puyucahua, the wife of Tupac Amaru II, played in the rebellion (Walker 2014). In the region of Ayacucho, the mother of Pablo Chalco, Maria Sisa, played just as important role as Pablo Chalco himself. Women made good scouts because Spaniards underestimated their political agency even more so than they did male Indians. Given the apparent importance of women in the *partido* of Vilcashuamán in the defense of communal lands, especially when their husbands, brothers, and sons were away in *haciendas*, *obrajes*, and mines, they would have been an enormous influence in convincing people to join the rebels so that they could take back ancestral lands. Mothers were motivated to protect their sons from punishment. Recall the mothers who intervened on behalf of their sons in the 1793 Pomacocha revolt. Sometimes women mobilized en masse. Recall the sisters, wives, and mothers who coordinated a violent revolt when 400 Indian men were forcibly drafted and imprisoned to put down the Angulo/Pumacahua revolt in 1814. Also recall the wife of the Morochuco captain Marcelino Quiros who had fought and died by his side. Spanish attitudes about the lack of political agency of native women severely undermined their efforts at preventing revolts and rebellion.

The three previous chapters also inform debates about the relationship between rebellion and the rise of capitalism. The debate over whether peasants preferred patron-client relations (moral economy) with the community elite (Scott 1976) or autonomous decision-making through participation in markets to escape exploitation by local elites (Popkin 1979) is worth consideration here. Scott (1976) argued that market forces threatened traditional moral economy and provoked rebellion if community cohesion was strong. Thus, capitalism would be fiercely resisted in peasant communities with strong traditions and a moral economy. From the case of Pomacocha and Vilcashuamán province, we see that both Scott and Popkin explained various forms of resistance that "peasants" adopted. The workers of Pomacocha were officially landless wage laborers, and yet they vehemently defended the *costumbre*, or moral economy of the *obraje*, in much the same way as a "traditional" peasant community. The moral economy of the *obraje* was eroded by a combination of market forces and anti-market forces. Market forces in the form of competition from cheaper foreign cloth provoked anti-market protectionist policies and rise in cheap prison labor, and both eroded the moral economy of a well-functioning *obraje*. Native commoners often willingly entered wage laborer status to escape proliferating tax and labor obligations from local elites, including native elites of their own communities. The seeming contradiction comes from a trait-based view of capitalism. Namely, capitalism is equated with market forces, and there is a forced dichotomy between "traditional" rural communities and landless, and culturally rootless wage labor. The case of Pomacocha and other *obraje* communities show that native commoners were creative and flexible in trying to recreate "home" in working conditions that approximate the moral economy of *costumbre* and reciprocity. Thus, the local political conditions were of utmost importance, not the abstract "traits" of a given economy. One could have wage labor that disrespected *costumbre*, which would cause workers to flee, or one could have a native community in which the elite do not respect *costumbre*, causing their community members to migrate elsewhere.

Furthermore, peasant communities are seen as economically atomized and politically autonomous in classic Marxist conceptions. We see in the case of Pomacocha and its surrounding native communities that this was simply not true. Natives willingly entered the market to strengthen claims on communal lands, and women played a huge role against the erosion of control of ancestral lands. Natives also created their own markets and arguably native markets comprised the majority of local economies. The capital gained by participation in and creation of markets actually worked against the loss of communal lands, a classic "trait" of capitalism. The tenacity of native communities over defending their lands was remarkable, and the persistence of toponyms and the same communal lands over the centuries testifies to their success. As community identity was always tied to local *huacas*, sacred places, Marxist models also neglect the ritual power, the materiality, of the land against capitalism. To this day, the people of Pomacocha make offerings to the same rocky outcroppings, caves, and mountains to ask for good fortune and fertility.

The communities themselves were politically heterogeneous, as evidenced by multiple *ayllus,* political and class strife, which also challenges the popular conception of a traditional, politically cohesive and inward-looking peasant community. Each community plugged into multiple long-distance kinship networks over the wider landscape, which, in the long-run provided the necessary social conditions for coordinated rebellion. One does not need politically homogenous areas to have successful coordinated rebellion, only wider networks of political cooperation. One does not need community solidarity within the geographic scope of a village, only some kind of solidarity over the wider landscape, which is much more conducive to effective alliances.

Marxist models, while immensely useful as heuristic devices, unfortunately abstract out many of the complexities of colonial society in places like Pomacocha. Costumbre at Pomacocha could be called the moral economy of indebtedness. Costumbre can characterize any economic system, even capitalism. The hallmarks of *costumbre* are that relationships should be consistent, acts of exchange should be frequent and punctual, and the language used should be framed in terms of reciprocity and egalitarianism, even if the reality of the relationships is fundamentally exploitative. Even debt slavery in *obrajes* was palatable and even defended by its workers at times if the administrators and majordomos were especially adept at performing *costumbre*. Graeber (2011) showed how effectively framing debt as moral reciprocity can mask exploitation. However, as the prison population became an ever larger portion of the working population in *obrajes* such as Pomacocha, and as disdainful biological conceptions of race in the administrators lifted the "mask" of egalitarianism, the exorbitant debts that workers accrued were no longer palatable, and they finally united to usurp the *obraje*. Far from parochial, the workers of Pomacocha and its surrounding communities had been building cooperative social networks for over a hundred years in a formerly ethnically fractured landscape. The regional cosmopolitanism of places like Pomacocha had facilitated coordinated rebellion with foreigners and people from other castes when Latin America became embroiled in global revolutions.

11 Strategies of resistance at Pomacocha: the archaeological record

In this chapter, I infer daily strategies of resistance at Spanish colonial Pomacocha from the archaeological record. Specifically, I am interested in the routines of daily life that have bearing on social cohesion, which underpinned strategies of resistance at Pomacocha. The excavations at Pomacocha produced contexts that ranged from the founding of the *hacienda* in the mid-sixteenth century to the present. For the purposes of the dissertation, I focus on the contexts that dated to the period from 1680 to 1824, from the establishment of the *obraje* through to Independence. The main questions that guide this chapter are:

1) In what ways is the archaeological record consistent with the historical record? In what ways is it inconsistent? What fresh insights does the archaeological record provide?
2) How did foodways change from the Inka period to the colonial period at Pomacocha? What implications do foodways at Pomacocha have for social cohesion?
3) What are some long-term legacies of the *obraje* in Pomacocha?

First, I summarize the excavation units opened in the *obraje* and in a residential neighborhood in the community of Pomacocha called Molinopata (called Molinopampa in the colonial titles). I briefly discuss organization of domestic space in the residential sector of Molinopata in comparison with domestic space in pre-Hispanic Yanawilka and the Spanish colonial *obraje*. Second, I analyze the ceramic assemblage for clues about foodways, specifically how the food was prepared and consumed and if the food preparation and consumption were more communal or individual. Third, I analyze the botanical and faunal remains that date to the colonial period for more clues about foodways during the *obraje* period, especially as they relate to survival strategies. I compare the foods recovered from excavations with historical documents about *obraje* worker rations in Vilcashuamán province. Fourth, I analyze stone tools to understand how lithic use changed from the Inka to colonial periods. I also present XRF geochemical analysis and starch grain analysis results of obsidian artifacts recovered from colonial contexts. After the analyses, I compare the foodways and other aspects of daily life of the Spanish colonial period to the Inka period.

Taken together, the archaeological analyses are generally consistent with the historical record. Nevertheless, the archaeological record offered new clues to how the workers were able to survive on meager rations by supplementing their diet with eggs and fruit. Compared to the Inka period, foodways inside the *obraje* show more desperation or conservation. Combining both historical and archaeological sources on native colonial foodways in Vilcashuamán *obrajes* yielded new insights. In contrast to the Inka period, there was little evidence of feasting; foods were stews, portable foods such as dried meats, toasted corn, fruits, bread, cheese and eggs. The native workers ate communally and cooked food was prepared in large batches by cooks hired by the administration. Stone tools for cutting declined in importance in the colonial period, but groundstone tools continued to be important. Of the stone tools that were used to cut, all were made of obsidian and relatively small.

11.1 Excavations inside the *obraje* and in Molinopata

In this section, I summarize the results of the excavations inside the *obraje* and in the residential sector known as Molinopata-Chakapampa. Inside the *obraje*, six excavation units measuring a total of nine square meters were opened to understand the construction history and activity areas of the *obraje* (Figure 11.1). The excavation units inside of the *obraje* were called O1, O2, O3, O4, O5, and O6. The data from excavations were consistent with the general activity areas described in colonial documents. The stratigraphic profiles of the units were consistent with the history of construction, destruction, reconstruction, and deterioration of Pomacocha *obraje*. Most units showed one major renovation, which was consistent with the destruction and then reconstruction of the *obraje* from 1716 to 1723. The richest was unit O1, which contained a midden that probably dated to shortly before or after the 1716-1719 earthquakes. Because some units exhibited complex stratigraphy, I include Harris Matrices with them (Units O2, O3, O4) for clarity.

In the sector of Molinopata, several hundred meters uphill to the west of the *obraje*, an additional six excavation units measuring a total area of twenty-five square meters were opened (Figure 11.2). The sector Molinopata borders a neighborhood to its east called Chakapampa, meaning "flat area of the bridge" in Quechua. In the colonial documents, Molinopata and Chakapampa were Molinopampa and Chacapampa. Molinopampa is combination of Spanish and Quechua meaning "flat area of the mill." Molinopata is also a combination of Spanish and Quechua meaning "flat terrace of the mill." The change in the toponym reflected change that occurred to the agricultural landscape through the centuries.[240] Units M1, M2, and M3 were part of the domestic complex named PC15. Unit M4 was part of the domestic complex named PC12. Units M5 and M6 were part of the domestic complex named PC13.Unfortunately, the colonial-period worker residences outside the *obraje* in Molinopata seem to all be greatly disturbed, as people lived there generation after generation until about a generation ago. Specifically, people have been mining the materials to make adobe from the same site, which churned or removed the original archaeological contexts. Most of the dateable artifacts from Molinopata date to the late nineteenth to mid-twentieth centuries. Out of the three domestic complexes, only PC15 had architectural features belonging to the colonial period. Although I summarize the results of the excavations from Molinopata in this section, I will not be including the artifacts excavated from Molinopata in the

[240] For example, a satellite *hacienda* of Pomacocha called Pucaguasi ("Red House") in the colonial documents is now a community called Pucaraccay ("Red Ruined House"), reflecting change over time.

analysis of colonial period life, with the exception of obsidian artifacts (section 11.4). I will also not offer detailed descriptions of all of the loci in Molinopata, because they were heavily disturbed and no intact contexts from the colonial period were identified.

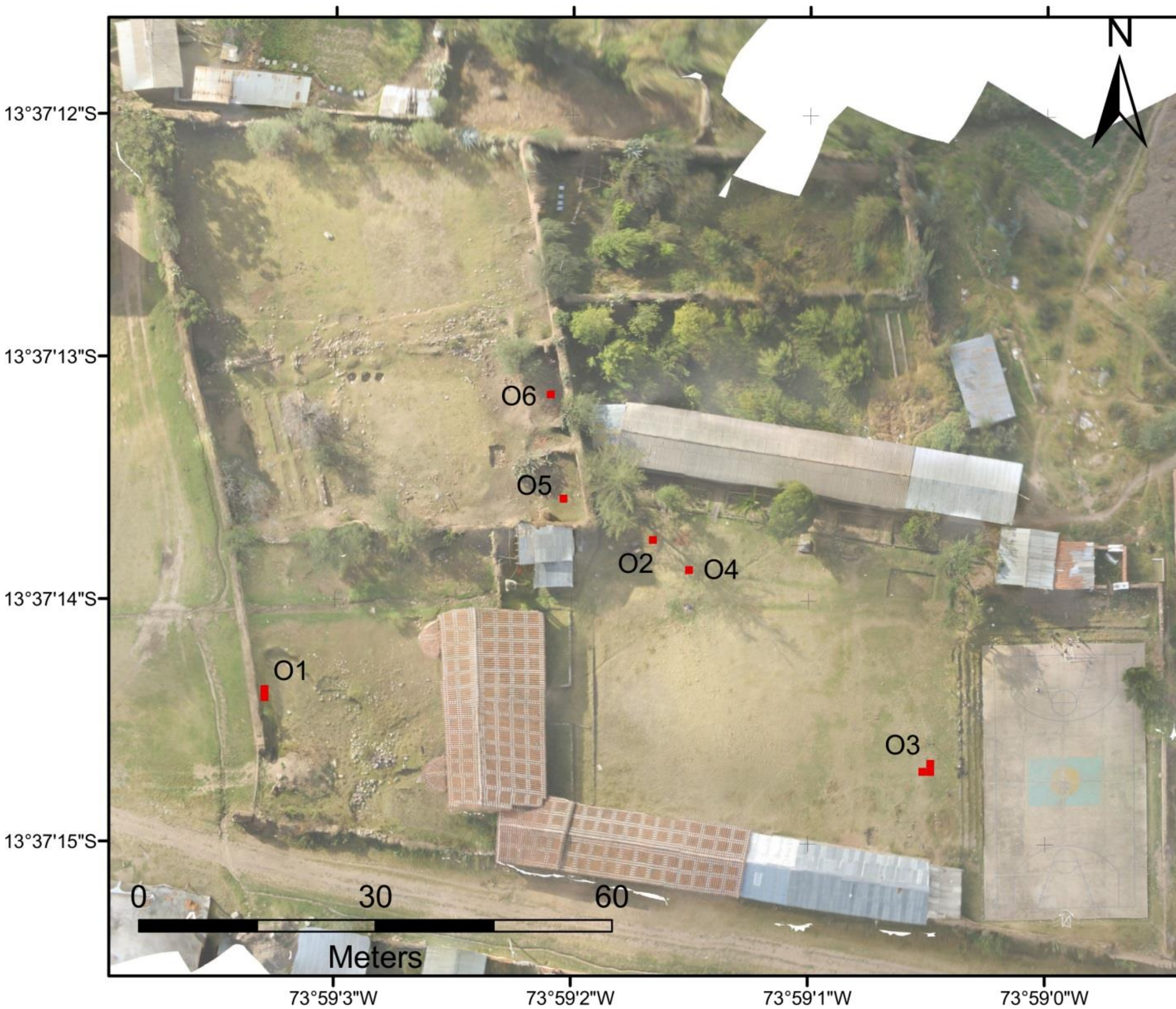


Figure 11.1: Map of the locations of excavation units opened in the *obraje* of Pomacocha.

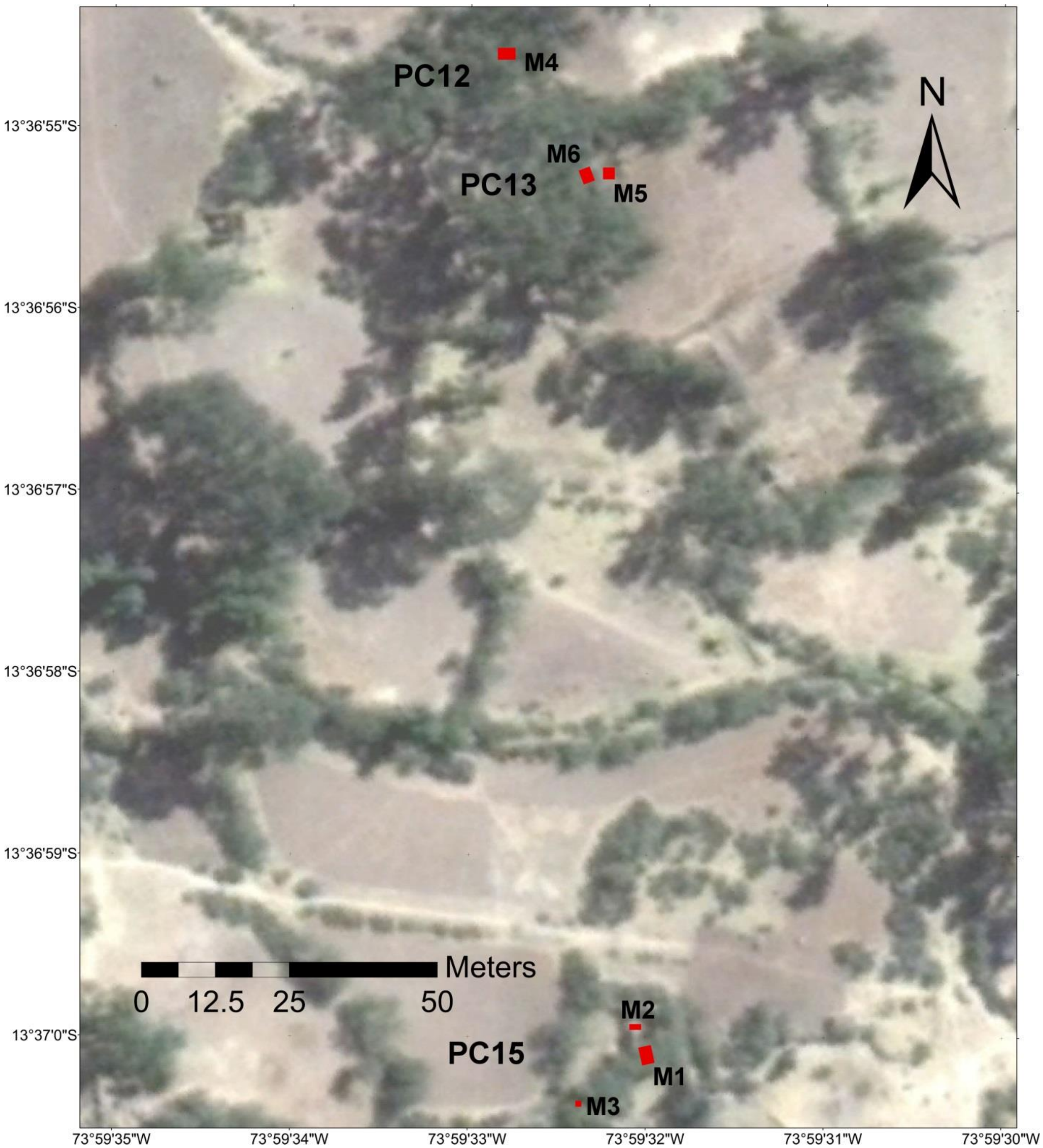


Figure 11.2: Map of the location of excavation units opened in Molinopata neighborhood of Pomacocha.

11.1.1 Unit O1, eighteenth century midden

Summary of Unit O1

Unit O1 started out as a 1x1 meter unit, but upon discovery of an intact midden in Locus 9 and Locus 10, an adjacent 1x1 meter unit was opened to the north. Unit O1 was located just inside the *obraje* walls. For the purpose of analysis, both units are part of the 2x1 meter unit called O1. The stratigraphic sequence of Unit O1 was well defined (Figure 11.3). Loci 1-8 date to the late nineteenth century to the present, because a porcelain ceramic stamped “CHINA” was found in the middle of Locus 8. Loci 4-6 comprised a heavily burnt layer with burnt grass, wood, beans, barley, roof tiles, and glass. The burning occurred recently, probably after the 1962 takeover of the *hacienda* by community members, where, according to oral tradition, the *hacienda* was burned. Loci 9-11 date to the late seventeeth and early eighteenth centuries judging from the Chinese porcelain and majolica found in Locus 10 and 11. Loci 9-11 are part of a midden that dates to just before or after the 1716-1719 earthquakes because the midden was covered by large pieces of roof tile and had lots of burned wood. The presence of a broken groundstone in Locus 8 and other groundstone that were brought to the surface when community members mined the area for adobe in 2010 show that this area was for domestic food preparation.

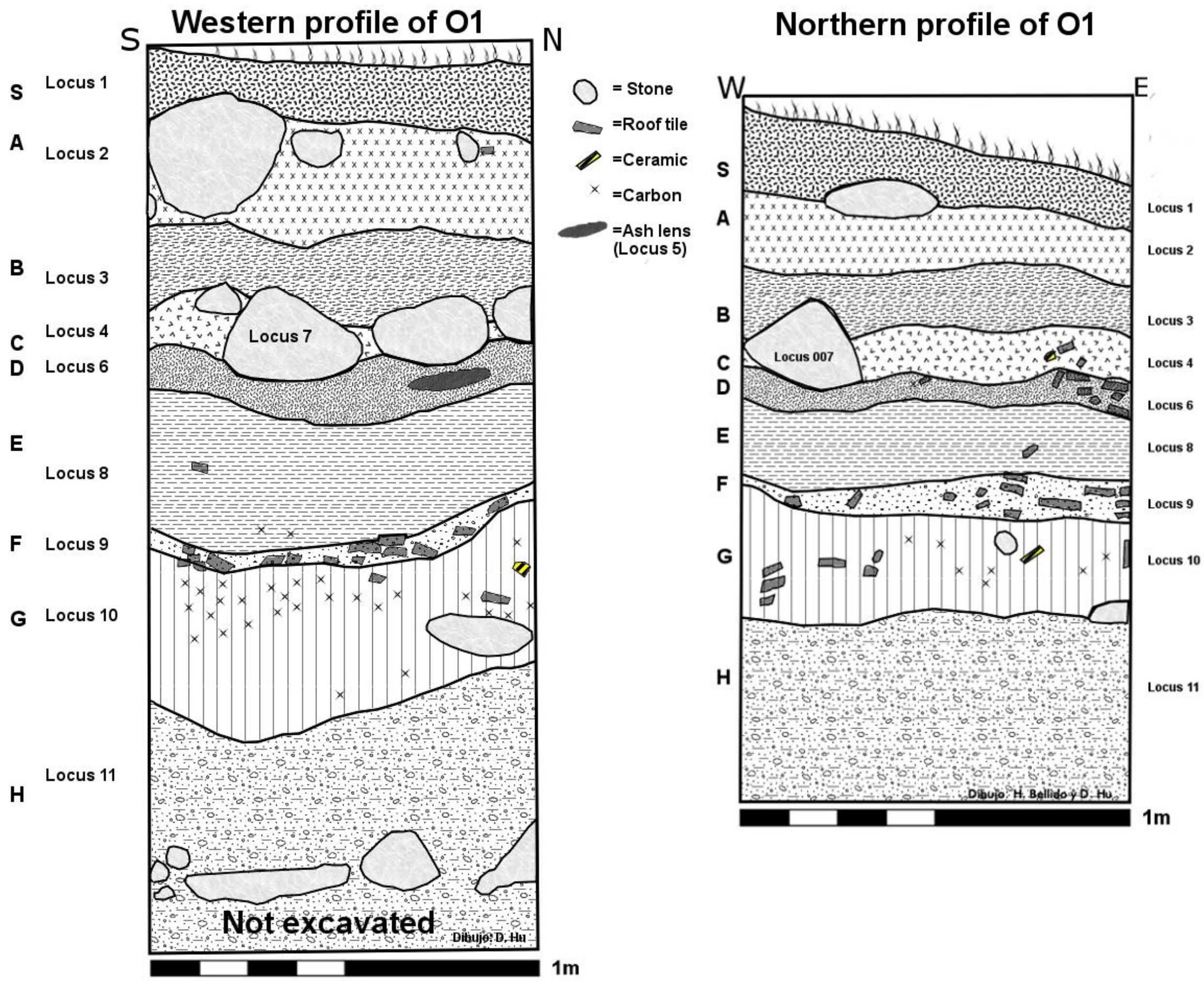


Figure 11.3: Western and northern profile of O1. Northern profile is also the southern profile of the 1x1 meter extension.

Descriptions of the loci of Unit O1

Locus 1 (Layer S)- This is the root layer. The texture of the dirt is very fine and its color was Munsell 10YR 4/3. There were lots of fragments of roof tiles and contemporary artifacts from festivals such as beer and champagne bottles.

Locus 2 (Layer A)- The layer below the root layer was essentially the same. The dirt was very fine and sandy, and its color was Munsell 10YR 4/3. Burned rocks and ashy patches indicate light burning, probably related to recent festivals which occur adjacent to the walls of the *obraje*. Artifacts included fragments of roof tiles and bottle glass.

Locus 3 (Layer B)- This layer had fine-grained dirt with small rocks, and its color was Munsell 10YR 4/3. This layer showed signs of disturbance and contained contemporary artifacts.

Locus 4 (Layer C)- This layer had fine-grained dirt with fragments of roof tiles and burnt wood, and its color was Munsell 10R 4/2. Other artifacts found were bits of bone and an isolated obsidian artifact. There were also contemporaneous artifacts such as candy wrappers, nails, and coins. Near the bottom of this layer was an ash lens (Locus 5) indicative of a small, short-lived fire common to activities in festivals. Locus 4 may have been a disturbed fill layer.

Locus 5 (Layer D)- Locus 5 was a lens of very fine ash with a bit of burnt organic material, and its color was Munsell 2.5YR 8/1. There were no artifacts.

Locus 6 (Layer D)- This layer showed heavy burning. The dirt was very loose and fine and consisted almost entirely of ash, burnt wood and grass. The color was 10YR 2/1. There was an abundance of roof tiles and burnt seeds. A bit of glass was also found. We interpreted this layer to be a major fire inside a building that led to the collapse of a roof, which probably occurred in the 1960s.

Locus 7 (Layer C)- This locus consisted of three large aligned stones and was interpreted as the foundation of a previous wall.

Locus 8 (Layer E)-This locus was a thick layer of compact, clayey dirt with a color of Munsell 10YR 5/2. This layer appeared to be a floor with a long occupation. Many small artifacts were found embedded in this layer, including a porcelain fragment with "CHINA" stamped on it (Figure 11.6). Other artifacts included ceramic sherds and an isolated obsidian flake. There was also a broken oily groundstone embedded in this layer. There were also remains of a rodent's nest, so there may have been some disturbance in this layer. The porcelain stamped with "CHINA" was found near the middle of the thick clayey layer. Because porcelain stamped with "CHINA" only appeared after the late nineteenth century, the layer most likely dated to the late nineteenth century onward.

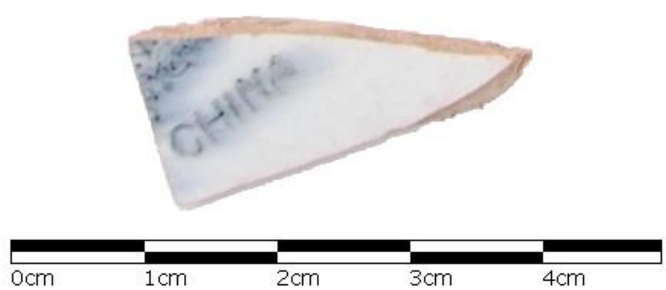


Figure 11.4: Porcelain stamped with "CHINA" from Unit O1, Locus 8.

Locus 9 (Layer F)- This layer consisted of mostly broken roof tiles, some were very large and almost complete. The dirt matrix was clayey with a color of Munsell 10YR 5/3. There were bits of charred wood. This locus was interpreted as a collapsed roof or as the intentional covering of a midden (Locus 10) with recently broken roof tiles. As some roof tiles were firmly embedded in Locus 10, Locus 9 and Locus 10 were probably part of the same event (Figure 11.6).

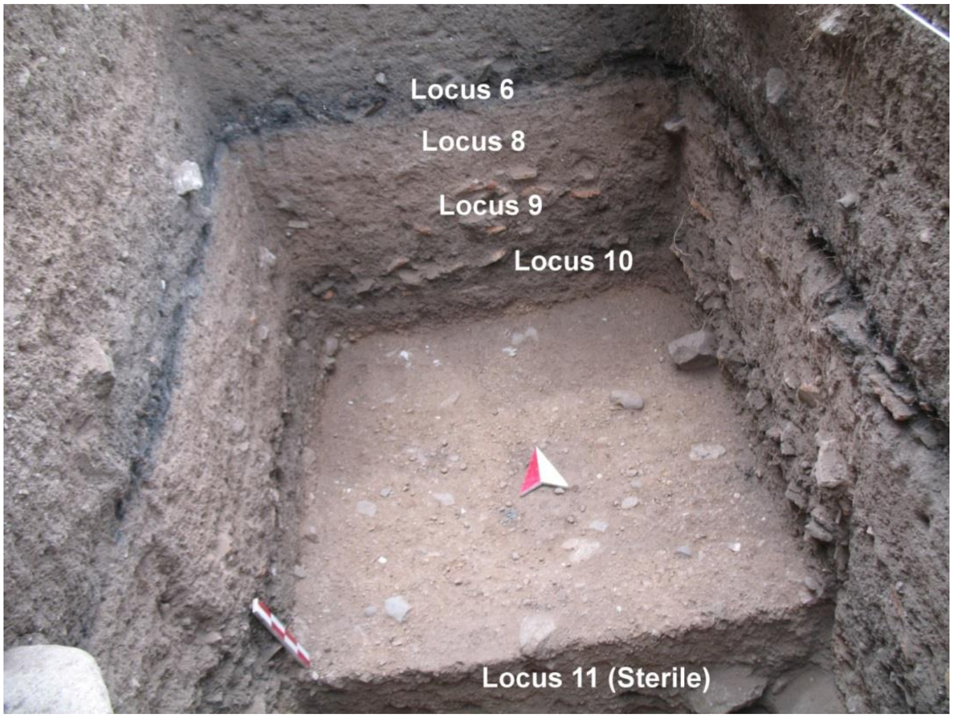


Figure 11.5: Northern profile of the 1x1 meter extension of Unit O1. Note the relationship between Locus 9 (roof tiles) and Locus 10 (midden).

Locus 10 (Layer G)-This locus was a rich midden. The dirt was loose and fine (Munsell 10YR 3/2). There was a high density of stones, roof tiles, charred remains, ceramics, fragmentary egg shells, a small piece of obsidian, and animal bones (Figure 11.6). Many charred peach pits were also found. The ceramic remains were less fragmentary than in previous loci and were mainly from large stew pots or *ollas*. Among the special ceramic pieces were a piece of Chinese polychrome overglaze porcelain probably from the Kangxi or Qianlong period of the Qing Dynasty (1654-1799), three pieces of the same Spanish *majolica*, a broken spindle whorl made of a roof tile, and a modeled fragment of native ceramic reminiscent of the Late Intermediate Period (Figure 11.7). The Chinese porcelain was quite similar to Specimen Number 2576 of the Lister Type Collection (Florida Museum of Natural History). From the archival documents, the area was interpreted as the food preparation and animal pen area, and the midden supports this hypothesis. Certainly, the midden dated to the time when the *obraje* was functioning given the dating of the artifacts and the presence of the spindle whorl.

Figure 11.6: Top of Locus 10 showing the richness of the midden.

Figure 11.7: Notable ceramics from Locus 10, midden. From left to right: Spanish majolica 1, native modeled ceramic piece, Spanish majolica 2, Spanish majolica 3, Qing dynasty porcelain, broken spindle whorl.

Locus 11 (Layer H)- The team excavated below the midden until sterile. Locus 11 was reddish and sandy (10YR 6/6). There were four aligned rocks that probably made up part of the foundation of the original *obraje* wall before its first destruction in 1716-1719.

11.1.2 Unit O2, hallway or dormitory room

Summary of Unit O2

This unit measuring 1x1 meter was placed inside the main patio of the *obraje* where a group of buildings had existed. Excavation of the unit showed a major renovation of the floor surface in which a floor of cobbles (Locus 5) was paved over with a layer of loose gravel (Locus 3) and then stamped earth (Locus 2). The southeast corner may have been the interior of a building because there was a layer of bright white lime plaster above the cobbled floor. The southern side of the unit exhibited a slightly different stratigraphy than the northern side, which is consistent with the unit having both an interior and exterior component (Figure 11.8). The renovation had the same construction technique as the original cobbled floor, where a layer of loose gravel was applied before the floor surface, probably for drainage purposes. There were few artifacts found in this unit other than a four pieces of ceramics, a few fragments of roof tiles, and a large obsidian flake at the top of the sterile layer (Locus 7).

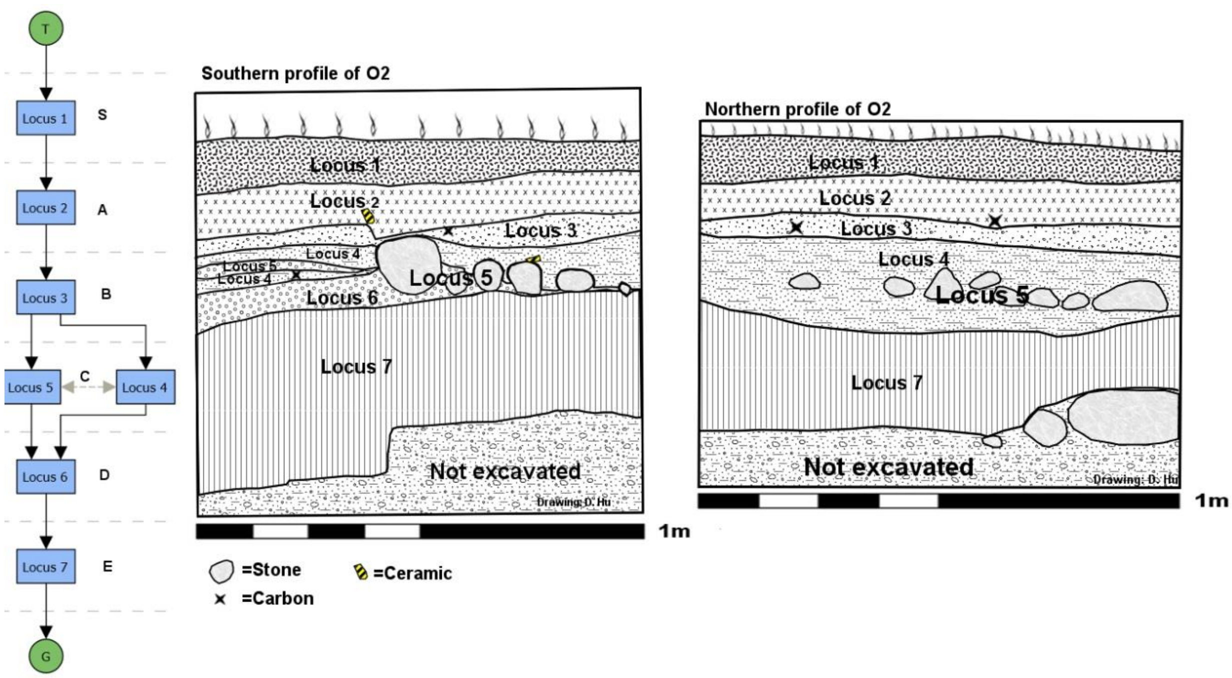


Figure 11.8: Northern and southern profiles of Unit O2. Harris matrix to the left.

Descriptions of the loci of Unit O2

Locus 1 (Layer S)-The root layer was loose and had an abundance of bits of cement. The color was Munsell 10YR 5/3. Artifacts were contemporary such as pencils, pieces of plastic, bits of brick and roof tiles related to the activities of the current high school Antonio Raymondi.

Locus 2 (Layer A)-The dirt in this layer was sandy with a fine texture and contained small stones. The color was Munsell 10YR 4/4. Given the compactness of this layer, which necesitated the use of a handpick in order to excavate, it was probably a floor. Small fragments of ceramics, roof tiles and plastic were found embedded in this layer.

Locus 3 (Layer B)-This layer had a fine texture with the presence of small stones and gravel of uniform diameter (1mm-5mm). The color was Munsell 10YR 4/6. Locus 3 was much looser than Locus 2. This layer did not appear to be disturbed. We interpreted this layer to be part of the construction fill underneath the stamped earth floor (Locus 2).

Locus 4 (Layer C)-This layer was a fill layer of gravel and has a color of Munsell 10YR 5/4. This locus extended partly below Locus 5 on the northern side of the unit, so the gravel and Locus 5 (cobbled floor) were lumped in the same event. We interpreted this layer as fill above a floor (Locus 5) because there were animal bones and a lot of small pieces of charred material. There was a thin layer of lime plaster on top of rock in the southeast corner.

Locus 5 (Layer C)- This locus was a layer of river cobbles of approximately 10cm in diameter that made up a floor (Figure 11.9).

Figure 11.9: Cobbled floor (Locus 5) in Unit O2.

Locus 6 (Layer D)- This locus had a fine texture and was characterized by the abundance of gravel. The color of the dirt was Munsell 10YR 5/3. There were no artifacts found. This layer was nearly identical to Locus 3 and was interpreted as a construction fill below a floor.

Locus 7 (Layer E)- This locus was characterized by reddish, sandy dirt with fine texture (Munsell 7.5YR 5/4). There were smoothed rocks of 1-10cm in diameter. After an obsidian flake was found at the top of this layer, there were no more artifacts found. This layer was interpreted as the beginning of sterile and the sediment was nearly identical to sterile in Unit O1. The southeast corner measuring 50 by 50cm was excavated ten more centimeters to ensure that sterile had been reached.

11.1.3 Unit O3, dyeing area

Summary of Unit O3

The location of Unit O3 was chosen as a result of the magnetometry survey done in 2010 and the historic photograph from 1962, which both showed a previously existing building. Unit O3 started off as a 1x1 meter unit, but was subsequently expanded to the north (O3N) and to the west (O3W). Unit O3 had complex stratigraphy because it had both inside and outside components (Figures 11.10, 11.11, 11.12). The unit also had an exterior wall measuring approximately 1.2 meters thick and a smaller interior wall measuring approximately 0.3 meters thick (Figure 11.13). This wall foundation (Locus 6) dated to the colonial period, and in the eastern profile, colonial-era adobe bricks were apparent (Locus 10, 12). In Unit O3W, where the interior wall was present, there were sediment and ash layers of distinct colors, which were probably related to the dyeing process (Figure 11.14). Pieces of *colpa* (*alcaparrosa* or ferrous sulfate with lime) were found in Unit O3W, which was used as a mordant for dyes. Unit O3 was of the same building with the sunken stone basin lined with Inka masonry, which was probably used to wash dyed wool (see Figure 5.3b).

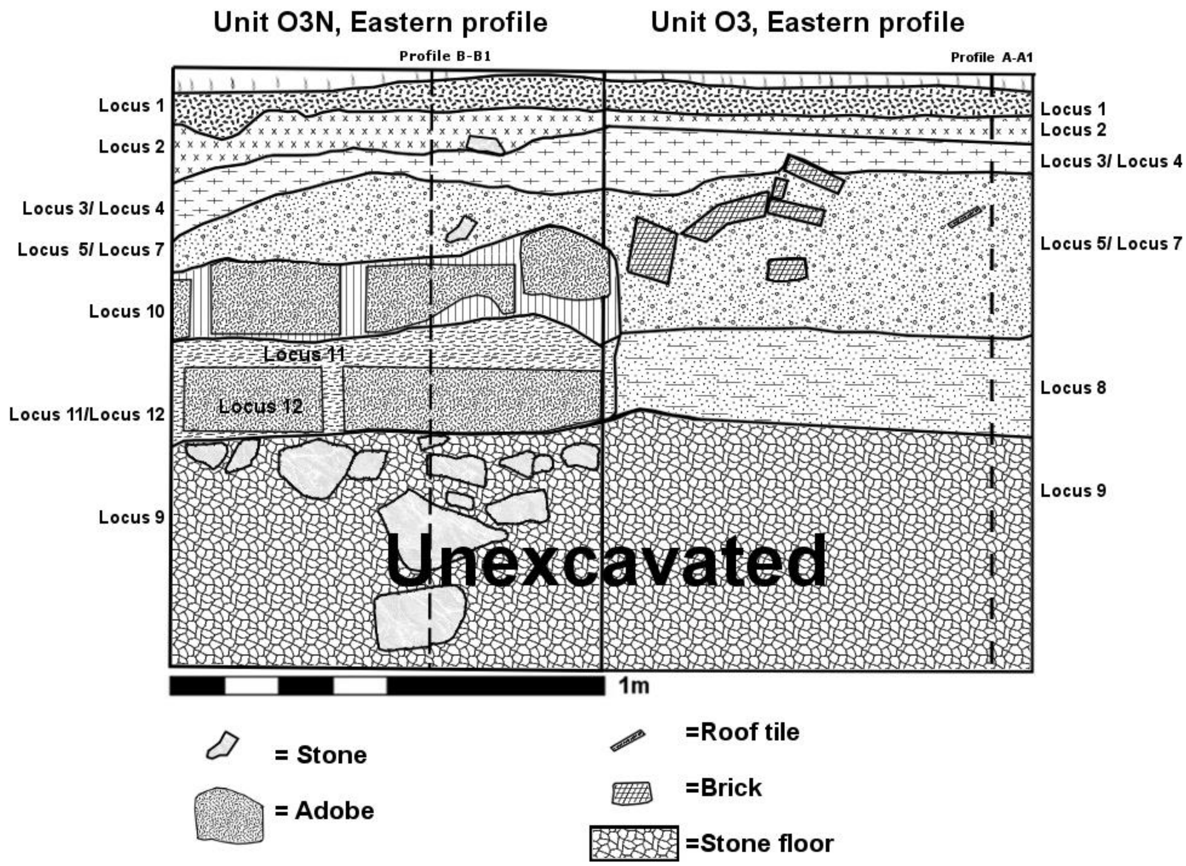


Figure 11.10: Eastern profile of Unit O3 and Unit O3N.

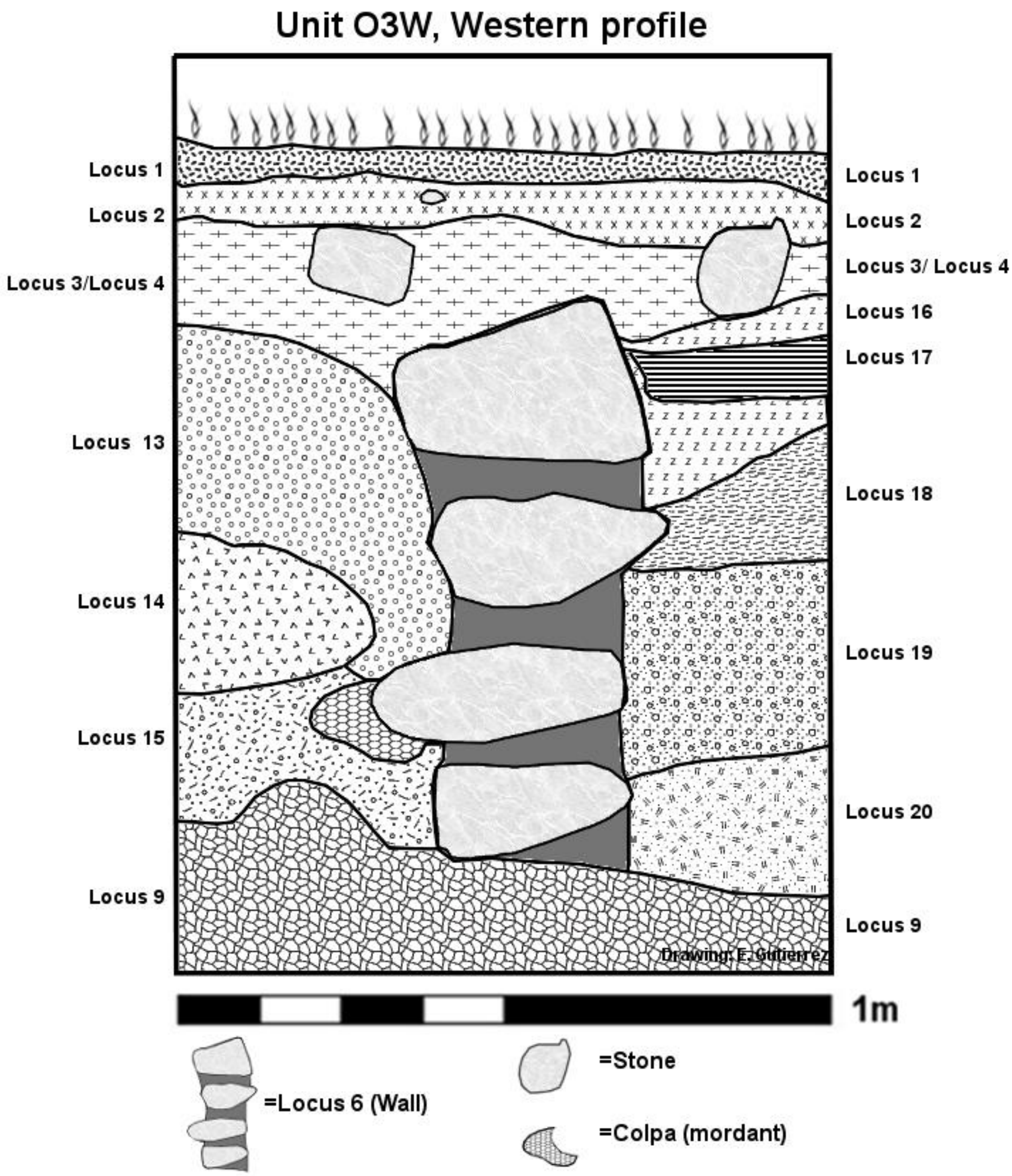


Figure 11.11: Western profile of Unit O3W.

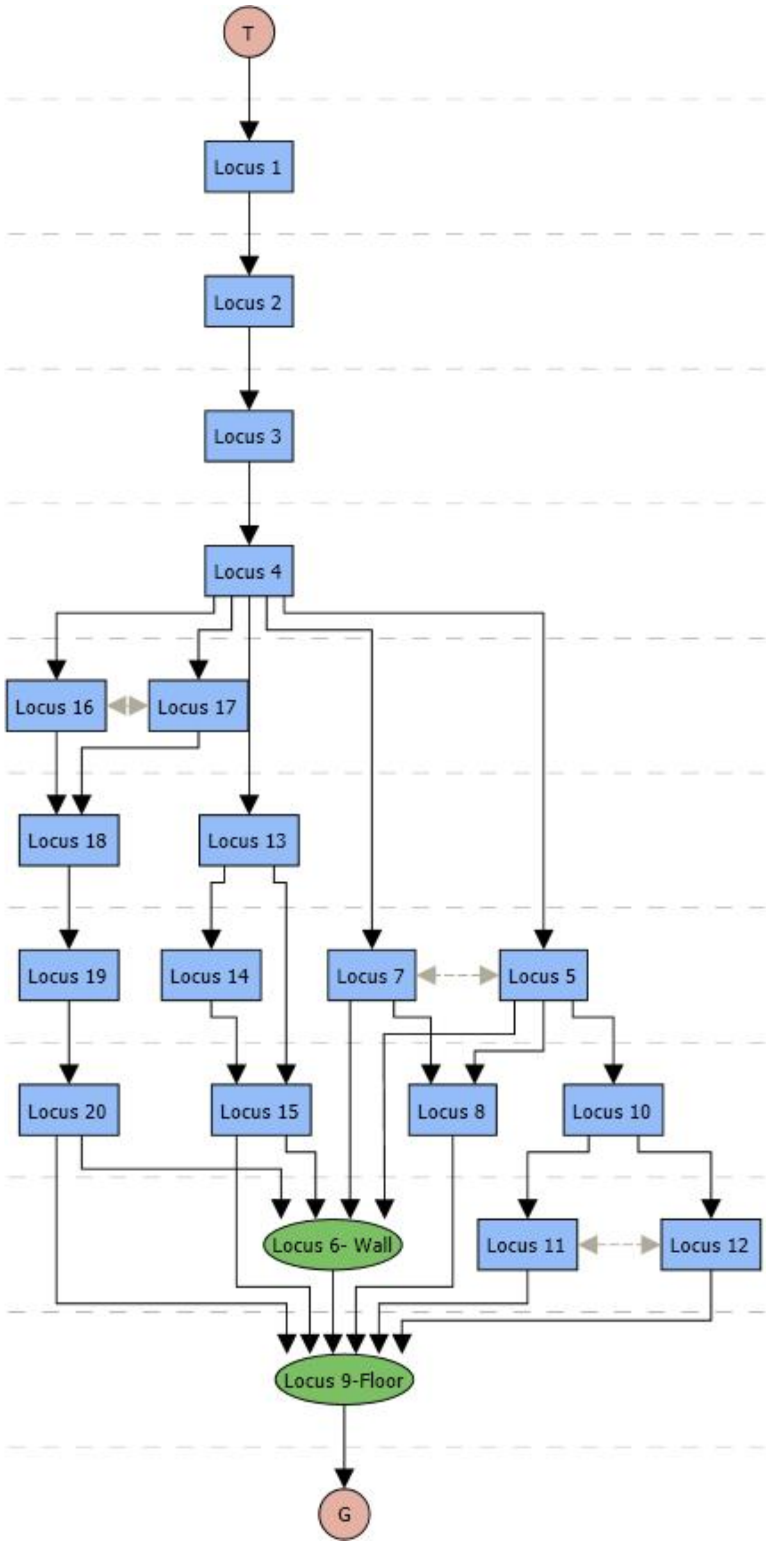


Figure 11.12: Harris matrix of Unit O3 with extensions Unit O3N and Unit O3W.

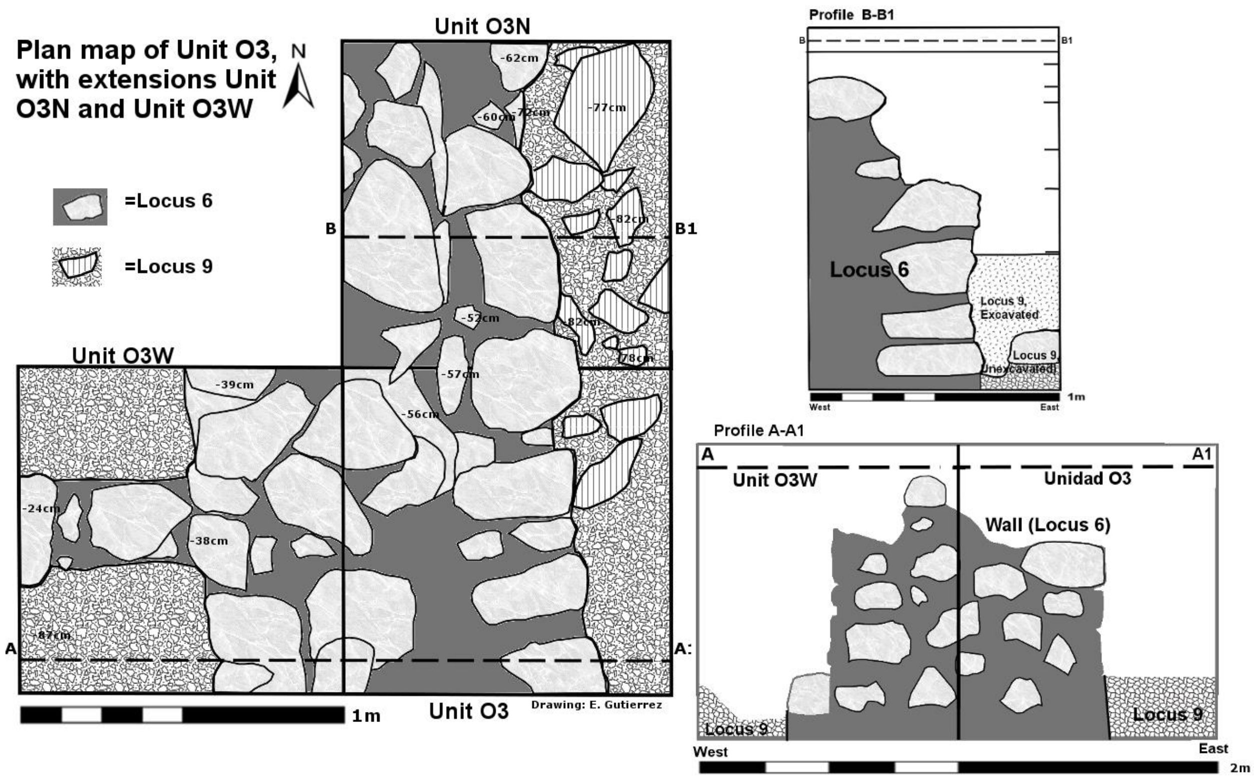


Figure 11.13: Plan map of the wall in Unit O3 and its extensions.

Figure 11.14: Photo of Unit O3W showing the complex, brightly colored stratigraphy.

Descriptions of the loci of Unit O3

Locus 1 - The root layer consisted of finely textured loose dirt with a color of Munsell 10YR 5/3. Contemporary artifacts related to the active high school on the premises, such as string, plastic, and corks for bottles. A few ceramic and roof tile fragments were also found.

Locus 2 - This layer consisted of sandy dirt with the presence of gravel. Its color varied slightly throughout the layer (Munsell 7.5YR 4/3, 7.5YR 5/2, 7.5YR 4/2). There were roof tile fragments and some large stones in no particular order. This layer was interpreted as a disturbed fill containing pieces of the building that used to exist prior to the 1970s when it was torn down.

Locus 3 - This locus consisted of large river stones, mostly irregularly aligned. The large river stones were in a matrix of disturbed sediment (Locus 4), and we interpreted Locus 3 to be the result of disturbance due to the demolition of the preexisting building in the 1970s.

Locus 4 - This layer of sediment was the result of the demolition of the preexisting building in the 1970s. The sediment varied in color (Munsell 5YR 4/2, 7.5YR 5/3, 7.5YR 4/3) and was generally sandy, loose, and gravelly. There were large stones, bricks, and ceramic fragments in this layer.

Locus 5 - This locus only existed in O3 and O3N and consisted of jumbles of large stones and bricks found in the sediment layer of Locus 7. At the same depth as this Locus was the top of what turned out to be a large wall foundation (Locus 6) (Figure 11.15).

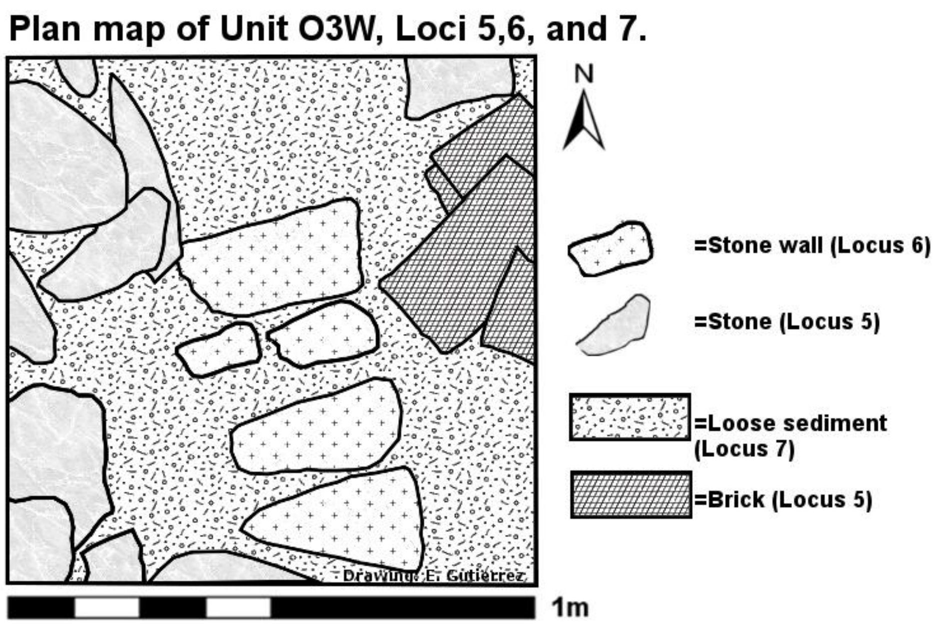


Figure 11.15: Plan map of Unit O3W, Loci 5, 6, and 7.

Locus 6 - Locus 6 was a large exterior stone wall approximately 1.3 meters thick. The stones were smooth large river stones made of rhyolite and granite. There was also a thinner part of the wall, which was an interior wall that measured approximately 0.3 meters thick in Unit O3W.

Locus 7 - The sediment in this layer was varied because of its disturbed nature, ranging from semicompact to sandy and loose to gravelly and loose (Munsell 10YR 4/3, 7.5YR 4/2, 7.5YR 5/3). There were small fragments of ceramics and badly preserved wood in this layer. This locus only existed in O3 and O3N.

Locus 8 - This sediment deposit only existed in O3. The sediment was finely textured and loose (Munsell 7.5YR 5/4). Small stones were mixed in with the sediment. There were no artifacts found, and this locus was interpreted as as a construction fill.

Locus 9 - This was the cobbled floor below all the deposits and was present in O3, O3W, and O3N. At the northern edge of O3 was a possible drainage canal that had an orientation running from west to east (Figure 11.16). Only a few fragments of ceramics were found embedded in the dirt between the cobbles of this locus.

Locus 10 - This layer was nearly exclusive to O3N and had loose sandy sediment (10YR 5/2). Toward the eastern side, visible in the profile, was a row of adobe bricks that dated to the preexisting building. The preexisting building dated to the colonial period judging by the orientation of the bricklaying of the adobes as well as their dimensions. Colonial-era adobes in the Vilcashuamán area were approximately 60 centimeters long, 28 centimeters wide, and 18 centimeters tall.

Locus 11 - This layer was also nearly exclusive to O3N and consisted of semicompact, sandy dirt with gravel inclusions (Munsell 10YR 5/3). In the eastern profile of the layer, another row of colonial-era adobe bricks were visible. This layer was interpreted as a former adobe wall or adobe wall melt.

Locus 12 - Locus 12 consisted of the adobe bricks in the matrix of Locus 11. The color was Munsell 10YR 5/3.

Locus 13 - This locus was only present in O3W and was a deposit of fine, loose sediment with a reddish coloration (Munsell 5YR 6/8).

Locus 14 - This locus was only present in O3W and was a deposit of fine and loose sediment (Munsell 10YR 7/1).

Locus 15 - This locus was only present in O3W and was a deposit of *colpa*, a type of mordant, and some large pieces of *colpa* in its natural rock crystalline state were also found. There was also heavy presence of dark blue-tinged powder in this layer, which are probably the remnants of indigo dye. This deposit dated to when the *obraje* was functioning.

Locus 16 - This was a sediment deposit on the other side of the small wall. The sediment was sandy with small stones of various sizes (Munsell 7.5YR 5/4). Inside this locus was a disturbed ash lens (Locus 17). There were ceramic fragments with the presence of a white material, possibly lime, on their surfaces. This locus was interpreted as a fill deposited after a series of large stones fell (wall fall, Locus 3).

Locus 17 - This was a deposit of loose fine sediment (7.5YR 6/2) that was mixed with an ash lens that was light grey. There were small fragments of metal found in this deposit as well as a small intact corn cob. Due to the mixed nature of this locus, it was interpreted as a disturbed context which dated to the 1960s. Oral history indicated that the preexisting building was storage for ash for communal use.

Locus 18 - This locus was a deposit of loose sandy sediment of large granules (10YR 4/2). There were no artifacts found in this layer.

Locus 19 - Locus 19 was a deposit of fine sandy and loose sediment with the presence of mica (10YR 5/3).

Locus 20 - Locus 20 was a deposit of loose coarse-grained sandy sediment with the presence of mica (10YR 5/2). There was also some blueish-gray powder present in this layer, as there was in Locus 15, which was probably the remnant of indigo dye.

11.1.4 Unit O4, refurbished room/guest room

Summary of Unit O4

The location of Unit O4, 1x1 meter, was chosen as a result of the magnetometry survey done in 2010 and the historic photograph from 1962, which showed a preexisting building. From archival descriptions of the *obraje*, Unit O4 should have been in or near room habitations and a forge. There were pieces of clinker or slag found near the top of the wall (Locus 2, Locus 4, Locus 5), corroborating the archival descriptions of a nearby forge (Figure 11.16). Unit O4's major feature was a large wall foundation similar in construction to the one in Unit O3 (Figure 11.17). The large wall measured more than a meter thick. The northern part of the unit was the interior of a building and showed fine stratigraphy (Figure 11.18). The interior stratigraphy was similar to that of Unit O2, with evidence of two floors, one lined with stones (Locus 6f) and one of stamped earth (Locus 3 and Locus 5c, 5f). The stratigraphy of Unit O4, however, was a bit deeper than Unit O2 and had more deposits underneath the stone-lined floor. In fact, there may have been a third floor below the stone-lined floor (Locus 8). The deep stratigraphy of the interior demonstrates that this building was one of the oldest of the *obraje*, and probably dated to when it was an *hacienda* in the sixteenth to mid-seventeenth centuries.

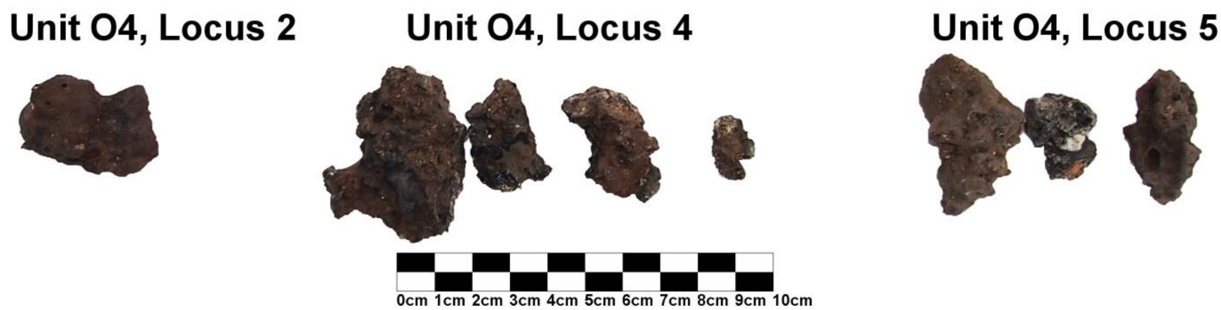


Figure 11.16: Slag or clinker from Unit O4.

Figure 11.17: Large stone wall foundation (Locus 4) in Unit O4. The northern edge shows a stone lined floor (Locus 6f).

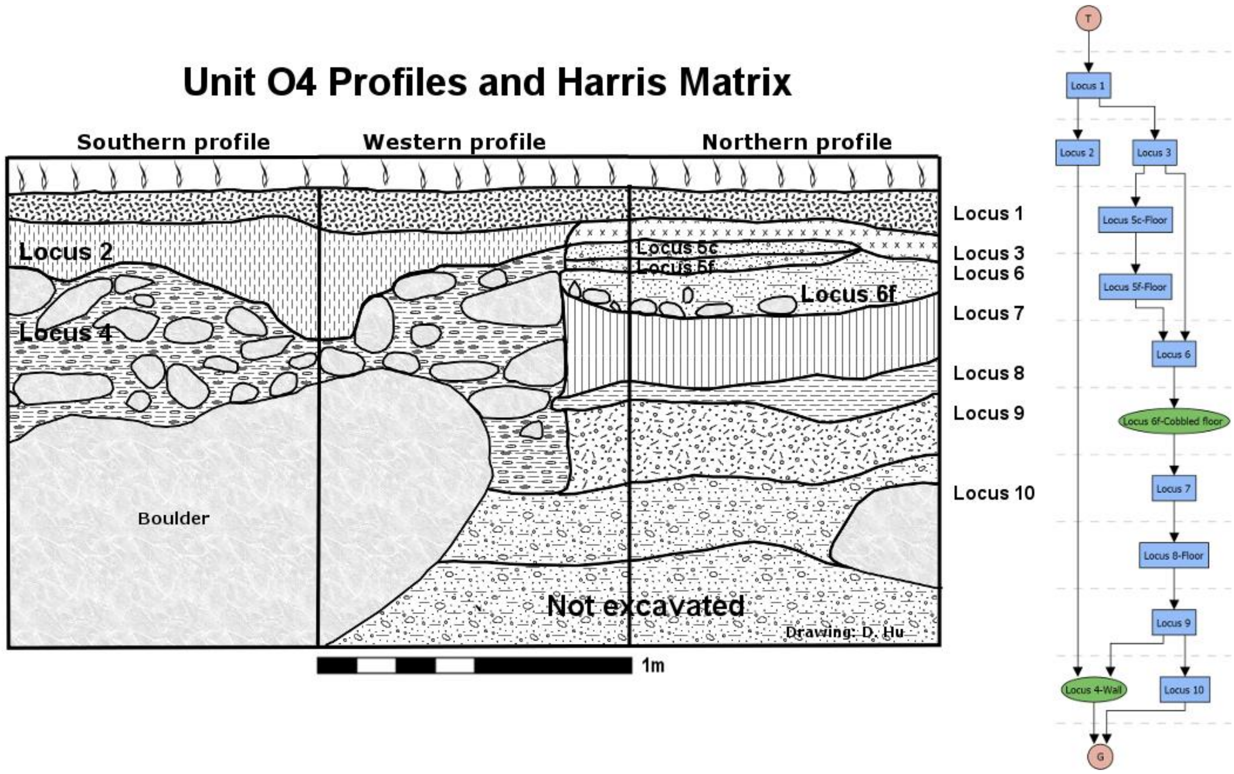


Figure 11.18: Southern, western and northern profiles of Unit O4. First floor consists of Loci 3 and 5c,5f. Second floor is Locus 6f. Third floor is Locus 8.

Descriptions of the loci of Unit O4

Locus 1 - The root layer had fine and sandy dirt with the presence of small stones (Munsell 10YR 5/3).

Locus 2 - Locus 2 was a deposit of fine sandy sediment that had small rocks of one to five centimeters, charred wood and fragments of roof tiles (10YR 4/2). There were roof tile fragments and carbon mixed in. There was also a strange bulbous metallic artifact found, which could be either slag or clinker. This locus was interpreted as a fill that was deposited after the demolition of the building in the 1970s.

Locus 3 - Locus 3 was a deposit of compact fine sandy sediment mixed with small stones, bone fragments, and carbon (Munsell 7.5YR 4/3). We interpeted this locus as a floor.

Locus 4 - Locus 4 was a thick stone wall. The dirt between the stones of the wall had bits of carbon and ceramic fragments embedded in it (Munsell 10YR 4/2). The wall was aligned at approximately a fifteen degree angle northward from west to east. The eastern side of the unit may have been the start of another wall aligned north to south, which would mean that Unit O4 was near the southeast corner of a room. There were four pieces of slag or clinker found embedded in the sediment near the top of the wall. The presence of slag or clinker shows that a forge must have been nearby.

Locus 5 - Locus 5 was a deposit of loose sandy sediment mixed with gravel (Munsell 10YR 4/3). There were two components to this locus, 5c and 5f. Locus 5c was a lens of lighter-colored finely-grained gravel and Locus 5f was a lens of dark-colored medium-grained gravel with carbon fragments. There were three pieces of slag or clinker found in this locus, and the gravel type was identical to that found in Unit O2. We interpreted the gravel as a construction fill underneath a stamped earth or adobe floor (Locus 3).

Locus 6 - Locus 6 was a deposit of fine sandy soil (Munsell 10YR 4/3). At the bottom of Locus 6 (Locus 6f) was a floor of rocks of ten to thirty centimeters in diameter. We judged Locus 6f to be contemporaneous with the cobbled floor in Unit O2 (Locus 5). The construction technique was virtually identical, with the same type of gravel as fill above and below the cobbled floors.

Locus 7 - Locus 7 was a deposit of semicompact fine sediment with small stones (Munsell 10YR 4/3). This locus had a few artifacts and an abundance of burnt wood. This locus was interpreted as a construction fill for the cobbled floor in Locus 6.

Locus 8 - Locus 8 was a deposit of compacted fine sediment mixed with small stones (10YR 5/3). Locus 8 may have been the original floor of Unit O4 or, alternatively, a fill for a foundation. The first interpretation is more likely because in Unit O2, there was no comparable compacted layer below the cobbled floor as Unit O4 had. There were no artifacts found in this locus.

Locus 9 - Locus 9 was the beginning of sterile and consisted of fine sandy sediment mixed with stones of about five centimeters in diameter (7.5YR 6/6).

Locus 10 - Locus 10 was unexcavated and sterile (Munsell 10YR 5/6). Locus 10 was similar to sterile in all the units of the *obraje*.

11.1.5 Unit O5, jail cell for men

Summary of Unit O5

Unit O5, 1x1 meter, was placed inside a room in the textile production area of the *obraje*. According to archival documents, this area also had a jail (*calabozo*) for men and another jail for women (Salas 1998a: 213-217).[241] The archival descriptions also list the jail cells next to the principal door of the textile production area, and this room was located next to the principal entrance. There were two floors evident in the stratigraphy, which is consistent with the archival record that there was a major renovation/rebuilding of the *obraje* after the 1716-1719 earthquakes. The most recent floor was lined with flat stone slabs (Locus 9) and had a pig jawbone embedded in the

[241] ARAY, Compulsa, Intendencia, Compulsas Ordinarias, Leg. 25, Cuad. 3, ff. 188v-198v, 1793.

floor. Near the bottom of Unit O5, there was a cut approximately sixty centimeters deep made into the sterile matrix (Figure 11.19). The original floor, which was the depression, extended beyond the confines of the unit and beams over the area may have formed part of the covering for the dungeon-like area of the jail (Figure 11.20). The depression was then filled in by thick layers of dark compact earth to prepare for Locus 9 (Figure 11.21). The jail complex had a second story (Salas 1998a: 213-217). The high adobe walls of the room where Unit O5 was located also had holes for beams that would have supported a second story (Figure 11.22).

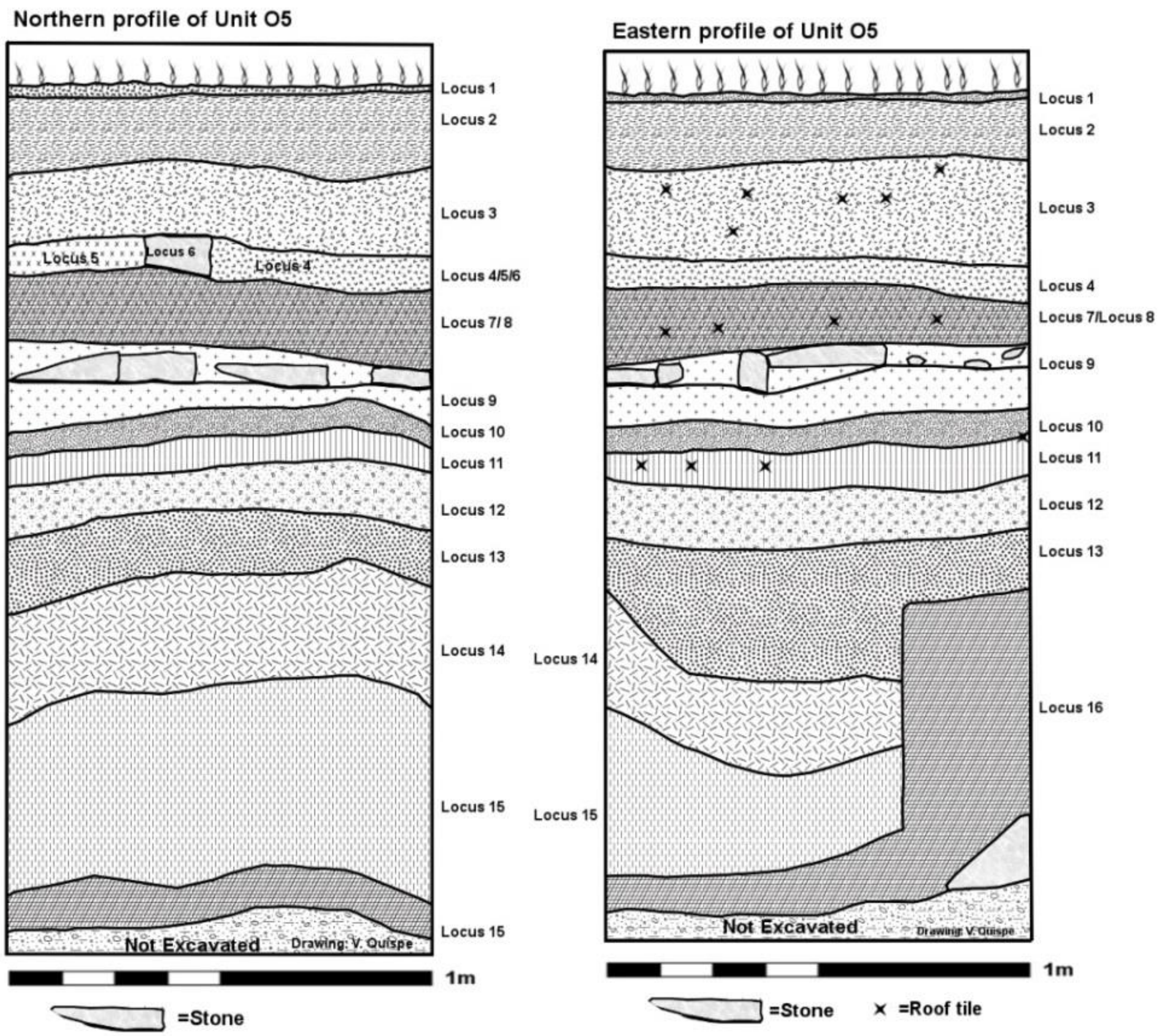


Figure 11.19: Northern and eastern profiles of Unit O5. Cut and depression evident in eastern profile.

Figure 11.20: Holes for large beams that would have been part of a covering for the depression at the northern side of the room.

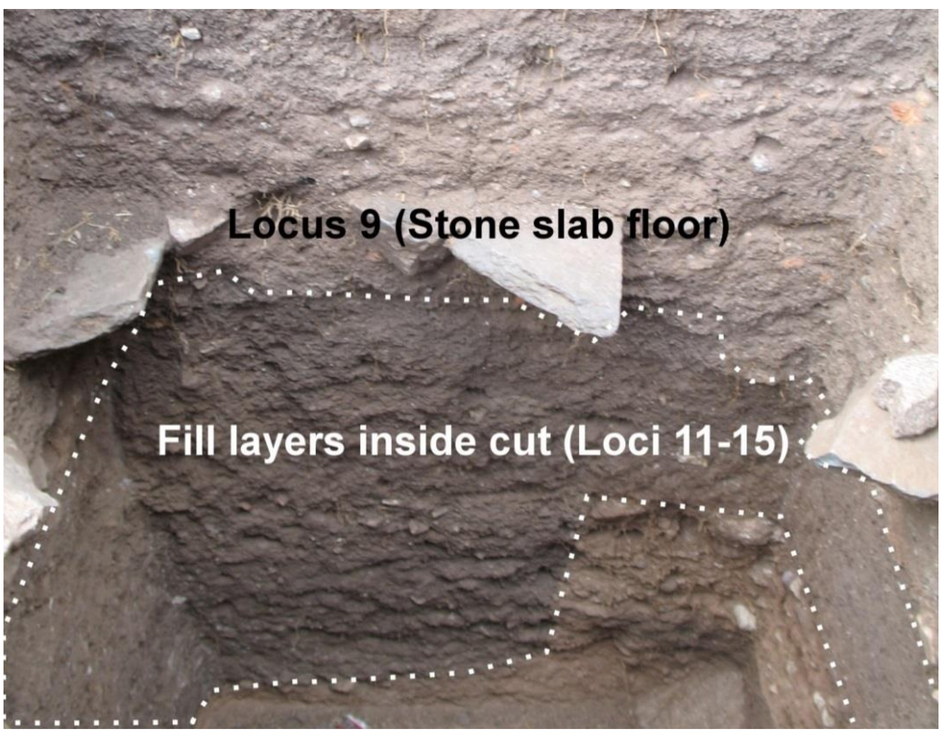


Figure 11.21: Stratigraphy (eastern profile) showing dark, mostly compact organic sediment fill layers inside a 60cm deep cut (Locus 16).

Figure 11.22: Beams for the second story of the room in which Unit O5 was located (circled in white dots).

Descriptions of the loci of Unit O5

Locus 1 - Locus 1 was the root layer, which consisted of sandy soil mixed with roof tile and ceramic fragments (Munsell 10YR 3/2).

Locus 2 - Locus 2 was a deposit of loose soil with the presence of small fragments of roof tiles and stones of three to five centimenters in diameter (Munsell 10YR 4/2). Some fragments of roof tile were around eight centimeters in diameter. This locus was interpreted as a fill that accumulated over time after the roof no longer existed.

Locus 3 - Locus 3 was a deposit of sandy sediment with the presence of roof tiles and larger stones of ten to twenty centimeters in diameter (Munsell 5YR 5/3). In this locus, we found roof tile fragments, glass, metal, and ceramic fragments. This locus was interpreted as a fill that accumulated shortly after the roof no longer existed, which occurred sometime in the mid-twentieth century.

Locus 4, 5, 6 - Locus 4, 5, and 6 were defined as separate loci during the process of excavation, but under scrutiny, actually constitute a single event. These loci formed a deposit of clayey sediment that ranged from compact to loose with no particular order (Munsell 10YR 5/4). The sediment was mixed with fragments of roof tiles, ceramics and small stones of approximately five centimeters in diameter. There was one small obsidian artifact found. There were also large stones ranging from twenty to forty centimeters in diameter irregularly aligned in this locus (Figure 11.23). We interpreted this locus as fill made of architectural rubble and adobe wall melt that accumulated shortly after the roof no longer existed.

Figure 11.23: Photograph of Loci 4,5, and 6, which constitute a disturbed architectural fill.

Locus 7 - Locus 7 was a deposit of loose fine sediment that contained small stones of three to five centimeters in diameter (Munsell 7.5YR 5/3). There were roof tile fragments and ceramic fragments. We interpreted this layer as a disturbed fill that accumulated when there was no roof.

Locus 8 - Locus 8 was a deposit of compact sediment with small stones of one centimeter in diameter mixed with a greater density of roof tile fragments and carbon than Locus 7. There were also a few ceramic fragments found in this layer. The color of the sediment was Munsell 2.5YR 4/3. This layer was interpreted as fill above a floor accumulated due to the absence of a roof. Locus 8 probably corresponded to the early nineteenth century when many of the rooms of the *obraje* were described as “ruinous” and without roofs. The previous fills (Loci 3-7) corresponded to later periods of successive use and abandonment of the room.

Locus 9 - Locus 9 was a floor lined with well-fitted stone slabs. The color of the dirt between the slabs and immediately below the stone floor was Munsell 7.5YR 4/2. The slabs had a bit of polish from long-term use. Embedded between some of the slabs was a pig mandible (Figure 11.24). The mandible was intentionally embedded with the teeth downward and may have had ritual meaning. Remember that according to the 1732 land title documents of Pomacocha, there were three shamans imprisoned in the jail.

Figure 11.24: Floor lined with stone slabs (Locus 9). Arrow points to where the pig mandible was embedded.

Locus 10 - Locus 10 was a deposit of compact sediment that was mixed with ceramic and roof tile fragments (Munsell 7.5YR 5/3). The stones in this layer ranged from seven to ten centimeters in diameter. This layer was interpreted as a disturbed architectural fill that accumulated shortly before the construction of the stone floor and probably dated to 1716-1723.

Locus 11 - Locus 11 was a deposit of fine sediment with the presence of small stones of one to five centimeters in diameter (Munsell 10YR 4/3). There were also roof tile fragments. Locus 11 was looser than Locus 10. Toward the center of the unit, the sediment was more compact. Locus 11 was interpreted as an intentional deposit of organic sediment to prepare a proper foundation for the floor in Locus 9.

Locus 12 - Locus 12 was a deposit of loose organic sediment with the presence of small stones of approximately one centimeter in diameter (Munsell 2.5YR 4/3). There were a few ceramic fragments found. Similar to Locus 11, we interpreted this locus as an intentional fill to construct a level floor for Locus 9.

Locus 13 - Locus 13 was a deposit of loose organic sediment with the presence of small stones of approximately one centimeter in diameter (Munsell 5YR 4/3). Locus 13 was very similar to Locus 12, but there were no artifacts found in this layer. We also interpreted this locus as an intentional fill.

Locus 14 - Locus 14 was a deposit of very compact organic dirt mixed with small stones of approximately one centimeter in diameter (Munsell 10YR 4/2). Due to the compactness of the dirt, we had to use handpicks to excavate this layer. This locus may have been a floor. There were no artifacts other than a small obsidian tool found in this layer.

Locus 15 - Locus 15 was a deposit of compact sandy sediment with the presence of small stones of approximately one centimeter in diameter (10YR 5/4). There were a few fragments of ceramics found in this layer. Locus 15 and Locus 14 were very similar and may have resulted from gradual accumulation of dirt from occupation.

Locus 16 - Locus 16 was sterile, which consisted of loose sandy soil similar to sterile in other *obraje* units (7.5YR 4/4). There was a cut made into the sterile (Locus 16c) beginning at the same level as Locus 13. The cut was filled with Locus 13, 14, and 15. In the southeast corner of the unit was the top of a natural boulder. The cut was the first action evident in this unit and may have been part of a dungeon.

11.1.6 Unit O6, jail cell for women

Summary of Unit O6

Separated by a passageway, the room in which Unit O6 was located was basically identical in its dimensions (8.5m x 4.5m) to the room in which O5 was located (8.5m x 4.5m), which was interpreted as a jail for men. The interpretation for the function of this room was the jail for women. The main reason for this interpretation is that there was evidence of daily domestic activities than the room in which Unit O5 was located. According to the 1793 description of the *obraje*, the jail cell for men had shackles or stocks with an iron bar to secure the prisoners to prevent them escaping, whereas the other jail cell did not have such a contraption.[242] Thus, it appears that the jail cell for women was less secure than that for men. One would then expect the jail cell with more evidence for normal daily domestic activities as the one for women. Like Unit 05, the stratigraphy showed two floors (Locus 5, Locus 9), but neither was paved with stones (Figure 11.25). Rather, they were made of compacted dirt or adobe. Between the two floors was an abundance of charred material, roof tiles, and ceramics, which we interpreted as a roof collapse (Figure 11.26). We believe that the roof collapse dated to the 1716-1719 earthquakes which completely destroyed the *obraje*. On the surface of the floor (Locus 8) we found a nearly complete small pot (*olla*) that was smashed by the roof

[242] ARAY, Compulsa, Intendencia, Compulsas Ordinarias, Leg. 25, Cuad. 3, ff. 192r-192v, 1793.

collapse. The room may have served as a storage room at other times, because we found *colpa*, or mordant, in the fill of the floor (Locus 9).

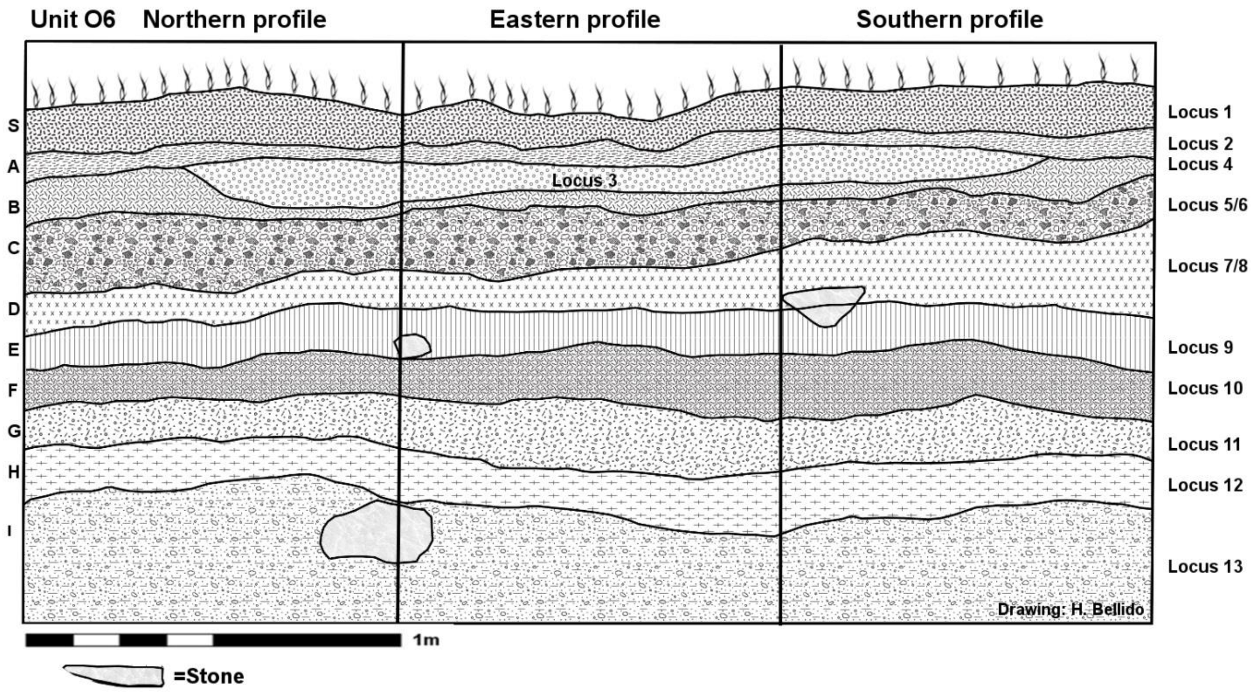


Figure 11.25: Northern, eastern and southern profiles of Unit O6.

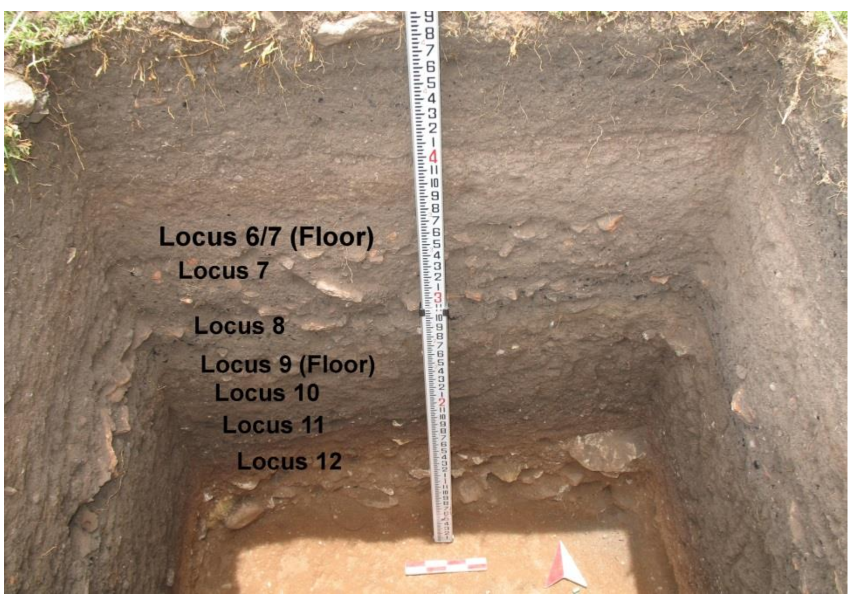


Figure 11.26: Photograph of northern profile of Unit O6. Note the abundance of charred remains and roof tile pieces in the loci between the two floors. Vertical scale in photo is in feet and inches.

Descriptions of the loci of Unit O6

Locus 1 (Layer S) -The root layer was a deposit of loose and fine dirt with the presence of carbon (Munsell 2.5Y 4/1). There were abundant fragments of roof tiles and bits of carbon. These remains were recent and related to the production of roof tiles. There was a recently constructed kiln for roof tile manufacture in the northern end of the room.

Locus 2 (Layer A) -Locus 2 was a deposit of compact sediment containing large-grained sand (Munsell 7.5YR 5/3). There were a few ceramic fragments and pieces of carbon.

Locus 3 (Layer B) - Locus 3 was a deposit of fine loose sandy sediment (Munsell 10YR 4/2) inside a shallow pit dug (Locus 3f) into Locus 4. There were only a few artifacts in this deposit.

Locus 4 (Layer B) - Locus 4 was a deposit of fine loose sandy sediment with large river stones (Munsell 7.5YR 7/3). There were only a few fragments of ceramics in this locus, which were concentrated in the western side of the excavation unit.

Locus 5 (Layer C) - Locus 5 and Locus 6 constituted a single event. The only differences between the two loci was a slight change in sediment color and slightly more artifacts in Locus 5. Locus 5 was a deposit of compact sandy sediment of large granules (Munsell 10YR 5/2). Ceramic fragments, bones, and a great quantity (520 pieces) of roof tile fragments were found in this locus. The locus was interpreted as a floor made from debris from a roof collapse.

Locus 6 (Layer C) - Locus 6 was a deposit of compact sandy sediment (Munsell 5YR 6/6). Roof tile fragments were abundant in this deposit, and this locus was interpreted as the trampled debris from a roof collapse.

Locus 7 (Layer D) - Locus 7 was a deposit of loose sandy sediment of large granules (Munsell 7.5YR 4/2). Large broken pieces of roof tiles and carbon were abundant in this locus. This locus was interpreted as the result of a violent roof collapse above a floor.

Locus 8 (Layer D) - Locus 8 was the interface of the floor (Locus 9) with the roof collapse (Locus 7). This locus had the remains of a smashed *olla*, or pot, and the presence of white *colpa* (Figure 11.27). The pot was probably smashed due to the roof collapse. The *olla* was associated with charred remains and wood. This locus was clearly associated with the activities of the *obraje*.

Locus 9 (Layer E) - Locus 9 was a deposit of fine sandy loose sediment with large granules (7.5YR 4/1). Carbonized remains were abundant in this locus, especially around the smashed *olla*. Also found in this locus were pieces of white *colpa* (Figure 11.28). This locus was intepreted as the fill that constituted a floor. Locus 8 and Locus 9 demonstrate that the room was used for multiple activities, possibly food consumption, preparation, and the preparation of pulverized *colpa*.

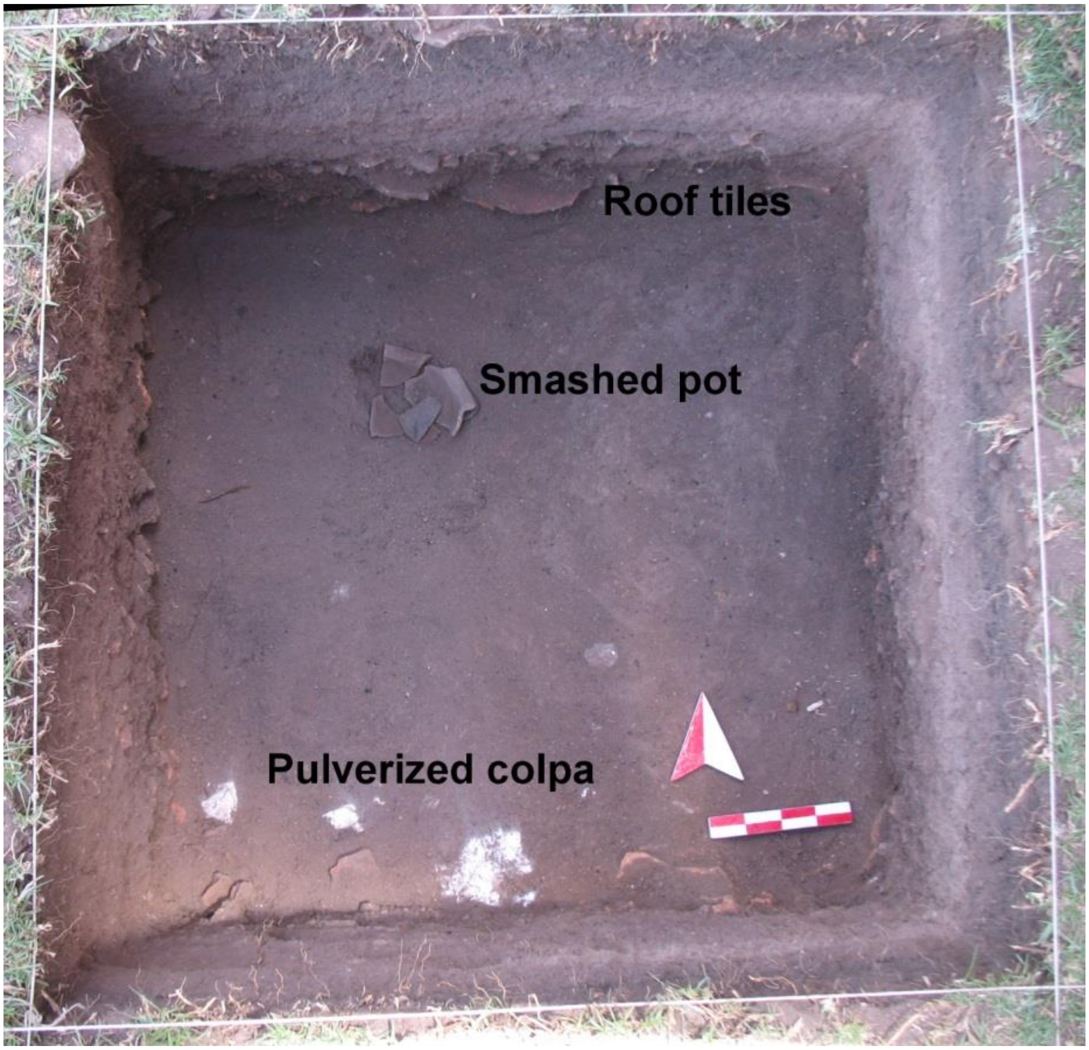


Figure 11.27: Floor interface (Locus 8) below roof collapse. Note the in-situ smashed pot.

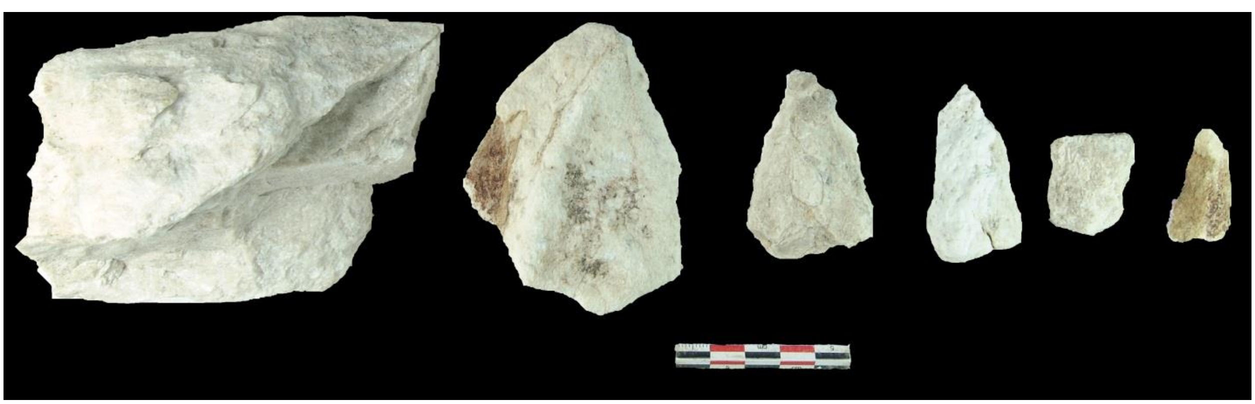


Figure 11.28: Pieces of intact *colpa* found in Locus 9 (floor fill).

Locus 10 (Layer F) - Locus 10 was a deposit of loose sandy sediment (Munsell 7.5YR 4/2). This locus was distinguished from Locus 9 by its color and the presence of small stones. There were a few ceramic fragments found in this layer. This layer was intepreted as a construction fill to prepare the floor (Locus 9).

Locus 11 (Layer G) - Locus 11 was a deposit of fine loose sediment with evenly distributed rocks (Munsell 7.5YR 4/2). This locus had only a few fragments of domestic ceramics.

Locus 12 (Layer H) - Locus 12 was a deposit of fine loose sediment (Munsell 10YR 5/2). There were a few small pieces of ceramics and metal found in this locus.

Locus 13 (Layer I) - Locus 13 was the beginning of sterile and was clearly distinguished from Locus 12 by its reddish color. Unit O6 sterile was similar to sterile in all the units of the *obraje*. It consisted of fine loose sand (Munsell 10YR 5/6). At the top of sterile were a few fragments of domestic ceramics. Locus 13 was excavated until we found large boulders.

11.1.7 Units M1, M2, M3 (Structure PC15)

Three excavation units were opened up in a domestic house compound in Molinopata called PC15 (Figure 11.29). There were two structures to the compound, a rectangular building where the living quarters were and a small irregularly-shaped structure for the kitchen. The rectangular building (eleven meters by eight meters) was originally only one living room and a front hallway, but the living room was later divided into two. There were two bed platforms, both made of stone. In the northern room of the main building, there was a cubby hole in the eastern wall with a small platform made of adobe in front, which probably served as a home altar. The dimensions of the adobe bricks and the bricklaying method was exactly the same as the walls of the *obraje* and other colonial buildings of Vilcashuamán province (Figure 11.30). Therefore, the rectangular building most likely dated to the colonial period. The stratigraphy, however, showed major disturbance over time as the later inhabitants continuously mined adobe mud from the interior. The house compound was occupied until the 1980s. The dateable artifacts were from the mid-nineteenth to twentieth centuries. The abundance of obsidian flakes, however, showed that the structure had a long occupation. There was an abundance of ceramic fragments, similar in size to those found at Yanawilka. It is probable that many of the fragments date to the colonial period as the pastes and surfaces were indistinguishable macroscopically from the colonial domestic ceramics in the *obraje*.

The house compound likely belonged to a richer family in the colonial period. In the eighteenth century, Indian commoners' houses were one room huts that barely had enough space for one to lie down in (Juan and Ulloa 1851: 62). Richer families, however, had larger houses with at least one internal division. Although publications on Andean native vernacular architecture in the mid- to late- colonial period are currently virtually non-existent, Pablo Chalco's court case provides us with a description of what a native house of a richer family looked like: "First, an old house, which is comprised of a living room with its mark, hallway, with a thatched roof, and doors with locks, and a small kitchen propped against the said house."[243] The description of Chalco's house matches almost perfectly with PC15. While native commoners' houses may have remained much unchanged from the Inka period, the richer native families had larger houses that incorporated Spanish architectural canons, including the internal division of domestic space. Despite this, PC15 was constructed next to a large natural boulder and even incorporated a tall standing boulder in one of its rooms. The reverence for large boulders of the landscape in the construction of houses continued from Inka period Yanawilka.

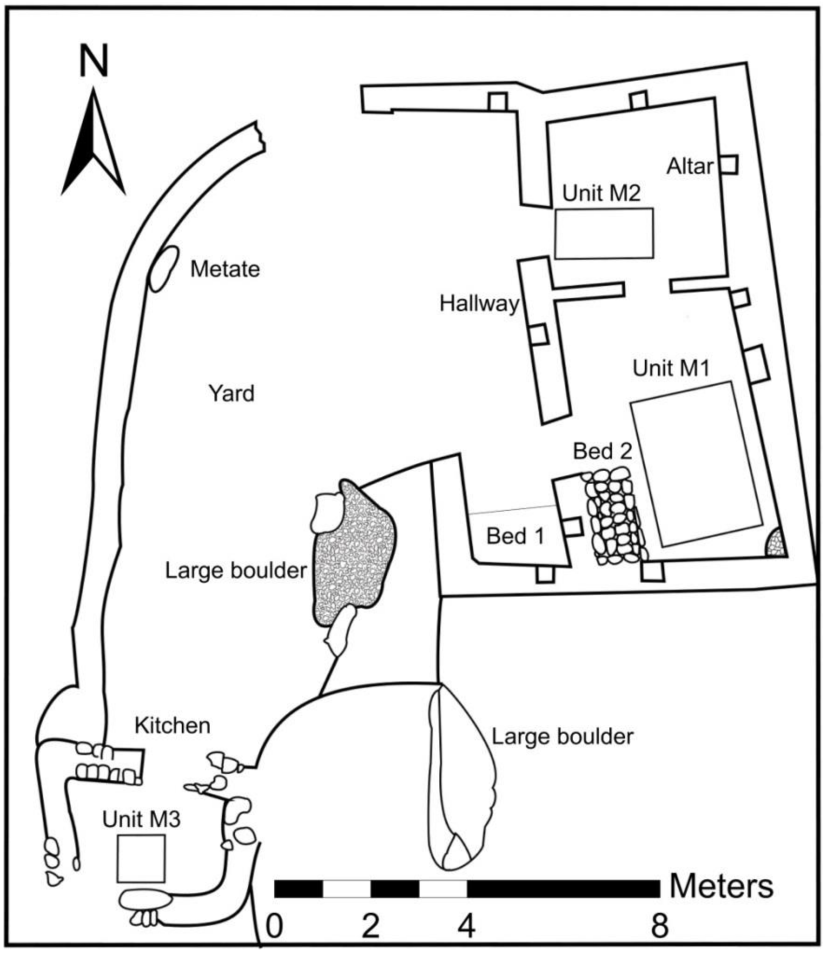


Figure 11.29: Plan map of domestic house compound PC15.

[243] ARAY, El corregidor, Causas Criminales, Leg. 19, f. 6v, 1781.Original: "Primeram./te una casa vieja, queso [sic] compone de una sala con su marca, corredor, con cuvierta de Paja, y serraduras con candado, y una Cozinita arrimada á dha Casa="

Figure 11.30: Comparison of *obraje* wall construction (left) with PC15 domestic wall construction (right).

Unit M1 summary

This excavation unit measured 3x2 meters and was oriented approximately fifteen degrees to the northwest. The stratigraphy was relatively straightforward (Figure 11.31). There was a large standing stone on the eastern side of the unit, which would have portruded above the colonial period floor about thirty to forty centimeters. Locus 1 was the most recent occupational fill above the floor and had guinea pig coprolites and glass shards (Munsell 10YR 3/2). A metal button with a star in the middle and the words "INSTITUTO PERUANO FRANCES" was also found in Locus 1. This button probably dates to the latter half of the nineteenth century, when the Instituto Peruano Frances was active (Moreno 1896: 234). Locus 2 was a layer of fine and loose sediment with stones of three to five centimeters in diameter (Munsell 10YR 4/2). There were many fragments of ceramics and lithics, especially obsidian, found in this locus, as well as glass and metal. Locus 3 was a layer of very fine and compact sediment with stones of two to three centimeters in diameter (Munsell 10YR 4/3). At the top of this locus there was an abundance of ceramic fragments, obsidian flakes, and bones. There was a concentration of carbon toward the northeast corner of the unit. A metal can was also recovered. Locus 3 was probably a floor from the late nineteenth or twentieth centuries, with earlier material culture mixed into the floor. Locus 4 was a layer of compact clayey sediment with stones of one to ten centimeters in diameter (Munsell 10YR 4/3). There were possible brick fragments, obsidian flakes, and ceramic sherds. Locus 4 appeared to be a fill below a floor, and the artefacts were evenly distributed. Locus 5 was a layer of compact clay with stones of one to twenty centimeters in diameter (Munsell 10YR 5/4). This layer was humid and had geological inclusions of various colors. Locus 5 was sterile. Locus 6 was a pit dug into sterile that had two small square adobe bricks, which were interpreted as rubble from the original floor (Figure 11.32). Locus 7, not excavated, had the same properties as Locus 5.

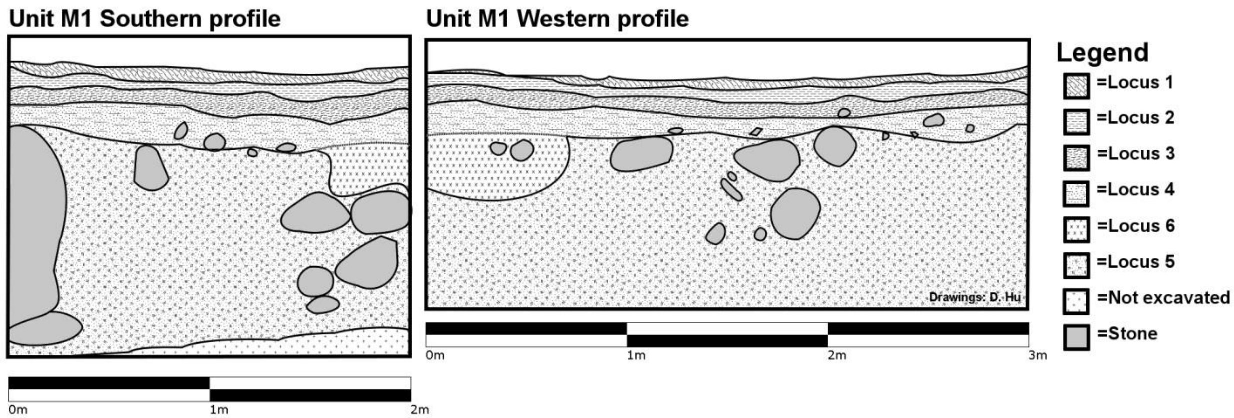


Figure 11.31: Southern and western profiles of Unit M1.

Figure 11.32: Looking southward on Unit M1. Notice the rubble from the original floor (Locus 6) in the southwest corner of the unit and the large standing stone on the eastern side of the unit.

Unit M2 summary

Placed in the northern room of the main rectangular building, Unit M2 measured 2x1 meters and was oriented to the north. The stratigraphy was straightforward (Figure 11.33). Locus 1 was a layer of mostly loose sandy dirt and had the presence of small ceramic sherds (Munsell 10YR 6/3). Some areas of Locus 1 were more compact because of adobe wall fall. Locus 2 was a layer of fine compact sandy sediment (Munsell 7.5YR 6/3). There were stones of various sizes in this layer arranged haphazardly. Ceramic sherds and obsidian flakes were found in this layer. Locus 3 was a heavily disturbed layer of fine semicompact sediment (Munsell 10YR 5/4). There were large deposits of loose stone rubble throughout this locus, showing the same significant remodelling as Unit M1. This locus had domestic artifacts such as ceramic sherds, obsidian flakes, metal pieces, and animal bones. Toward the bottom of the locus were larger stones and what appeared to be deteriorated bricks, but may have been from the natural geology. Locus 4 was a layer of compact sediment with the presence of gravel and large stones (Munsell 10YR 5/3). At the top of the layer, we found ceramic fragments, but as we excavated deeper, there were no longer any artifacts. Locus 5 was a layer of fine compact clayey sediment mixed with small stones and dark clayey stains (Munsell 2.5YR 5/8). There were areas that were made of bright orange clay. This layer was the natural geology and sterile. Locus 6 was part of the original floor and consisted of two square adobe bricks. Locus 7 was unexcavated and represented the interface with the natural geology.

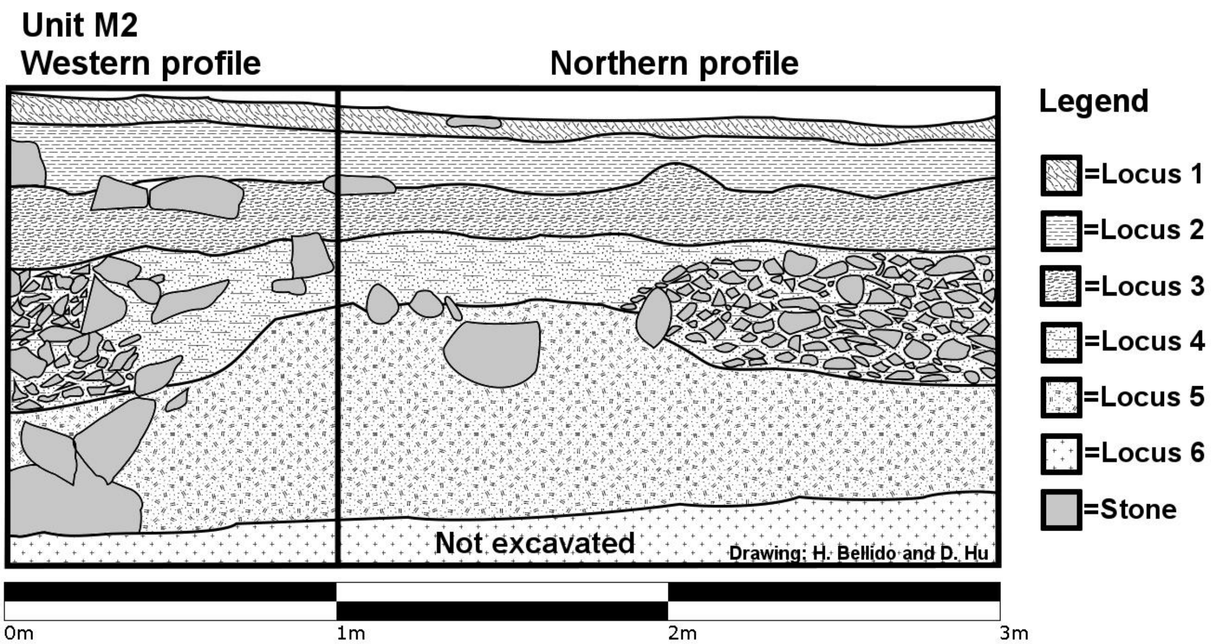


Figure 11.33: Western and northern profiles of Unit M2.

Unit M3 summary

Placed in the kitchen, Unit M3 was a 1x1 meter unit oriented to the north and had straightforward stratigraphy (Figure 11.34). Locus 1 was the root layer and consisted of very fine loose sediment (Munsell 10R 4/2). There were ceramic fragments recovered from Locus 1. Locus 2 was a disturbed layer of fine loose sediment (Munsell 10YR 5/4). There were large stones of around forty centimeters in diameter in this layer, including a fragmentary groundstone. There were also obsidian flakes and ceramic sherds found in this layer. Among the ceramics, there was a fragment with modelled features, which resembled Late Intermediate Period or Formative period ceramics (Figure 11.35).

Judging from the paste and surface finish, however, it resembled the modelled ceramic found in the colonial midden of the *obraje* unit O1, so it may have dated to the colonial period or later. Locus 3 was a layer of very fine compact sediment (Munsell 10YR 5/3) with stones of around thirty centimeters in diameter or smaller. There were animal bones, ceramic sherds, and obsidian flakes found in this layer. There were also pieces of plastic, a metal pen, and a button found in this layer, indicating that it had been heavily disturbed. Locus 4 was a layer of fine compact clayey sediment (Munsell 10YR 4/4) with the presence of large and small stones (55cm in diameter and smaller). A stone surface was uncovered that appeared to be a step leading up to the main platform of Molinopata. There was a metal bottle cap recovered in this locus, which along with the presence of the large irregularly aligned stones, indicated that this layer had been disturbed. Locus 5 was a layer of very fine compact sediment (Munsell 10YR 5/4) with the presence of small stones of six centimeters or smaller in diameter and gravel. There were obsidian flakes and a human tooth found. No ceramic fragments were found. Locus 6 was a layer of very fine compact sediment (Munsell 10YR 5/4) with the presence of gravel. Locus 6 ended when the surface of a second stone step was uncovered (Figure 11.36).

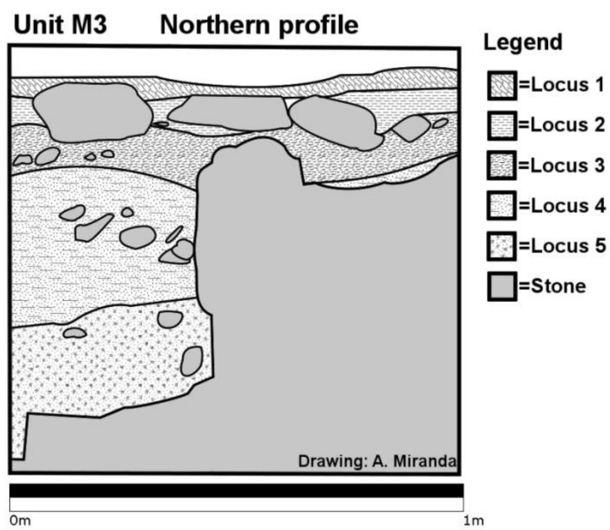


Figure 11.34: Northern profile of Unit M3. Note the presence of two steps.

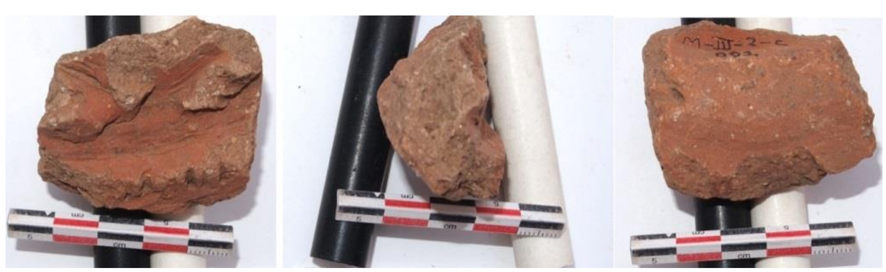


Figure 11.35: Modelled ceramic sherd (part between the neck and the body) found in Unit M3, Locus 2. Paste and surface finish similar to the modelled ceramic sherd found in Unit O1 in the *obraje*.

Figure 11.36: Unit M3 after excavations. Note the two stone steps.

11.1.8 Unit M4 (Structure PC12)

Unit M4 was a 2x3 meter unit placed inside a roughly rectangular stone structure that may have originally been constructed during the colonial period (Figure 11.37). Nevertheless, the fill inside the structure was heavily disturbed and contemporary artifacts, such as plastic and electronics parts, were found loci 1-4. Loci 5 and 6 comprised the oldest floor, but the floor also showed signs of disturbance (Figure 11.38). The structure was used as a kitchen in the twentieth century and possibly earlier, and like structure PC15, there was a significant number of obsidian flakes inside the structure, especially in the deeper layers.

Figure 11.37: Unit M4 after excavations (sterile layer).

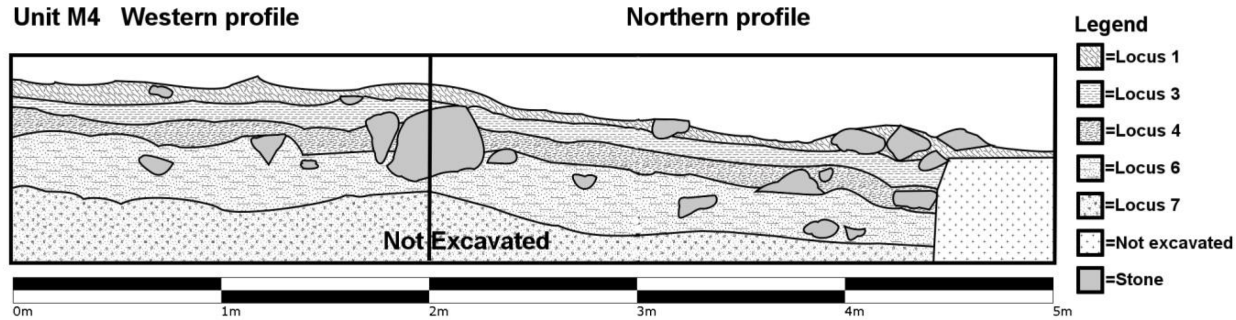


Figure 11.38: Western and northern profiles of Unit M4 (Structure PC12).

Locus 1 was a layer of very fine loose sediment (Munsell 10YR 4/2). To the northeast of the unit was a small rectangular pen made of one course of stones. Contemporary artifacts were found in this layer such as metal parts of electronics, pieces of cloth and bottle glass. Two coins were also recovered, one dating to 1976 ("UN SOL DE ORO") and the other was illegible. Locus 2 was a layer of very fine loose sediment (Munsell 10YR 5/3) inside the rectangular pen visible in Locus 1. The pen was full of guinea pig coprolites and was probably a guinea pig pen. Locus 3 was a layer of very fine loose sediment (Munsell 10YR 5/3) with small stones of around seven centimeters in diameter. It was in the same layer as Locus 2 and had ceramic sherds, animal bones, metal, glass, and plastic. Locus 4 was a semi-compact layer of organic sediment mixed with fine sand (10YR 6/2). There were contemporary artifacts in this layer, but they decreased in density toward the bottom of the layer. There were ceramic sherds, natural obsidian marekanites, and flakes found in this layer. The marekanites were carried to the area as colluvium. Locus 5 was a hearth in the same layer as Locus 4 and consisted of very fine loose ash and carbon (Munsell 10YR 6/1) (Figure 11.39). Locus 6 was a layer of fine compact sandy sediment (Munsell 10YR 5/3). There were animal bones found in this layer, but not much else. Locus 7 was the sterile interface to geology (10YR 8/2) and consisted of a white clay-like substance the locals call "isco."

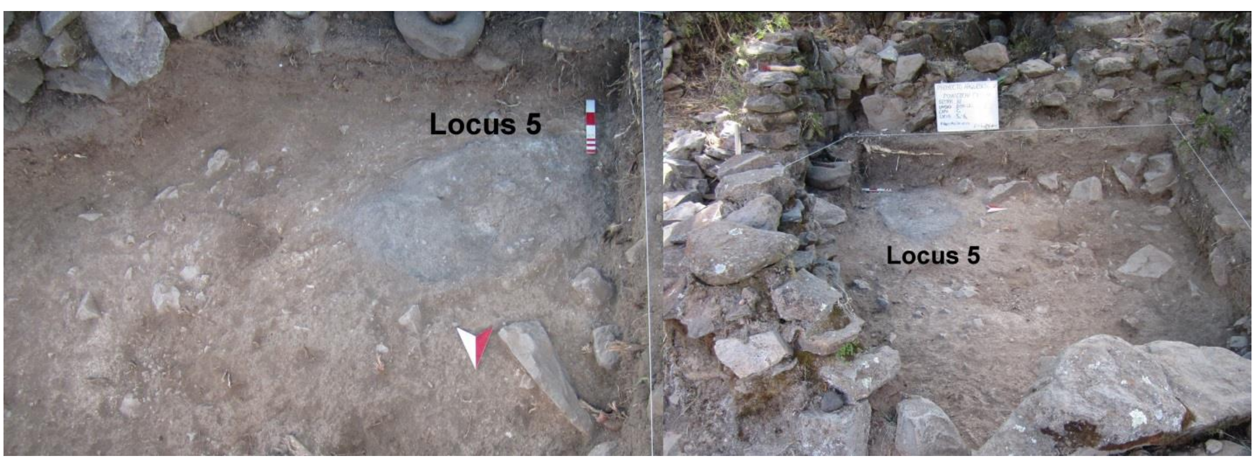


Figure 11.39: Hearth (Locus 5) in the southwest corner of Unit M4 (Structure PC12).

11.1.9 Units M5, M6 (Structure PC13)

Structure PC13 was located close to PC12, but was not part of the same domestic household because the structures belonged to different fields separated by a wall (Figure 11.40). There were two units placed in the domestic structure PC13. Structure PC13 was built sometime in the latter half of the twentieth century, but the adobe bricks were recycled from a much earlier structure probably from the colonial period judging from their dimensions. Unit M5 was oriented to the north and measured 2x2 meters. It was placed immediately outside of the structure inside a wall that defined a small yard. Unit M6 measured 2x2.5 meters and was placed inside a room that had a raised adobe platform that was presumably used as a bed. Unit M6 was oriented approximately fifteen degrees to the northwest. Like Unit M1 in Structure PC15, there was a large standing stone inside Unit M6. We also found a series of ritual offerings made around the large stone called “pampapu” or “offerings to the ground.” Many of the offerings were made in the five years preceding excavations in 2011 by the owner of the land to ensure successful human pregnancies. The remains of the *pampapu* offerings were of candies wrapped in plastic, chicken bones, cloth, and unidentified organic material. There were no diagnostic artifacts from the colonial period, though in deeper layers, there were more obsidian artifacts (flakes). Like the other units of Molinopata, the stratigraphy showed post-colonial disturbance due to continuous occupation.

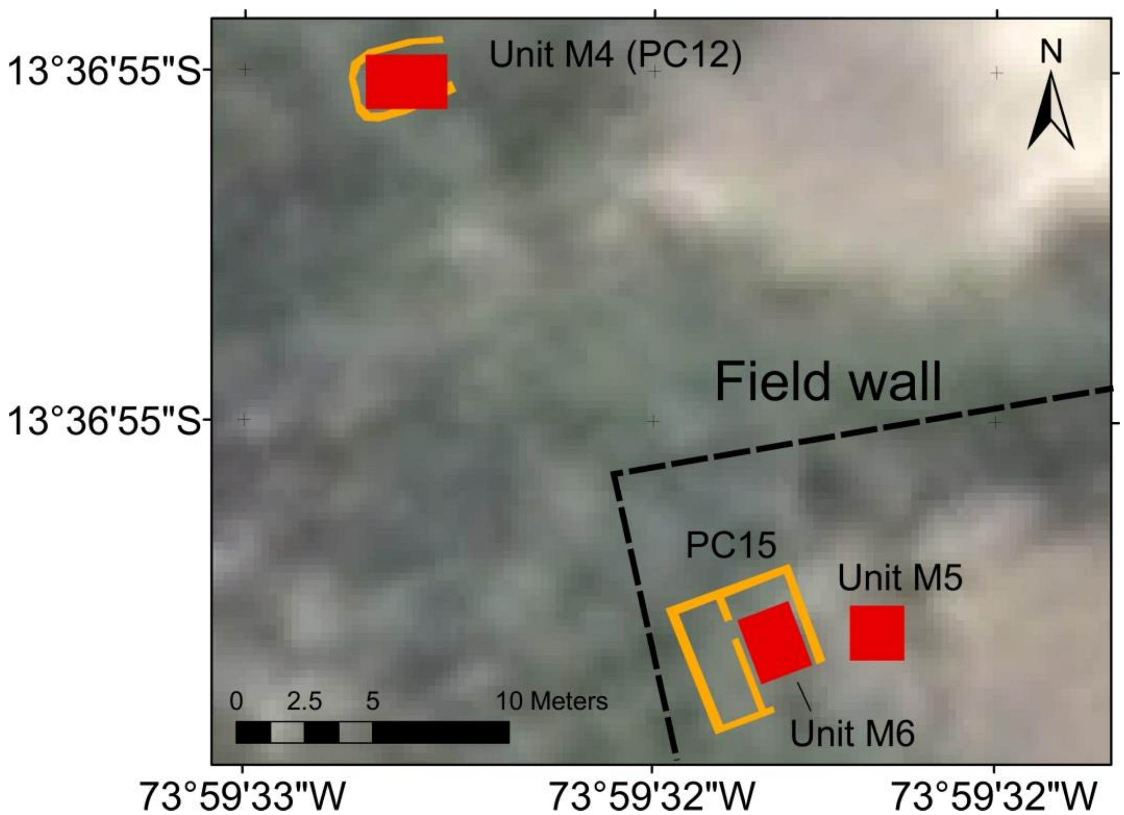


Figure 11.40: Plan map of Units M4, M5, and M6.

Unit M5 summary

The stratigraphy of Unit M5 was straightforward (Figure 11.41). Locus 1 was the root layer and was characterized by very fine loose sediment (Munsell 10YR 4/3). Among artifacts found were glass shards and plastic pieces. Ceramic sherds were also present. Locus 2 was a layer of very fine loose sediment (Munsell 10YR 4/2) with small stones of five to ten centimeters in diameter. Artifacts were generally contemporary and included ceramic sherds, porcelain, bones, carbon, burned maize, peach pits, and obsidian flakes and natural marekanites. To the southeast of the unit was an ash lens with abundant charcoal. This area may have served as an outdoor kitchen in the recent past. Locus 3 was a layer of very fine compact sediment (Munsell 10Yr 4/3) with small stones of five to twelve centimeters in diameter. The ash lens from the previous layer continued into Locus 3. There were ceramic sherds, river cobbles used as groundstone, obsidian flakes, and natural obsidian marekanites found in this locus. Locus 4 was a layer of fine compact sediment (Munsell 10YR 5/3) with small stones of one to three centimeters in diameter as well as large rocks. There were many obsidian marekanites and flakes found in this layer as well as a few ceramic sherds. Locus 4 may have been the original floor. Locus 5 was the sterile layer and was characterized by a fine compact clayey sediment (Munsell 10YR 6/3) mixed with pieces of natural whitish clay the locals call "isco."

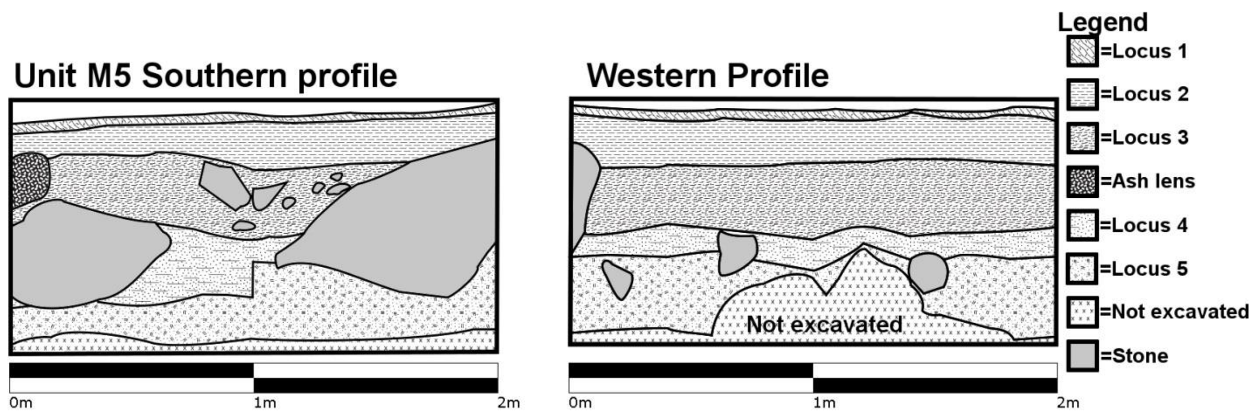


Figure 11.41: Southern and western profile of Unit M5.

Unit M6 Summary

The stratigraphy of Unit M6 was straightforward (Figure 11.42). Locus 1 was a layer of very fine loose sediment (Munsell 10YR 3/2). Ceramic sherds, lithics, guinea pig coprolites, glass shards were found in this layer and relate to the activities that occurred in this space recently, namely the raising of guinea pigs and use as a trash dump. Locus 2 was a layer of fine loose sediment (Munsell 10YR 4/2) with the presence of small stones of approximately three to five centimeters in diameter. There was a very large stone uncovered in the southeast of the unit. There were ceramic sherds, lithics, bones, metal, glass, obsidian marekanites and flakes found in this layer. This layer may have been a fill, as the artifacts were evenly distributed throughout. Locus 3 was a layer of very fine compact sediment (Munsell 10YR 4/3) with the presence of small stones of two to three centimeters in diameter. There were many small holes made in Locus 3 and inside each hole was a small offering of string, animal bones, and candies (Figure 11.43). The *pampapu* offerings seemed to be related to this large stone. There were also ceramic sherds, obsidian flakes, bones, and a metal can found in this layer. A concentration of carbon was found close to the large stone. Locus 4 was a layer of medium-grained compact sediment (Munsell 10YR 4/3) with the presence of stones of one to ten centimeters in diameter. There were brick fragments, obsidian flakes and ceramic sherds found in this layer. Only one *pampapu*, immediately next to the large standing stone, was visible in this layer and may been the oldest *pampapu* of this unit. This layer appeared to be a construction fill of material possibly brought from elsewhere nearby. Locus 5 was a layer of fine compact and clayey sediment (Munsell 10YR 5/4) with the presence of stones of one to twenty centimeters in diameter. The clay was orange and mixed with beige colored clay called "isco." This layer was sterile. Locus 6 was the interface to geology and was not excavated (Munsell 10YR 5/4).

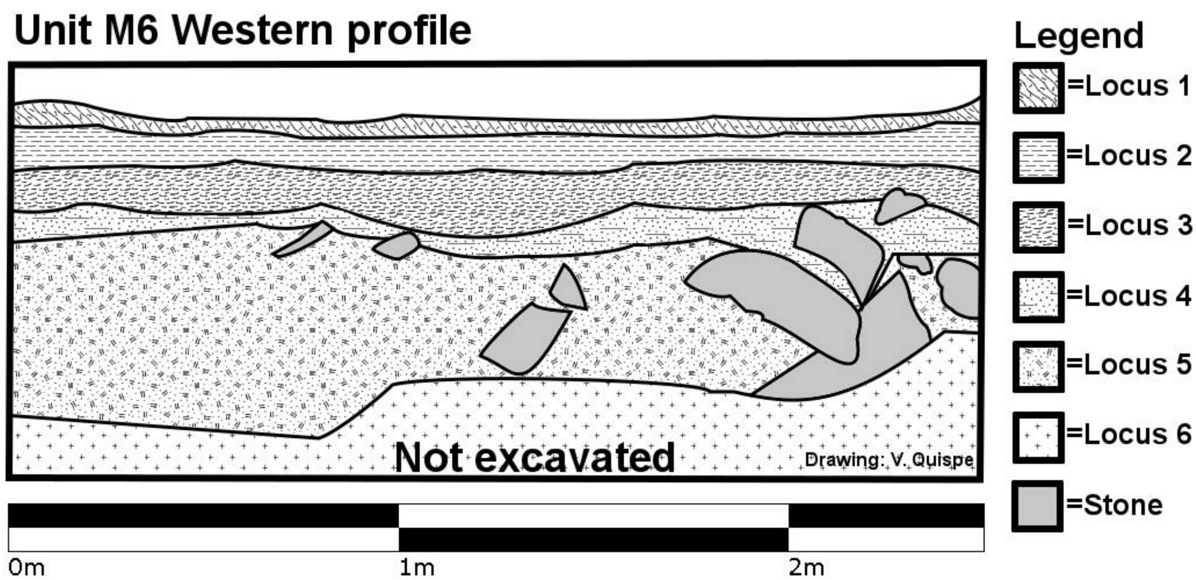


Figure 11.42: Western profile of Unit M6 (Structure PC13).

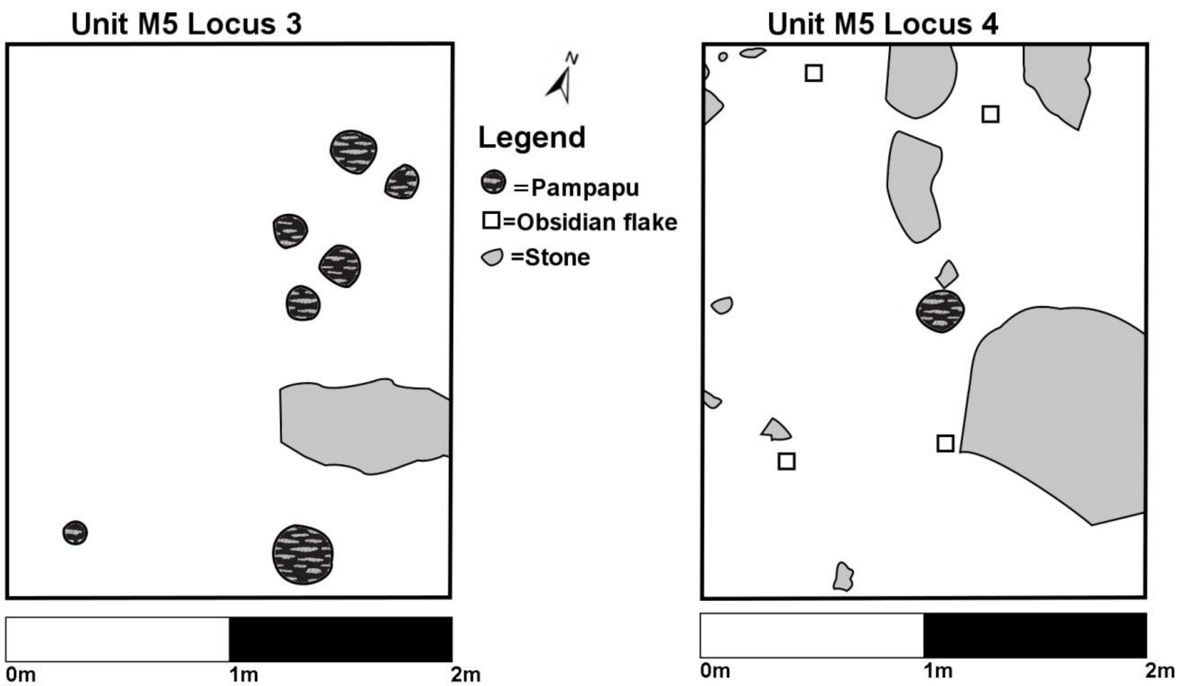


Figure 11.43: Plan map of Locus 3 and Locus 4 of Unit M6 (Structure PC13). Note the location of the *pampapu* offerings.

11.1.10 Discussion of Molinopata domestic space

Although only structure PC15 (Units M1, M2, M3) likely dated to the colonial period, the spatial trend of division of domestic internal space was clear during and after Spanish colonialism. Domestic houses also became more quadrangular. The similarity in construction technique of PC15 with the *obraje* showed that a source of influence was Spanish. There may have been some Inka influence in domestic architectural space because in PC13, the internal division was aligned with the ridge of the gable similar to many elite Inka domestic structures. Until recently, two room houses with an internal division aligned with the ridge of the gable was common in Vilcashuamán province. The division of internal vernacular domestic space occurred elsewhere with the influence of the Enlightenment (Deetz 1977), and it appears that the Andes may have been subject to similar trends. Despite these changes, large natural rocks and boulders continued to hold a special domestic importance throughout the colonial period through to the mid-twentieth century. The inhabitants of Pomacocha continued incorporating them into their house foundations and as part of their walls. This practice may have been widespread among native commoners in the colonial Andes. In a 1678 document related to the extirpation of idolatries, a native woman in Huamantanga named Angelina Chumpi was accused and convicted of worshipping two large stones that were incorporated into her house. According to Angelina Chumpi, the stones vomited flour when asked. Angelina sacrificed guinea pigs and poured their blood on these stones. The purpose was to increase the harvest of wheat and maize.[244]

It is unclear whether the obsidian flakes found inside the structures of Molinopata were primary deposits or brought in as fill from elsewhere, but judging from the obsidian found inside the *obraje*, it is certain that obsidian flakes continued to be used throughout the colonial period and possibly after. In section 11.4, I show through XRF analysis that procurement, and not just reuse of obsidian flakes found in the local landscape, may have continued in the colonial period.

11.2 Ceramics and foodways

To understand colonial foodways through archaeological remains, only the remains from contexts that date to the Spanish colonial period (1534-1824) were analyzed. The intact contexts that were most likely colonial were Unit O1 (Loci 9-11), Unit O2 (Loci 4-7), Unit O3 (Loci 9-20), Unit O4 (Loci 4-10), Unit O5 (Loci 7-16), Unit O6 (Loci 5-13). A total of 469 ceramic sherds were recovered from probable colonial contexts inside the *obraje* (Table 11.1). More than forty percent were from the colonial midden excavated in Unit O1.

Table 11.1: Summary of ceramic sherds recovered from colonial contexts in the *obraje*.

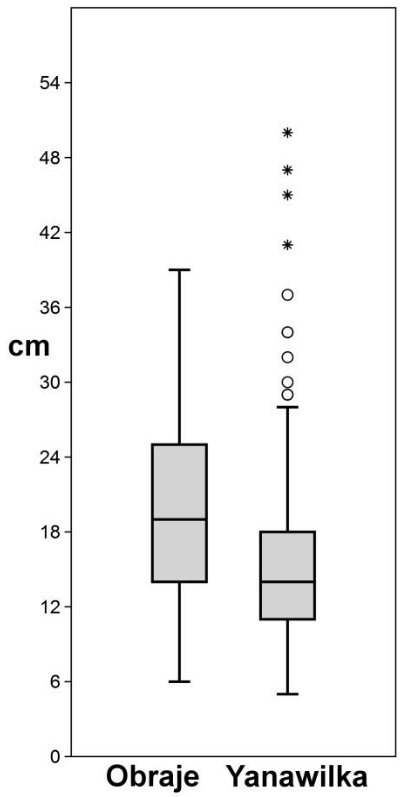
Unit	Ceramic ct.	Mean thickness (mm)	% Smooth	% Oxidized	% Pres. Mica
O1	184	7.21	52	9	48
O2	4	6.97	75	75	25
O3	15	9.21	13	53	53
O4	37	7.45	32	40	46
O5	109	7.22	39	32	32
O6	120	6.86	31	52	49
Total	**469**	**7.21**	**41**	**27**	**29**

An explanation of ceramic analysis was provided in chapter 7.4. Almost all of the ceramics were domestic, with the exception of the pieces of majolica and porcelain found in the midden of Unit O1. Compared to the ceramic sherds found at pre-Hispanic Yanawilka, more of the ceramic sherds from the colonial contexts of the *obraje* exhibited production in a reducing atmosphere, especially those found in the midden. It is possible that the midden sample was skewed by only a few ceramic vessels produced in reducing atmospheres being fragmented, because the proportion of ceramic sherds from reducing atmospheres is much lower in other units. The proportion of ceramic sherds with the presence of mica was comparable to the ceramic sherds in Yanawilka. The

[244] Archivo Arzobispal de Lima (AAL), Huamantanga. Acusación hecha contra Angelina Chumpi, india, mujer de Pedro Sanchez, por adorar "en piedras y paredes," Legajo 7, Expediente 17, 1678.

ceramics from the *obraje* appeared to be more utilitarian than the ones at Yanawilka, as almost none had any slip or surface decoration.

A total of 42 rim fragments were recovered from the colonial contexts inside the *obraje*. Removing the rim fragments that were part of the same vessel, there were 40 rims represented. The colonial documents on Pomacocha and other *obrajes* suggest that a cook hired by the administration cooked for everyone (Salas 1998a: 341). The kitchen at Pomacocha and at other Vilcashuamán *obrajes* was located in the same compound so that the workers did not need to leave to eat (see Figure 9.2). Obrajes were also known to have used coerced *mita* labor of native women as cooks (Silva Santisteban 1964: 93-94). Thus, the expectation is that cooking vessels should have been larger in the *obraje* than at Yanawilka, where food was generally prepared in batches appropriate to smaller groups of people, such as the immediate family. Overall, the rim sizes of the *obraje* do appear to be significantly larger than the ones in Yanawilka (Figure 11.44).



Test for equal means	Test for equal medians
Obraje N: 42 (Mean: 19.02) 95% conf.:(16.702 21.346) Variance: 55.536 Yanawilka N: 219 (Mean: 15.75) 95% conf.:(14.804 16.703) Variance: 50.847 Difference between means: 3.2704 95% conf. interval (parametric): (0.88787 5.6529) 95% conf. interval (bootstrap): (0.81083 5.6067) t : 2.703 p (same mean): 0.0073264 Uneq. var. t : 2.6231 p (same mean): 0.01119	Obraje N: 42 Mean rank: 26.27 Yanawilka: N: 219 Mean rank: 104.73 Mann-Whitn U : 3244.5 z : -3.0273 p (same med.): 0.0024679 Monte Carlo permutation: p (same med.): 0.0029

Figure 11.44: Rim diameter comparison between the *obraje* and pre-Hispanic Yanawilka.

However, the difference between the rims in the *obraje* versus Yanawilka may have been exaggerated by the very large *ollas* found in the midden of Unit O1. If we discount the rim samples from Unit O1, then there was no statistical difference between the *obraje* (mean of 15.9cm) and Yanawilka (mean of 15.8cm). Recall that Unit O1 was located near the kitchen of the Pomacocha *obraje*. The average diameter of the rims in Unit O1 was 23 centimeters and many belonged to large *ollas* that would have been able to hold enough food and liquid for large numbers of people (Figure 11.45). The rims that were not in the kitchen-associated midden were located in the probable jail cells (Units O5 and O6), indicating that the prisoners may have prepared or consumed food apart from the non-prisoner workers of the *obraje*.

Figure 11.45: Example of a large *olla* or cooking pot found in the midden of Unit O1, near where the *obraje* kitchen was located. The rim diameter of this vessel measured approximately 39 centimeters.

How did the proportion of open versus closed vessels in the *obraje* compare to pre-Hispanic Yanawilka? The ratio of open to closed forms in the *obraje* was approximately 1:2.2, meaning that the *obraje* had many more open vessels in relation to closed vessels than did Yanawilka, which had a ratio of approximately 1:5 (Table 11.2). In the midden of Unit O1, the ratio of open to closed forms was nearly 1:1, which skewed the overall results. If we only consider units other than O1, the ratio becomes approximately 1:4.3, which is more comparable to the ratio at Yanawilka. Again, the difference between the kitchen-associated midden compared to the jail cell contexts is highlighted. The midden context (Unit O1) had more ceramic serving vessels such as plates or bowls, whereas the jail cell contexts had many more cooking or storage vessels. This difference shows the more integrative commensality of the non-prisoner population. The prisoners, on the other hand, ate in smaller groups and probably apart from the ordinary working population. Given that around the time of the midden's deposition, the jail cells housed shamans convicted of crimes against the Catholic faith, their separation from the working population during meals would have been prudent. The midden most likely dated to either shortly before or shortly after the earthquakes of 1716-1719. In the next section (11.3), I show how the botanical and faunal remains of the kitchen-associated midden may have reflected food scarcity.

Table 11.2: Summary of the frequency of open and closed ceramic vessels in the *obraje*.

Unit	Open	Closed	Unknown	Total
O1	12	14	158	184
O2			4	4
O3			15	15
O4		1	36	37
O5	4	10	95	109
O6	2	15	103	120
Total	18	40	411	469

Although we do not have any documents listing the kitchen equipment of Pomacocha, we do have documents that describe the kitchen equipment of the nearby *obraje* of Cacamarca. The ceramic artifacts recovered from the Pomacocha midden (Unit O1, Loci 9-11) were consistent with the description of the kitchen equipment from Cacamarca. The Cacamarca kitchen included stew pots (*ollas*), spoons, knives, a machete, mincer, grill, grinding stones with pestles for grains and legumes, glazed ceramic and glass bowls for serving stews, jars, small ceramic and glass plates for desserts, tin salt-shaker, glass bottle for oil and vinegar, a painted vessel for wine, tablecloths, napkins and handcloths (Salas 1998a: 191). The Cacamarca kitchen equipment included items related to both the workers and the administrators. The administrators enjoyed the fancier glazed or glass equipment while the workers used the ceramic bowls and plates. The Pomacocha midden reflected a mix of both administrator and worker ceramic assemblages, which makes sense because the same kitchen cooked for both. The Pomacocha assemblage was almost all utilitarian, reflecting the predominance of workers' eating equipment.

The ceramic sherds in the *obraje* were much less fragmented than the ones in Yanawilka. Whereas 62 percent of Yanawilka ceramic sherds were smaller than 4cm², only 19 percent of the *obraje* ceramic sherds were smaller than 4cm². The difference can be attributed to the fact that the *obraje* underwent periods of use, collapse, abandonment, and renovation, which minimized post-depositional processes such as the trampling that was common in Yanawilka.

11.3 Analysis of botanical and faunal remains

The archival record on the foods eaten in *obrajes* is quite detailed. We must, however, not assume that the detail implies completeness. After all, most of our information about *obraje* foodways comes from either people who were politically motivated against *obrajes* or from the official account books of the *obraje* administrators. There was no unbiased record of what was eaten and how. A careful analysis of the rations given to workers of Cacamarca *obraje*, for example, showed that if the workers only subsisted on the rations given to them, they would only be consuming 853 calories per day (Salas 1998a: 487). Given the physical intensity of work inside the *obraje*, the workers would not have been able to survive on rations alone. Thus, archaeology can provide a valuable perspective in what *obraje* foodways were like and how the workers managed to subsist by supplementing their meager rations. In this section, I first review the literature on what foods were consumed by the *obraje* workers. Second, I focus on what the archival record tells us about foodways inside the Pomacocha *obraje*. I then compare the archival and historical record to the archaeological remains recovered from the Pomacocha *obraje*. I conclude by showing how the archaeological and historical records are complementary, and how comparing the two records can give us insight into daily strategies of worker resistance against the stinginess of the administration.

11.3.1 Colonial descriptions of *obraje* worker diet

The bulk of colonial descriptions of diet in *obrajes* come from either legal cases against *obrajes* or from political treatises hostile to the *obraje* as an institution. These descriptions generally emphasized the insufficient quantity and quality of available food inside *obrajes*. The available food, on the other hand, was also a financial liability for the workers because they had to pay the administrators for the food and drink, which was often inflated in value and of doubtful quality. Obrajes mostly paid the workers in food rations and from the cloth that the workers produced, but because the administrators assigned the value of the goods, the workers would fall into further debt. To survive in the obraje, the workers often had to supplement their diet with food provided by relatives.

For example, in a court case against abusive *obrajes* in the Audiencia of Quito (Ecuador), witnesses, mostly Spanish, described how the *obraje* of Otavalo had such paltry and inedible rations that the women would carry totora roots to their relatives imprisoned in the *obraje* to consume.[245] In the same case report, a witness described how the rations were "indecent" and consisted of rotten leather and fragments and cuts of fruits that were collected from the kitchen trash. Other witnesses testified that rations consisted of a half a pound of meat, salt, and chili pepper each day. The workers were often paid in sweets called "Rezo Latinos" at elevated prices. Although these sweets were worth only four to six *reales* a unit, they were valued at forty-eight *reales* by the administrators. The workers would sell the Rezo Latinos and use the money to buy *mazamorras*, *chicha*, and cane alcohol (*aguardiente de caña*). According to witnesses,

[245] AGI, A report on *obrajes* of the Audiencia of Quito by Don Joseph de Araujo y Rio, Quito 133, No. 26a, f. 22v, August 12, 1737.

the hunger was so great in *obrajes* that after the workers entered, they looked like skeletons. One witness summed up the pitiful state of workers enclosed in *obrajes*:

> [T]he said Indians experience many necessities of hunger, nakedness, and even the [lack of] the benefit of the sun to warm themselves because they are placed in the rooms of some cold and humid halls, working in some spinners, in others carders, in others weavers, and dyers, as this witness saw with his own eyes in some obrajes.[246]

The descriptions of *obraje* diet by Juan and Ulloa, famous critics of creole colonial governance, were similar to the aforementioned report by Araujo y Rio. The meat rations sold to the workers were of animals that had died of disease and were thrown to the dogs (Juan and Ulloa 1851: 54).

About ninety years later, General William Miller of the rebel army described *obraje* diet in much the same way. According to Miller (1829a: 9), the workers were paid so little they were only just able to afford to buy *chicha*, which they preferred to have if choosing between food and *chicha*. Because the workers were not allowed outside of the *obraje*, the administrator sells to the workers the lowest quality food rations for half a *real*, which consisted of maize or barley that had become rotten in the granaries of the *obraje* and of meat from cattle that died from disease. Many workers thus died of hunger. Miller saw this for himself:

> The view of the bodies of these persons, when they are brought out dead from such houses, would move the most flinty heart to compassion. They are mere skeletons, fully betraying the cause and manner of their death, and they often expire in the performance of the tasks allotted to them, with the very instruments of labour in their hands; for notwithstanding the symptoms of their dreadful malady manifested in their looks, the barbarous task-masters do not consider it a sufficient reason to exempt them from labour, or to be at the expense of medical aid (Miller 1829a: 9).

Although the above descriptions were politically motivated, they nevertheless did describe the food situation in the most exploitative *obrajes*. Did the above descriptions fit the food situation at Pomacocha? In the next section, I summarize what the colonial documents reveal about the *obraje* of Pomacocha in particular.

11.3.2 Colonial descriptions of workers' diet in the *obraje* of Pomacocha

Unfortunately, unlike the *obraje* of Cacamarca, the account books of the *obraje* of Pomacocha that would have included detailed information on workers' rations have been lost over time. The few archival clues we have about diet inside the *obraje* of Pomacocha come from documents from the late eighteenth and early nineteenth centuries. In 1793, there was a piggery with nine pigs and a pen for three cows in the

[246] Ibid: f.42r.

patio of the kitchen, showing that the *obraje* also raised its own animals for consumption.[247] Foods consumed in the *obraje* as paid rations included beans (*habas*), peas (*alverja*), barley, colored chili (*ají colorado*), maize, *aguardiente* liquor, cheese, bread, potato, dried meat (*sesina*), lard, and wheat.[248] There was also a garden inside the *obraje* that had peach, pear, and apple trees. The renters were supposed to send half of the fruit as well as a portion of the livestock offspring to the Monastery for its sustenance.[249]

Comparing the foods given to the workers in Pomacocha to those given to workers in Cacamarca, we find a remarkable similarity. The only differences were that the account books of Cacamarca were more detailed and listed items such as salt, coca, lentils, maize *chicha*, *guarapo* (fermented drink made from maize cane), Lima bean (*pallar*), and rice (Salas 1998a). The administrators' food was also much more diverse and included butter, bacon, honey, preserved goods, beef, chicken, dried olives, oil, vinegar and wine (Salas 1998a: 191).

11.3.3 Botanical remains recovered from the *obraje* of Pomacocha

In this section, I summarize the botanical remains recovered from excavations and flotation samples in the colonial contexts of the *obraje*. Generally, the colonial *obraje* contexts were not rich in non-wood carbonized plant remains. Not counting unidentified carbon fragments, there were eighteen identifiable botanical remains recovered from excavation (Table 11.3). By far, the most common botanical remains were peach pits, which were found in the midden of Unit O1. There were peach trees in the gardens inside the *obraje*, so it is not a surprise that peaches were consumed by people inside the *obraje*. The lone maize cob was from the probable dyeing building. One of the tasks inside *obrajes* was to make ash, and the maize cob was found in an ash layer in the dyeing area and was probably used as fuel.

Table 11.3: Summary of the raw counts and density of identifiable botanical remains recovered from excavations inside the *obraje* of Pomacocha.

Taxa	**Common name(s)**	**Count**	**Standard density (ct. per liter)**
Prunus persica **(pit)**	Peach pit	16	$3.49x10^{-3}$
Zea mays **(cob)**	Maize cob	1	$2.18x10^{-4}$
Unidentified seed #1	Unidentified seed	1	$2.18x10^{-4}$
Total count		**18**	

247 ARAY, Compulsa, Compulsas Ordinarias, Legajo 25, Cuaderno 3, f. 193v, 1793.
248 *Ibid*: f. 36v, 38r, 42r, 72r, 73v-74r, 75r, 83v. BNP, Querella, C2011, 1793. ARAY, Autos, Corregimiento, Causas Ordinarias, Legajo 15, 1780.
249 ARAY, Arrendamiento, Notariales, Esteban Morales, Leg. 163, f. 225v, October 26, 1804. ARAY, Arrendamiento, Notariales, Esteban Morales, Leg. 165, f. 464r, November 10, 1809.

Out of a total of 86.85 liters floated from 28 distinct colonial contexts, only forty identifiable plant remains were recovered, which was a better recovery rate than Yanawilka, but still not rich (see Appendix H). Of the 86.85 liters floated, only 68.65 liters from 22 distinct colonial contexts yielded archaeological remains (see Appendix B). Probable species-specific identifications by Víctor Vásquez are denoted by an asterisk (Table 11.4). Four carbonized *molle* seeds were also found in the midden of Unit O1, and their presence probably indicates that the workers consumed *chicha de molle*, a traditional fermented drink made of *molle* fruit. Chicha was an essential part of the workers' diet in *obrajes* and of indigenous natives in general. The presence of cactus fruit, possibly prickly pear, shows that workers' diets were more diverse than what was described in the documents. The plant remains recovered from the *obraje* appear to be part of workers' or prisoners' diets. Eggplant seeds were found in the probable prison quarters (Units O5 and O6) along with other possible plant foods such as Kiwicha (*Amaranthus* sp.), wild potatoes (*Solanum* sp.) and prickly pear (Cactaceae) (Table 11.5; Figure 11.46). Notably, these three plants were not listed in documents about worker rations, lending credibility to colonial descriptions of relatives supplying food to *obraje* prisoners.

Table 11.4: Summary of the raw counts and standard densities of identifiable botanical remains recovered from flotation samples from the *obraje* of Pomacocha. Asterisk (*) denotes probable species-level identification by Víctor Vásquez.

Taxa	Common name(s)	Flotation ct.	Standard density (ct. per liter floated)
***Alnus* sp.**	Alder wood	10	0.1151
***Amaranthus* sp. (seed)**	Amaranth, Kiwicha*	4	0.0461
Cactaceae seed	Cactus fruit, prickly pear*	2	0.0230
***Euphorbia* sp.**	Spurge	1	0.0115
Poaceae	High altitude grass/herbs	5	0.0576
Schinus molle	Molle fruit	4	0.0461
Solanum melongena	Eggplant seed	3	0.0345
***Solanum* sp.**	Wild potato*	8	0.0921
Unidentified seed #2	Unidentified seed	2	0.0230
Unidentified stem	Unidentified stem	1	0.0115
Total		**40**	

Table 11.5: Distribution of raw counts and densities of identifiable plant remains recovered from flotation samples by unit inside the *obraje*.

Taxa	**O1**	**O2**	**O4**	**O5**	**O6**	**Total ct.**
Alnus sp.		2	4	2	2	10
Amaranthus sp. (seed)				1	3	4
Cactaceae (seed)					2	2
Euphorbia sp.					1	1
Poaceae				5		5
Schinus molle (fruit)	4					4
Solanum melongena (seed)					3	3
Solanum sp. (seed)		1		6	1	8
Unidentified seed #1				1	1	2
Unidentified stem					1	1
Total ct.	**4**	**3**	**4**	**15**	**14**	**40**
Density (ct. per liter floated)	0.2740	0.6818	0.2649	0.8287	0.8511	

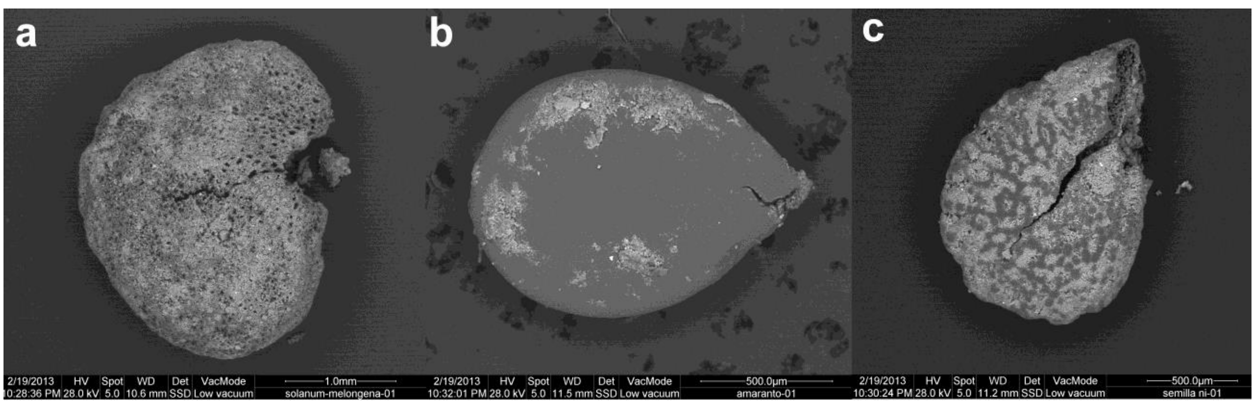


Figure 11.46: SEM images of seeds found in the jail cell excavation units (O5, 06). a=*Solanum melongena*, b=cf. *Amaranthus* sp., c=Unidentified seed, probably Cactaceae.

Given the quantity of peach pits recovered, it is likely that the workers ate peaches to supplement their meager rations. The workers may have supplemented their rations with prickly pear as well, which can be found near the *obraje* and currently grows in abundance in the community of Pomacocha. The administrators had distinct diets and ate separately from the workers and majordomos. The administrators were not present in the *obrajes* full-time and would only visit from time to time for accounting purposes. Although there were not many botanical remains recovered from the limited excavations and flotation samples, what is nevertheless clear is that archival descriptions of *obraje* diet were incomplete. Archaeological excavations are needed to gain a more holistic understanding of *obraje* diet.

11.3.4 Faunal remains recovered from the *obraje*

Analysis of the faunal remains was carried out by Teresa Rosales Tham and Víctor Vásquez of ARQUEOBIOS. There were 193 identified faunal remains (NISP) out of a total of 663 bones and bone fragments from colonial contexts (Appendix C). An additional twenty identified faunal remains (NISP) were recovered from flotation. Most identified remains were recovered from excavation and screening (Table 11.6). Compared to the faunal remains density at Yanawilka, the *obraje* had a much higher overall density by count and by mass (Table 11.7). The difference in density between Yanawilka and the *obraje*, however, is mostly due to the high density of faunal remains found in the colonial midden of Unit O1 (see Table 11.9). In this section, I show how charring, part selection, and availability of species may reflect a more desperate diet than in pre-Hispanic Yanawilka.

Table 11.6: Comparison of the faunal remains density by NISP and by mass in pre-Hispanic Yanawilka and the colonial *obraje* of Pomacocha.

Sector	**Total count**	**Density (ct/m³)**	**Total mass (g)**	**Density (g/m³)**
Yanawilka	606	23	1126.5	43
Obraje	663	144	2011.3	438

Table 11.7: NISP of faunal remains by taxa from colonial *obraje* contexts.

Taxa	**Common name**	**From excavation**	**From flotation**	**Total**
Artiodactyla	Even-toed ungulate	71	5	**76**
Ave unidentified	Unidentified bird	3		**3**
Bos taurus	Cattle	47		**47**
Capra hircus	Goat	11		**11**
Cavia porcellus	Guinea pig	2		**2**
Chiroptera	Bat	3		**3**
Gallus gallus	Chicken	11		**11**
Caprine	Sheep/goat	20	11	**31**
Ovis aries	Sheep	15		**15**
Sus scrofa	Pig	5		**5**
Unidentified coprolite	Animal coprolite	1		**1**
Unidentified amphibian			3	**3**
Unidentified mammal			1	**1**
Zenaida asiatica	White-winged dove	2		**2**
Zenaidura auriculata	Eared dove	2		**2**
Total		**193**	**20**	**213**

In contrast to pre-Hispanic Yanawilka, there were far fewer bones that were charred in colonial contexts (Table 11.8). Only 10.1% of the faunal assemblage had signs of charring in the colonial *obraje* contexts compared to 62.4% of the faunal assemblage in Yanawilka contexts. The stark difference could be attributed to the rarity of roasted meats as part of the *obraje* diet or to taphonomy. The roasted meat that may have existed may have been part of the administrators' diets. According to the archival record, meats consumed in the *obraje* were either dried (jerky) or stewed. Both methods of meat preparation were more fuel efficient than roasting meats. A comparable percentage of the faunal assemblage was fragmented in both the *obraje* (91.1%) and in Yanawilka (95%), which shows the continued importance of marrow extraction. The two predominant taxa were cattle (*Bos taurus*), at 24.3% of the excavated NISP, and sheep/goats (*Ovis*/*Capra*) at 23.8% of the excavated NISP. A major difference in part selection of these two animals compared to the part selection of camelids in Yanawilka was the much higher incidence of crania in the *obraje*, especially for cattle (*Bos taurus*) (Figure 11.47). In Yanawilka, only 3.9% of camelid remains were from the cranium, whereas in the *obraje*, 16.0% of the cattle and sheep/goat remains were from the cranium. The difference could indicate two, non-mutually exclusive, phenomena. First, because livestock were raised inside the walls of the *obraje*, their butchery would have also presumably occurred inside the walls. Thus, in contrast to Yanawilka where meat may have been redistributed from the butchery site, the *obraje* was both the place of butchery and of distribution, so a wider range of parts, including the cranium, would have been processed, distributed, and deposited inside *obraje* walls. Second, given that *obraje* worker diets in general were restricted in quality and quantity, the higher presence of crania, especially in fragmented condition, may indicate that the workers also consumed meat and organic matter from animal heads. Recall from the colonial descriptions of *obraje* worker diet that the workers often ate the rejected pieces of food from the kitchen.

Table 11.8: Distribution of charred, non-charred, fragmentary, and complete bones by unit (*obraje*).

Unit	**Not charred bones**		**Subtotal of not charred bones**	**Charred bones**	**Subtotal of charred bones**	**Total**
	Not fragmented	Fragmented		Fragmented		
O1	51	437	488	67	67	555
O2		6	6			6
O3	1		1			1
O4		4	4			4
O5	3	80	83			83
O6	4	10	14			14
Total	**59**	**537**	**596**	**67**	**67**	**663**

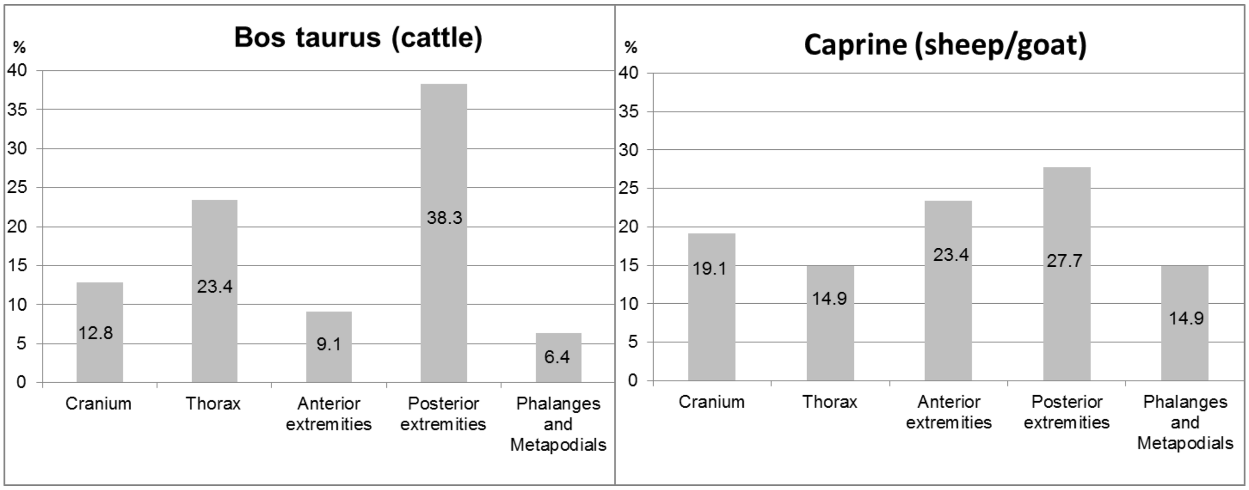


Figure 11.47: *Bos taurus* (n=47) and Caprine (n=47) anatomic parts represented in colonial *obraje* contexts.

Old world fauna dominated the assemblage by NISP and mass, which was fully consistent with the archival record concerning what animals the *obraje* workers consumed. Notably, there were no camelid remains found in the colonial contexts, showing a marked change from the pre-Hispanic period. The evidence for workers supplementing their rations is clearer in the faunal remains than in the smaller sample of botanical remains recovered from the colonial contexts of the *obraje* (Appendix C). The presence of small wild animals such as doves and bats might indicate these animals were consumed to supplement the meager rations because they were mostly found inside the colonial midden in Unit O1 (Table 11.9). Supplementing rations with small wild game was also an important part of slave diets in the United States (Bowes 2011; Franklin 2001, 2004). It is possible that these remains, especially the bat remains were intrusive and thus not consumed, but these remains were well inside the heart of the midden, which showed little signs of disturbance and was quickly covered with roof tiles after its deposition. The midden itself was deposited in a short time frame, possibly all at once given the absence of internal stratigraphy and its overall looseness, and the overwhelmingly food and kitchen-related nature of the midden contents lends credibility to the hypothesis that bats were consumed. According to Vásquez and Tham (Appendix C), the presence of wild animals may indicate that the rationed domesticates did not provide sufficient food for workers' survival.

Table 11.9: Distribution of identified faunal remains (NISP) and density by excavation unit (*obraje*) from excavation samples.

Taxa	Common name	O1	O2	O3	O4	O5	O6	Total
Artiodactyla	Even-toed ungulate	42	4	2	3	12	8	71
Ave unidentified	Unidentified bird	3						3
Bos taurus	Cattle	46					1	47
Capra hircus	Goat	11						11
Cavia porcellus	Guinea pig	2						2
Chiroptera	Bat	3						3
Gallus gallus	Chicken	11						11
Caprine	Sheep/goat	14				3	3	20
Ovis aries	Sheep	12				3		15
Sus scrofa	Pig	2				3		5
Unidentified coprolite	Animal coprolite	1						1
Zenaida asiatica	White-winged dove	2						2
Zenaidura auriculata	Eared dove	2						2
Grand Total		**151**	**4**	**2**	**3**	**21**	**12**	**193**
Density (NISP/m^3)		**347**	**27**	**3**	**6**	**13**	**10**	**42**

By far, the colonial midden (Unit O1) had the highest density of faunal remains and constituted 76.1% of the total NISP even though it only comprised 9.5% of the volume excavated from colonial contexts. The colonial midden (Unit O1) represents a good snapshot of *obraje* worker diet in the early to mid-eighteenth century. According to Vásquez (personal communication 2013), the chicken found in the colonial midden was less than six months old when it was slaughtered for consumption, which would have been an inefficient strategy to maximize meat extraction. Rather, it is reminiscent of desperate strategies of survival that emphasize smaller short-term over larger long-term returns. The cattle, on the other hand, were more than two years old when they died, and given that the administrators had to give the Monastery on a yearly basis all the young animals that had been born, it was probably only the old or sick cattle that were eaten by the workers since healthy, reproductive cattle were precious to the administrators and to the Monastery. The continued predominance of Old World domesticates such as cattle, sheep, goats, and chicken in the region of Ayacucho shows that Spanish institutions such as the *obraje* had a profound and long lasting legacy on native foodways.

11.4 Lithics and the continued use of obsidian

We currently know little about how lithic technology changed during the Spanish colonial period, especially of flaked stone tools and the procurement/use of obsidian. According to the colonial inventories of the *obrajes* of Pomacocha and Cacamarca, there were metal knives and scissors, so it would be reasonable to assume that the workers no longer needed the use of flake tools to cut (Salas 1998a: 195).[250] Results of excavations from the *obraje* show that while the use of flake tools were indeed greatly diminished during the colonial period inside the *obraje*, they were not completely abandoned. Obsidian flakes continued to be used occasionally. Ground stone tools for grinding food continued to be important throughout the colonial period to the present.

11.4.1 Lithics recovered from the *obraje* of Pomacocha and starch grain analysis of a flake tool

There were only forty-seven lithic artifacts recovered from the colonial contexts of the *obraje* of Pomacocha (Table 11.10). Most were from the class "OT" or "Other Tools," a catch-all category for lithics that do not belong in the major lithic classes.

Table 11.10: Distribution and descriptive statistics of lithic artifacts by class in the *obraje* of Pomacocha.

Class	N=	Mean length (cm)	Mean width (cm)	Mean thickness (cm)	Mean mass (g)	Common raw materials
AD	4	3.6	2.1	1.0	15.5	Andesite (2), Obsidian (1)
F	4	2.6	1.8	0.5	2.3	Andesite (1), Basalt (1)
C						
CT						
B						
FT	3	1.7	1.0	0.6	0.8	Obsidian (2), Chert (1)
BF						
PP						
GS	1	22.5	13.2	5.7	2250	Andesite
OT	35	3.2	2.1	1.4	31.3	Quartz (11), Not identified (7), Obsidian (7)

Although there were far fewer lithic artifacts recovered from excavations in the colonial *obraje* than in pre-Hispanic Yanawilka, the overall densities were comparable, with 10.2 lithics/m³ in the *obraje* and 11.0 lithics/m³ in Yanawilka. If we discount the anomalously dense Unit Y1 from the Yanawilka lithic density calculation, Yanawilka only had a lithic density of 6.7 lithics/m³. The artifact class distributions of the lithic assemblages of the *obraje* and of Yanawilka, however, were vastly different. Whereas angular debris, flakes, and flake tools comprised 84% of the Yanawilka assemblage, they only comprise 25% of the *obraje* assemblage. The *obraje* units with the highest number of lithics and lithic density were Unit O2, a hallway or dormitory, and Unit O5, a probable jail cell (Table 11.11). I briefly summarize each lithic artifact class below and show that although the production and use of chipped stone technology was not emphasized in the *obraje*, lithics continued to be important in other ways, especially as groundstone and raw materials related to textile production. I also present the starch grain results of the single flake tool found in the *obraje* (Unit O5, Locus 14).

[250] ARAY, Compulsa, Intendencia, Compulsas Ordinarias, Leg. 25, Cuad. 3, f. 41r, 1793.

Table 11.11: Distribution of lithics among excavated units in the *obraje* of Pomacocha.

Unit	AD	F	C	CT	B	FT	BF	PP	GS	OT	Total	Density ($/m^3$)
O1	1									3	4	2.3
O2	1	1				1					3	20.0
O3										3	3	4.0
O4		1							1	1	3	6.3
O5	2	1				2				19	24	14.8
O6		1								9	10	8.7
Total	4	5								35	47	10.2

Angular Debris (AD)

There were only four pieces of angular debris recovered from colonial contexts in the *obraje* (Table 11.12). They were generally found in areas of occupation, with the exception of the colonial midden of Unit O1. The paucity of angular debris demonstrates that chipped stone tool production probably did not occur inside the excavated areas of the *obraje*. Given the isolated nature of the angular debris, they may have been brought into the *obraje* from either colluvial action or human action. Other than the obsidian angular debris, there is no evidence that the angular debris were used as tools. The presence of marekanites in Unit O1, Locus 10 and Unit O5, Locus 8 also supports the possibility that the angular debris may not be primary deposits. Nevertheless, the brilliant marekanites may have also been collected from the local landscape by the workers (see section "Other Tools").

Table 11.12: Angular debris from excavated colonial contexts inside the *obraje* of Pomacocha.

Unit	Locus	Material	Length (cm)	Width (cm)	Thickness (cm)	Mass (g)
O1	10	Obsidian	1.1	0.7	0.3	0.14
O2	4	Andesite	3.1	1.7	0.6	3.1
O5	8	Quartzite	6.2	3.9	2.2	52.1
O5	9	Andesite	3.9	2.1	0.7	6.7

Flakes (F)

A single flake was found in every excavation unit except for Unit O3, which was the textile dyeing area, and Unit O1, which was the colonial midden (Table 11.13). The stone flakes were found in occupation areas, showing that there may have been some limited use of flakes by workers inside the *obraje*. As with the angular debris, there is a possibility that some of the flakes were carried into the *obraje* contexts by colluvial action.

Table 11.13: Flakes from excavated colonial contexts inside the *obraje* of Pomacocha.

Unit	Locus	Material	Length (cm)	Width (cm)	Thickness (cm)	#Scars	Mass (g)
O2	7	Obsidian	2.3	1.9	0.4	6	1.3
O4	6	Basalt	3.6	1.9	0.6	3	3.6
O5	14	Quartzite	2.2	1.9	0.5	3	1.8
O6	11	Igneous	2.4	1.5	0.6	2	2.5

Flake tools (FT)

There were three flake tools recovered from the *obraje* in Unit O2, a hallway or dormitory, and Unit O5, a probable jail cell (Table 11.14; Figure 11.48). The two flake tools recovered from Unit O5 were in the same event (Loci 14 and 15) and the flake tool from Unit O2 was inside the matrix of the stone wall and may not have been related to the period of time when the *obraje* was functioning but rather to the *hacienda* or even pre-Hispanic period. One of the flake tools from Unit O5, Locus 14 was subject to presence/absence starch grain analysis, and an unidentified starch grain was recovered from it (Figure 11.49). The flake tools found in Unit O5 were almost certainly brought there by people (probably prisoners) and used. The flake tools suggest that obsidian flake tools continued to be used in the colonial period. The sediment type and the absence of marekanites in Unit O5, Loci 14 and 15 do not indicate that colluvial action was responsible for the deposition of these loci.

Table 11.14: Flake tools from excavated colonial contexts inside the *obraje* of Pomacocha.

Unit	Locus	Material	Length (cm)	Width (cm)	Thick (cm)	# Edges	Edge_loc	Mass (g)
O2	4	Chert	2.8	2.1	0.9	1	Lateral distal left	6.6
O5	14	Obsidian	1.6	1	0.8	1	Left	1
O5	15	Obsidian	1.8	1	0.4	1	Distal	0.6

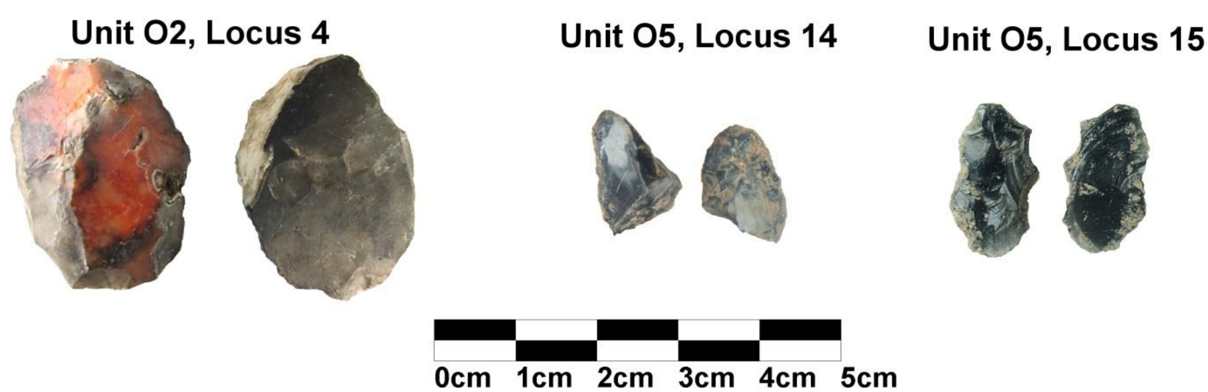


Figure 11.48: Flake tools recovered from colonial contexts in the *obraje* of Pomacocha.

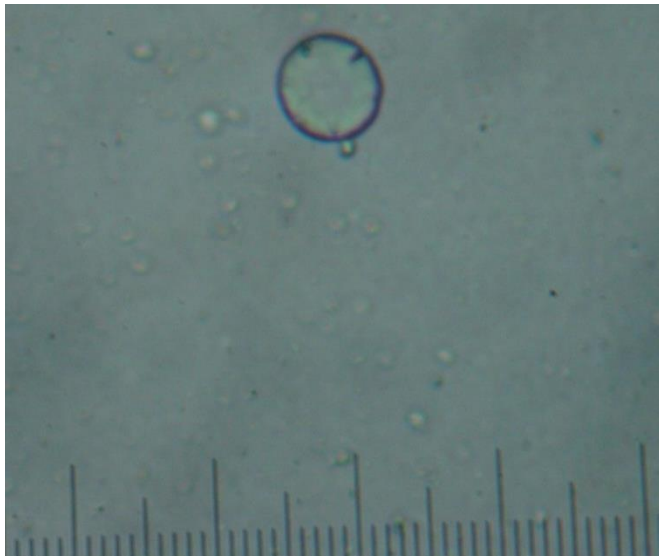


Figure 11.49: Unidentified starch grain recovered from the flake tool from Unit O5, Locus 14.

<u>Groundstone (GS)</u>

There was only one piece of a groundstone found in the colonial contexts of the *obraje*. The andesite groundstone was embedded in the stone floor of Unit O2 (Locus 5) and thus not in its primary use location. The piece of groundstone was probably part of a lunate *mano*, which was used to crush and grind in a side-to-side rocking motion (Figure 11.50). It may have also been used flat grinding stone because the flat sides of the tool showed signs of wear.

Groundstone was certainly common in the kitchen area of the *obraje*, near Unit O1, because between 2009 and 2010, the community mined the kitchen area for materials to make adobe, uncovering many complete and fragmentary groundstone (Figure 11.51).

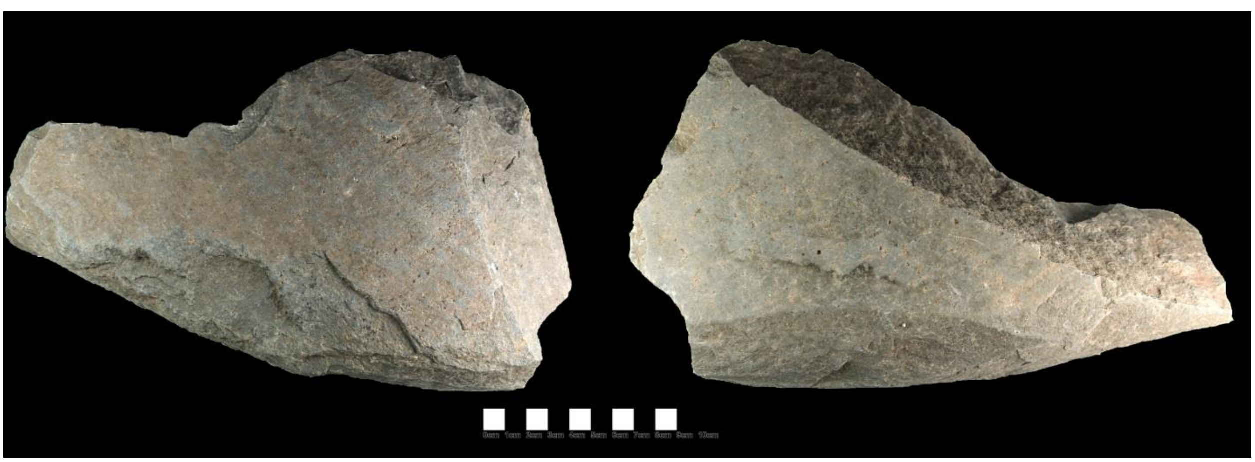


Figure 11.50: Broken groundstone from Unit O2, Locus 5 (stone floor).

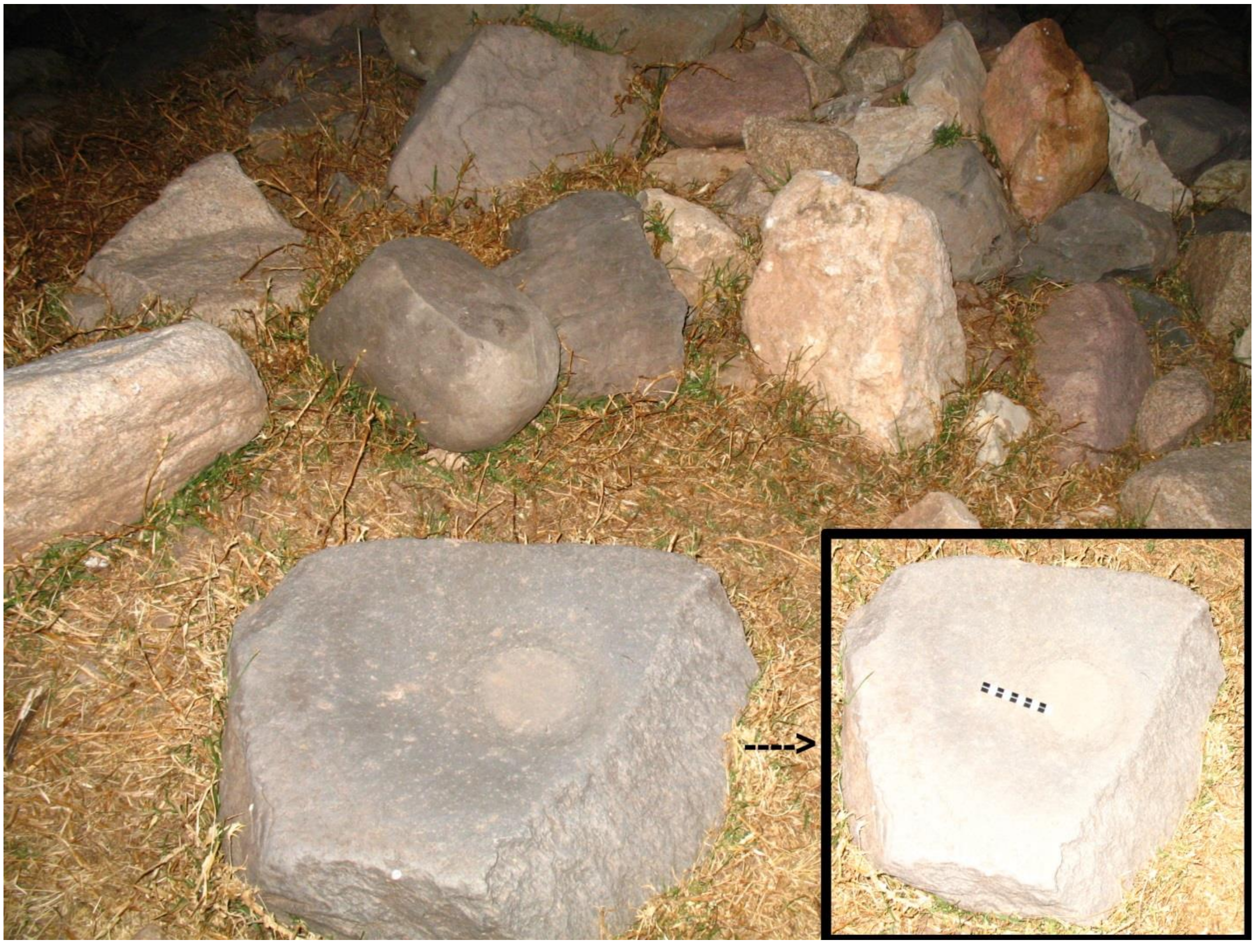


Figure 11.51: Photo of groundstone uncovered after the kitchen area of the *obraje* was mined for materials to make adobe by the community in 2009-2010.

Other tools (OT)

The thirty-five lithic artifacts belonging to the "Other Tools" category represent the most numerous lithic category from the excavations in the *obraje*. Most of the lithics in the "Other Tools" category were natural rocks that either showed signs of use or were not natural to the sediment. This category had diverse lithics, and many, such as the mordant *colpa*, were related to the production of textiles (Table 11.15). There were three obsidian marekanites, probably from the local Pomacocha source, found in the colonial contexts of the *obraje* (Unit O1, Locus 10; Unit O3, Locus 12; and Unit O5, Locus 8). While it is possible that these marekanites were carried down into the *obraje* through colluvial action, I believe that it is more likely they were carried into the *obraje* by people. First, unlike the Molinopata contexts that had many marekanites, especially as one neared sterile, there were only three marekanites inside the *obraje*. Colluvial action should not have carried these marekanites into the colonial contexts of the *obraje* because there was always a tall outer wall surrounding the *obraje*, and the contexts in which these marekanites were found should have been higher than the colonial wall. There were no marekanites in the sterile layer of the *obraje*, unlike in Molinopata, and none of the subsequent layers had evidence of colluvial action from outside the *obraje*. In Molinopata, there was an average of thirty marekanites found in each unit of excavation. The sediment layers in the *obraje* were a mix of adobe wall melt, architectural fill, and organic materials. Given the brilliance of these marekanites, they would have been easily noticed in the local landscape outside the walls of the *obraje*, and my guess is that they were carried inside the walls by people. The obsidian survey in the community of Pomacocha showed that near the *obraje*, there were no marekanites. Only in the higher parts of the community were they present on the landscape.

Table 11.15: Distribution of "Other Tools" in the *obraje* of Pomacocha.

Type/material	**Unit O1**	**Unit O3**	**Unit O4**	**Unit O5**	**Unit O6**	**Total**
Marekanite	**1**	**1**		**1**		**3**
Obsidian	1	1		1		3
Natural river rock		**2**	**1**	**5**	**3**	**11**
Unidentified				1		1
Quartzite		2		3	3	8
Igneous			1			1
Andesite				1		1
Natural rock	**1**			**13**	**6**	**20**
Colpa (mordant)					6	6
Quartzite				1		1
Granite				1		1
Quartz				11		11
Limestone/ calcite	1					1
Mortar	**1**					**1**
Limestone/calcite	1					1
Grand Total	**3**	**3**	**1**	**19**	**9**	**35**
Density (ct/m³)	**6.9**	**20.0**	**1.3**	**11.7**	**7.8**	**7.6**

11.4.2 XRF analysis of obsidian artifacts recovered from excavations in the *obraje* of Pomacocha and in Molinopata

As with Sector Y, the obsidian artifacts in Sector O and M were overwhelmingly from Quispisisa (81%) (Table 11.16; Appendix E). Sectors O and M date to the historic period (post 1534). Unlike Sector Y, however, there was no obsidian from Jampatilla. Sector M also had obsidian from Aconcagua in Chile as well as Alca-1 and Alca-2 in the region of Arequipa, showing that trade in obsidian probably continued throughout the historic period (Figure 11.52). Due to the low numbers of obsidian artifacts from the far away sources of Alca-1, Alca-2, and Aconcagua, trade may have been indirect in the form of passing small pieces of obsidian through the hands of several traders along economic routes. A lot of the obsidian artifacts of Sector M exhibited heavy trampling, which is consistent with the fact that the contexts were heavily disturbed. All the unmodified obsidian marekanites originated from the Pomacocha source near Lake Pumaccocha (Pomacocha). There were two flake tools (Samples #19 and #22) from Unit M2 that was made of obsidian from the Pomacocha source, confirming that in the historic period, this local source was used to make tools (Figure 11.53). These two flake tools were made from marekanite cores. All marekanites and marekanite cores analyzed were from the local Pomacocha source. Given that there was one marekanite core in Yanawilka (Figure 6.3), it is likely that the Yanawilka marekanite was also from the local Pomacocha source, making the Pomacocha source a probable pre-Hispanic minor archaeological source of obsidian.

The significant presence of obsidian angular debris and flakes in Molinopata suggest that chipped obsidian tool production continued in the historic period, though the disturbed nature of the contexts precludes more specific dating. If we only consider the colonial contexts from the *obraje*, only three obsidian samples were analyzed (Samples #57, #58, and #59), and they were all from the Quispisisa source. Although direct procurement from the Quispisisa source by the inhabitants of Molinopata is uncertain, it is almost certain that Quispisisa obsidian continued to be used, albeit in lower quantities, in the colonial period *obraje* of Pomacocha.

Table 11.16: Source assignation of obsidian artifacts in the *obraje* and Molinopata.

Unit	Aconcagua	Alca 1	Alca2	Pomacocha	Quispisisa	**Total**
M1	1 (100%)					**1**
M2		1 (6.7%)		2 (13.3%)	12 (80%)	**15**
M3					3 (100%)	**3**
M4				1 (12.5%)	7 (87.5%)	**8**
M5				1 (20%)	4 (80%)	**5**
M6			1 (25%)	1 (25%)	2 (50%)	**4**
O1					4 (100%)	**4**
O2					1 (100%)	**1**
O5					1 (100%)	**1**
Total	**1 (2.4%)**	**1 (2.4%)**	**1 (2.4%)**	**5 (11.9%)**	**34 (81%)**	**42**

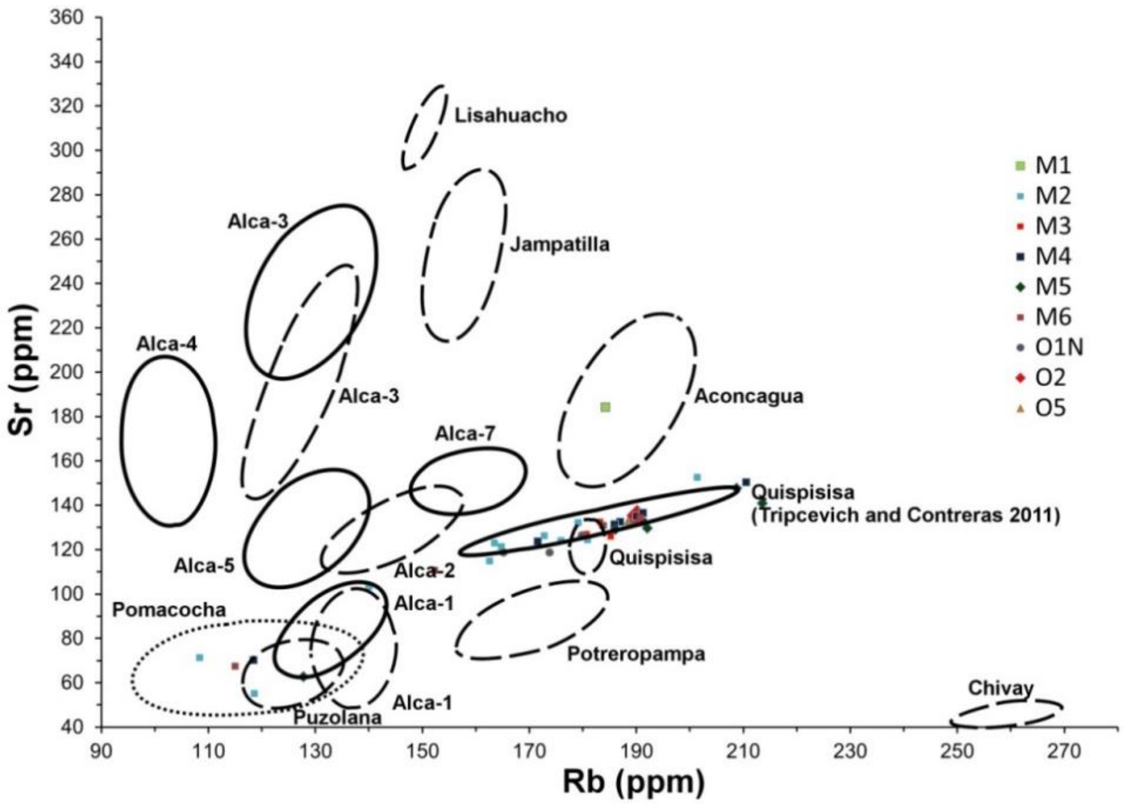


Figure 11.52: Bivariate plot of strontium (Sr) and rubidium (Rb) concentrations of 42 obsidian artifacts from Yanawilka superimposed on 95% confidence ellipses of obsidian sources. Dashed lines are 95% confidence interval ellipses from Glascock *et al.* 2007: figure 5. Solid lines are more recent chemical characterizations of Alca type obsidian (Rademaker *et al.* 2013) and Quispisisa obsidian (Tripcevich and Contreras 2011).

Figure 11.53: Flake tools made from obsidian from the Pomacocha source.

11.5 Conclusion: Commensality in the *obraje* of Pomacocha and its legacies

The diverse workers of Pomacocha worked together, ate together, celebrated festivals together, worshipped at Sunday mass together, and coordinated political action together. Although the workers' ethnic origins may have been diverse, commensality and working together, often under harsh conditions, led to a long term cultural and ritual rapprochement among diverse peoples that helped sow the seeds for coordinated political action. In this chapter, I discussed the archaeological evidence for the poor quality of food and overall food conservation inside the *obraje* of Pomacocha, which corroborated contemporary accounts of meager *obraje* diets. There were many surprises in the archaeological record, however, that offer us new insights into *obraje* commensality and its long-lasting legacies:

1) First, we find that the archival record on *obraje* diet was not complete. The workers probably supplemented their rations with a variety of foods such as peaches, eggs, *chicha* made from *molle* fruit, chickens, wild doves, guinea pigs, and possibly bats.
2) There appeared to be a different diet among the normal workers of the *obraje* and the prisoners. The prisoners may have consumed more edible wild plants possibly amphibians. The prisoners also appeared to eat and prepare food alone or in small groups apart from the non-prisoner workers. Food for the non-prisoner workers was prepared in large batches and food was consumed together. The workers consumed overwhelmingly Old World domesticates. Unlike in Yanawilka where high-quality parts such as the ribs and limbs were preferred, all parts of animals were consumed in the *obraje*. Like Yanawilka, however, almost all bones were broken to obtain the precious marrow inside. The divergence of worker and prisoner commensality suggests that as the working population became increasingly prisoners toward the end of the eighteenth century, the respect of workers' *costumbre* in the realm of commensality may have been violated more often, generating more discontent.
3) Lithics continued to be important in the historic periods, but flake tool technology was deemphasized inside the *obraje*. Nevertheless, flake tools, especially of obsidian, continued to be used in the colonial period. Natural rocks and river rocks continued to be important in historic periods and were collected and carried around by people. In the late colonial and Republican period residential neighborhood of Molinopata, we find that obsidian continued to be acquired and worked in historic periods, although due to the disturbed nature of the contexts, the exact chronology is unclear.
4) The colonial domestic house (Structure PC15, Units M1, M2, and M3) in Molinopata exhibited internal division of space, which did not exist in Yanawilka. Later domestic houses continued to exhibit internal division of space, which may have been influenced by space principles of the *obraje* and other Spanish architecture. The internal division of space may have also been influenced by Inka conventions, but the causal relationship is less clear.

As much as the *obraje* changed the foodways of the native Andeans and workers of other castes, there was also much continuity from the pre-Hispanic era. The importance of *chicha* and religious festivals in group solidarity, the veneration of notable natural stones as both part of the foundations of a house and as small keepsakes, and the offerings to the stones, mountains, abandoned houses, and caves were potent practices that continued throughout the colonial period to today. Even though the workers did not officially own any land, by working the land and inside the *obraje*, they built a sense of community that could become the basis of coordinated political action.

12 Overview and conclusions

Going back to the question posed in the abstract, why do the oppressed not rebel, especially when they outnumber their oppressors? Scholars have noted the "ethnographic thinness" of resistance/oppression frameworks in explaining Spanish colonialism in the Andes (e.g., Méndez 2005: 12; Walker 2014: 229). This dissertation highlighted the complexity of worker resistance at the *obraje* of Pomacocha. While the popular conception of exploitation emphasizes brutality and the oppressors' bald disdain, this dissertation showed that exploitation was most effective when couched in the framework of "costumbre," or customary paternalistic relationships between workers and their overseers/administrators. This "costumbre" was developed and reinforced over centuries of rule by first the Inka and then the Spaniards. Contradictions in exploitative systems also sow the seeds for their downfall. Obrajes like the one at Pomacocha facilitated inter-caste alliances by promoting shared cultural understandings and practices and by driving strategic migration over the wider social landscape. In this concluding chapter, I briefly highlight the major differences between the lived experiences of the laborers of Pomacocha under the Inka and the Spanish. I then summarize the major wider implications of the dissertation.

Geochemical analysis of obsidian artifacts from the Inka period at Pomacocha revealed that, as other scholars have noted, the Inka controlled interregional traffic, which enabled them to mitigate political alliances among politically hostile ethnic groups. At the settlement level, however, the Inka rarely exercised direct control over daily life. During the Spanish colonial period, this pattern reversed: there was direct control over daily life at labor sites such as textile workshops, but interregional traffic was fluid. Although both regimes officially endorsed the political separation of ethnic groups and castes, the Spanish colonial economy drove continuous mass migration and provided dynamic spaces of social mixing. A Lasker Distance analysis of surnames in colonial censuses of Vilcashuamán province revealed that the juridical ethnic boundaries imposed by the Inka and later adopted by the Spaniards had little basis in social reality by the eighteenth century. Migrations between villages cut across juridical ethnic lines and showed a hidden transcript of resistance. Because fleeing from one's natal village and being over fifty years old would exempt one from onerous labor obligations, people apparently migrated in cycles and exaggerated their ages to hide themselves from the Spanish bureaucracy. The result was a constant churning of the social landscape and overall exogamy. Textile workshops like the one at Pomacocha were spaces where social mixing was particularly intense and were one of the engines of mass migration.

Space syntax analysis of the plan map of the Pomacocha textile workshop showed that it could function like a Foucauldian prison, which effectively promoted inter-group antagonism along gender, race, and caste lines for the purpose of control. The creation of group difference helped control the working populace by introducing hierarchical distinctions reinforced by the Foucauldian architecture, effectively maintaining political fragmentation among the workers. Nevertheless, my dissertation highlights that even at the height of profitability the Pomacocha textile workshop could not prevent cultural exchange among its diverse workers, especially in matters of food and ritual, paving the way for the possibility of future inter-caste alliances. As the textile industry declined toward the end of the eighteenth century, the economic activities of the Pomacocha workshop shifted toward agricultural production, which meant that it was harder to maintain the same level of surveillance. This helped in uniting various formerly divided peoples in armed rebellions against the textile workshop. The wider rebellious networks created over the landscape due to the increased frequency of inter-caste alliances in revolts also aided in the overthrow of the Spanish colonial regime. Thus, the social conditions, often invisible in the historic record, underpinned the revolts and rebellions. Conversely, the revolts and rebellions, along with the state's suppression of them, further modified the social landscape and often engendered novel patterns of social interaction.

This dissertation brings forth four major wider implications for Andean and resistance studies:

1) The mid- to late- Spanish colonial period was dramatically different than the early colonial period. Most archaeological studies of the colonial Andes were from the early colonial period when state capacity was weak. This dissertation provided an alternative view from a core political and economic area of Spanish colonial empire in the Andes. This dissertation showed that even at the height of Spanish state capacity, top-down policies had limited power on the ground. Local bottom-up political dynamics generally had more effect on what happened on the ground than polices from on high. In fact, the top-down policies were generally *reactions* to the diverse tactics of resistance that native commoners employed. The state policies themselves were contradictory and reflected acrimonious political debates of the day.
2) Cultural hybridity was a two-way street for native Andeans and Spaniards alike. There was as much indigenization as Hispanicization, and the exchange was fueled by converging ritual horizons and common domestic practices. It was the indigenization of *mestizos* and creole Spaniards that helped frame the main political debates of the eighteenth and nineteenth century. Inter-caste relations made up a history of uneasy alliances beginning in the sixteenth century. I argue that the indigenization of *mestizo* and creole Spanish society was a reflection of just how successful bottom-up political dynamics pushed back on hegemonic regimes. In order for the Spanish colonial system to function, it had to be sensitive to local customs, which were an amalgam of native Andean and Spanish political cultures. Remember that in the early colonial period, the mostly male Spaniards intermarried with native elite women. Many early Spanish *encomenderos* acted like Inka lords and the seeds of costumbre were sown (Stern 1993). The complexity of relationships, not just based on blood, facilitated the

creation of dynamic spaces of inter-caste interaction and alliances during the colonial period in colonial Latin America (Voss 2015).

3) This dissertation also demonstrates that Andean peasantry, at least in the Ayacucho region, was the result of hundreds of years of globalized and dynamic social interaction. As many have noted, there is no timeless Andean peasant, and this dissertation provides an in depth example of how what is now a sleepy indigenous community was the result of intense social dynamism. The implication is that culture change is not politically neutral. Cultural practices have to be actively maintained, taught and learned from one generation to another. In the dissertation's study area, resistance and culture change combined to manifest as ethnogenesis. Rather than eradicating the old, ethnogenesis continuously revived Andean traditions, and revitalized common ritual horizons among diverse groups, especially among commoners. Thus, it should be no surprise that Andean traditions are often strongest where the Spanish colonial economy penetrated most deeply and also corresponded with the regions of general Andean rebellion. Thus, the weapons of the weak were not weak weapons and were often most effective when enacted *within* areas of state control.

4) I argue for the importance of understanding the moral economy of resistance, which is born of long-term processes of change in the material conditions of social interaction. Instead of emphasizing short-term policy change, which was often contradictory and ineffectual, by tracing long-term evolution of materiality of social relations, we emphasize political agency of commoners and become sensitive to political geography. The spatial dimensions of social cohesion over the landscape and its evolution are crucial to understanding the timing and nature of coordinated revolts and rebellions. Thus, understanding local culture-history as it interfaced with more regional or global processes is exceedingly important. Generally, the more geographically expansive and multi-caste a social network was, the more successful resistance was. By plugging into wider political debates, rebellion became more salient for a wider swath of colonial society. Long-term cultural rapprochement smoothed the way for such inter-caste and sometimes global alliances. As I demonstrated with Pomacocha, the in-depth study of one village can demonstrate the complexities of wider changes in society. By focusing on the long-term evolution of one village and its environs, I tried to avoid cherry picking evidence to support one narrative or another. Thus, we see the non-linear evolution of strategies of control and resistance.

Colonialism cast a long-lived shadow in Pomacocha. As stated in chapter ten, the hard-won autonomy of the workers during the Wars of Independence and the ten years after independence was lost as the Monastery reestablished control over Pomacocha and its lands by 1841. Many of the repressive tactics from the colonial period continued and the workers were obligated to work for free on the Monastery's *haciendas* as well as pay for the use of their agricultural lands. Not until 1962 did the people of Pomacocha, who proudly called themselves "Yanaconas" even into the twentieth century, violently expel the Monastery's *hacendados* from Pomacocha and its *haciendas*. Even during their struggle for independence from the Monastery of Santa Clara, the community was divided between those who wanted independence and were influenced by communist ideas and those who had enjoyed a relatively elevated status in the community and acted as the Monastery's enforcers (Chuchón 2006). Although the leaders of the expulsion were put in prison, the wider political climate favored the devolution of *hacienda* lands to indigenous communities, eventually resulting in the agrarian reform of Juan Velasco in the late-1960s to 1970s (Heilman 2010). Even after winning independence from the Monastery in 1962, Pomacocha's internal political divisions still manifest in struggles over land inside the community but this story is beyond the scope of this dissertation.

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Appendices

Appendix A: Lithic analysis coding sheet

Class: 1, Lithics

Column 1: Sub-class 1:

1: Unmodified Chipped Stone
2: Chipped Stone Tool
3: Ground Stone
4: Other

Column 2: Sub-class 2:

If Sub-clase 1=1 then
- 1: Angular Debris (1.1)
- 2: Flakes (1.2)
- 3: Cores (1.3)
- 4: Blade (1.4)

If Sub-class 1=2 then
- 1: Projectile Point (2.1)
- 2: Other Biface (2.2)
- 3: Flake Tool (2.3)
- 4: Core Tool (2.4)

If Sub-class =3 then
1. Batán
2. Mortero
3. Mano
4. Polished ax
5. Not identified

If Sub-class 1=4 then
1. Natural nodules
2. Polishing stone
3. Natural river rock
4. Hammerstone
5. Vitrified matter
6. Fossil
7. Burned daub
8. Oily stone
9. Ceramic ball
10. Natural rock
11. Mortar/Cement

Attributes for all sub-classes

Column 3: Material:

1.Not identified
2.Quartzite
3. Obsidian
4. Chert
5. Slate
6. Andesite
7. Scoria

8. Igneous
9. Sedimentary conglomerate
10. Granite
11. Basalt
12. Rhyolite
13. Quartz
14. Limestone or calcite
15. Ceramic
16. Dacite
17. Sandstone
18. Slate
19. Colpa (Mordant)

Column 4: Length (to the 0.1cm)
Column 5: Width (to the 0.1cm)
Column 6: Thickness (to the 0.1cm)
Column 7: Evidence de fire/burning
0=Not present
1=Present
2=Possible, but not certain
Column 8: Complete?
0=No
1=Yes

Attributes for Subclass1=1, Subclass 2=1 (1.1), Angular debris
Col. 9: Size
1: 0-0.5cm
2: 0.5-1cm
3: 1cm-1.5cm
4: 1.5-2cm
5: 2-2.5cm
6: 2.5-3cm
7: >3cm
Col. 10: Cortex
1: 0%
2: 1-99%

Attributes for Subclass1=1, Subclase2=2 (1.2), Flakes
Col. 9: Size
1: 0-0.5cm
2: 0.5-1cm
3: 1cm-1.5cm
4: 1.5-2cm
5: 2-2.5cm
6: 2.5-3cm
7: >3cm
Col. 10: Dorsal Cortex
1: 0%

2: 1-99%
3: 100%

Col. 11: Number of dorsal scars

Attributes for Subclass1=1, Sublcass2=3 (1.3), Cores

Col. 9: Form

1: Conical
2: Bifacial discoidal
3: Unifacial discoidal, worked around entire circumference
4: Spherical
5: Unifacial, irregular
6: Unifacial discoidal, not worked around entire circumference
7: Bifacial, irregular
8: Completely irregular
9: Bifacial discoidal, not worked around entire circumference
10: Biconical (two surfaces from which flakes are struck)

Col. 10: # of major scars.

Col. 11: General shape of major scars:

1: Linear
2: Circular
3: Ovoid
4: Irregular or highly variable

Col. 12: Average scar length, if applicable:

1: 0-1 cm
2: 1-2 cm
3: 2-3 cm
4: 3-4 cm
5: 4-5 cm
6: >5 cm

Col. 13: Average scar width, if applicable:

1: 0-1 cm
2: 1-2 cm
3: 2-3 cm
4: 3-4 cm
5: 4-5 cm
6: >5 cm

Col. 14: % Cortex

1: 0
2: 1-25
3: 26-50
4: 51-75
5: 76-99

Col. 15: Cortex origin

1: Indeterminate
2: Alluvial
3: Non-alluvial, natural
4: Old worked surface, highly patinated and worn; probably a re-used artifact

Attributes for Subclass1=1, Sublcass2=4 (1.4), Blades
Col. 9: # of dorsal ridges
Col. 10: Platform height
Col. 11: Platform width
Col. 12: Platform type

1: Cortical
2. Flat (without cortex and without preparation)
3. Complex (with preparation)
4. Flaked

Attributes for Subclass1=2, Sublcass2=1 (2.1), Projectile points
Col. 9: Form according to Klink y Aldenderfer (2005)

1. 1A
2. 1B
3. 2A
4. 2B
5. 2C
6.3A
7. 3B
8. 3C
9. 3D
10. 3E
11. 3F
12. 4A
13. 4B
14. 4C
15. 4D
16. 4F
17. 5A
18. 5B
19. 5C
20. 5D

Col. 10: Shoulder width (mm)
Col. 11: Orientation of dorsal flakes

1: Perpendicular to edge
2: Proximal from edge
3: Distal from edge
4: Proximal from one side, distal from the other
5: Proximal from one side, perpendicular from the other
6: Distal from one side, perpendicular from the other
7: Highly variable or irregular

Col. 12: Orientation of ventral flakes

1: Perpendicular to edge
2: Proximal from edge
3: Distal from edge
4: Proximal from one side, distal from the other

5: Proximal from one side, perpendicular from the other
6: Distal from one side, perpendicular from the other
7: Highly variable or irregular

Col. 13: Evidence of resharpening
1: Absent
2: Present
3: Possibly present

Col. 14: % covered by final stage pressure scars from edge
1: 0-19
2: 20-39
3: 40-59
4: 60-79
5: 80-99
6: 100

Attributes for Subclass1=2, Sublcass2=2 (2.2), Other bifaces

Column 9: Type of object:
1: Complete hoe
2: Broken hoe, hafted portion present
3: Broken hoe, bit present
4: Indeterminate hoe fragment with grinding on at least one edge
5: Hoe fragment without edge

Attributes for Subclass1=2, Sublcass2=3 (2.3) Flake tools
Column 9: Number of edges
Column10: Ordinal number of edge analyzed (proximal with dorsal side up, left to right.) N=1,2,3...
Column 11: Edge location
1: Distal
2: Proximal (platform)
3: Lateral medial left
4: Lateral medial right
5: Lateral proximal left
6: Lateral proximal right
7: Lateral distal left
8: Lateral distal right
9: Left edge
10: Right edge
11: Circumferential
12: Left lateral and distal
13: Right lateral and distal

Column 12: Retouch
1: Not present
2: Unifacial dorsal
3: Unifacial ventral
4: Bifacial

5: Bifacial, alternating, so as to form a wavy edge
6: Unifacial; into platform from dorsal surface

Column 13: Extent of Retouch
1: Confined to edge
2: Medium invasive
3: Deeply invasive

Column 14: Use-wear damage (grinding and beveling):
1: Not present
2: Moderate
3: Heavy

Column 15: Edge Shape
1: Straight
2: Concave
3: Convex
4: Triangular (straight sides come to a point)
5: Unidentifiable
6: Irregular
7: Convex sides coming to a point
8: Circumferential (therefore convex all the way around the piece)
9: Burin

Column 16: Edge treatment
1: Even
2: Rough
3: Denticulate
4: Serrated

Column 17: Microflake Occurrence
1: Not visibly present
2: Unifacial dorsal
3: Unifacial ventral
4: Bifacial
5: Unifacial into platform from dorsal surface
6. Unifacial into platform from ventral surface
7: Bifacial toward the platform

Column 18: Microflake Orientation
1: Perpendicular to edge
2: Oblique proximal
3: Oblique distal
4: Erratic

Column 19: Certainty that edge represents a tool
0=not certain
1=certain

Attributes for Subclass1=2, Sublcass2=4 (2.4) Core tools
Col. 9: Shape
1: Conical
2: Bifacial discoidal
3: Unifacial discoidal, worked around entire circumference

4: Spherical
5: Unifacial, irregular
6: Unifacial discoidal, not worked around entire circumference
7: Bifacial, irregular
8: Completely irregular
9: Bifacial discoidal, not worked around entire circumference
10: Biconical (two surfaces from which flakes are struck)
11. Ovoidal

Col. 10: # of major scars.

Col. 11: General shape of major scars:
1: Linear
2: Circular
3: Ovoid
4: Irregular or highly variable

Col. 12: Average scar length, if applicable:
1: 0-1 cm
2: 1-2 cm
3: 2-3 cm
4: 3-4 cm
5: 4-5 cm
6: >5 cm

Col. 13: Average scar width, if applicable:
1: 0-1 cm
2: 1-2 cm
3: 2-3 cm
4: 3-4 cm
5: 4-5 cm
6: >5 cm

Col. 14: % Cortex
1: 0
2: 1-25
3: 26-50
4: 51-75
5: 76-99

Col. 15: Cortex origin
1: Indeterminate
2: Alluvial
3: Non-alluvial, natural
4: Old worked surface, highly patinated and worn; probably a re-used artifact

Col. 16: # of modified areas

Col. 17: Type of modification:
1: Battering
2: Heavy hinging and grinding
3: Grinding, some small-scale hinging

Col. 18: Extent of Modification:
1: Light
2: Moderate

3: Heavy
Cols. 19-20: Same as Cols. 17-18, but for a second area.
Cols. 21-22: Same as Cols. 19-20, but for third area.

Attributes for Subclass1=3, Subclass2=1 (3.1), Batán

Col. 9: Outline:
1: Rectangular
2: Sub-rectangular
3: Ovoid
4: Indeterminate
5: Irregular
Col. 10: Modification for shaping
1: Some pecking
2: Some pecking and grinding
3: Extensive pecking and grinding
4: Indeterminate
Col. 11: 1st surface: side number=1
Col. 12: 1st surface: length
Col. 13: 1st surface: width
Col. 14: 1st surface: curvature and texture:
1: Rough, some grinding, concave
2: Rough, some grinding, flat
3: Extensive grinding with rejuvenation pecking, concave
4: As 3, but flat
5: Extensive grinding roughened by natural irregularities in stone, concave
6: As 5, but flat
7: Extensive grinding, very smooth, concave
8: As 7, but flat
Col. 15: Other modification:
Insert comment
Cols. 16-20: As Cols. 11-15 for 2nd surface
Cols. 21-24: As Cols. 16-20 for 3rd surface

Attributes for Subclase1=3, Subclase2=2 (3.2), Mortero
Col. 9: Bowl diameter
Col. 10: Bowl depth
Col. 11: General shape:
Insert description
Col. 12: Forma de depresión
Insert description

Attributes for Subclass1=3, Subclass2=3 (3.3), Mano

Col. 9: Number of utilized surfaces
Col. 10: Modification, first surface:
1: Battering

2: Battering and polishing
3: Grinding and polishing
4: Grinding and polishing with rejuvenation pecking

Col. 11: As Col. 33 for 2nd surface

Col. 12: Modification for shaping:

1: Pecking
2: Grinding
3: Pecking and grinding
4: Pecking, grinding and extensive polishing
5: Minimal, almost unmodified

Attributes para Subclass1=3, Subclass2=3 (3.4), Polished ax

Col. 9 Number of edges

Col. 10 Edge analyzed

Col. 11 Usewear

1. Not present
2. Moderate
3. Heavy

Col. 12 Edge shape (See FT)

Col. 13 Modification for shaping (see 3.3)

Appendix B: Flotation samples by locus and context

1) All flotation samples floated. Total liters: 145.35

Sector	Unit	Locus	Liters	Context	Flotation sample #	Colonial?
O	1	10	3	O1.10	1	Yes
O	1	10	2	O1.10	2	Yes
O	1	10	3	O1.10	3	Yes
O	1N	10	6.8	O1.10	4	Yes
O	4	9	2.2	O4.9	5	Yes
O	4	8	2.5	O4.8	6	Yes
O	4	3	7.5	O4.3	7	Yes
O	4	4	5	O4.4	8	Yes
O	4	5	1.7	O4.5	9	Yes
O	4	6		O4.6	10	Yes
O	4	7	2	O4.7	11	Yes
O	4	10	2.2	O4.10	12	Yes
O	2	4	4.4	O2.4	13	Yes
O	2	3	3	O2.3	14	No
O	2	5	2	O2.5	15	Yes
O	5	4	2.5	O5.4	16	No
O	5	6	2.1	O5.6	17	Yes
O	5	7	2.5	O5.7	18	Yes
O	5	8	2.2	O5.8	19	Yes
O	5	9	2.3	O5.9	20	Yes
O	5	10	2.3	O5.10	21	Yes
O	5	11	2.5	O5.11	22	Yes
O	5	12	2	O5.12	23	Yes
O	5	13	2.3	O5.13	24	Yes
O	5	14	2	O5.14	25	Yes
O	5	15	2.8	O5.15	26	Yes
O	5	16	1	O5.16	27	Yes
O	6	2	2.25	O6.2	28	No
O	6	5	2	O6.5	29	Yes
O	6	7	2.6	O6.7	30	Yes
O	6	9	2.25	O6.9	31	Yes
O	6	10	2.1	O6.10	32	Yes

O	6	11	2.5	O6.11	33	Yes
O	6	12	2.1	O6.12	34	Yes
O	6	13	5	O6.13	35	Yes
Y	1	2W	2.2	Y1.2	36	
Y	1	4W	2.25	Y1.4	37	
Y	1	6W	2	Y1.6	38	
Y	1	2E	2.5	Y1.2	39	
Y	1	4E	2	Y1.4	40	
Y	1	3E	2.5	Y1.3	41	
Y	2	2E	2.25	Y2.2	42	
Y	2	3E	2.6	Y2.3	43	
Y	2	3W	3	Y2.3	44	
Y	2	5W	2.5	Y2.5	45	
Y	2	2W	2.5	Y2.2	46	
Y	4	1W	2.1	Y4.1	47	
Y	4	2E	2.25	Y4.2	48	
Y	4	2W	2	Y4.2	49	
Y	4	3E	2	Y4.3	50	
Y	4	4E	2	Y4.4	51	
Y	4	4W	2.5	Y4.4	52	
Y	4	5E	1.5	Y4.5	53	
Y	4	6W	0.5	Y4.6	54	
Y	3	3W	2.5	Y4.3	55	
Y	3	2W	3	Y3.2	56	
Y	3	2E	2	Y3.2	57	
Y	4	1W	2.1	Y4.1	58	

2) Flotation samples analyzed by locus

Sector	Unidad	Locus	Context	Volume of Flot. sediment sample (Liters)	Type	Mass (g)
O	1	10	O1.10	14.60	Light fraction	187.4
O	2	4	O2.4	4.40	Light fraction	18.9
O	4	3	O4.3	7.50	Light fraction	31.0
O	4	4	O4.4	5.00	Light fraction	24.7
O	4	6	O4.5	1.70	Light fraction	1.7
O	4	7	O4.7	2.00	Light fraction	6.9

O	4	8	O4.8	2.00	Light fraction	7.6
O	4	9	O4.9	2.20	Light fraction	1.1
O	4	10	O4.10	2.20	Light fraction	4.6
O	5	4	O5.4	2.50	Light fraction	7.8
O	5	6	O5.6	2.10	Light fraction	8.1
O	5	7	O5.7	2.50	Light fraction	6.9
O	5	8	O5.8	2.20	Light fraction	6.5
O	5	9	O5.9	2.30	Light fraction	6.8
O	5	10	O5.10	2.30	Light fraction	10.3
O	5	11	O5.11	2.50	Light fraction	6.5
O	5	12	O5.12	2.00	Light fraction	4.5
O	5	13	O5.13	2.30	Light fraction	5.1
O	5	14	O5.14	2.00	Light fraction	4.7
O	6	5	O6.5	2.00	Light fraction	9.6
O	6	7	O6.7	2.60	Light fraction	49.0
O	6	9	O6.9	2.25	Light fraction	80.2
O	6	10	O6.10	2.10	Light fraction	6.7
O	6	11	O6.11	2.50	Light fraction	2.1
O	6	13	O6.13	5.00	Light fraction	1.9
Y	1	2E	Y1.2	2.50	Light fraction	16.2
Y	1	2W	Y1.2	2.20	Light fraction	14.6
Y	1	3E	Y1.3	2.50	Light fraction	10.5
Y	1	4E	Y1.4	2.00	Light fraction	9.1
Y	1	4W	Y1.4	2.25	Light fraction	11.5
Y	1	6W	Y1.6	2.00	Light fraction	22.8
Y	2	2E	Y2.2	2.25	Light fraction	9.7
Y	2	2W	Y2.2	2.50	Light fraction	17.4
Y	2	3E	Y2.3	2.60	Light fraction	8.4
Y	2	3W	Y2.3	3.00	Light fraction	13.5
Y	2	5W	Y2.5	2.50	Light fraction	10.1
Y	3	2E	Y3.2	2.00	Light fraction	14.6
Y	3	2W	Y3.2	3.00	Light fraction	8.3
Y	4	2E	Y4.2	2.25	Light fraction	18.8
Y	4	2W	Y4.2	2.00	Light fraction	12.2
Y	4	3E	Y4.3	2.00	Light fraction	23.8
Y	4	4E	Y4.4	2.00	Light fraction	11.8
Y	4	4W	Y4.4	2.50	Light fraction	11.0
O	1	10	O1.10	14.60	Heavy fraction	50.5

O	2	4	O2.4	4.40	Heavy fraction	7.5
O	4	3	O4.3	7.50	Heavy fraction	7.1
O	4	5	O4.5	1.70	Heavy fraction	1.5
O	4	6	O4.6	1.70	Heavy fraction	1.6
O	4	7	O4.7	2.00	Heavy fraction	1.7
O	4	8	O4.8	2.00	Heavy fraction	2.5
O	5	7	O5.7	2.50	Heavy fraction	1.8
O	5	8	O5.8	2.20	Heavy fraction	1.1
O	5	9	O5.9	2.30	Heavy fraction	2.0
O	5	11	O5.11	2.50	Heavy fraction	3.3
O	6	5	O6.5	2.00	Heavy fraction	1.5
O	6	7	O6.7	2.60	Heavy fraction	7.9
O	6	9	O6.9	2.25	Heavy fraction	7.2
O	6	10	O6.10	2.10	Heavy fraction	3.4
O	6	13	O6.13	5.00	Heavy fraction	0.9
Y	1	2W	Y1.2	2.20	Heavy fraction	0.9
Y	1	4W	Y1.4	2.25	Heavy fraction	1.9
Y	1	6W	Y1.6	2.00	Heavy fraction	2.8
Y	3	2W	Y3.2	3.00	Heavy fraction	1.5
Y	4	1W	Y4.1	2.10	Heavy fraction	0.9
Y	4	2W	Y4.2	2.00	Heavy fraction	1.2
Y	4	3E	Y4.3	2.00	Heavy fraction	0.9
Y	4	4W	Y4.4	2.50	Heavy fraction	1.4

Appendix C: Faunal analysis informe by Vásquez and Tham (2012)

ARQUEOBIOS
CENTRO DE INVESTIGACIONES ARQUEOBIOLÓGICAS
Y PALEOECOLÓGICAS ANDINAS

ANALISIS DE LOS RESTOS DE FAUNA DE POMACOCHA-DPTO. AYACUCHO

Por

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1. METODOS DE ANÁLISIS

Vertebrados:

Anfibios

La identificación taxonómica de los restos de anfibios y reptiles se realizó por el método comparativo con colecciones óseas de anfibios y saurios modernos, y utilizando bibliografía especializada como: Olsen (1968) y Ziswiler (1980). Se tuvo en cuenta el tipo de vértebras y de la dentición que presenta las mandíbulas, característica de los saurios. Así mismo el tamaño y la morfología de los elementos del esqueleto apendicular.

Aves y Mamíferos

Los restos de aves fueron identificados mediante un reconocimiento previo de los restos para ubicar a que parte del esqueleto de un ave tipo pertenecía, en este caso se empleó el esqueleto tipo de un ave domestica como *Columba livia* "paloma".

Una vez ubicado anatómicamente y lateralmente, se procedió a su identificación taxonómica, midiendo el hueso y comparando esta medida con la base de datos de Gilbert *et al.* (1981). También se emplearon colecciones óseas comparativas de aves modernas del Centro de Investigaciones Arqueobiológicas y Paleoecológicas Andinas "ARQUEOBIOS" y la revisión de bibliografía especializada como: Gilbert *et al.* (1981), Driesch (1976), Koepcke (1970), Olsen (1979).

Los restos correspondientes a mamíferos que en algunos sectores estuvieron fragmentados, fueron sometidos a una identificación de los restos, tomando como patrón anatómico esqueletos de un roedor (*Cavia porcellus*), carnívoro (*Felis catus*) y herbívoro típico (*Lama glama*). La identificación taxonómica se realizó por el método comparativo con muestras del Centro de Investigaciones Arqueobiológicas y Paleoecológicas Andinas "ARQUEOBIOS".

También se utilizaron trabajos especializados como: Altamirano (1983), Ziswiler (1980), Olsen (1968, 1982), Driesch (1976), Chaplin (1971), Hershkovitz (1959), Pacheco *et al.* (1979), Boessneck (1982), Brazier (1929), Emmons (1990), Flower (1876), Gardner y Romo (1993), Greenwood (1976), Gilbert (1990), Glass (1965), Hesse y Wapnish (1985), Hillson (1992), Kasper (1980), Lawlor (1979), Mori (1958), Myers *et al.* (1990), Pasquini y Spurgeon

(1989), Rosi (1988), Sisson y Grossman (1990), Schmid (1972). Silver (1982), Davis (1989) y herramientas bioinformáticas (uso de base de datos de colecciones de fauna neotropical).

Proceso de cuantificación de los restos de vertebrados

Se ha calculado para los diversos grupos zoológicos la abundancia taxonómica usando el método más común como es el NISP (Número de Especímenes Identificados) y el peso (gramos) para los vertebrados.

Los restos de aves, aunque en menor proporción también fueron cuantificados por NISP y peso. Debido a que sus restos están en menor proporción dentro de la muestra analizada, no se realizó otro tipo de cuantificación específica, solo detallándose porcentualmente su presencia dentro de los cuadros de abundancia taxonómica y diagramas porcentuales.

Con los restos óseos de mamíferos la cuantificación también se realizó por NISP para los taxa identificados. La predominancia de huesos fragmentados de *Camelidae, Odocoileus virgnianus*, *Bos taurus* y *Ovicaprinos* hizo complicado el cálculo del NMI por lo cual este no se realizó y como los demás grupos fueron cuantificados por NISP, este mismo estimador de abundancia taxonómica se aplico para todos los grupos zoológicos, incluyendo también el peso.

Osteometria de Camélidos

La identificación de los restos de camélidos al nivel específico se efectuó utilizando un método cuantitativo basado en la osteometría según las variables sugeridas por Kent (1982), luego se procedió con un análisis discriminante (Kent 1982, 1988).

Con respecto a la osteometría utilizada para *Camelidae*, se estudió una primera falange delantera que proviene del sector Y. Está técnica se basa en la utilización de medidas univariadas para cada elemento óseo y la asociación de técnicas estadísticas, como las variables discriminantes y coeficientes de clasificación.

Las medidas se efectuaron con un vernier de ±0,05 mm de precisión, realizando tres veces las medidas para las cinco variables y sacando un promedio aproximado para cada una de ellas para luego identificar a que resto de camélidos pertenece. Las fórmulas del análisis discriminante fueron puestas en una hoja de cálculo Excel y los datos osteométricos fueron ingresados a ella

Partes Anatómicas

A partir de los elementos óseos identificados para las especies más representativas de cada sector, se realizó una cuantificación según regiones anatómicas. En este caso se considero las siguientes: cráneo (huesos craneales y maxilares), tórax (columna vertebral, costillas y esternebras), extremidades anteriores (omóplato, húmero, radio-ulna, metacarpiano y carpianos) y extremidades posteriores (pelvis, fémur, tibia, metatarsiano y tarsianos). Se hizo la cuantificación porcentual para cada una de estas y así tratar de encontrar algún patrón de preferencia por alguna región en especial, y también para averiguar si los animales fueron criados en el sitio o traídos en piezas de otro lugar. Los datos se presentan en tablas y diagramas de frecuencias porcentuales, para *Lama sp., Bos Taurus* y *Ovicaprinos*.

Tafonomía

Como parte de los aspectos tafonómicos de la muestra ósea estudiada, hemos enfatizado nuestro estudio sobre algunos utensilios óseos recuperados de las excavaciones de contextos del formativo temprano. Al carecer de una base de datos de esta especialidad se ha procedido a realizar un estudio preliminar dividiéndolo en categorías y realizando una clasificación de éstas.

Para la clasificación se ha tenido en cuenta la morfología de estas evidencias incidiendo en la observación de la parte activa, notándose las siguientes clases: a) instrumentos con la parte activa puntiaguda, b) instrumentos con la parte activa roma, c) instrumentos con la parte activa plana, d) instrumentos macizos, e) instrumentos huecos, f) objetos escultóricos, g) piezas seccionadas, y h) piezas indefinidas.

Luego se trató de identificar taxonómicamente a nivel de familia, género o especie, para lo cual se utilizo material óseo comparativo sin alteraciones antrópicas, de la colección del Centro de Investigaciones Arqueobiológicas y Paleoecológicas Andinas "ARQUEOBIOS". La información se presenta en cuadros de distribución según contextos. También se ha cuantificado aquellos elementos óseos con huellas de cortes y quemados, para conocer aspectos de la carnicería y algo sobre la forma del consumo de las piezas cárnicas.

2. RESULTADOS

A continuación se presenta la sistemática y taxonomía de los restos de fauna identificados en Pomacocha, la cuantificación efectuada según sectores, y una distribución porcentual de los grupos zoológicos representativos del sitio.

2.1 Sistemática y taxonomía de los Restos de Fauna

PHYLLUM CHORDATA

Clase AMPHIBIA

Clase AVES

Familia: PHASIANIDAE	
Gallus gallus domesticus	“gallina”
Familia: COLUMBIDAE	
Zenaida asiatica	“paloma de campo”
Zenaida auriculata	“paloma de campo”

Clase MAMMALIA

Orden: CHIROPTERA “murciélagos”	
Orden: RODENTIA “roedores”	
Familia: CAVIIDAE	
Cavia porcellus	“cuy”
Orden: ARTIODACTYLA	
Familia: CERVIDAE	
Odocoileus virginianus	“venado cola blanca”
Familia: CAMELIDAE	
Lama sp.	
Familia: BOVIDAE	
Bos taurus	“vaca”
Capra hircus	“cabra”
Ovis aries	“oveja”
Familia: SUIDAE	
Sus scrofa domestica	“cerdo”

2.2. Cuantificación y Distribución de los Restos de Fauna

Los restos de fauna identificados taxonómicamente fueron cuantificados según contextos y sectores, para posteriormente expresar esta abundancia taxonómica según cada sector. A continuación la información que se ha obtenido después de su análisis.

Tabla Nº 1. Abundancia taxonómica según NISP, peso y contextos de los restos de vertebrados del sector Y, Pomacocha.

	Sector Y																											
	Unidad I								Unidad II				Unidad III								Unidad IV					
	Sup		Capa A		Capa B		Capa C		Capa A		Capa B		Sup		Capa A		Capa B		Capa D		Sup		Capa A		Capa B	
Taxa	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso
Amphibia																										
Zenaida asiatica																										
Zenaidura auriculata																										
Gallus gallus																										
Ave n/i																										
Chiroptera																										
Rodentia																	1	0,3								
Cavia porcellus			4	2,8	1	0,8			1	0,5							2	0,8								
Odocoileus virginianus			5	8,0	2	122,0			2	19,0			1	8,0							1	1,0				
Lama sp	1	34,0	106	463,7	2	35,0			10	57,0	3	24,0	12	38,0	6	24,0	8	22,0	2	44,0			2	6,0	2	7,0
Sus scrofa																										
Bos taurus																										
Capra hircus																										
Ovis aries																										
Ovicaprino																										
Artiodactyla	3	6,0	118	70,0	10	14,0	3	3,0	7	8,0	2	1,3	29	17,0	5	1,0	1	0,8			1	1,0	7	7,5		
Mamífero n/i			140	76,0					3	3,0																
Total	4	40,0	373	620,5	15	171,8	3	3,0	23	87,5	5	25,3	42	63,0	11	25,0	12	23,9	2	44,0	2	2,0	9	13,5	2	7,0

(note: error in NISPs of llama sp in Unidad III and Unidad IV, corrected totals are in the body of the dissertation)

Tabla Nº 2. Abundancia taxonómica según NISP, peso y contextos de los restos de vertebrados del sector O, Pomacocha.

	Sector O																									
	Unidad I																				Unidad II					
	Sup		Capa A		Capa B		Capa C		Capa D		Capa E		Capa F		Capa G		Capa H		s/d		Sup		Capa A		Capa C	
Taxa	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso
Amphibia											2	0,5														
Zenaida asiatica															2	1,0										
Zenaidura auriculata					1	0,4									2	9,0										
Gallus gallus	1	0,8			3	1,8									6	6,0										
Ave n/i															3	0,8										
Chiroptera															3	1,0										
Rodentia																										
Cavia porcellus	1	1,0													1	1,0										
Odocoileus virginianus																										
Lama sp											3	11,0														
Sus scrofa															1	23,0										
Bos taurus	14	245,0									5	80,0	3	38,0	31	794,0	3	37,0								
Capra hircus															11	63,0										
Ovis aries	9	233,0			7	24,0			8	15,0			4	19,0												
Ovicaprino	1	5,0	2	14,0	2	4,0	4	7,0	1	4,0	3	7,0			11	75,0	2	7,0	1	10,0	1	1,0	1	0,5		
Artiodactyla	9	36,0	3	12,0	13	37,0	5	17,0	9	22,0	10	23,0			22	72,0	3	5,0	4	20,0			2	2,0	4	12,0
Mamífero n/i																										
Total	35	520,8	5	26,0	26	67,2	9	24,0	18	41,0	23	121,5	7	57,0	93	1045,8	8	49,0	5	30,0	1	1,0	3	2,5	4	12,0

Tabla Nº 3. Abundancia taxonómica según NISP, peso y contextos de los restos de vertebrados del sector O, Pomacocha.

Taxa	Sector O															
	Unidad III										Unidad IV					
	Sup		Capa A		Capa B		Capa C		Capa E		Sup		Capa A		Capa B	
	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso
Amphibia																
Zenaida asiatica																
Zenaidura auriculata																
Gallus gallus																
Ave n/i																
Chiroptera																
Rodentia																
Cavia porcellus																
Odocoileus virginianus																
Lama sp																
Sus scrofa																
Bos taurus																
Capra hircus																
Ovis aries																
Ovicaprino											1	1,0	3	5,0		
Artiodactyla	5	12,0	3	8,0	1	1,0	1	1,0	1	6,0			3	4,0	4	3,0
Mamífero n/i																
Total	5	12,0	3	8,0	1	1,0	1	1,0	1	6,0	1	1,0	6	9,0	4	3,0

Tabla Nº 4. Abundancia taxonómica según NISP, peso y contextos de los restos de vertebrados del sector O, Pomacocha.

Taxa	Sector O																													
	Unidad V																				Unidad VI									
	Sup		Capa B		Capa C		Capa D		Capa E		Capa F		Capa G		Capa H		Capa K		Capa L		Sup		Capa B		Capa C		Capa D		Capa F	
	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso
Amphibia																														
Zenaida asiatica																														
Zenaidura auriculata																														
Gallus gallus																														
Ave n/i																														
Chiroptera																														
Rodentia																														
Cavia porcellus																														
Odocoileus virginianus																														
Lama sp																														
Sus scrofa											3	91,0																		
Bos taurus																									1	11,0				
Capra hircus																														
Ovis aries							3	4,0																						
Ovicaprino	3	4,0	2	7,0	4	12,0									3	3,0			1	1,0					4	9,0				
Artiodactyla					2	11,0			2	5,0	5	17,0	3	3,0	2	15,0	2	10,0	2	4,0	1	9,0	1	1,0	1	6,0	1	4,0	3	23,0
Mamífero n/i																														
Total	3	4,0	2	7,0	6	23,0	3	4,0	2	5,0	8	108,0	3	3,0	5	18,0	2	10,0	3	5,0	1	9,0	1	1,0	6	26,0	1	4,0	3	23,0

Tabla Nº 5. Abundancia taxonómica según NISP, peso y contextos de los restos de vertebrados del sector M, Pomacocha.

Taxa	Sector M																									
	Unidad I								Unidad II		Unidad III				Unidad IV						Unidad V		Unidad VI	
	Capa A		Capa B		Capa C		Capa D		Capa B		Capa B		Capa D		Capa A		Capa B		Capa C		Capa A		Capa A	
	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso	NISP	Peso
Amphibia																								
Zenaida asiatica																								
Zenaidura auriculata																								
Gallus gallus																							8	8,0
Ave n/i																								
Chiroptera																								
Rodentia																								
Cavia porcellus																								
Odocoileus virginianus																								
Lama sp																								
Sus scrofa									2	27,0			1	2,0							5	27,0	6	37,0
Bos taurus			3	30,0	2	26,0									1	20,0			3	150,0	1	18,0	6	182,0
Capra hircus																								
Ovis aries																								
Ovicaprino	4	10,0	3	9,0			1	1,0									1	6,0			4	10,7	5	8,0
Artiodactyla	9	41,0			3	8,0					2	45,0					3	13,0			5	32,0		
Mamífero n/i																								
Total	13	51,0	6	39,0	5	34,0	1	1,0	2	27,0	2	45,0	1	2,0	1	20,0	4	19,0	3	150,0	15	87,7	25	235,0

Tabla Nº 6. Abundancia taxonómica según NISP, peso y sectores de los restos de vertebrados, Pomacocha.

Taxa	Sector Y				Sector O				Sector M			
	NISP	%	Peso	%	NISP	%	Peso	%	NISP	%	Peso	%
Amphibia					2	0,6	0,5	0,0				
Zenaida asiatica					2	0,6	1,0	0,0				
Zenaidura auriculata					3	1,0	9,4	0,4				
Gallus gallus					10	3,2	8,6	0,4	8	10,3	8	1,1
Ave n/i					3	1,0	0,8	0,0				
Chiroptera					3	1,0	1,0	0,0				
Rodentia	1	0,2	0,3	0,0		0,0						
Cavia porcellus	8	1,6	4,9	0,4	2	0,6	2,0	0,1				
Odocoileus virginianus	11	2,2	158,0	14,0		0,0						
Lama sp	154	30,6	754,7	67,0	3	1,0	11,0	0,5				
Sus scrofa					4	1,3	114,0	5,0	14	17,9	93	13,1
Bos taurus					57	18,5	1205,0	52,6	16	20,5	426	59,9
Capra hircus					11	3,6	63,0	2,8				
Ovis aries					31	10,1	295,0	12,9				
Ovicaprino					50	16,2	176,5	7,7	18	23,1	44,7	6,3
Artiodactyla	186	37,0	129,6	11,5	127	41,2	401,0	17,5	22	28,2	139	19,6
Mamífero n/i	143	28,4	79,0	7,0								
Total	503		1126,5		308		2288,8		78		710,7	

Figura Nº 1. Distribución porcentual de los principales grupos zoológicos identificados por sectores para Pomacocha

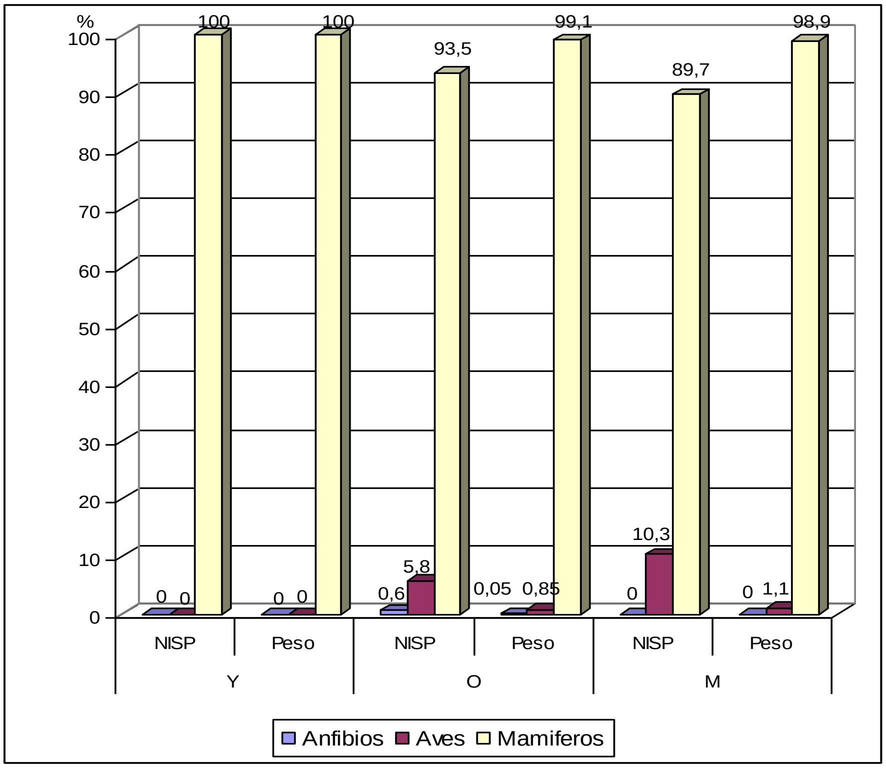


Figura Nº 2. Distribución porcentual de las principales especies identificadas según NISP y Peso en el sector Y, Pomacocha.

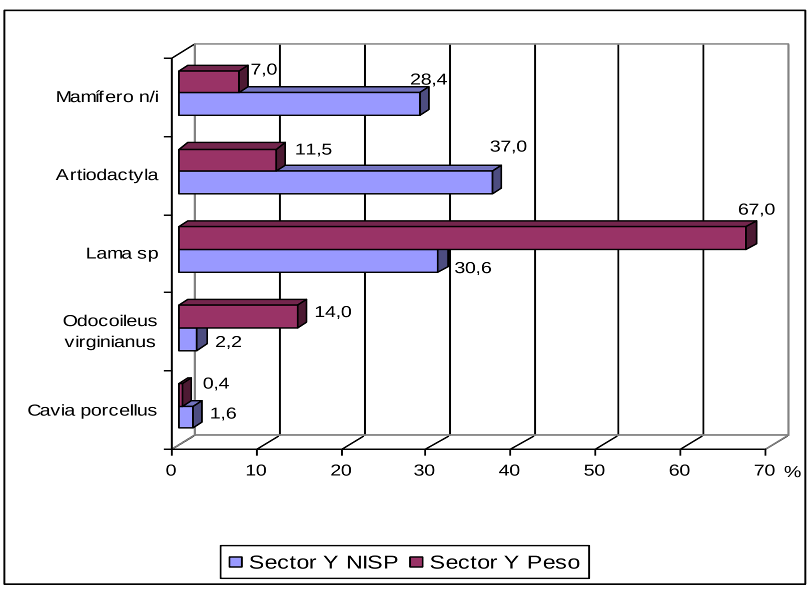


Figura Nº 3. Distribución porcentual de las principales especies identificadas según NISP y Peso en el sector O, Pomacocha.

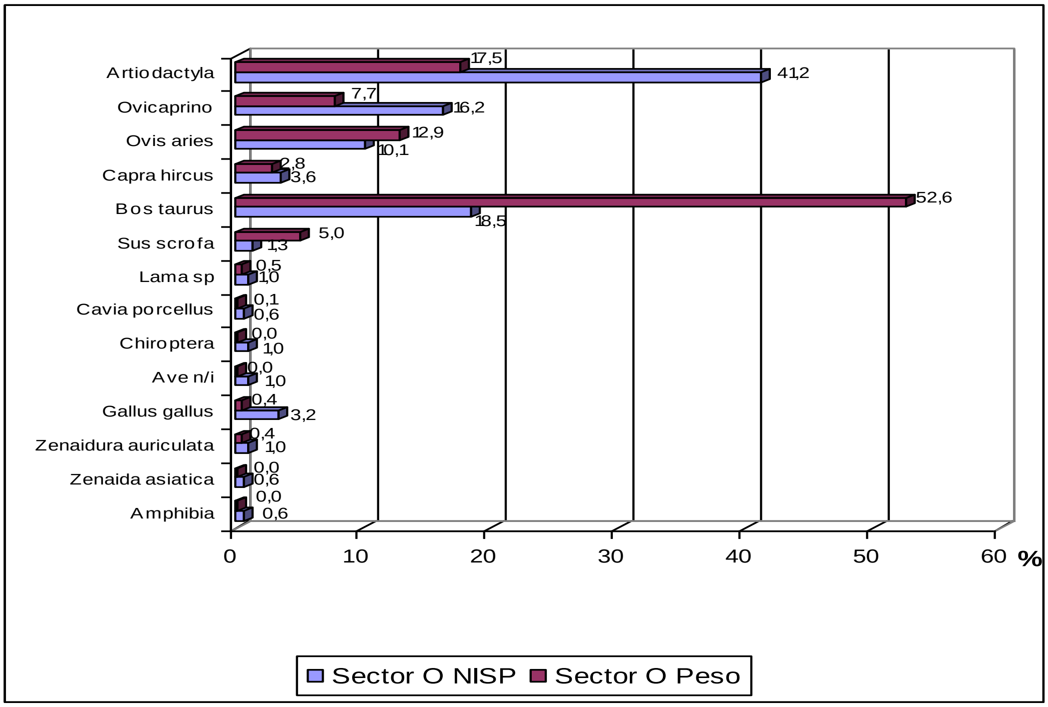
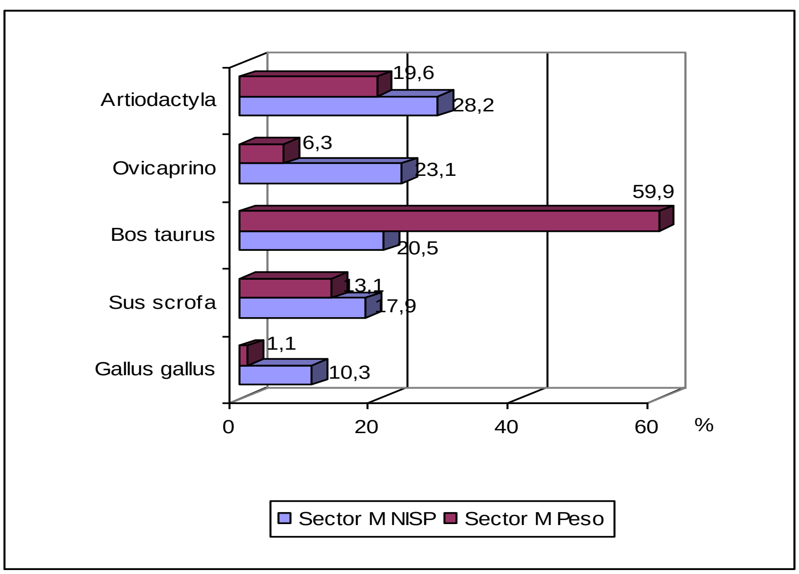


Figura Nº 4. Distribución porcentual de las principales especies identificadas según NISP y Peso en el sector M, Pomacocha.



2.3 Osteometría de Camélidos

Se presentan datos osteométricos de una primera falange de camélido que provienen del sector Y del sitio Pomacocha.

Tabla Nº 7. Datos osteométricos de la primera falange de camélido de Pomacocha

Procedencia	P1V1	P1V2	P1V3	P1V4	P1V5	CCG	CCL	CCA	CCV	Taxon
25.-Y, Unidad III, Locus 003W Est. 023 Capa B	59,72	16,62	16,1	14,33	13,52	159,533	185,366	199,587	197,963	Alpaca

2.4 Partes Anatómicas

Tabla Nº 8.- Distribución de elementos óseos según principales especies y sectores en Pomacocha.

POMACOCHA COLONIAL									
Partes anatómicas	Sector Y			Sector O			Sector M		
	Lama sp.	*Bos taurus*	Ovicaprino	*Lama sp.*	*Bos taurus*	Ovicaprino	*Lama sp.*	*Bos taurus*	Ovicaprino
Cráneo	4				2	12			
Hioides									
Maxilar superior					1				
Mandibula	1				2	1		1	
Dientes	1			1	3	4			7
V. Cervicales	1					1		1	
V. Toraxica	6				4	3		1	
V. Lumbares					2	1			
V. Coxígeas									
Sacro									
Costillas	10				6	7		4	
Esternebras									
Pelvis	24				8	5			
Omóplato	1					1			
Húmero	2				3	12		1	4
Radiocúbito	12				5	1		3	1
Metacarpiano	1					3			
Carpiano	3			1	1				
Fémur	4				1	7		2	
Tibia	19				15	14		1	3
Rótula	2								
Metatarsiano	1					1			
Metapodio	29					11			
Tarsianos	9								
Calcáneo	2					3			
Astragalo	3			1					1
1º Falange	12				3	1		1	1
2º Falange	7					1		1	
3º Falange						4			1
Total	154			3	56	93		16	18

Figura Nº 5. Distribución porcentual según partes anatómicas de los restos de *Lama sp.* en sector Y, Pomacocha.

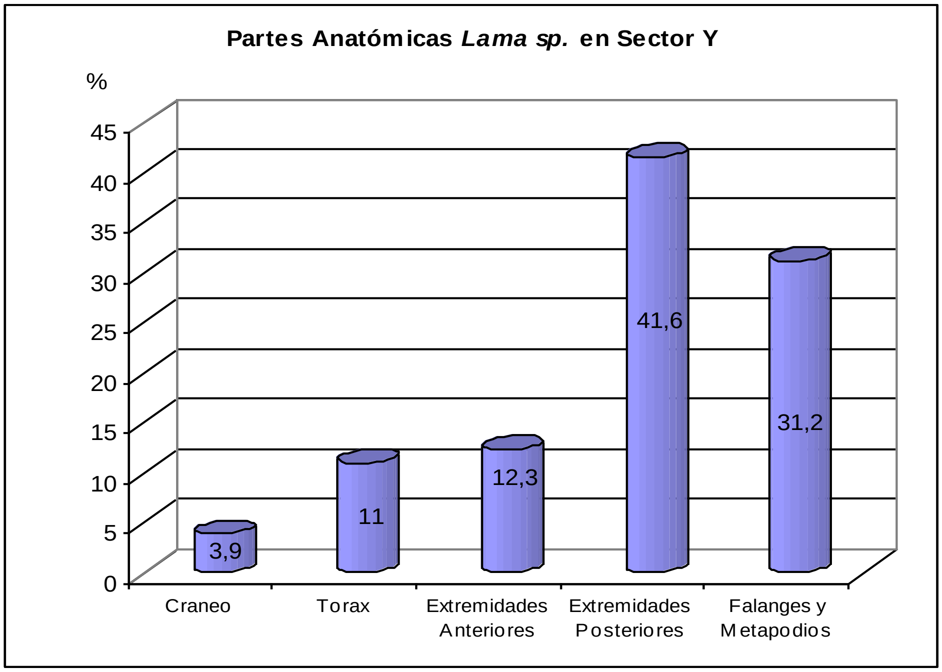


Figura Nº 6. Distribución porcentual según partes anatómicas de los restos de *Bos taurus* en sector O, Pomacocha.

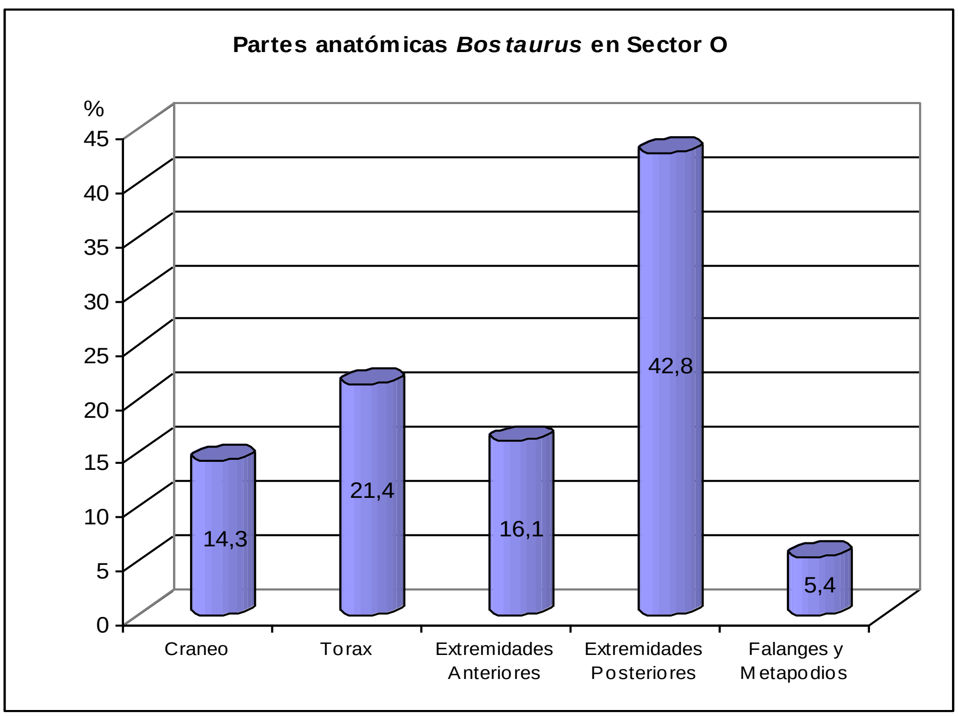
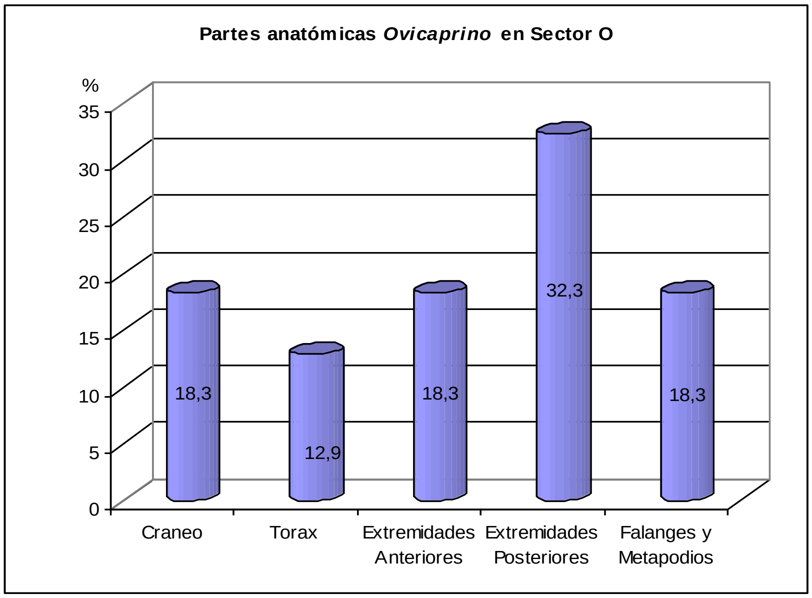


Figura Nº 7. Distribución porcentual según partes anatómicas de los restos de *Ovicaprino* en sector O, Pomacocha.



2.5 Tafonomía

Se presenta la información obtenida en base al análisis de cada elemento óseo con huellas de quemados, cortados y también aquellos que tiene alteraciones antrópicas, conocidos como industria ósea, de lo cual se hace una descripción.

Tabla Nº 9. Elementos óseos de camélidos y bóvidos con huellas de quemados y cortes, según sectores en Pomacocha

	POMACOCHA COLONIAL																										
	Sector Y									Sector O									Sector M								
Partes	*Lama sp.*			*Bos taurus*			Ovicaprino			*Lama sp.*			*Bos taurus*			Ovicaprino			*Lama sp.*			*Bos taurus*			Ovicaprino		
anatómicas	NISP	Q	C	NISP	Q	C	NISP	Q	C	NISP	Q	C	NISP	Q	C	NISP	Q	C	NISP	Q	C	NISP	Q	C	NISP	Q	C
Cráneo	4												2			12											
Hioides																											
Maxilar superior													1														
Mandibula	1												2			1						1		1			
Dientes	1									1			3			4									7		
V. Cervicales	1															1		1				1					
V. Toraxica	6	5											4	2	1	3						1					
V. Lumbares													2			1											
V. Coxígeas																											
Sacro																											
Costillas	10		2										6			7		1				4					
Esternebras																											
Pelvis	24	21											8			5											
Omóplato	1															1											
Húmero	2	1											3	1	1	12		1				1			4		
Radiocúbito	12	6											5	5		1						3			1		
Metacarpiano	1															3											
Carpiano	3	2	1							1			1	1													
Fémur	4	3											1			7						2					
Tibia	19	16											15	4		14	4					1			3		
Rótula	2																										
Metatarsiano	1															1											
Metapodio	29	22														11											
Tarsianos	9	7																									
Calcáneo	2	1														3	2										
Astragalo	3	2								1															1		
1º Falange	12	4											3			1						1			1		
2º Falange	7															1						1					
3º Falange																4									1		
Total	154	90	3							3			56	13	2	93	6	3				16		1	18		
%		**58,44**	**1,948**											**23,21**	**3,571**		**6,452**	**3,226**									

Tabla Nº 10. Industria Ósea del sector Y en Pomacocha

POMACOCHA COLONIAL			
Contexto	Clasificación	Taxa	Descripción
Sector Y Unidad I Capa A (Est 006) Locus 002W	Tubo	Artiodactyla	Tenemos un fragmento de diáfisis de hueso largo que se ha sido trabajado conformando la forma de un pequeño tubo con sus extremos seccionados. Se puede observar que en uno de sus extremos presenta un pequeño orificio circular. Se desconoce su función. Medidas: L= 27.5 mm A= 3.5 mm Peso: 1 g
Sector Y Unfidad I Capa B (Est 006) Locus 003W	Pieza tecnológica	*Lama sp.*	La muestra representa una diáfisis derecha de fémur que presenta los extremos con huellas de trabajo. Un extremo presenta seccionamiento con un borde pulido, el otro extremo presenta seccionamiento con un acabado biselado. Estas características se aprecian en restos óseos que se encuentran en proceso de trabajo por lo cual se le denomina: pieza tecnológica. Medidas: L= 84 mm A= 25 mm D= 23 mm Peso: 32.8 g
Sector Y Unidad I Capa B (Est 006) Locus 003E	Pieza tecnológica	Artiodactyla	Tenemos un fragmento óseo quemado, por su morfología se le identifica como un fragmento de diáfisis de hueso largo que presenta un ex tremo con huellas de seccionamiento y biselado Medidas: L= 12mm Peso: 2 g
	Espátula	*Odocoileus virginianus*	Este útil se encuentra incompleto y fraccionado sin embargo se identifica que su matriz corresponde a un fragmento de ulna. Por su morfología se identifica como un fragmento de espátula de cuerpo plano, superficie pulida y extremos con fractura de características de ser antigua. Medidas: L= 61.8 mm Ap= 10 mm Ad= 13.3 mm G= 3 mm Peso: 3 g
Sector Y Unidad III Capa A (Est 023) Locus 002E	Pieza tecnológica	*Lama sp.*	Se presenta un fragmento de diáfisis de tibia con un extgremo seccionado. Medidas: L= 60 mm Peso: 3 g

3. COMENTARIOS

Los resultados del análisis zooarqueológico arrojan la identificación de 14 taxones de fauna, de los cuales uno esta a nivel de clase (Anfibios), tres a nivel de orden (Chiroptera, Rodentia y Artiodactyla). De estos taxones identificados, 1 es anfibio, 3 aves y 10 mamíferos.

Según los sectores en que están distribuidos los restos de fauna, en el sector Y, hay 5 taxones, es este caso toda es fauna prehispánica nativa, en total 5 taxones de mamíferos, no hay aves ni otros grupos zoológicos representados aquí en este sector.

En el sector O, es donde hay mayor diversidad de fauna, con 14 taxones, de los cuales 1 anfibio, 3 aves, 8 mamíferos. Para el sector M, tenemos 1 ave y 4 mamíferos. En estos dos sectores, aparece la fauna hispánica como *Gallus gallus domesticus, Bos taurus, Capra hircus, Ovis aries* y *Sus scrofa domestica*, y los animales nativos disminuyen en cantidad de restos, como es el caso del sector O, y desaparecen en el sector M, donde la fauna es exclusivamente hispánica (tabla 6).

En lo que se refiera a cantidades de huesos estudiados, tenemos un total de 503 huesos que pesan 1126,5 gramos para el sector Y, 308 huesos que pesan 2288,8 gramos para el sector O y 78 huesos que pesan 710,7 gramos para el sector M (tabla 6). Por lo tanto las muestras no son homogéneas en los diferentes sectores, especialmente en el sector M que solo tiene 78 huesos, cinco veces menos que el sector O y ocho veces menos que el sector Y.

Sector Y

En el sector Y hay 5 taxones, en este caso toda es fauna prehispánica nativa (*Cavia porcellus, Odocoileus virginianus* y *Lama sp.*, no hay aves ni otros grupos zoológicos representados, y en total son 503 huesos analizados que pesaron 1126,5 gramos (tabla 6).

Según el NISP. Tenemos que los restos de *Artiodactyla* superan a los otros taxones con 37%, luego sigue *Lama sp.* con 30,6%, *Odocoileus virginianus* con 2,2% y *Cavia porcellus* con 1,6% (tabla 6, figura 2). La explicación porque *Artiodactyla* predomina, es porque se trata de huesos fragmentados no diagnósticos, pero que por características osteológicas se pueden asignar a esta categoría taxonómica, y que posiblemente se trata de fragmentos óseos de *Lama sp.*, en razón que son los restos de artiodactylo que predominan en este sitio.

El razonamiento antes indicado, esta respaldado por las frecuencias porcentuales obtenidas con el peso, donde *Lama sp.* predomina con 67%, sigue *Odocoileus virginianus* con 14% y luego *Artiodactyla* con 11,5%. Este valor indica el grado de fragmentación de los restos del taxon *Artiodactyla* (tabla 6, figura 2).

No hay ningún elemento óseo de fauna hispánica en este sector, y en este caso el aporte de proteínas esta derivado exclusivamente a dos herbívoros: *Lama sp.* y *Odocoileus virginianus*. El caso de *Cavia porcellus* posiblemente indica un consumo casual, a juzgar por su 1,6% en NISP y 0,4% en peso (tabla 6, figura 2). Como es obvio hay un predominio exclusivo de los restos de mamíferos para este sector, tal como se observa en la figura 1.

En relación a los restos de camélidos y su identidad, es posible que la mayoría de los restos corresponden a camélidos domésticos, lo cual lo hemos comprobado con una medición osteométrica de una primera falange delantera, la cual arrojaba en su coeficiente de clasificación, que se trataba de *Lama pacos* "alpaca" (tabla 7). Es posible también que hubo rebaños de *Lama glama* "llama", especialmente para tareas de carga, aunque no tenemos evidencias óseas.

Las partes anatómicas mejor representadas de los restos de *Lama sp.* son los restos de las extremidades posteriores con 41,6%, siguen los restos e falanges y metapodios con 31,2%, luego las extremidades anteriores con 12,3%, tórax con 11% y restos del cráneo con 3,9% (figura 5). Estos porcentajes indican que posiblemente la región anatómica que tuvo preferencia fueron aquellas referidas de las extremidades traseras, por contener más cantidad de carne.

El porcentaje de 31,2% que representan falanges y metapodios, indican que los animales fueron carniceados y despellejados en el sitio, donde posiblemente también trataron las pieles. Las falanges y metapodios son los huesos que quedan al final que se ha extraído el cuero del cuerpo del animal, para posteriormente ser usados en la industria ósea. Las otras regiones, son evidencia que los animales fueron sacrificados y consumidos en el sitio, no hay evidencia de que la carne haya sido traída de otro sitio, previamente carniceada.

Hay un importante 58,4% de restos óseos de *Lama sp.* que tienen huellas de fuego (quemados), lo que posiblemente indicaría que la forma de consumo de la carne de este animal, sería asado (tabla 9). Hay solo tres huesos con huellas de cortes, costillas y un carpiano (tabla 9).

En relación a la industria ósea, se ha identificado dos piezas tecnológicas, que en un caso es de una diáfisis de fémur y en otro caso un fragmento de diáfisis de tibia (tabla 10).

No hemos encontrado huellas de carnicería en los otros animales identificados, por lo tanto la interacción con los camélidos por los pobladores de este sector fue intensa y exclusiva.

Sector O

En el sector O, es donde hay mayor diversidad de fauna, con 14 taxones, de los cuales tenemos 1 anfibio, 3 especies de aves y 8 mamíferos, los cuales hacen un total de 308 huesos que pesan 2288,8 gramos. Esta cifra es aproximadamente el 60% de la muestra del sector Y (tabla 6), y tiene una representación variada de grupos zoológicos. Así tenemos que los anfibios representan el 0,6% por NISP y 0,05% por peso, las aves 5,8% por NISP y 0,85 por peso y los mamíferos el 93,5% por NISP y 99,1% por peso (figura 1). Nuevamente tenemos un predominio de los restos de mamíferos, hay varias aves, restos de un anfibio y un quiróptero, lo que indica posiblemente un momento donde se buscaba comida a toda costa (tabla 6, figura 3).

Según las frecuencia porcentuales por NISP, los restos de *Bos taurus* son los que predominan con un 18,5%, siguen los *Ovicaprinos* con 16,2%, *Ovis aries* con 10,1%, *Capra hircus* con 3,6%, es decir si reunimos todo en *Ovicaprinos* tendremos 29,9% de predominio en aporte cárnico por parte de ovejas y cabras (ovicaprinos), superior a *Bos taurus*, pero solo en NISP. Luego tenemos un 3,2% de restos de *Gallus gallus* “gallina”, la presencia de dos palomas de campo, huesos de un murciélago y huesos de un anfibio (tabla 6, figura 3).

Las frecuencias por peso, sin embargo, indican que los restos de *Bos taurus* son los predominantes con 52,6%, siguen los restos de *Ovis aries* con 12,9%, *Ovicaprino* con 7,7% y *Capra hircus* con 3,6%, es decir un total de 24,2%. También aparecen en este sector restos óseos de *Sus scrofa* “cerdo” con 1,3% poor NISP y 5% por peso. Tenemos en este sector solo tres huesos de *Lama sp.* con 1% y 0,5% respectivamente, lo que indica un claro cambio en el uso de los mamíferos, es decir se paso a un consumo y tal vez cría de animales hispanos (vaca, cerdo, cabras, ovejas).

En relación a las partes anatómicas de *Bos taurus*, tenemos un predominio de los huesos de las extremidades posteriores con 42,8%, siguen los restos del tórax con 21,4%, extremidades anteriores con 16,1%, cráneo con 14,3% y falanges y metapodios con 5,4% (tabla 8, figura 6). Estas frecuencias indican que hay preferencia por las partes posteriores, donde esta alojada la mayor parte de carne, luego posiblemente las chuletas que están en el tórax, y en tercer lugar por partes de las extremidades delanteras. La presencia de huesos del cráneo, falanges y metapodios, indica que la matanza, carnicería y consumo se realizó en el sitio, lo que implica que los animales fueron criados localmente.

Los huesos de *Bos taurus* con huellas de fuego son en total 13, que hacen un 23,2%, siendo los huesos del radiocubuto y tibia los que tienen mas frecuencia de huellas de quemados (tabla 9). También identificamos dos huesos con huellas de cortes (3,5%) (tabla 9).

Los *Ovicaprinos* y sus partes anatómicas en este sector O, indican nuevamente una buena representación porcentual de las extremidades posteriores con 32,3%, luego las extremidades anteriores cráneo y los metapodios-falanges, tienen la misma representación porcentual con 18,3%, y finalmente el tórax con 12,9% (figura 7). Resulta obvio que estos animales fueron criados localmente, las actividades de matanza y carnicería también fueron realizadas en el sitio, de ahí la representación de la mayoría de huesos (tabla 9).

En relación a los huesos quemados de estos herbívoros, tenemos un 6,4% y cortados 3,2%, no hay mayores evidencias para proponer actividades de matanza y carnicería, y tampoco como fueron consumidos.

La diversidad de la fauna en el sector O, puede ser indicativo de una necesidad de obtener mayores recursos para la dieta, porque tenemos restos de anfibios, murciélagos, aves silvestres (dos especies de palomas) y varios mamíferos, en la mayoría de los casos son animales domésticos, pero también hay especies silvestres (anfibio, quiróptero, dos palomas silvestres), lo que implica que los recursos domésticos no fueron suficientes o hubo épocas de escasez de alimentos.

Sector M

Para el sector M, tenemos 1 ave y 4 mamíferos. y los animales nativos disminuyen en cantidad de restos, como es el caso del sector O, y desaparecen en el sector M, donde la fauna es exclusivamente hispánica (tabla 6).

En lo que se refiera a cantidades de huesos estudiados, tenemos un total de 503 huesos que pesan 1126,5 gramos para el sector Y, y 78 huesos que pesan 710,7 gramos para el sector M (tabla 6). Por lo tanto las muestras no son homogéneas en los diferentes sectores, especialmente en el sector M que solo tiene 78 huesos, cinco veces menos que el sector O y ocho veces menos que el sector Y.

Hay predominio por NISP de huesos fragmentados de *Artiodactyla* con 28,2%, y por peso es de 19,6%, sin embargo *Bos taurus* tiene un NISP de 20,5% y por peso 59,9%, es decir sigue predominando la carne de vacuno en este sector y también en el sector O (tabla 6). Los restos de *Ovicaprino* siguen con 23,1% por NISP y 6,3% por peso, lo cual indica el grado de fragmentación de este taxón. Luego siguen los restos de *Sus scrofa* con un 17,9% por NISP y

13,1% por peso, y *Gallus gallus* con 10,3% por NISP y 1,1% por peso (tabla 6, figura 4).

Como la muestra es pequeña, no podemos ofrecer otros datos que permitan obtener interpretaciones sobre preferencias en las partes anatómicas de los mamíferos más importantes en este sector. También en este sector no hay ninguna evidencia de fauna nativa, todos los restos óseos son de fauna hispánica (tabla 6, figura 4).

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Appendix D: Pomacocha land titles

Transcribed by Juan Teodulfo Palomino Salvatierra, 2008. Original document from Registro de Propiedad Inmueble (RPI) de Ayacucho, Tomo XXI, ff. 325 and following pages.

1

El Monasterio de Religiosas de Santa Clara de esta ciudad es Monasterio del fondo Rústico nombrado "Pomacocha" y sus anexos denominados Chanca o Chanin "Paucarbamba" o "Paucarpampa" u las denominaciones, ubicados el primero es decir, "Pomacocha", íntegramente en el distrito de Vischongo y el indicado anexo de Chanin, en dicho distrito y en el de Huambalpa, de la Provincia de Cangallo y que según los planos levantados el treinta de noviembre de mil novecientos cuarenta y uno y la memoria descriptiva de fecha treinta de Enero de mil novecientos cuarenta y dos, suscrito por el Ingeniero Don Alberto Sañudo y reconocidos judicialmente por el mismo, en diligencia practicada el primero de Junio de este mismo año, ante el Juez de Primera Instancia de la Provincia de Huamanga Doctor Arturo Carrasco y actuario Don Jesús A. Parra en el expediente seguido con tal objeto por el Síndicos de dicho convento don Faustino B. Falconi, tiene Pomacocha actualmente, la extensión superficial de ochocientos veinte y cinco hectáreas ochenta y tres áreas, setenta metros cuadrados de tierras de cultivos y echaderos, comprendidos dentro de los siguientes linderos reconocidos y respectivos por sus colindantes, que son: por el Norte, con las tierras de la comunidad de Vischongo, desde el punto nombrado "Toma- cucho", hasta el paraje llamado "Acco- ccasa", donde se encuentra con el camino que conduce a Cangallo, por el Sur, con los tierras de la Comunidad de Umaro, cuyo lindero empieza en Acco- ccasa y avanza hasta el río "Pomacocha" por el Este con el preindicado río, que lo separa del anexo "Chanín"; y por Oeste, en las tierras de las comunidades antedichas de Vischongo y Umaro; siendo la línea perimétrica o de separación de la tierra en actual posesión por dicho convento y reconocidos y respetados por los referidos colindantes marcada por los siguientes puntos: partiendo de "Toma -cucho", que en la toma de la acequia que da movimiento al molinos del fundo se sigue por la pequeña Lomada de "Llulluchayocc", de donde continua a "Tocciasecca", avanzando de allí por el curso de una aguada, aguas arriba, pasando por lo lugares nombrados "Tocciasecca", "Ytanayol" y "Ccallaycancha" en la que conducía de una pequeña aguada que baja de "Calicanto" en terrenos de la comunidad de Vischongo, se pasa al paraje llamado "Calicanto" y, atravesando el camino de herradura que conduce a esta ciudad, se pasa a "Lunasco" donde existe una cruz llamada "Cruz de Lunasco" que sirve de Líndero; de dicho lugar se toma una altura que corona el paraje denominado "Amaru-ccasa", para pasar por la parte alta de las tierras llamadas "San Lorenzo" y "Acco-ccasa", cruzando por este último lugar el camino a Cangallo, de dicho punto comienza a el descenso un poco suave, pasando

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por los sitios nombrados "Luís-ranra", "Jatun-huasi-huaycco", y el "Chuco" lugar desde donde la topografía se vuelve agreste baja violentamente hasta encontrar la aguada de "Lambras huaycco", pasando por los puntos llamados "Chahuanapampa"; y "Espingo", "Munay-pata", "Huachuyniyocc", "Quilque-huaycco" "Higosniyocc" "Yñipaco-Huaycco", hasta caer al río Pomacocha, por cuyo curso sigue dicha línea divisoria, aguas arriba, hasta "Tomacucho", punto inicial de la referida línea limítrofe. El fundo anexo denominado "Chanín", tiene por linderos: al Norte, las tierras de la Comunidad de Ccachubamba; por el Sur, las pertenencias de Vilcas y Huambalpa; por el Este, la hacienda "Pacomarca"; y por el Oeste, el río Pomacocha y el fondo "Herpapuquio"; siendo marcados dichos linderos por una línea que, comenzando en la orilla del río Pomacocha, en el sitio nombrado "Simeón – pampa"; sube por una lomada hasta seguir por el curso de una acequia y llegar a "Tocciascca"; de allí sigue a Santa Chacra, de donde continua por un antiguo camino de herradura a llegar a "Ccollpa - Huaycco", punto del que baja, por la misma quebrada o "Huaycco", a Garcías – pampa, sitio de donde sube a Ccaracha – mocco, donde terminan los linderos con el fundo "Herpapuquio" perteneciente a la iglesia de Huambalpa; del preindicado lugar, que es un camino abandonado, sigue por "Arteza-rumi", que es igualmente un camino abandonado, pasando antes por una quebradita, a caer a "Choccbamba" Campana-rumi, Apacheta – cruz, "Viscacha-ccocha", hasta terminar en "Paccha pampa" los linderos con la Comunidad de Vilcas, tomándose de allí una extensa pampa, casi por un camino o senderos que ha formado, para llegar al sitio semipoblado de Pallacha; de allí el sigue a "Huallán", y de ese punto hasta "Huancapuquio", en el río de Montecucho, hasta donde llegan los linderos con la Comunidad de Huambalpa, y donde comienzan con la hacienda "Pacomarca", pasando por "Huancapuquio", por el cerco del río "Monte – cucho", aguas arriba, hasta un sitio donde se toma la dirección del cerro de "Moyo-orcco", del que se sigue a "Aynanccasa" por donde pasa el camino que vá a la hacienda "Pacomarca" y a concepción, para seguir a "CCello – ccasa" y "Nina – orcco", descender a ccello ccasa a Cruz de "Atincocha", donde termina la línea de separación con la precitada hacienda; de dicho punto continúan los linderos con las Comunidades Ccachuabamba, bajando bruscamente a encontrar la laguna de Atincocha para tomar el desagüe de esta laguna y seguir por el pasando por los puntos de "Pucpusa", "Tantar – Huaycco" y "Racchí" que es una elevada colina, de donde se sigue por el curso del riachuelo

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llamado "Pucaraccay – Huaycco", hasta encontrar un camino de herradura que va a Ccachuabamba y, tomando la dirección de un ocanal que da nacimiento al riachuelo de Huaranccayocc, se sigue el curso de río hasta el sitio nombrado o "Cuculi punco", para continuar "Torojahuarina", "Félix – pucro" y terminara en "Linda – rumi", en la orilla del rió Pomacocha y último punto de dicha colindancia; encontrándose encerrados dentro de dichos linderos un mil quinientos diez hectáreas dos mil metros cuadrados; y de modo que la extensión superficial total de Pomacocha y su anexo "Chanin" es de dos mil trescientas hectáreas trescientos setenta metros cuadrados. Y el valor de tasación de la hacienda y anexo objetos de esta primera inscripción de dominio, es de ciento veinte y dos mil veinte y seis soles oro, de cuyo total corresponden noventa y siete mil novecientos veinte y seis soles oro al valor de las tierras, dos mil cien soles, al de siete hectáreas de alfalfa existentes en los terrenos nombrado "Cardón – pampa", Batán, "Punco – chacra", "Huerta huaycco" y "Muyurina"; diez mil soles, al valor de la casa hacienda de Pomacocha, quinientos soles, al del molino del mismo lugar, diez mil soles, al de la iglesia, quinientos soles al valor de la casa hacienda de "Chanin", y de un mil soles, al de la iglesia de este anexo. La propiedad y posesión de la hacienda "Pomacocha" a favor del indicado monasterio de monjas de Santa Clara de esta ciudad, fueron reconocidas por la sentencia expedida el diez y nueve de Octubre del año de mil seis ciento sesenta y tres por la Real Audiencia de la ciudad de los Reyes, en la causa civil, sobre despejo de las tierras de dicha hacienda, seguida por Antonio Solano de Gamboa, hijo y heredero de Juan de Gamboa, contra el ante dicho monasterio por la que, la indicada Real Audiencia declaró que la parte de dicho Antonio Solano de Gamboa no probó su acción y demanda, y que la parte del monasterio de Santa Clara probó sus excepciones y su defensa según y como probarle convino; en consecuencia de lo cual estableció no ha lugar a la restitución pedida por parte del mencionado Antonio Solano de Gamboa de las referidas tierras, y amparó en la posesión de ellas al predicho monasterio, dándole por libre y absuelta de la expresada demanda. El nombrado Antonio Solano de Gamboa, por escritura pública extendida el nueve de mayo de mil seis cientos sesenta y cuatro, en el pueblo de Cangallo, ante el escribano Real don Juan de Acursa, apartándose y desistiéndose del preindicado pleito y acción que intentó contra dicho monasterio, lo dio por fenecido declarándose vencido en él, como por sentencia definitiva pasada en autoridad de cosa juzgada y ejecutoriada, cediendo y renunciando a favor del mencionado monasterio para que, como dueño de las

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aludidas tierras de Pomacocha las posea y goce, quieta y pacíficamente, pudiendo disponer de ellas libremente, habiendo hecho constar que no tuvo de derecho alguno en ellas, por cuanto su padre don Juan de Gamboa, que recibió en arrendamiento de por vida las tierras de la hacienda prenombrada, las retrocedió al Monasterio referido, por la mucha cantidad de pesos que llegó a deber por las censos corridos de muchos años que había gozado de esas tierras, y porque no pudo pasar con ellas sin tener con qué pagar, por lo que su mismo referido padre declaró y dispuso en su testamento que, de los bienes que dejaba se pague al monasterio acreedor en cuya conformidad se le fue pagando por mano de su hermano Gabriel de Gamboa, en cuyo poder pasó a la hacienda "Paucarbamba" que perteneció a su citado padre. En mérito de la petición formulada por don Joseph Nuñez del Prado, Procurador del Convento de Santa Clara, solicitando que su representado fuese amparado en la propiedad y posesión de dicha hacienda por cuando el demandante Antonio Solano de Gamboa había consentido en la sentencia pronunciada por dicho tribunal y se había apartado del pleito indicado, mediante la referida escritura teniendo por bien que el citado convento continuara en la posesión y propiedad de las tierras litigiadas, la antedicha Real Audiencia, por cuanto expedido el veinte y siete de junio de mil seis cientos sesenta y cuatro, ordenó se expidiera provisión a los corregidores de Vilcanhuamán para que el Monasterio de Santa Clara, de acuerdo con la precitada sentencia, fuera amparado y manteniendo en la posesión y propiedad de las tierras en referencia; habiéndose despachado la provisión adecuada con fecha dos de octubre del mismo año. El Virrey García Sarmiento de Sotomayor, conde de Salvatierra, por provisión de fecha veinte y nueve de abril de mil seiscientos cincuenta y uno, expedida en la ciudad de los Reyes, confirmó y aprobó a favor del monasterio de Santa Clara de esta ciudad, los títulos de dicho monasterio sobre ochenta fanegadas de tierras que adquirió dicho Monasterio por venta y composición por cien pesos y ochenta reales, hecha por el Juez Visitador de tierras don Francisco Moreta Salazar con intervención del Escribano Real y de visita don Pedro de Zavala, el diez y siete de junio de mil seis cientos cuarenta y ocho y le despachó título firme y bastante de propiedad y posesión, sin perjuicio de tercero dejando a salvo los siete topos de tierras que, según los expresados títulos dio a los indios de Vizchongo el Juez de venta y composición de tierras don Antonio de Oré, dentro de los linderos comprendidos por la parte de arriba, con los altos de las pampas de Putica; por la parte de abajo con el río grande y en parte, con una piedra grande de Visochongo, por un lado con el comino real antiguo que va de Huamanga al Cusco, para que en virtud de dicha confirmación y dación de títulos, el mencionado monasterio tenga las referidas ochenta fanegadas como cosa suya, propia, habida y adquirida con justo y legítimo título, compradas con sus propios de aperos y las pueda vender traspasar enagenar, trocar y hacer de ellas lo que quiere y por bien tuviere con sus pastos montes y aguas ordenando al Corregidor de la referida ya cuales quiera justicias y jueces les dieran posición de dichas tierras de las que no podrá ser desposeídas sin – primero ser oído y por fuero y derecho vencido. Por diligencia de amparo de posesión y de lanzamiento practicadas el veinte y seis de octubre de mil seis cientos setenta y cuatro por el corregidor y justicia mayor de Vilcas huamán, don Cristóbal de Sandoval y Rojas, este, atendiendo al pedimento hecho por Fray León de Lirzandi, procurador y administrador de los bienes del indicado monasterio, dio a este posesión real y corporal juré <u>dominé vel cuasi</u>, sin perjuicio de tercero que mejor derecho tuviese, para que no sea despseido, sin primero ser oído y vencido, de las tierras comprendidas dentro de sus títulos y especialmente de un pedazo de tierra que llega hasta el molino antiguo, terreno del que lanzó a don Felipe Chuchón, Gobernador del pueblo de Vischongo y a los demás indios del común en cumplimiento del auto expedido por el mismo corregidor el día veinte y cinco de dicho mes y año. Posteriormente a solicitud del mismo procurador Fray León de Lirzandi, el corregidor de la referida provincia don Ambrosio de Lassaga, por auto de fecha once de mayo de mil seis cientos sesenta y ocho, y diligencia practicada en la misma fecha, amparo al tantas veces indicado monasterio en la posesión de todas las tierras contenidas en sus títulos y bajo los linderos y mojones expresados en ellos en especial de Traba topos de tierras, que están en la orilla del río de Vischongo, donde hay un molino antiguo. Después en vista de las solicitaciones de amparos formulada por el precitado procurador del convento Fray León de Lirzandi y por los caciques de Vischongo Felipe Chuchón e Isidro Vilcapoma del corregidor de Vilcahuamán don Francisco de Omante y Robledo ante el corregidor de Vilcashuamán don Francisco de Omante y Robledo por diligencia de fecha dos de mayo de mil seis cientos ochenta y uno en cumplimiento de la provisión del Virrey Arzobispo don Melchor Liñan de Cisneros, de fecha primero de noviembre de mil seis cientos setenta y ocho en que ordeno que sustituyera a dichos indios las tierras de que el expresado monasterio y su procurador los desposeyeron caso de que estos no muestren títulos más antiguos que aquellos habiendo sido obedecido por su antecesor don Tomás Vásquez de Velasco, corregidor de la misma provincia, el catorce de setiembre de mil seiscientos ochenta, previa información de testigos a cerca de dicho despojo de las tierras nombradas Chacapampa y molinopampa, con siete topos de extensión previa vista de ojos y deslinde que practicó teniendo a la mano los títulos de las tierras precitadas y los de Pomacocha, dio posesión de los indicados siete topos a los referidos indios de Vischongo, dentro de los linderos que corre desde el arroyo que baja al puente y río de Vischongo desde Pomacocha a la llamada de Chacapampa donde están los cimientos de una pared antigua que sale de la orilla de dicho rió y remata hacia arriba en una piedra grande, que esta la mayor parte de ella enterrada, y de allí va cortando al sesgo la barranca de dicho llamada Chacapampa a dar a una piedra que llamada la piedra de Vischongo, y de allí corta por la misma barranca dar el camino real que va de esta ciudad a dicho puente siguiendo aguas arriba por encima de las tierras de Molino pampa, donde tenían dichos indios tres topos con casas molino y árboles frutales prosiguiendo los linderos de Pomacocha cerro arriba por el indicado camino Real hasta dar en unos barrancos de piedra de Calichal blanco, que están al fin de la laguna de Pomacocha y Palacios del Inca, lindando, hacia la parte de Vischongo con unos corrales o caserones que tenía Francisco Pomalibia, cacique principal de ese pueblo abriéndose punto encima de dicha barranca y camino Real, un mojón de piedras por los referidos indios, subiendo de allí el lindero por los campos de Pomacocha y palacios del Inca, cortando derecho a un cerro alto llamado Yanaccacca, y a unas peñas que están en su eminencia donde fueron puestos otros mojones siendo los linderos, por el otro lado, el agua y quebrada de Chacayaco y Yanavilca bajando con ella hasta el rio de Vischongo, que es lindero de las tierras de Paucarbamba, y desde el barranco del primer mojón que es al fin de la llamada de Cachoanapampa y piedra grande de Vischongo se sube por dicha llamada, atravesando hasta los altos del camino que va al pueblo de Putica, por Accoccasa y remata en una cruz que esta al principio de las llamadas de Putica; habiendo encontrado bajo los preindicados linderos, las ochenta fanegadas de tierras contenidas en los referidos títulos de Pomacocha, confirmados por el mencionado Virrey Conde de Salvatierra Por escritura pública extendida el diecinueve de junio de mil seiscientos veinte y cuatro ante el Escribano Real don Juan Sánchez de la Palma, el licenciado don Francisco de Oré anterior propietario de la hacienda Pomacocha, cedió el Monasterio de Monjas de Santa Clara los arrendamientos y demás rentas del indicado fundo, por cuanto la Abadesa discretas y definidoras de dicho Convento Reverenda doña Antonia Vela de Cueva, doña Marina de

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Mendoza, doña Ursula de Concepción, doña Rafaela de la Asunción y doña Beatriz de Peñaloza le otorgaron en la misma fecha y ante el preciado escribano público escritura de desempeño de las tierras de dicha hacienda, confesando haber recibido del nombrado licenciado la suma de un mil doscientos cincuenta pesos de plata ensayada, en razón de la dote que debió dar a la Cira de Padilla, monja profesa de dicho monasterio por cuya causa hasta mientras el otorgante los pagaré, cedio a las nombradas Abadesa y definidora de su espontánea voluntad, los antedichos arrendamientos para que las gozara el tantas veces indicado Monasterio cualquiera que fuera la causalidad en que fuese arrendado, reteniendo para su servicio los indios de mita y servicios repartidos a esas tierras, debiendo durar la referida cesión mientras el Monasterio no recibiere la expresada cantidad, haciendo entre tanto dicho cedente, gracia y donación a favor del Monasterio de lo que le pudo corresponder por rentas y arrendamientos del inmueble, en cuya virtud las nombradas religiosas le otorgaron escritura y carta de pago de la cantidad ya indicada, obligando ambas partes contratantes, para su validez y cumplimiento, sus bienes habidos y por haber, renunciando a los fueros y derechos que les respectaba.

El mencionado don Francisco de Oré adquirió cincuenta fanegadas de las antedichas tierras de Pomacocha, que originariamente fueron pertenecientes a los Incas y que, habiendo quedado vacantes y en cabeza de los Reyes de España, el Licenciado Vaca de Castro, Presidente Gobernador del Perú, provisión de fecha veinte y dos de agosto del año mil quinientos setenta y siete, hizo donación y merced de las mismas a favor de Gonzalo Isidro, Escribano Real y de cabildo de esta ciudad con tal título lo poseyó y gozó como cosa propia quieta y pacíficamente, hasta que hizo permuta de esa hacienda con otras tierras que le dio en esta ciudad de Huamanga, Doña Luisa Díaz Rojas viuda de Antonio de Oré, padres del precitado licenciado don Francisco de Oré por escritura pública de fecha diez de febrero de mil quinientos setenta y ocho; otorgada ante el escribano público don Juan Pomo, en cuya virtud dicho Licenciado gozó y poseyó a su ves, las mismas tierras de la hacienda de Pomacocha, habiendo sido amparado en la posesión de ellas por varios corregidores de Vilcashuamán, en especial don Pedro de Carvajal, quien mediante comisión dada a Alonso Días Vaca, le dio posesión de ese inmueble el tres de mayo del año de mil quinientos ochenta y seis, dentro de los linderos, cuyos mojones empiezan en el puente del río Vischongo la llanada que empieza y hasta la subida de la cuesta del camino de Putica y que atraviesa

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desde un arroyo que llaman Ccaccayaco hasta los fines de Pomacocha habiendo continuado su posesión hasta el veinte y tres de noviembre del año de mil quinientos noventa y cuatro en que a mayor abundamiento, el mismo don Francisco de Oré hizo compra y composición por veinte y cinco pesos de esas mismas cincuenta fanegadas de tierras con el Juez visitador don Gabriel Solano de Figueroa quien en la preindicada fecha le despachó los títulos de la hacienda en referencia otorgadas por Juan López, Escribano de dicha visita, propiedad que dentro de los linderos indicados en dichos títulos, poseyó como cosa suya, propia adquirida con justos y firmes derechos. En virtud de la petición formulada por Luis Pérez de Porras mandatario especial del Licenciado don Francisco de Oré, este obtuvo del Juez visitador de tierras don Antonio de Oré, por auto definitivo de veinte y cinco de febrero de mil seiscientos veinte y siete, confirmación de sus títulos y de la composición de las ante dichas cincuenta fanegadas que le fueron otorgado por el Juez visitador don Gabriel Solano de Figueroa así como de las diligencias de posesión y amparo anteriormente referidas, y de la probanza que, en dicho año de mil quinientos ochenta y seis mandó practicar el citado Licenciado don Francisco de Oré, con todos los caciques y principales de la provincia de Vilcashuamán, acreditando que como queda dicha tierras de Pomacocha fueron originariamente del patrimonio de los Incas, estando comprendidas desde la llamada que llaman de Ccachocinapampa y Moyas del Inca al Arroyo de Yanavilca y hasta lo alto de Pomacocha, donde están los edificios de restos y palacios del Inca, desde los altos de los cerros de banda de Putica hasta el imporio de Vischongo, y como de una parte el prenombrando Juez visitador don Antonio de Ore encontró, que dentro de los linderos ya descritos de Pomacocha los indios de Vischongo tenían en poder y posesión cuatro topos de tierras en la llamada del puente, así como otros tres topos sitos llanada para arriba del puente de Vischongo hacia la parte de un arroyo que baja de Pomacocha, por donde pasa el camino que va de esta ciudad en que estaban un molino, unas casas de indios y una huerta de árboles frutales y de otro lado según la medida que mando practicar con Francisco Ordóñez medidor de dicha visita el veinte y cuatro de febrero de mil seis cientos veinte y siete, resultaron haber, además de dichas cincuenta fanegadas otras veinte y cinco fanegadas de sobras y demás dentro de los linderos ya indicados, que no habían sido materia de la composición hecha con el Juez visitador don Gabriel Solano de Figueroa, por el mismo auto citado de fecha veinticinco de febrero de mil seiscientos veinte y siete, le admitió a composición dichas demasías, por

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sesenta pesos ensayados, dejando a salvo sus derechos sobre los siete topos ocupados por los indios de Vischongo, para que los hiciera valer ante la justicia ordinaria, haciendo constar que esos siete topos estaban comprendidos dentro de los límites y mojones de las tierras de Pomacocha, así como de la composición y posición antiguas del nombrado licenciado, sin embargo de lo que dejó indios en el uso y posesión de esas tierras, declarándose Juez incompetente para atender el reclamo que, acerca de ellas, le hizo el mismo licenciado don Francisco de Ore, a quien, en los términos referidos, le otorgó el título respectivo, auto asignado por el Escribano Real Andrés de Sosa Lozcano. El mismo Monasterio de Santa Clara de esta ciudad, por escritura pública extendida el veinte y siete de junio de mil seis cientos ochenta y tres, ante el Escribano Público don Francisco Blanco, adquirió el título de compra venta otorgada por el anterior propietario don Gabriel de Gamboa, con la intervención de Fray Miguel de Aróstegui, administrador de los bienes de dicho convento, previos los tres tratados acordados por las religiosas de dicho convento, conforme a las prescripciones del derecho autor es vigente, la propiedad de la hacienda nombrada "Paucarbamba" o "Paucarpampa"; inmediata a Pomacocha y colindante con ésta a la que quedó juntada y anexada, dentro de los linderos señalados en sus títulos y comprendiendo todas sus entradas y salidas, usos, costumbres, derechos y servidumbres, que le pertenecían por fuero y los derecho sin haber reservado el citado vendedor para sí cosa alguna transfiriéndola libre y realenga, habiendo recibido por el precio de dicha compra venta la cantidad de cuatro mil pesos de a ocho reales, equivalentes a tres mil doscientos soles de oro, en la siguiente forma: tres mil pesos o dos mil cuatrocientos soles, en el valor del capital cencítico impuesto sobre la misma hacienda y adquirido por el Monasterio comprador; y el resto de un mil pesos, u ochocientos soles oro, que el nombrado vendedor recibió al contado del precitado procurador, con intervención de las madres definidoras del mismo Monasterio a satisfacción de dicho vendedor y en presencia del mencionado escribano habiendo hecho constar los otorgante en dicha escritura que no quedó pendiente deuda por los corridos del referido como, por haber ejecutado el precitado procurador, junto con el principalmente corregidor de Vilcas Huamán quién sentenció la causa ordenando el remate del fundo grabado el que le fue adjudicado y dado posición a dicho monasterio por no haberse presentado poderes en cuya virtud dicho vendedor se apartó del dominio y posesión del fundo vendido, remunerando todos sus derechos sobre éste a favor del monasterio comprador justo para que lo tenga y disponga de el como de cosa propia adquirida con justo derecho y a título de compraventa, pudiendo tomar posesión del mismo cuando lo tuviese por conveniente; todo lo que fue aceptado por las religiosas y procurador del monasterio comprador en los tres tratados previamente celebrados por estas, quedándose en que uniéndose el fundo Paucarbamba a Pomacocha, ambos serían una sola propiedad, con gran utilidad y provecho que tendría el monasterio por el acrecentamiento de este último, así como por entero los perjuicios provenientes de la vecindad. En virtud de las escrituras de imposición, sobre dicho inmueble "Paucarbamba", del censo de dos mil pesos con la renta anual de cien pesos u ochenta soles, otorgada el ocho de marzo de mil seis cientos cincuenta, ante el Escribano Público Juan de Silvera por Juan de Gamboa y sus hijos Gabriel y Antonio Solano de Gamboa a favor del licenciado Juan Gutiérrez Peña, por haber pagado éste la suma de dos mil pesos a Diego Francisco Vandibelti, quien ejecuto al citado Juan de Gamboa por los corridos del censo de un mil ochocientos veinte y ocho pesos, que otorgo a favor de don Alonso Palomino de Yllanes, y que perteneció al nombrado Vandibelti por cesión que le dijo el licenciado don Juan Felipe Calvo, como albacea y heredero de dicho Alonso Palomino de Yllanes; y de la renuncia y traspaso que dicho Diego Francisco Vandibelti hizo a favor del precitado Juan Gamboa de la propiedad y posesión del fundo Paucarbamba y su molino que ya habían sido rematados y adjudicados a aquel, así como del censo de un mil pesos u ocho cientos soles con la renta anual de cincuenta pesos a cuarenta soles, que el veinte y uno de octubre de mil seis cientos cincuenta y ocho otorgó el mencionado Gabriel de Gamboa a favor del mismo licenciado Juan Gutiérrez Peña, ante el Escribano Público Don Jun de Asursa y de la escritura de venta y traspaso del expresado principal de tres mil pesos o dos mil cuatro cientos soles, otorgada el diez y ocho de junio de mil seis cientos setenta y ocho ante el Escribano público don Francisco Blanco, por el incitado licenciado Don Juan Gutiérrez de Molina y Peña a favor del monasterio de Santa Clara, con intervención del Procurador Fray León de Lirzandi y de la Abadesa y definidoras doña Manuela Paredes, doña Lucia de Oregón y Oré, doña Isabel de Paredes, doña Melchora Tello de Vilabon y doña Francisca Tello de Villalba, de quienes recibió tres mil tres cientos cincuenta y dos pesos y cuatro reales, que le pagaron por el valor del expresado capital sensítico y de los créditos ocurridos hasta la fecha de la expresada escritura, que correspondieron al prenombrado cedente conforme a las escritura pública de imposición y citadas de fecha ocho de mayo de mil seis

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cientos cincuenta y cinco otorgada ante el Escribano Juan de Silvera por Juan Antonio Solano y Gabriel de Gamboa; y el veinte y uno de octubre de mil seis cientos cincuenta y ocho por este ultimo agraciado el referido fundo a su favor con la renta de ciento cincuenta pesos anuales, todo lo que, con sus derechos y acciones traspasó a favor de monasterio cesionario que pasó así a ser dueño del indicado capital acústico y a tener derecho a percibir la antedicha renta anual.

Por escritura pública extendida el veinte y uno de mayo o de mil seis cientos cincuenta y siete, ante el teniente de corregidores de Vilcashuamán don Santiago Pérez de Morales a falta de escribano Público, don Juan de Gamboa y su hijo don Antonio Solano de Gamboa, vendieron a favor de don Gabriel de Gamboa y de sus heredares y sucesores por el precio de seis mil pesos o cuatro mil ochocientos soles la propiedad de las tierras de "Paucarbamba" comprendiendo en ellas las acciones nombradas "Yniyaco" "Orcotuna", "Guamán – marca", "Haton – rumi", "Aco-cancha" "Colca-puquio" y Yanavilca, así como una tenería, molino y casas, con sus muebles, utensilios, enseres y pertrechos, sin reserva ni limitación alguna, con la obligación que el nombrado comprador contrajo de pagar, a cuenta del precio convenido Los censos impuestos sobre esa hacienda, así como de las rentas corridas, y devengadas desde la preindicada fecha de la escritura de venta; así como la suma de seis cientos quince pesos a Diego Francisco Vandibelti, por censos que le correspondían quinientos pesos, al Convento de Monjas de Santa Clara, por pensiones devengada de la hacienda "Pomachocha", por los vendedores, así como a abonar al mismo convento la respectiva pensión anual, y cuatrocientos pesos a Tomas Ruiz, debiendo entregar a los vendedores, el resto del precio convenido. Con el título preindicado, el citado Gabriel de Gamboa obtuvo que el referido teniente de Corregidor don Santiago Diaz de Morales en cumplimiento del auto de fecha cinco de noviembre de mil seis cientos cincuenta y siete por el que accedió mandamiento de amparo de posesión lo nombró ésta por medio del comisionado don Juan Antonio Velásquez de Aguilera sin oposición de ninguna persona. Por escritura pública otorgada el cinco de noviembre del mismo año de mil seis cientos cincuenta y siete Antonio Solano de Gamboa, reconociendo y ratificando la venta hecha junto con su padre don Juan de Gamboa, de las predichas tierras de "Paucarbamba" a favor de su hermano Gabriel de Gamboa, reconoció el derecho de éste sobre la expresada hacienda en virtud de la referida compra que hizo ante el citado Teniente de Corregidor don Santiago Díaz de Morales, habiéndole cedido aquel, en

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compensación de ese reconocimiento de dominio y de la transacción que otorgaron por lo misma escritura al mencionado Antonio Solano de Gamboa la propiedad sobre una tenería y tierras adyacentes, sitas en la rivera de "Paucarbamba", entregándose en virtud de tales convenios, recíprocamente, los títulos acreditativos de sus respectivos derechos. En merito del auto dictado el veinte de noviembre de dicho año por el corregidor de Vilcashuamán don Cristóbal Tello Peña de Chávez, a base de la posición formulada por el precitado Gabriel de Gamboa, reclamando del despojo que, de la posesión de un molino con sus casas, le infirió don Pedro Gutiérrez de Quintanilla, sin embargo de haber poseído aquel, junto con su padre don Juan de Gamboa y su abuelo don Cristóbal de Gamboa, dichos molino y casas desde hacían mas de sesenta años, después que don Fernando de Palomino, hizo donación de ellos a su precitado abuelo, el mencionado propietario fue amparado en la posición del molino y casas antedichas, con él fue de que no fuera interrumpido ni molestado en dicha posesión habiendo ratificado ese mandato por auto expedido el veinte de enero de mil seiscientos cientos sesenta y nueve, por el Corregidor de la misma provincia don Francisco Ordóñez y, en virtud del juicio seguido por el mencionado Gabriel de Gamboa con don Pedro Gutiérrez de Quintanilla acerca del derecho sobre el molino y tierras ya indicados y de lo resuelto por los Corregidores don Cristóbal Tello Peña de Chávez en veinte de noviembre de mil seiscientos sesenta y siete y don Francisco Ordóñez Yllanez Llano de Valdez, el cinco de junio mil seis cientos sesenta y ocho fue amparado en la posesión de los aludidos molino, tierras y casas; y habiéndole el precitado Gutiérrez de Quintanilla apelado a la real Audiencia de la ciudad de los Reyes, ésta por auto expedido el diez y siete de setiembre de mil seis cientos sesenta y nueve, dispuso que, si el dicho Gabriel de Gamboa estaba en posesión, ante de que se proveyera el primer auto el Corregidor de Vilcashuamán le amparara en dicha posesión; y la misma Real Audiencia confirmó el preindicado auto por provisión expedida por la misma el dos de octubre de dicho año y, como las indicadas partes recusaron a los Corregidores de Huamanga y de Vilcashuamán, fueron comisionados por la antedicha audiencia, don Pedro Guerra y don Bartolomé Matute, para ejecutar las referidas resoluciones. En la división y partición de los bienes dejados por Cristóbal de Gamboa y su Esposa doña Beatriz López Huarcaya Inquillay, según testimonio expedido el diez de Diciembre de mil seis cientos cincuenta y tres, por el escribano público Tomás de Manzilla Guerrero, fue adjudicada la mitad de la hacienda Paucarbamba con sus tasas principales, al hijo y heredero de aquellos, don Juan de Gamboa y

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la otra mitad del mismo inmueble a su hermana y coheredera doña Maria de Gamboa. Los precitados hermanos don Juan y doña María de Gamboa obtuvieron de don Antonio de Oré, Juez visitador para la venta, medida y composición de tierra, que por auto expedido el veinte y uno de febrero de mil seis cientos veinte y siete, en el pueblo de Vischongo, en reconocimiento de sus derechos de propiedad y posesión sobre veinte y una fanegadas de tierras de la expresada hacienda y sus integrantes nombrados "Llanavilca", "Colccapuquio" y "Chalhuapuquio" que el padre de aquellos, don Cristóbal de Gamboa, obtuvo, a título de composición del Oidor licenciado Maldonado de Torres, con confirmación de dicho título por el Virrey Marquez de Cañete; y como la medición y deslinde que el indicado juez visitador don Antonio de Oré mando a practicar el diez y nueve del mes y año antedichos, con el medidor de dicha visita, don Francisco Ordóñez, arrojó que dentro de los lindero de la aludida hacienda, poseída por los mencionados hermanos existían ciento veinte y una fanegadas, pero habiendo, en consecuencia, cien fanegadas de más, sobre aquellos que no tenían título que el de la mera posesión, el mismo Juez visitador, previa petición formulada por dichos Juan y María de Gamboa, por auto, también de la fecha veinte y uno del mes y año ya indicado, les dio bajo el mismo título de venta y composición real, las expresadas cien fanegadas de sobra, de macillas, por cuatrocientos pesos de plata ensayada, equivalente a tres cientos veinte soles, pagaderos en la real caja de Huancavelica, ratificando y aprobando la posesión de que gozaban en todas esas tierras, dentro de los siguientes linderos por una parte y hacia la puna del cerro de Chuco; a la parte de abajo, el río de Vischongo, por un lado, la quebrada de Guamanmarca; y al otro lado y hacia Pomacocha, la quebrada y arroyo que viene de los lisos de Chunipuquio, hasta donde se junta con el arroyo de Ccaccayaco, y de allí hasta el frente donde se juntan con el río de Vischongo, de todo lo que los dejo en propiedad, amparándoles en su posesión y otorgándoles título autorizado por el Escribano público Andrés de Sosa Lescano, el doce de marzo de mil seis cientos veinte y siete. En mérito de los títulos preindicados, el quince de noviembre de mil seis cientos treinta y tres, y el veinte y uno de noviembre de mil seis cientos treinta y cuatro y el seis de julio de mil seis cientos treinta y siete, los tenientes de corregidor de Vilcashuaman don Jorge de Rodas y de don Jerónimo de Collazo, y el juez visitador doctor don Andrés de Vila respectivamente confirmando dichos títulos, ampararon en la posesión de las expresadas ciento veinte y una fanegada comprendidas dentro de sus referidos títulos y linderos. El diez y nueve de mayo de mil seis

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cientos cuarenta y ocho, previa medición practicada por Diego Calderón de Abarca, medidor de la visita efectuada por el juez visitador don Francisco de Morta Salazar fue ratificado por eso, el expresado Juan de Gamboa en la posesión y dominios de las antedichas ciento veinte y una fanegada de tierra Paucarbamba, "Colcapuquio", "Yanavilca" y "Huamanmarca", cuyos títulos firmó dicho juez visitador, con intervención del Escribano Público Pedro de Zavala. Por escritura de venta otorgada el veinte y cuatro de marzo de mil seis cientos treinta, ante la justicia mayor de Vilcashuaman, don Diego Francisco ratificaba y comprobaba ante el teniente de corregidor de la misma provincia don Antonio Pérez de Aguilera, que la aprobó por auto de fecha once de abril de dicho año y, en virtud de la comisión conferida al citado Diego Francisco, este por diligencia practicada el ocho de mayo de dicho año, le ministró posesión de los terrenos, casas y tenería nombrados Accopampa, a favor de Gabriel de Gamboa, en virtud de dicha escritura que otorgó a su favor de doña Isabel de Gamboa, anterior propietaria de esos inmuebles, sitos en el asiento de Paucarbamba. Por escritura pública extendida el diez de junio de mil seis cientos cuarenta y ocho ante el Escribano Público y de Cabildo don Juan de Asursa, doña Beatriz Guarcay Ynquillay, viuda de Cristóbal de Gamboa, transfirió la propiedad de una fanegada de terreno nombrado "Totorapamba", integrante de la hacienda "Paucarbamba" a título de sesión y donación, a favor de su nieto Gabriel de Gamboa, en forma pura, perfecta e irrevocable, para que lo gozara y pudiera disponer como de cosa propia. Don Cristóbal de Gamboa adquirió la propiedad de un camino real que va de esta ciudad a Vilcas, en virtud de la donación que de ese inmueble le hizo al anterior dueño don Fernando de Palomino, por escritura pública otorgada el veinte y nueve de julio de mil seis cientos diez y nueve, ante el Escribano Público don Francisco de la Palma, para que dicho donatario, así como sus herederos y sucesores, pudieran gozar y disponer de él y tomar posición del mismo, sin poder ser perturbados ni desposeídos sin ser primero oídos y vencidos en juicio. El mencionado don Cristóbal de Gamboa y su esposa doña Beatriz Guarcay Ynquillay fueron propietarios de la preindicada hacienda "Paucarbamba" en virtud de la escritura pública de posesión y trasferencia que del dominio y posesión de las indicadas tierras, les hizo el veinte y nueve de noviembre de mil quinientos ochenta y tres ante el Escribano Público don Gonzalo Díaz, el cacique principal del pueblo de Vischongo, don Juan Huchapaucar en cancelación de los derechos correspondientes a su hermana la mencionada doña Beatriz Guarcay Ynquillay, en los bienes del padre común don Juan Pomaquiso. Recaudando su acción con la antedicha escritura, el prenombrado don Cristóbal de Gamboa, en su nombre y el de su citada esposa, obtuvo del corregidor del partido de Vilcahuaman don Simón Tangutiérrez, mandamiento de amparo y posición de las referidas tierras, por auto de fecha treinta de noviembre de mil quinientos ochenta y tres; y el corregidor de la misma provincia Don Pedro de Carvajal, por diligencia practicada el veinte y ocho de enero de mil quinientos cincuenta y cinco, otorgó posesión real y corporal de dicha hacienda a favor del mencionado Cristóbal de Gamboa y de su precitada esposa, dentro de los linderos marcados, por un lado, hacia el puente de Vischongo, con el arroyo llamado "Cacayaco", por otro lado con el río de Yanayaco que pasa a la orilla del camino real, de otra parte con el cerro de Yanavilca, y de la otra con Guamanmarca; habiendose ministrado dicha posesión sin perjuicio de los indígenas del común de Vischongo, de otras personas. El mismo Cristóbal de Gamboa, por diligencia de fecha tres de octubre de mil quinientos noventa y cuatro, tomó nuevamente, posesión de las mismas tierras, dentro de los linderos ya descritos, con una extensión de las mismas tierras, dentro de los linderos ya descritos, con una extensión de veinte y una fanegadas que le fue ministrada por el Juez Vasco Juárez, con intervención del Escribano Juan Alonso y el treinta del mismo mes y año, el Juez visitador de tierras don Gabriel Solano de Figueroa, confirmó a favor del nombrado Cristóbal de Gamboa, la propiedad de las indicadas veinte y una fanegadas de terrenos de Paucarpampa y la posesión quieta y pacífica que de ellas tuvo, para que él y sus herederos y sucesores gozaran de ellas, en virtud de dicha confirmación, mandando que se le diera testimonio a fin de que fuera confirmado su título, lo que obtuvo por provisión expedida el diez de mayo de mil quinientos noventa y seis, por el Virrey don García Hurtado de Mendoza, Marques de Cañete. Y habiendo presentado el mismo Cristóbal de Gamboa sus títulos confirmados por el precitado Virrey, el Corregidor de Vilcashuaman don Juan de Vega, por diligencia practicada el doce de junio de mil seis cientos seis, le ministró posesión de dicha hacienda, dentro de los linderos expresados en sus títulos, pacíficamente y sin contradicción alguna. El propio Monasterio de Santa Clara de esta ciudad, adquirió también la propiedad y dominio de la hacienda nombrada "Chanin" y sus integrantes Pucaguasi, "Pallaucha", "Pampamarca", "Cachobamba", "Chuqui-ucro", "guaranguayo"y otras dimensiones, en virtud de la escritura pública de compra que a su favor otorgaran en esta ciudad de Huamanga, el treinta y uno de enero del años de mil seis cintos ochenta y dos ante el Escribano Público y de cabildo don Francisco Blanco, los anteriores propietarios de dicha hacienda, don Pedro Gutiérrez de Quintanilla Sotomayor y su esposa doña Luisa Cano Velarde de Santillana, quienes sin reserva ni limitación de ninguna clase, le trasfirieron al dominio propiedad y posesión delante de dicho fundo, con todos sus sitios, estancias hatos, casas, huertas, ganados, Aperos, herramientas y título, con todas sus entradas y salidas, usos y costumbres, derechos y servidumbres y cuando teman y les pertenecía de fuera y de derecho, libre y realizando de cómo obligación empeño, ni hipoteca especial mi general, tácita ni expresa, habiendo recibido los mencionados vendedores por el precio de la referida venta la cantidad de diez y ocho mil quinientos pesos de a ocho reales, equivalentes a catorce mil ocho cientos soles que dichos vendedores declararon haber recibido en la siguiente forma: cuatro mil dos cientos sesenta y seis pesos, que el monasterio comprador les entrega al contado, al celebrar la primera escritura de compra venta de la misma hacienda y sus integrantes, de cuya cantidad se dieron por pagados, a su satisfacción, renunciando la excepción de non numerata pecimia y otras que le favorecieron y seis mil dos cientos sesenta pesos, y seis mil novecientos setenta y cuatro pesos de ocho reales, en tres barras de plata, ensayadas, pesadas y marcadas con pesos respectivamente de dos cientos cuarenta y siete marcas y cuatro onzas, doscientos cuarenta y siete marcos y cuatro onzas y doscientos cuarenta y cinco marcos con cuyo valor quedaron pagados los referidos diez y siete mil quinientos, de dicho precio en presencia del indicado Escribano Público y testigos instrumentales maestro de Campo don Fernando de Molina y Chávez, el licenciado don Joseph de Tello de Contreras y don Francisco de Gálvez Laines; en cuya virtud de dándose y apartándose de la propiedad, señorío y posesión de los inmuebles vendidos así como de las acciones reales y personales que les correspondieron se dieron de dicha hacienda a favor del monasterio comprador para que este desde la fecha de la referida venta la poseyera como cosa propia y disponga de ella a su voluntad como habilidad y adquirida con justo derecho y titulo de compra y venta facultándole para que pueda tomar posesión de la expresada hacienda habiendo hecho constar que la primera venta aludida que otorgaron a favor del mismo monasterio el veinte de julio de mil seiscientos ochenta extendida ante el precitado Escribano Público de mutuo acuerdo con el monasterio comprador la declararon sin efecto ni valor alguno, habiendo quedado por consiguiente a cargo de los vendedores el pago y la satisfacción de los censos con que anteriormente estuvo gravada todo lo que dicho monasterios representadas por las reverendas madres Vicaria y Presidenta doña

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Maria Tello de Villalba y discretas y definidoras doña Bernardina de Arellano, doña Josefa de Villalba y Figueroa, doña Manuela de Paredes, doña Luisa de Orejón y Oré, doña Isabel de Paredes doña Melchora Tello de Villalba y doña Francisca Tello de Villalba y el procurador y administrador de los bienes y rentas del monasterio Fray Miguel de Arostegui después de celebrar los tres tratados prescritos por el Derecho para la celebración de la relacionada escritura, todos unánimes y conformes la aceptaron dando fin al pleito que sobre la nulidad de la primera venta siguieron los vendedores al comprador recibiendo a favor y en nombre del indicado Monasterio con sus títulos ganados aperos pertrechos y semillas y demás cosas que les pertenecieron de todo declararon que el monasterio comprador ya estaba en posesión en virtud primera escritura de venta que otorgaron los mismos vendedores los que se obligaron a cumplir y respetar la relacionada venta perpetuamente al igual que el monasterio el (corregidor y justicia) mayor de Vilcashuaman maestro de campo don Francisco Bamonte y Robledo, en vista de la petición formulada por el indicado Fray Miguel Arostegui en nombre y representación del predicho por el merito de los títulos presentados por el mismo en cumplimiento del auto expedido el seis de noviembre de mil seiscientos ochenta y dos, por diligencia practicada el día siete del mismo mes y año, otorgo posesión real y sin contradicción mi oposición alguna de las tierras de la hacienda "Chanin" y sus anexos "Pucahuasi" y otros especialmente de las secciones nombradas "Pucahuase" y "Chuqui-ucro" dentro de los linderos señalados en sus indicados títulos previa medición practicada el diez y nueve de setiembre del año mil setecientos once por el medidor de visita, don Garcia de Cuenca Dávila de las tierras "Cachobamba" y "Guarangayoc", integrantes de Chanin, dentro de los linderos comprendidos desde la falda de un cerro llamado "Caquia-urco" que esta en la parte por donde sale el sol y desde la quebrada de "Guarangayoc" hasta la quebrada de Uchupata y desde el puente viejo y el rió hasta el referido cerro de "Caquia-urco" en que encontró cuarenta y cinco fanegadas de tierras de todas calidades pertenecientes al mencionado monasterio el juez visitador y compositor de tierras General don Francisco de Munive Marques de Valilelirios por diligencia practicada en la misma fecha amparó al preindicado monasterio representado por Procurador Fray Gonzáles de Herrera en la posesión de las tierras de San Francisco de Chanin, Pomacocha; y otros nombres, en especial de las tierras de Cachopampa en que según la medida ya referidas fueron halladas cuarenta y cinco fanegadas en que conforme a dicha medida estaban comprendidas dentro de los linderos señalados en los respectivos títulos disponiendo que el derecho del referido monasterio fuese respetado sin ser desposeído de sus aludidos tierras sin primero ser oído por fuero y desecho vencido, dándole, en consecuencia posesión real y actual jure domine vel quasi sin perjuicio de tercero que mejor derecho pudo tener habiendo sido aprehendida quieta y pacíficamente sin contradicción de persona alguna de todo lo que le dio testimonio al citado procurador para seguridad del derecho de su parte los precipitados esposos don Pedro de Gutiérrez Quintanilla Sotomayor y doña Luisa Cano Velarde de Santillana, anteriores dueños de "Chanin" y sus integrantes en cumplimiento del auto expedido el nueve de diciembre de mil seiscientos sesenta y cinco por el corregidor de esta ciudad de Huamanga don Baltasar de los Reyes Meléndez de la Cueva, el Alcalde Ordinario de la misma ciudad don Antonio Pérez de Moncada y Aguilera comisionado por dicho corregidor por diligencia practicada el día diez y siete del mes y año anteriormente indicados de conformidad con los títulos acreditados de los derechos de los mencionados esposos los ministro posesión a estos de las tierras de "Chanin" "Pucahuasi", "Chuqui-ucro", las tierras y casas de molino de "Cachobamba" "Uchupata" "Guarangayoc" "Atancocha" "Caquia-orcco" "Uramarca" Chito, con sus entradas y salidas sin contradicción de ninguna clase dentro de los linderos y mojones expresados en sus títulos, ordenando que ninguna persona pudiera perturbarles en la posesión de dichos terrenos ni despojarles sin primero oírles y vencerles en juicio. El mismo Alcalde Ordinario don Antonio Pérez de Moncada y Aguilera por diligencias efectuadas los días diez y ocho y diez y nueve del mes y año ya indicados, también confirió posesión y amparo a los mismos esposos de don Pedro Gutiérrez de y de doña Luisa Cano Velarde de Santillana, en la posesión de las tierras de "Cachobamba" "Viscachayocc" "Pacana", "Hilacha-puquio", "Pallaucha", "Pampamarca" y "Socapata" y del asiento y hiatos de vacas de "Sayaccmachay", con sus quebradas casas, corrales, pastos entradas y salidas, habiendo practicado el prenombrado posesionante diversos actos materiales en señal de posesión real y efectiva sin contradicción de persona alguna, anteriormente en mérito del mandato y exhorto del citado Corregidor don Baltasar de los Reyes Meléndez de la cueva con actuación del escribano don Juan de Asursa, por diligencias practicadas el veinte seis de abril de mil seiscientos sesenta y tres otorgo posesión de las estancias de pastos y ganados nombrados "Guarangayocc" "Chanin" "Pucahuasi" "Sayacc-machay", a favor de Francisco Palomino de Contreras en representación de su madre doña Francisca de Collantes propietaria anterior prohibiera de dichos inmuebles como heredera de

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don Ventura Palomino de Contreras y el corregidor del partido de Vilcashuaman don Pedro de Carvajal por diligencia de cinco de enero de mil quinientos ochenta y cuatro amparó en la posesión de las estancias de pastos y ganados nombradas "Guarangayocc", "Guamanmarca", "Chuquipampa", "Chanin", "Chuqui-ucro", y otras en nombre del Rey de España a favor de Miguel y Melchor Palomino para que de ninguna calidad pudiera perturbarles ni desposeerlos de ella penalmente conforme a testimonio expedido el seis de enero de mil quinientos cincuenta cinco por el Escribano Público Juan López, el Juez Visitador para la venta, medida y composición tierras Licenciado don Gabriel Solano de Figueroa otorgó título de venta y composición de las expresadas tierras de "Chanin" "Guaraugayoc" "Cachobamba" "Pumapuquio", y otras ya mencionadas a favor del citado Miguel Palomino, dueño primitivo de la antedicha hacienda. Verdad que esta comprobado con lo títulos, planos y operaciones de mensura y valorización a que se ha hecho referencia, los que fueron devueltos al interesado con la anotación prescrita por el articulo treinta y uno del reglamento de las Inscripciones. Los títulos para esta primera inscripción de dominio fueron presentados por el doctor Federico Ruiz de Castilla como encargado a horas once de la mañana del día. Veinte y uno de diciembre de mil novecientos cuarenta y dos según consta del asiento de presentación número quinientos setenta y uno del tomo número octavo folio tres cientos ocho del diario; y encontrándose conforme con aquellos, la formo en Ayacucho, a los veinte y nueve días de mes y año referidos.

Derechos dos cientos veinte y nueve soles oro, según los artículos ciento ochenta y nueve y siguientes del Arancel, la ley número seis mil seis cientos sesenta y cinco, recibo número ciento diez y siete mil quinientos cincuenta y dos.

Appendix E: Source assignment and chemical characterization of obsidian artifacts from Pomacocha

1) Source assignment based on Rubidium and Strontium concentrations

Sample #	Un.	Rb	Sr	Source assign.
18	M1	184.2	184.2	Aconcagua
19	M2	108.4	71.3	Pomacocha
20	M2	179.1	132.2	Quispisisa
21	M2	190	135	Quispisisa
22	M2	118.6	55.1	Pomacocha
23	M2	186	129.6	Quispisisa
24	M2	162.6	115	Quispisisa
25	M2	140	103.4	Alca 1
26	M2	180.9	124.5	Quispisisa
27	M2	163.5	123	Quispisisa
28	M2	172.8	126.4	Quispisisa
29	M2	175.9	124.1	Quispisisa
30	M2	190.4	135.6	Quispisisa
31	M2	183.9	130.9	Quispisisa
32	M2	164.8	121.4	Quispisisa
33	M2	201.4	152.7	Quispisisa
34	M3	183.2	132.5	Quispisisa
35	M3	185.2	126	Quispisisa
36	M3	180.7	127	Quispisisa
37	M4	187	132.5	Quispisisa
38	M4	190	135.2	Quispisisa
39	M4	191.2	136.7	Quispisisa
40	M4	191.2	132.3	Quispisisa
41	M4	171.6	123.8	Quispisisa
42	M4	118.4	70.2	Pomacocha
43	M4	210.5	150.4	Quispisisa
44	M4	185.9	131.5	Quispisisa
45	M5	192.1	129.6	Quispisisa
46	M5	127.8	62.7	Pomacocha
47	M5	208.8	147.7	Quispisisa
48	M5	186.1	129.1	Quispisisa
49	M5	213.6	140.9	Quispisisa
50	M6	152.3	110.6	Alca2
51	M6	183.7	130.9	Quispisisa
52	M6	190.7	134.4	Quispisisa
53	M6	115	67.4	Pomacocha
54	O1N	165.2	118.7	Quispisisa
55	O1N	173.8	118.7	Quispisisa
56	O1N	179.8	126.5	Quispisisa
57	O1N	188.8	132	Quispisisa
58	O2	190.2	135.3	Quispisisa
59	O5	188.5	132.9	Quispisisa
60	Y1	161.7	115.8	Quispisisa
61	Y1	176.9	126	Quispisisa
62	Y1	131.9	219.7	Alca 3
63	Y1	150.7	283.4	Jampatilla
64	Y1	172.9	122.2	Quispisisa
65	Y1	157.8	259.6	Jampatilla
66	Y1	171	121.1	Quispisisa
67	Y1	183.6	129	Quispisisa
68	Y1	186.3	133.9	Quispisisa
69	Y1	179.2	123.8	Quispisisa
70	Y1	183	134.5	Quispisisa
71	Y1	181	128.6	Quispisisa
72	Y1	159.3	264.1	Jampatilla
73	Y1	168.5	301.2	Jampatilla
74	Y1	187.7	131.5	Quispisisa
75	Y1	158.6	258.9	Jampatilla
76	Y1	200.5	134.3	Quispisisa
77	Y1	172.9	281.8	Jampatilla
78	Y1	190.6	302.1	Desconoc.
79	Y1	205.9	140.7	Quispisisa
80	Y1	184.3	128.4	Quispisisa
81	Y1	148.2	112.2	No asign.
82	Y2	184.6	131.6	Quispisisa

83	Y2	189.1	131	Quispisisa
84	Y2	172	280.7	Jampatilla
85	Y2	196.6	134.7	Quispisisa
86	Y2	182.9	126.8	Quispisisa
87	Y2	188.8	128.7	Quispisisa
88	Y2	173.5	125.6	Quispisisa
89	Y2	186.1	129.9	Quispisisa
90	Y2	208.9	148.5	Quispisisa
91	Y2	186.4	128.1	Quispisisa
92	Y2	200.8	137.5	Quispisisa
93	Y3	200.5	136.3	Quispisisa
94	Y3	177.1	122.5	Quispisisa
95	Y3	196.7	134.1	Quispisisa
96	Y3	173.1	123.8	Quispisisa
97	Y3	185	130.2	Quispisisa
98	Y3	171.6	119.2	Quispisisa
99	Y3	177.9	124.9	Quispisisa
100	Y3	189.8	134.8	Quispisisa
101	Y3	198.3	135.4	Quispisisa
102	Y3	190.3	128.4	Quispisisa
103	Y3	177.4	125	Quispisisa
104	Y3	155.8	281.8	Jampatilla
105	Y3	184.9	124.7	Quispisisa
106	Y3	193	136	Quispisisa
107	Y4	192.6	133.6	Quispisisa
108	Y4	180.8	129.7	Quispisisa
109	Y4	163.8	118.5	Quispisisa
110	Y4	187.3	131.1	Quispisisa
111	Y4	164.7	120.4	Quispisisa
112	Y4	190.6	130.8	Quispisisa
113	Y4	182.3	127.7	Quispisisa
114	Y4	173.5	122.3	Quispisisa
115	Y4	182.1	126.1	Quispisisa
116	Y4	174.1	122.2	Quispisisa
117	Y4	183.8	124.7	Quispisisa
118	Y4	183.8	130.1	Quispisisa
119	Y4	178.7	125.8	Quispisisa
120	Y4	215	151.4	Quispisisa
121	Y4	187.9	130.2	Quispisisa
122	Y4	176.8	122.4	Quispisisa
123	Y4	184.6	128.9	Quispisisa
124	Y4	191	135	Quispisisa
125	Y4	183.9	126.1	Quispisisa
126	Y4	188	131	Quispisisa
127	Y4	190.2	131.7	Quispisisa
128	Y4	174.2	127.6	Quispisisa
129	Y4	187.7	131.7	Quispisisa
130	Y4	190.1	133.5	Quispisisa
131	Y4	197	136.7	Quispisisa
132	Y3	153	107	No asig.
133	Y4	159.6	118.7	Quispisisa
134	Y4	189.8	130.3	Quispisisa
135	Y4	185.2	128.8	Quispisisa
136	Y4	180	129.9	Quispisisa
137	Y4	180.4	126.4	Quispisisa
138	Y4	204.7	145.4	Quispisisa
139	Y4	159.2	107.1	No asig.
140	Y4	193.4	130.8	Quispisisa
141	Y4	172.4	120	Quispisisa
142	Y4	158.2	257.7	Jampatilla
143	Y4	180.7	128.5	Quispisisa

2) Full chemical XRF geochemical characterizations of obsidian artifacts from Pomacocha.

Sample #	Element	Concentración	Uncert
18	Ti	981	30
18	Mn	362.5	8.1
18	Fe	9131	24
18	Co	16	0
18	Ni	[1.6]	2.2
18	Cu	[2.0]	1.7
18	Zn	60.1	1.9
18	Ga	14.3	1.3
18	Rb	184.2	2.3
18	Sr	184.2	2.1
18	Y	14.8	1.9
18	Zr	98.5	2.2
18	Nb	13.2	2.3
18	Pb	35.8	1.2
18	Th	23.9	3.5
19	Ti	577	24
19	Mn	383.4	8.4
19	Fe	8342	22
19	Co	16	0
19	Ni	[-0]	0
19	Cu	[1.3]	1.7
19	Zn	51.3	1.8
19	Ga	17.7	1.4
19	Rb	108.4	2
19	Sr	71.3	1.8
19	Y	10.6	1.8
19	Zr	92.9	2.1
19	Nb	27.1	2.4
19	Pb	27.2	1.1
19	Th	12.7	3.3
20	Ti	1009	41
20	Mn	380	16
20	Fe	7653	40
20	Co	13	0
20	Ni	1	0
20	Cu	4.4	2.2
20	Zn	102.8	3.6
20	Ga	16.6	1.3
20	Rb	179.1	2.9
20	Sr	132.2	2.6
20	Y	15.7	2.2
20	Zr	91	3.1
20	Nb	9.6	2.8
20	Ba	949	37
20	Pb	36.2	1.9
20	Th	22	4.1
21	Ti	1056	47
21	Mn	375	18
21	Fe	7604	45
21	Co	13	0
21	Ni	[5.7]	3.2
21	Cu	[3.9]	2.3
21	Zn	56.2	3.5
21	Ga	16.9	1.5
21	Rb	190	3.4
21	Sr	135	3
21	Y	13.2	2.6
21	Zr	91	3.5
21	Nb	[6.2]	3.3
21	Ba	1279	41
21	Pb	34.2	2.1
21	Th	26.2	4.8
22	Ti	573	23
22	Mn	393.7	8.1
22	Fe	8414	21
22	Co	16	0
22	Ni	4.5	2
22	Cu	[-0.2]	1.6
22	Zn	53.7	1.7
22	Ga	17.6	1.3
22	Rb	118.6	1.9
22	Sr	55.1	1.6
22	Y	11	1.7
22	Zr	87.5	2
22	Nb	30.5	2.3
22	Pb	27.3	1
22	Th	12.2	3.2

23	Ti	1075	32
23	Mn	350.9	8.5
23	Fe	9519	26
23	Co	16	0
23	Ni	[-0]	0
23	Cu	4.2	1.8
23	Zn	70.8	2.1
23	Ga	15.1	1.4
23	Rb	186	2.4
23	Sr	129.6	2.1
23	Y	13.2	2
23	Zr	99.4	2.2
23	Nb	9.7	2.4
23	Pb	37.2	1.2
23	Th	19.2	3.6
24	Ti	851	29
24	Mn	311.7	8.1
24	Fe	8517	24
24	Co	16	0
24	Ni	[1.4]	2.2
24	Cu	5.8	1.8
24	Zn	63.5	2.1
24	Ga	12	1.3
24	Rb	162.6	2.3
24	Sr	115	2.1
24	Y	11.9	1.9
24	Zr	93.5	2.2
24	Nb	10.2	2.4
24	Pb	35	1.2
24	Th	17.6	3.5
25	Ti	770	38
25	Mn	287	15
25	Fe	5758	34
25	Co	13	0
25	Ni	8.5	2.8
25	Cu	10.9	2.2
25	Zn	69	3.6
25	Ga	11.2	1.3
25	Rb	140	2.7
25	Sr	103.4	2.4
25	Y	13.9	2.2
25	Zr	74.1	3

25	Nb	[4.7]	2.8
25	Ba	1126	65
25	Pb	28.7	1.8
25	Th	18.1	4
26	Ti	933	30
26	Mn	340.9	8.2
26	Fe	9080	25
26	Co	16	0
26	Ni	[-0]	0
26	Cu	4	1.7
26	Zn	69.3	2.1
26	Ga	13	1.3
26	Rb	180.9	2.4
26	Sr	124.5	2.1
26	Y	13.4	2
26	Zr	99.5	2.2
26	Nb	6.7	2.4
26	Pb	38	1.2
26	Th	21.9	3.6
27	Ti	973	40
27	Mn	343	16
27	Fe	7026	38
27	Co	13	0
27	Ni	6.4	2.7
27	Cu	9.6	2.1
27	Zn	101.9	3.8
27	Ga	16.2	1.3
27	Rb	163.5	2.8
27	Sr	123	2.6
27	Y	13	2.3
27	Zr	80.4	3.1
27	Nb	7.1	2.9
27	Ba	4320	470
27	Pb	32.9	1.8
27	Th	25.9	4.2
28	Ti	1076	45
28	Mn	352	17
28	Fe	7291	42
28	Co	13	0
28	Ni	[2.1]	2.9
28	Cu	8.2	2.2
28	Zn	70	3.5

28	Ga	15.9	1.4
28	Rb	172.8	3.1
28	Sr	126.4	2.7
28	Y	13.1	2.4
28	Zr	89.8	3.3
28	Nb	8.8	3
28	Ba	1053	66
28	Pb	29.1	1.9
28	Th	11.8	4.3
29	Ti	832	29
29	Mn	335.4	8.2
29	Fe	9029	24
29	Co	16	0
29	Ni	[2.1]	2.2
29	Cu	3.5	1.7
29	Zn	64.3	2
29	Ga	13.3	1.3
29	Rb	175.9	2.3
29	Sr	124.1	2.1
29	Y	14.5	1.9
29	Zr	96.6	2.2
29	Nb	11.4	2.4
29	Pb	35.8	1.2
29	Th	18.6	3.5
30	Ti	1024	31
30	Mn	376	8.8
30	Fe	9465	26
30	Co	16	0
30	Ni	[1.8]	2.3
30	Cu	3.4	1.7
30	Zn	67.2	2.1
30	Ga	14.9	1.4
30	Rb	190.4	2.5
30	Sr	135.6	2.2
30	Y	14.6	2
30	Zr	102.4	2.3
30	Nb	9.3	2.4
30	Pb	39.4	1.3
30	Th	22.5	3.7
31	Ti	937	30
31	Mn	345.5	8.3
31	Fe	9353	25

31	Co	16	0
31	Ni	[2.1]	2.3
31	Cu	6.5	1.8
31	Zn	81.3	2.2
31	Ga	14.6	1.3
31	Rb	183.9	2.4
31	Sr	130.9	2.1
31	Y	14.2	2
31	Zr	96.1	2.2
31	Nb	13.1	2.4
31	Pb	37.7	1.2
31	Th	22.7	3.6
32	Ti	866	28
32	Mn	329.8	8.1
32	Fe	8682	23
32	Co	16	0
32	Ni	6	2.3
32	Cu	6.8	1.8
32	Zn	117.6	2.6
32	Ga	12	1.3
32	Rb	164.8	2.3
32	Sr	121.4	2.1
32	Y	14.4	2
32	Zr	93.6	2.2
32	Nb	9.5	2.4
32	Pb	36.9	1.2
32	Th	19.2	3.6
33	Ti	1079	32
33	Mn	418	9.2
33	Fe	10366	28
33	Co	16	0
33	Ni	[3.7]	2.3
33	Cu	10.6	1.9
33	Zn	134.5	2.7
33	Ga	16.5	1.5
33	Rb	201.4	2.5
33	Sr	152.7	2.3
33	Y	16.5	2.1
33	Zr	105.1	2.3
33	Nb	14.1	2.5
33	Pb	42.6	1.3
33	Th	23.9	3.8

34	Ti	940	29
34	Mn	360.6	8.3
34	Fe	9472	25
34	Co	16	0
34	Ni	[2.6]	2.2
34	Cu	[-0.0]	1.7
34	Zn	57.8	1.8
34	Ga	16.4	1.3
34	Rb	183.2	2.3
34	Sr	132.5	2
34	Y	14.2	1.9
34	Zr	100.7	2.1
34	Nb	11.1	2.3
34	Pb	38.3	1.2
34	Th	23.4	3.5
35	Ti	938	30
35	Mn	350.9	8.2
35	Fe	9211	25
35	Co	16	0
35	Ni	[4.0]	2.2
35	Cu	6.5	1.8
35	Zn	85.1	2.2
35	Ga	15.4	1.3
35	Rb	185.2	2.4
35	Sr	126	2.1
35	Y	14.8	2
35	Zr	96.8	2.2
35	Nb	9.2	2.4
35	Pb	37.4	1.2
35	Th	22.5	3.6
36	Ti	905	29
36	Mn	340.6	8.2
36	Fe	8983	24
36	Co	16	0
36	Ni	[-0]	0
36	Cu	[3.0]	1.7
36	Zn	69.6	2.1
36	Ga	15.7	1.3
36	Rb	180.7	2.3
36	Sr	127	2.1
36	Y	14.5	1.9
36	Zr	98.5	2.2

36	Nb	9.1	2.3
36	Pb	36.6	1.2
36	Th	20.7	3.5
37	Ti	986	32
37	Mn	359.9	8.8
37	Fe	9295	27
37	Co	16	0
37	Ni	[1.7]	2.3
37	Cu	5.2	1.9
37	Zn	54.1	2
37	Ga	15.4	1.4
37	Rb	187	2.5
37	Sr	132.5	2.2
37	Y	10.5	2.1
37	Zr	98.5	2.3
37	Nb	13	2.5
37	Pb	36.4	1.3
37	Th	25.3	3.7
38	Ti	965	30
38	Mn	350.3	8.3
38	Fe	9473	25
38	Co	16	0
38	Ni	[1.5]	2.2
38	Cu	[3.0]	1.6
38	Zn	54.4	1.8
38	Ga	17.6	1.3
38	Rb	190	2.4
38	Sr	135.2	2.1
38	Y	15.5	1.9
38	Zr	99	2.2
38	Nb	10.4	2.3
38	Pb	38.7	1.2
38	Th	19.5	3.5
39	Ti	1025	32
39	Mn	365.9	8.7
39	Fe	9496	27
39	Co	15.63	0.65
39	Ni	[1.8]	2.5
39	Cu	3.6	1.8
39	Zn	76.2	2.2
39	Ga	17.1	1.4
39	Rb	191.2	2.5

39	Sr	136.7	2.2
39	Y	13.6	2.1
39	Zr	104	2.3
39	Nb	12	2.5
39	Pb	39.8	1.3
39	Th	25.1	3.8
40	Ti	981	31
40	Mn	371.2	8.8
40	Fe	9614	26
40	Co	16	0
40	Ni	[3.6]	2.4
40	Cu	10.3	1.9
40	Zn	104.8	2.5
40	Ga	13.8	1.4
40	Rb	191.2	2.5
40	Sr	132.3	2.2
40	Y	16.5	2
40	Zr	97.5	2.3
40	Nb	7.5	2.4
40	Pb	39.9	1.3
40	Th	27.3	3.7
41	Ti	846	28
41	Mn	323.3	7.9
41	Fe	8852	24
41	Co	16	0
41	Ni	6.2	2.2
41	Cu	8.7	1.8
41	Zn	107.2	2.4
41	Ga	15	1.3
41	Rb	171.6	2.3
41	Sr	123.8	2.1
41	Y	16.5	2
41	Zr	92.2	2.2
41	Nb	9.7	2.4
41	Pb	36.5	1.2
41	Th	22.1	3.6
42	Ti	802	27
42	Mn	406.3	8.8
42	Fe	8809	24
42	Co	16	0
42	Ni	[-0]	0
42	Cu	5.3	1.8

42	Zn	113.6	2.5
42	Ga	21.5	1.4
42	Rb	118.4	2.1
42	Sr	70.2	1.8
42	Y	11	1.9
42	Zr	93.2	2.1
42	Nb	26	2.4
42	Pb	26.4	1.1
42	Th	14.1	3.4
43	Ti	1126	34
43	Mn	425.1	9.7
43	Fe	10586	29
43	Co	16	0
43	Ni	[-0]	0
43	Cu	12.2	2
43	Zn	175.3	3.1
43	Ga	19.1	1.5
43	Rb	210.5	2.7
43	Sr	150.4	2.3
43	Y	18.7	2.2
43	Zr	100.7	2.4
43	Nb	11.2	2.6
43	Pb	45.6	1.4
43	Th	21.7	4.1
44	Ti	949	31
44	Mn	364.3	8.7
44	Fe	9258	26
44	Co	16	0
44	Ni	[-0]	0
44	Cu	3.9	1.8
44	Zn	80.1	2.3
44	Ga	16.4	1.4
44	Rb	185.9	2.5
44	Sr	131.5	2.2
44	Y	16.8	2.1
44	Zr	102.2	2.3
44	Nb	13.8	2.5
44	Pb	37.2	1.3
44	Th	19.1	3.8
45	Ti	991	31
45	Mn	351.5	8.7
45	Fe	9600	26

45	Co	16	0
45	Ni	5.3	2.4
45	Cu	11.8	2
45	Zn	167.4	3
45	Ga	13.5	1.4
45	Rb	192.1	2.5
45	Sr	129.6	2.2
45	Y	17	2.1
45	Zr	100.6	2.3
45	Nb	10.4	2.5
45	Pb	39	1.3
45	Th	27.1	3.8
46	Ti	735	28
46	Mn	483.5	9.8
46	Fe	9213	26
46	Co	16	0
46	Ni	[-0]	0
46	Cu	4.4	1.8
46	Zn	67.7	2.1
46	Ga	20.1	1.5
46	Rb	127.8	2.1
46	Sr	62.7	1.8
46	Y	12	1.9
46	Zr	95	2.2
46	Nb	30.9	2.5
46	Pb	29.9	1.2
46	Th	19.2	3.5
47	Ti	1004	31
47	Mn	403.4	8.9
47	Fe	10007	27
47	Co	16	0
47	Ni	[1.2]	2.3
47	Cu	[3.5]	1.8
47	Zn	93.2	2.3
47	Ga	17.7	1.4
47	Rb	208.8	2.6
47	Sr	147.7	2.3
47	Y	17.2	2.1
47	Zr	103.7	2.3
47	Nb	9.7	2.5
47	Pb	43.5	1.3
47	Th	19.6	3.9

48	Ti	875	30
48	Mn	333.1	8.3
48	Fe	9238	25
48	Co	15.63	0.61
48	Ni	[0.8]	2.4
48	Cu	4.2	1.8
48	Zn	104.5	2.4
48	Ga	15.1	1.4
48	Rb	186.1	2.4
48	Sr	129.1	2.1
48	Y	12.4	2
48	Zr	98.4	2.2
48	Nb	12.8	2.4
48	Pb	38.8	1.2
48	Th	29	3.6
49	Ti	1116	34
49	Mn	431	9.6
49	Fe	10687	29
49	Co	16	0
49	Ni	[-0]	0
49	Cu	9.1	1.9
49	Zn	160.6	2.9
49	Ga	18.2	1.5
49	Rb	213.6	2.6
49	Sr	140.9	2.2
49	Y	12.8	2.1
49	Zr	101.5	2.3
49	Nb	12	2.5
49	Pb	43.1	1.4
49	Th	28.5	3.9
50	Ti	978	43
50	Mn	310	17
50	Fe	6622	39
50	Co	13	0
50	Ni	1	0
50	Cu	10.5	2.5
50	Zn	184.5	5.2
50	Ga	16.6	1.5
50	Rb	152.3	3
50	Sr	110.6	2.7
50	Y	14.5	2.4
50	Zr	79.5	3.3

50	Nb	8.2	3.1
50	Ba	430	120
50	Pb	32.8	1.9
50	Th	25.7	4.4
51	Ti	1070	42
51	Mn	380	16
51	Fe	7810	40
51	Co	13	0
51	Ni	1	0
51	Cu	6.4	2.1
51	Zn	75.4	3.5
51	Ga	16.3	1.3
51	Rb	183.7	3
51	Sr	130.9	2.7
51	Y	17.6	2.3
51	Zr	92.9	3.2
51	Nb	7.4	2.9
51	Ba	1360	120
51	Pb	35.4	1.9
51	Th	20.3	4.3
52	Ti	956	46
52	Mn	422	18
52	Fe	7792	43
52	Co	13	0
52	Ni	[1.1]	3
52	Cu	7.4	2.4
52	Zn	127.6	4.3
52	Ga	18.9	1.5
52	Rb	190.7	3.2
52	Sr	134.4	2.9
52	Y	10.9	2.5
52	Zr	96	3.4
52	Nb	11.7	3.2
52	Ba	771	95
52	Pb	36	2.1
52	Th	17.8	4.7
53	Ti	700	25
53	Mn	417.5	8.4
53	Fe	8819	23
53	Co	16	0
53	Ni	[2.2]	2.1
53	Cu	[1.1]	1.6

53	Zn	62.4	1.8
53	Ga	21	1.3
53	Rb	115	1.9
53	Sr	67.4	1.7
53	Y	10.9	1.7
53	Zr	90.6	2
53	Nb	26.7	2.3
53	Pb	26.2	1
53	Th	11.6	3.2
54	Ti	916	29
54	Mn	335	8
54	Fe	8771	24
54	Co	16	0
54	Ni	[2.1]	2.2
54	Cu	11.3	1.9
54	Zn	124.4	2.8
54	Ga	14.3	1.4
54	Rb	165.2	2.3
54	Sr	118.7	2.1
54	Y	10.5	2
54	Zr	89.5	2.2
54	Nb	7.2	2.4
54	Pb	36.2	1.2
54	Th	22.5	3.6
55	Ti	953	31
55	Mn	377.1	8.6
55	Fe	9362	26
55	Co	15.84	0.61
55	Ni	[1.3]	2.4
55	Cu	18.7	2
55	Zn	209.7	3.2
55	Ga	16.3	1.4
55	Rb	173.8	2.4
55	Sr	118.7	2.1
55	Y	11.2	2
55	Zr	84.9	2.2
55	Nb	10.4	2.4
55	Pb	35	1.3
55	Th	19.2	3.8
56	Ti	964	44
56	Mn	399	18
56	Fe	7277	42

56	Co	13	0
56	Ni	[4.1]	2.9
56	Cu	9.9	2.2
56	Zn	59.3	3.3
56	Ga	16.8	1.4
56	Rb	179.8	3.2
56	Sr	126.5	2.8
56	Y	11.7	2.5
56	Zr	91.6	3.4
56	Nb	6.6	3.1
56	Ba	866	33
56	Pb	35	2
56	Th	19.5	4.6
57	Ti	1045	32
57	Mn	371.4	8.8
57	Fe	9720	27
57	Co	16	0
57	Ni	[4.0]	2.4
57	Cu	10.7	2
57	Zn	141.3	2.9
57	Ga	15.7	1.5
57	Rb	188.8	2.5
57	Sr	132	2.2
57	Y	13	2.1
57	Zr	97.3	2.3
57	Nb	11.2	2.5
57	Pb	38.9	1.3
57	Th	22.4	3.9
58	Ti	977	43
58	Mn	401	18
58	Fe	7943	43
58	Co	13	0
58	Ni	[2.3]	2.9
58	Cu	5.1	2.2
58	Zn	48.7	3.1
58	Ga	18.9	1.4
58	Rb	190.2	3.2
58	Sr	135.3	2.8
58	Y	14.8	2.4
58	Zr	91.4	3.3
58	Nb	13.9	3
58	Ba	1087	40
58	Pb	39.8	2
58	Th	27.1	4.5
59	Ti	935	30
59	Mn	355.2	8.5
59	Fe	9363	25
59	Co	16	0
59	Ni	[-0]	0
59	Cu	6	1.8
59	Zn	71.7	2.1
59	Ga	16.3	1.4
59	Rb	188.5	2.4
59	Sr	132.9	2.1
59	Y	17.3	2
59	Zr	100.8	2.2
59	Nb	10.3	2.4
59	Pb	38.1	1.2
59	Th	21.7	3.6
60	Ti	810	30
60	Mn	321.2	8.3
60	Fe	8796	25
60	Co	16	0
60	Ni	[2.2]	2.3
60	Cu	5.9	1.8
60	Zn	66.8	2.1
60	Ga	12	1.4
60	Rb	161.7	2.4
60	Sr	115.8	2.1
60	Y	14.4	1.9
60	Zr	93.8	2.2
60	Nb	6.7	2.4
60	Pb	34.4	1.2
60	Th	24	3.5
61	Ti	944	30
61	Mn	364.1	8.3
61	Fe	8947	24
61	Co	16	0
61	Ni	[-0]	0
61	Cu	[0.4]	1.7
61	Zn	51.6	1.8
61	Ga	11.4	1.3
61	Rb	176.9	2.4
61	Sr	126	2.1

61	Y	14.3	2
61	Zr	98.7	2.2
61	Nb	14.5	2.4
61	Pb	34	1.2
61	Th	19.8	3.6
62	Ti	1280	54
62	Mn	512	23
62	Fe	10197	55
62	Co	13	0
62	Ni	1	0
62	Cu	32.7	3.5
62	Zn	563.4	8.8
62	Ga	18.4	1.9
62	Rb	131.9	3.3
62	Sr	219.7	3.7
62	Y	21.6	2.9
62	Zr	127	4.1
62	Nb	11.8	3.6
62	Ba	650	83
62	Pb	33.1	2.3
62	Th	11.9	5.5
63	Ti	1142	33
63	Mn	495	10
63	Fe	12042	33
63	Co	16	0
63	Ni	[3.3]	2.3
63	Cu	3.5	1.7
63	Zn	67.5	2
63	Ga	19	1.4
63	Rb	150.7	2.3
63	Sr	283.4	2.7
63	Y	30	2.1
63	Zr	177.2	2.6
63	Nb	20.7	2.4
63	Pb	35.3	1.2
63	Th	12	3.6
64	Ti	854	30
64	Mn	330.4	8.3
64	Fe	8678	24
64	Co	16	0
64	Ni	[-0]	0
64	Cu	[0.2]	1.8
64	Zn	47.2	1.8
64	Ga	15	1.4
64	Rb	172.9	2.4
64	Sr	122.2	2.1
64	Y	13	2
64	Zr	97	2.3
64	Nb	12.7	2.4
64	Pb	36.4	1.2
64	Th	18.4	3.6
65	Ti	1056	32
65	Mn	484	10
65	Fe	11504	31
65	Co	16	0
65	Ni	5.1	2.2
65	Cu	[1.3]	1.7
65	Zn	67	2
65	Ga	16.6	1.4
65	Rb	157.8	2.3
65	Sr	259.6	2.6
65	Y	32.4	2
65	Zr	161	2.5
65	Nb	18	2.4
65	Pb	36.8	1.2
65	Th	9.3	3.5
66	Ti	865	27
66	Mn	315.6	7.6
66	Fe	8638	23
66	Co	15.8	0.55
66	Ni	[1.8]	2.2
66	Cu	5.7	1.6
66	Zn	50.9	1.7
66	Ga	11.3	1.2
66	Rb	171	2.2
66	Sr	121.1	2
66	Y	14.4	1.8
66	Zr	95.1	2.1
66	Nb	15.1	2.2
66	Pb	35.2	1.1
66	Th	15.5	3.3
67	Ti	984	31
67	Mn	381.5	8.8
67	Fe	9462	26

67	Co	16	0
67	Ni	5.8	2.5
67	Cu	8	1.9
67	Zn	111.9	2.6
67	Ga	17.9	1.4
67	Rb	183.6	2.5
67	Sr	129	2.2
67	Y	14.1	2
67	Zr	98	2.3
67	Nb	11.4	2.4
67	Pb	37.8	1.3
67	Th	25.1	3.7
68	Ti	977	31
68	Mn	363.1	8.7
68	Fe	9435	26
68	Co	16	0
68	Ni	4.8	2.4
68	Cu	[2.5]	1.8
68	Zn	73.8	2.1
68	Ga	16.3	1.4
68	Rb	186.3	2.5
68	Sr	133.9	2.2
68	Y	12	2
68	Zr	99.3	2.3
68	Nb	10.4	2.5
68	Pb	37.4	1.3
68	Th	16.7	3.7
69	Ti	883	31
69	Mn	330.3	8.6
69	Fe	9011	26
69	Co	16	0
69	Ni	[3.6]	2.4
69	Cu	[0.1]	1.8
69	Zn	65.3	2.1
69	Ga	12.6	1.4
69	Rb	179.2	2.5
69	Sr	123.8	2.2
69	Y	14.3	2
69	Zr	97.9	2.3
69	Nb	12	2.5
69	Pb	36.6	1.3
69	Th	16	3.7

70	Ti	901	31
70	Mn	363	8.7
70	Fe	9069	26
70	Co	16	0
70	Ni	[-0]	0
70	Cu	[1.9]	1.8
70	Zn	57.5	2
70	Ga	12.5	1.4
70	Rb	183	2.5
70	Sr	134.5	2.2
70	Y	13.7	2
70	Zr	98.9	2.3
70	Nb	8.1	2.5
70	Pb	35.3	1.3
70	Th	19.2	3.7
71	Ti	859	30
71	Mn	346.1	8.3
71	Fe	9189	25
71	Co	16	0
71	Ni	[1.5]	2.2
71	Cu	4.8	1.8
71	Zn	108	2.5
71	Ga	15.2	1.3
71	Rb	181	2.4
71	Sr	128.6	2.1
71	Y	15.1	2
71	Zr	96	2.2
71	Nb	10.1	2.4
71	Pb	36.3	1.2
71	Th	22.1	3.7
72	Ti	1073	32
72	Mn	471.7	9.8
72	Fe	11540	31
72	Co	16	0
72	Ni	[3.3]	2.3
72	Cu	5.6	1.7
72	Zn	67.7	2
72	Ga	15.8	1.4
72	Rb	159.3	2.3
72	Sr	264.1	2.6
72	Y	28.3	2
72	Zr	167.7	2.5

72	Nb	21.2	2.4
72	Pb	37.7	1.2
72	Th	10.5	3.4
73	Ti	1360	34
73	Mn	587	11
73	Fe	13117	34
73	Co	16	0
73	Ni	[-0]	0
73	Cu	[2.0]	1.6
73	Zn	74.6	2.1
73	Ga	21.4	1.4
73	Rb	168.5	2.3
73	Sr	301.2	2.6
73	Y	28.6	2
73	Zr	179.5	2.5
73	Nb	16.5	2.3
73	Pb	41.5	1.2
73	Th	17.5	3.5
74	Ti	949	31
74	Mn	384	8.9
74	Fe	9353	27
74	Co	16.01	0.64
74	Ni	[4.0]	2.5
74	Cu	6.9	1.9
74	Zn	87.4	2.4
74	Ga	14	1.4
74	Rb	187.7	2.5
74	Sr	131.5	2.2
74	Y	14	2.1
74	Zr	96.5	2.3
74	Nb	11.6	2.5
74	Pb	37.5	1.3
74	Th	21.1	3.8
75	Ti	1062	34
75	Mn	464	11
75	Fe	11457	32
75	Co	16	0
75	Ni	[3.7]	2.5
75	Cu	[3.0]	2
75	Zn	132.9	2.8
75	Ga	17	1.5
75	Rb	158.6	2.4

75	Sr	258.9	2.7
75	Y	29.7	2.2
75	Zr	165.9	2.6
75	Nb	18.9	2.6
75	Pb	39	1.3
75	Th	12	3.8
76	Ti	1080	35
76	Mn	409.6	9.6
76	Fe	10209	29
76	Co	16	0
76	Ni	[1.8]	2.5
76	Cu	18.5	2.2
76	Zn	234.3	3.6
76	Ga	17.1	1.6
76	Rb	200.5	2.6
76	Sr	134.3	2.4
76	Y	10	2.2
76	Zr	97	2.4
76	Nb	7.9	2.6
76	Pb	43.1	1.4
76	Th	20.2	4.2
77	Ti	1233	36
77	Mn	556	11
77	Fe	12584	35
77	Co	16	0
77	Ni	[3.3]	2.6
77	Cu	[3.4]	2
77	Zn	122.8	2.7
77	Ga	21.4	1.6
77	Rb	172.9	2.5
77	Sr	281.8	2.8
77	Y	33.3	2.2
77	Zr	173.2	2.7
77	Nb	21.8	2.6
77	Pb	41.7	1.4
77	Th	24.4	3.9
78	Ti	1389	39
78	Mn	642	12
78	Fe	13968	38
78	Co	16	0
78	Ni	[4.8]	2.6
78	Cu	9.6	2.1

78	Zn	180.8	3.3
78	Ga	22.3	1.7
78	Rb	190.6	2.7
78	Sr	302.1	3
78	Y	33	2.4
78	Zr	176	2.8
78	Nb	17.8	2.7
78	Pb	46.8	1.5
78	Th	19.1	4.2
79	Ti	1143	33
79	Mn	418.2	9.1
79	Fe	10255	28
79	Co	16	0
79	Ni	[3.8]	2.4
79	Cu	9.1	1.9
79	Zn	104.2	2.4
79	Ga	18.1	1.5
79	Rb	205.9	2.5
79	Sr	140.7	2.2
79	Y	14	2
79	Zr	102	2.2
79	Nb	11.2	2.4
79	Pb	41.7	1.3
79	Th	25.4	3.7
80	Ti	940	29
80	Mn	365	8.1
80	Fe	9124	24
80	Co	16	0
80	Ni	[-0]	0
80	Cu	6.3	1.8
80	Zn	73.8	2.1
80	Ga	12	1.3
80	Rb	184.3	2.4
80	Sr	128.4	2.1
80	Y	14.5	2
80	Zr	100.1	2.2
80	Nb	12.3	2.4
80	Pb	36.5	1.2
80	Th	25.7	3.6
81	Ti	657	25
81	Mn	270.7	7
81	Fe	8017	21

81	Co	15.8	0.5
81	Ni	4.5	2.1
81	Cu	[1.4]	1.6
81	Zn	41.6	1.6
81	Ga	9.3	1.2
81	Rb	148.2	2.1
81	Sr	112.2	1.9
81	Y	14.5	1.8
81	Zr	87.5	2
81	Nb	10.8	2.2
81	Pb	31.6	1.1
81	Th	21.7	3.2
82	Ti	984	43
82	Mn	373	17
82	Fe	7746	41
82	Co	13	0
82	Ni	[3.3]	2.8
82	Cu	6.5	2.2
82	Zn	76.7	3.4
82	Ga	19.4	1.4
82	Rb	184.6	3.1
82	Sr	131.6	2.8
82	Y	16.3	2.4
82	Zr	91.5	3.3
82	Nb	9.8	3
82	Ba	1031	44
82	Pb	37.8	2
82	Th	23.8	4.4
83	Ti	864	28
83	Mn	350	8
83	Fe	9254	24
83	Co	16	0
83	Ni	6.5	2.2
83	Cu	6.5	1.7
83	Zn	66.9	2
83	Ga	14.5	1.3
83	Rb	189.1	2.3
83	Sr	131	2.1
83	Y	11.9	1.9
83	Zr	100.8	2.2
83	Nb	12.3	2.3
83	Pb	39.5	1.2

83	Th	26.8	3.5
84	Ti	1223	37
84	Mn	530	11
84	Fe	12472	35
84	Co	16	0
84	Ni	7.4	2.6
84	Cu	7.2	2
84	Zn	117.3	2.8
84	Ga	20.6	1.6
84	Rb	172	2.6
84	Sr	280.7	2.9
84	Y	31.2	2.3
84	Zr	173.6	2.8
84	Nb	17.6	2.7
84	Pb	39.8	1.4
84	Th	19.3	4
85	Ti	997	32
85	Mn	391.8	8.8
85	Fe	9622	26
85	Co	16	0
85	Ni	[2.6]	2.2
85	Cu	10.6	1.9
85	Zn	102.7	2.5
85	Ga	16	1.4
85	Rb	196.6	2.5
85	Sr	134.7	2.2
85	Y	13.9	2.1
85	Zr	98	2.3
85	Nb	12	2.5
85	Pb	40.3	1.3
85	Th	21.1	3.8
86	Ti	847	30
86	Mn	346.4	8.5
86	Fe	9068	25
86	Co	16	0
86	Ni	[2.7]	2.4
86	Cu	8.8	2
86	Zn	150.2	3
86	Ga	13.3	1.4
86	Rb	182.9	2.4
86	Sr	126.8	2.2
86	Y	14.5	2
86	Zr	94.1	2.2
86	Nb	16	2.4
86	Pb	37.2	1.3
86	Th	25.7	3.7
87	Ti	1089	47
87	Mn	438	19
87	Fe	8064	45
87	Co	13.8	2.9
87	Ni	[5.3]	3.2
87	Cu	12.7	2.7
87	Zn	259.2	5.8
87	Ga	21	1.6
87	Rb	188.8	3.4
87	Sr	128.7	3
87	Y	16.4	2.7
87	Zr	85.9	3.5
87	Nb	9.7	3.3
87	Ba	675	80
87	Pb	42.8	2.2
87	Th	23.2	5
88	Ti	851	30
88	Mn	320.5	8.2
88	Fe	8893	25
88	Co	15.65	0.59
88	Ni	[3.2]	2.3
88	Cu	[2.7]	1.7
88	Zn	45.9	1.8
88	Ga	10.9	1.3
88	Rb	173.5	2.4
88	Sr	125.6	2.1
88	Y	14.8	2
88	Zr	94.7	2.2
88	Nb	10.8	2.4
88	Pb	36.2	1.2
88	Th	25.9	3.6
89	Ti	846	31
89	Mn	363.1	8.9
89	Fe	9372	27
89	Co	16	0
89	Ni	5.7	2.5
89	Cu	7.2	1.9
89	Zn	124.1	2.7

89	Ga	13.4	1.5
89	Rb	186.1	2.5
89	Sr	129.9	2.2
89	Y	14.3	2
89	Zr	99.2	2.3
89	Nb	15.7	2.5
89	Pb	37.3	1.3
89	Th	25.7	3.7
90	Ti	1260	53
90	Mn	461	21
90	Fe	9140	51
90	Co	13	0
90	Ni	[3.9]	3.4
90	Cu	13.6	3
90	Zn	272.1	6.4
90	Ga	18.8	1.8
90	Rb	208.9	3.7
90	Sr	148.5	3.3
90	Y	16.2	2.9
90	Zr	102.1	3.8
90	Nb	9.3	3.6
90	Ba	1180	110
90	Pb	40.1	2.4
90	Th	22.2	5.5
91	Ti	922	29
91	Mn	354.2	8.3
91	Fe	9278	25
91	Co	16	0
91	Ni	[3.7]	2.3
91	Cu	[2.1]	1.8
91	Zn	92	2.3
91	Ga	13.1	1.4
91	Rb	186.4	2.4
91	Sr	128.1	2.1
91	Y	13.2	2
91	Zr	99.2	2.2
91	Nb	11.5	2.4
91	Pb	38.3	1.2
91	Th	19.6	3.6
92	Ti	1037	32
92	Mn	382.8	9.1
92	Fe	10013	28

92	Co	16	0
92	Ni	[2.5]	2.4
92	Cu	7	1.9
92	Zn	134.1	2.8
92	Ga	17.5	1.5
92	Rb	200.8	2.6
92	Sr	137.5	2.3
92	Y	13.2	2.1
92	Zr	106.7	2.3
92	Nb	10.4	2.5
92	Pb	44.5	1.4
92	Th	25.9	3.9
93	Ti	1007	34
93	Mn	360.7	9.1
93	Fe	9584	28
93	Co	16	0
93	Ni	[1.8]	2.5
93	Cu	[1.7]	1.8
93	Zn	46.1	1.8
93	Ga	16.2	1.5
93	Rb	200.5	2.6
93	Sr	136.3	2.3
93	Y	14.7	2.1
93	Zr	106	2.3
93	Nb	11.3	2.5
93	Pb	38.6	1.3
93	Th	29.2	3.8
94	Ti	919	31
94	Mn	345.3	8.5
94	Fe	9094	25
94	Co	16	0
94	Ni	[-0]	0
94	Cu	9.2	1.9
94	Zn	157.6	2.9
94	Ga	11.6	1.4
94	Rb	177.1	2.4
94	Sr	122.5	2.1
94	Y	13.6	2
94	Zr	94.8	2.2
94	Nb	11	2.4
94	Pb	36.3	1.3
94	Th	26.1	3.7

95	Ti	1035	31
95	Mn	394.3	9
95	Fe	9746	27
95	Co	16	0
95	Ni	[1.9]	2.3
95	Cu	7.6	1.9
95	Zn	132.9	2.7
95	Ga	17.3	1.5
95	Rb	196.7	2.5
95	Sr	134.1	2.2
95	Y	15.7	2.1
95	Zr	96.6	2.3
95	Nb	14.1	2.5
95	Pb	41.1	1.3
95	Th	30.7	3.9
96	Ti	843	41
96	Mn	333	16
96	Fe	6995	39
96	Co	13	0
96	Ni	1	0
96	Cu	[2.6]	2.1
96	Zn	43.2	2.9
96	Ga	12.9	1.3
96	Rb	173.1	3
96	Sr	123.8	2.7
96	Y	13.1	2.3
96	Zr	91.5	3.2
96	Nb	10.2	3
96	Ba	1056	31
96	Pb	31.3	1.9
96	Th	24	4.3
97	Ti	929	29
97	Mn	367	8.2
97	Fe	9091	24
97	Co	16	0
97	Ni	[1.8]	2.2
97	Cu	[2.1]	1.6
97	Zn	51.9	1.8
97	Ga	13	1.3
97	Rb	185	2.3
97	Sr	130.2	2
97	Y	14.9	1.9
97	Zr	99.1	2.1
97	Nb	12.3	2.3
97	Pb	34.2	1.2
97	Th	23.3	3.4
98	Ti	1058	50
98	Mn	378	20
98	Fe	7830	46
98	Co	12.8	3
98	Ni	[5.2]	3.6
98	Cu	42.5	3.4
98	Zn	481.1	8.1
98	Ga	16.3	1.8
98	Rb	171.6	3.5
98	Sr	119.2	3.1
98	Y	14.3	2.9
98	Zr	75.6	3.7
98	Nb	[5.9]	3.6
98	Ba	[-2000]	-290
98	Pb	38.5	2.4
98	Th	30.7	5.5
99	Ti	839	28
99	Mn	329.1	7.9
99	Fe	8925	24
99	Co	16	0
99	Ni	5.9	2.3
99	Cu	4.3	1.6
99	Zn	57.5	1.9
99	Ga	11.5	1.3
99	Rb	177.9	2.3
99	Sr	124.9	2.1
99	Y	14.5	1.9
99	Zr	100.2	2.2
99	Nb	11.4	2.3
99	Pb	38.4	1.2
99	Th	29.2	3.5
100	Ti	1034	33
100	Mn	382.3	9.4
100	Fe	9686	28
100	Co	16	0
100	Ni	[3.9]	2.4
100	Cu	[-0.7]	1.9
100	Zn	61	2

100	Ga	15.4	1.4
100	Rb	189.8	2.5
100	Sr	134.8	2.2
100	Y	13.7	2.1
100	Zr	99.7	2.3
100	Nb	13	2.5
100	Pb	38.9	1.3
100	Th	28.8	3.8
101	Ti	1164	34
101	Mn	426.9	9.6
101	Fe	10322	29
101	Co	16	0
101	Ni	[-0]	0
101	Cu	3.6	1.8
101	Zn	97.4	2.5
101	Ga	17.3	1.4
101	Rb	198.3	2.5
101	Sr	135.4	2.2
101	Y	15.8	2.1
101	Zr	100.7	2.3
101	Nb	6	2.5
101	Pb	44.2	1.3
101	Th	22.9	3.8
102	Ti	916	31
102	Mn	362.6	8.4
102	Fe	9321	25
102	Co	16	0
102	Ni	[-0]	0
102	Cu	[2.4]	1.8
102	Zn	75.7	2.1
102	Ga	15	1.4
102	Rb	190.3	2.4
102	Sr	128.4	2.1
102	Y	14.2	2
102	Zr	98.6	2.2
102	Nb	8.8	2.4
102	Pb	36.1	1.2
102	Th	17.9	3.6
103	Ti	837	28
103	Mn	333.2	7.9
103	Fe	9087	24
103	Co	16	0
103	Ni	5.1	2.2
103	Cu	[2.7]	1.6
103	Zn	40.9	1.6
103	Ga	12.4	1.3
103	Rb	177.4	2.3
103	Sr	125	2
103	Y	14.4	1.9
103	Zr	100.9	2.1
103	Nb	9.6	2.2
103	Pb	36.9	1.2
103	Th	24.1	3.4
104	Ti	1179	34
104	Mn	483	11
104	Fe	12309	34
104	Co	16	0
104	Ni	6.6	2.5
104	Cu	7.5	1.9
104	Zn	115.8	2.6
104	Ga	19.8	1.5
104	Rb	155.8	2.3
104	Sr	281.8	2.7
104	Y	28.7	2.1
104	Zr	168.1	2.6
104	Nb	15.2	2.5
104	Pb	37.1	1.3
104	Th	13.1	3.6
105	Ti	979	31
105	Mn	356.5	8.7
105	Fe	9370	26
105	Co	16	0
105	Ni	7.1	2.4
105	Cu	6.5	1.9
105	Zn	110.9	2.6
105	Ga	15.6	1.4
105	Rb	184.9	2.4
105	Sr	124.7	2.2
105	Y	15	2
105	Zr	94.5	2.3
105	Nb	10.7	2.4
105	Pb	38.3	1.3
105	Th	23.9	3.7
106	Ti	1095	32

106	Mn	385.4	8.8
106	Fe	9771	27
106	Co	16	0
106	Ni	[-0]	0
106	Cu	8.1	1.9
106	Zn	99.5	2.4
106	Ga	17.6	1.4
106	Rb	193	2.4
106	Sr	136	2.1
106	Y	14.9	2
106	Zr	102.5	2.2
106	Nb	8.8	2.4
106	Pb	39.9	1.3
106	Th	27.4	3.7
107	Ti	1049	32
107	Mn	385.6	9.1
107	Fe	9686	27
107	Co	16	0
107	Ni	[3.6]	2.4
107	Cu	6	1.9
107	Zn	67.6	2.1
107	Ga	15.8	1.4
107	Rb	192.6	2.5
107	Sr	133.6	2.2
107	Y	15.6	2
107	Zr	101.8	2.3
107	Nb	10.5	2.5
107	Pb	41.1	1.3
107	Th	25.5	3.7
108	Ti	935	32
108	Mn	347.9	8.9
108	Fe	9340	26
108	Co	16	0
108	Ni	[-0]	0
108	Cu	9.9	1.9
108	Zn	76.9	2.2
108	Ga	15.4	1.4
108	Rb	180.8	2.4
108	Sr	129.7	2.1
108	Y	12.2	2
108	Zr	98.7	2.2
108	Nb	10	2.4
108	Pb	38	1.3
108	Th	23.8	3.6
109	Ti	852	29
109	Mn	324.6	8.3
109	Fe	9020	24
109	Co	16	0
109	Ni	[-0]	0
109	Cu	17.7	2.1
109	Zn	239.1	3.5
109	Ga	14.4	1.4
109	Rb	163.8	2.4
109	Sr	118.5	2.1
109	Y	12.7	2
109	Zr	89.1	2.2
109	Nb	7.9	2.4
109	Pb	35.2	1.3
109	Th	19.5	3.8
110	Ti	1069	44
110	Mn	391	17
110	Fe	7750	41
110	Co	13	0
110	Ni	[4.0]	2.9
110	Cu	7.4	2.3
110	Zn	104.4	3.9
110	Ga	17	1.4
110	Rb	187.3	3.1
110	Sr	131.1	2.7
110	Y	13	2.4
110	Zr	92.9	3.2
110	Nb	15.4	3
110	Ba	1075	57
110	Pb	38.3	2
110	Th	17.5	4.4
111	Ti	825	26
111	Mn	303	7.3
111	Fe	8493	22
111	Co	16	0
111	Ni	[2.7]	2.1
111	Cu	5.2	1.6
111	Zn	44.3	1.6
111	Ga	11.8	1.2
111	Rb	164.7	2.2

111	Sr	120.4	1.9
111	Y	13.4	1.8
111	Zr	94.3	2
111	Nb	8.9	2.2
111	Pb	34.1	1.1
111	Th	16.7	3.2
112	Ti	1057	33
112	Mn	368.5	9.1
112	Fe	9645	27
112	Co	16	0
112	Ni	[0.9]	2.4
112	Cu	7.2	2
112	Zn	117.5	2.6
112	Ga	11.9	1.4
112	Rb	190.6	2.5
112	Sr	130.8	2.2
112	Y	15.1	2.1
112	Zr	99.1	2.3
112	Nb	8.6	2.5
112	Pb	38	1.3
112	Th	24.4	3.8
113	Ti	913	31
113	Mn	332.2	8.7
113	Fe	9318	26
113	Co	16	0
113	Ni	[1.7]	2.4
113	Cu	5.3	1.8
113	Zn	90.8	2.4
113	Ga	13.8	1.4
113	Rb	182.3	2.5
113	Sr	127.7	2.2
113	Y	13.7	2.1
113	Zr	99.7	2.3
113	Nb	9.2	2.5
113	Pb	38.5	1.3
113	Th	18.9	3.8
114	Ti	848	28
114	Mn	338.6	7.8
114	Fe	8820	23
114	Co	16	0
114	Ni	5.9	2.2
114	Cu	[-0.1]	1.6

114	Zn	42.2	1.6
114	Ga	13.7	1.3
114	Rb	173.5	2.3
114	Sr	122.3	2
114	Y	14.7	1.9
114	Zr	96.1	2.1
114	Nb	7.1	2.3
114	Pb	34.8	1.2
114	Th	20.7	3.4
115	Ti	1108	33
115	Mn	387.7	9.4
115	Fe	9983	27
115	Co	16	0
115	Ni	[-0]	0
115	Cu	18.7	2.1
115	Zn	247	3.7
115	Ga	13.6	1.5
115	Rb	182.1	2.5
115	Sr	126.1	2.2
115	Y	12.1	2
115	Zr	93.3	2.3
115	Nb	11.2	2.5
115	Pb	38.1	1.3
115	Th	20.5	3.8
116	Ti	992	32
116	Mn	354.7	8.8
116	Fe	9330	26
116	Co	16	0
116	Ni	[-0]	0
116	Cu	17.7	2.2
116	Zn	254.6	3.8
116	Ga	15.3	1.5
116	Rb	174.1	2.5
116	Sr	122.2	2.2
116	Y	13.3	2.1
116	Zr	90.5	2.3
116	Nb	10.1	2.6
116	Pb	38.5	1.3
116	Th	17.8	4
117	Ti	923	28
117	Mn	353.9	8.1
117	Fe	9154	24

117	Co	16	0
117	Ni	[-0]	0
117	Cu	[2.7]	1.6
117	Zn	42.6	1.6
117	Ga	14.9	1.3
117	Rb	183.8	2.3
117	Sr	124.7	2
117	Y	11.5	1.9
117	Zr	94.7	2.1
117	Nb	8.9	2.3
117	Pb	36.5	1.2
117	Th	22.6	3.4
118	Ti	918	32
118	Mn	346.6	9
118	Fe	9212	27
118	Co	16	0
118	Ni	[3.4]	2.5
118	Cu	[3.7]	1.9
118	Zn	57.4	2
118	Ga	12.4	1.4
118	Rb	183.8	2.6
118	Sr	130.1	2.3
118	Y	13.7	2.1
118	Zr	100.5	2.4
118	Nb	14.9	2.5
118	Pb	36.9	1.3
118	Th	18.2	3.8
119	Ti	879	30
119	Mn	332	8.2
119	Fe	9087	25
119	Co	16	0
119	Ni	6.3	2.3
119	Cu	10.5	1.9
119	Zn	156.1	2.9
119	Ga	12.2	1.4
119	Rb	178.7	2.4
119	Sr	125.8	2.1
119	Y	16	2
119	Zr	95.8	2.2
119	Nb	10.8	2.4
119	Pb	36.3	1.3
119	Th	16.6	3.7

120	Ti	1339	52
120	Mn	447	21
120	Fe	9216	51
120	Co	14.6	3.2
120	Ni	12.7	3.4
120	Cu	14.8	2.7
120	Zn	232.9	5.7
120	Ga	22.5	1.7
120	Rb	215	3.7
120	Sr	151.4	3.2
120	Y	17.4	2.8
120	Zr	94.7	3.7
120	Nb	9.9	3.5
120	Ba	4950	410
120	Pb	42.7	2.3
120	Th	31	5.4
121	Ti	875	31
121	Mn	375.6	8.7
121	Fe	9343	26
121	Co	16	0
121	Ni	[2.3]	2.4
121	Cu	5.8	1.8
121	Zn	72.3	2.1
121	Ga	14.9	1.4
121	Rb	187.9	2.5
121	Sr	130.2	2.2
121	Y	12.6	2.1
121	Zr	96.2	2.3
121	Nb	10	2.5
121	Pb	38.6	1.3
121	Th	18.5	3.8
122	Ti	834	29
122	Mn	323.5	8.3
122	Fe	8818	25
122	Co	16	0
122	Ni	[0.7]	2.4
122	Cu	[1.5]	1.8
122	Zn	44.9	1.8
122	Ga	13.8	1.3
122	Rb	176.8	2.4
122	Sr	122.4	2.1
122	Y	12.5	1.9

122	Zr	99.8	2.2
122	Nb	12.9	2.4
122	Pb	34.8	1.2
122	Th	17.9	3.5
123	Ti	1020	32
123	Mn	367.4	9
123	Fe	9481	27
123	Co	15.74	0.65
123	Ni	[1.8]	2.5
123	Cu	8.7	2
123	Zn	122.6	2.7
123	Ga	15.1	1.5
123	Rb	184.6	2.5
123	Sr	128.9	2.2
123	Y	16.9	2.1
123	Zr	97.2	2.3
123	Nb	9.6	2.5
123	Pb	39.6	1.3
123	Th	27.1	3.8
124	Ti	1076	33
124	Mn	409.5	9.2
124	Fe	9951	28
124	Co	16	0
124	Ni	[1.5]	2.4
124	Cu	[3.4]	1.8
124	Zn	66.6	2
124	Ga	16	1.4
124	Rb	191	2.5
124	Sr	135	2.2
124	Y	15.9	2
124	Zr	102.6	2.2
124	Nb	9.5	2.4
124	Pb	40.4	1.3
124	Th	26.9	3.6
125	Ti	970	32
125	Mn	397.5	8.9
125	Fe	9666	27
125	Co	15.68	0.63
125	Ni	[1.7]	2.4
125	Cu	5.3	1.8
125	Zn	77.8	2.2
125	Ga	15.1	1.4

125	Rb	183.9	2.4
125	Sr	126.1	2.1
125	Y	16.6	1.9
125	Zr	97.9	2.2
125	Nb	12.9	2.3
125	Pb	36.8	1.2
125	Th	21.7	3.5
126	Ti	965	32
126	Mn	351.9	8.8
126	Fe	9391	27
126	Co	16	0
126	Ni	[3.6]	2.4
126	Cu	7.5	1.9
126	Zn	79.2	2.3
126	Ga	12.5	1.4
126	Rb	188	2.5
126	Sr	131	2.2
126	Y	17.6	2.1
126	Zr	102.3	2.3
126	Nb	12.2	2.5
126	Pb	39.5	1.3
126	Th	22.6	3.8
127	Ti	924	30
127	Mn	349.2	8.5
127	Fe	9437	26
127	Co	15.68	0.61
127	Ni	[4.1]	2.3
127	Cu	7.3	1.8
127	Zn	76.9	2.1
127	Ga	14.9	1.3
127	Rb	190.2	2.4
127	Sr	131.7	2.1
127	Y	14.6	1.9
127	Zr	103.2	2.2
127	Nb	11.7	2.4
127	Pb	36	1.2
127	Th	19.4	3.6
128	Ti	1117	45
128	Mn	374	18
128	Fe	7760	43
128	Co	13	0
128	Ni	1	0

128	Cu	14.2	2.4
128	Zn	135.2	4.5
128	Ga	18	1.5
128	Rb	174.2	3.2
128	Sr	127.6	2.8
128	Y	14.9	2.5
128	Zr	90.4	3.4
128	Nb	10.3	3.1
128	Ba	828	45
128	Pb	34.6	2
128	Th	19.5	4.6
129	Ti	1012	31
129	Mn	376.9	8.9
129	Fe	9480	27
129	Co	16	0
129	Ni	[0.8]	2.3
129	Cu	5.2	1.9
129	Zn	112.3	2.6
129	Ga	15.4	1.5
129	Rb	187.7	2.6
129	Sr	131.7	2.3
129	Y	14.9	2.1
129	Zr	96.4	2.3
129	Nb	9.7	2.5
129	Pb	39.4	1.3
129	Th	18.1	3.9
130	Ti	923	31
130	Mn	375.6	9.1
130	Fe	9515	27
130	Co	16	0
130	Ni	[2.9]	2.4
130	Cu	4.6	1.9
130	Zn	75.8	2.2
130	Ga	16.9	1.4
130	Rb	190.1	2.5
130	Sr	133.5	2.2
130	Y	16.6	2.1
130	Zr	101.9	2.3
130	Nb	12.9	2.5
130	Pb	36.1	1.3
130	Th	22.6	3.8
131	Ti	1013	32

131	Mn	385.7	8.8
131	Fe	9774	27
131	Co	16	0
131	Ni	6.4	2.4
131	Cu	17	2
131	Zn	172.2	3.1
131	Ga	17.8	1.5
131	Rb	197	2.5
131	Sr	136.7	2.2
131	Y	12.9	2.1
131	Zr	95.7	2.3
131	Nb	9.5	2.5
131	Pb	39.4	1.3
131	Th	28.1	3.9
132	Ti	750	27
132	Mn	307.8	7.5
132	Fe	8238	22
132	Co	16	0
132	Ni	[2.8]	2.2
132	Cu	[2.7]	1.7
132	Zn	46.2	1.7
132	Ga	11.2	1.2
132	Rb	153	2.1
132	Sr	107	1.9
132	Y	13.7	1.8
132	Zr	87.8	2
132	Nb	9.5	2.2
132	Pb	31.8	1.1
132	Th	17.5	3.2
133	Ti	885	29
133	Mn	309.5	7.9
133	Fe	8577	23
133	Co	16	0
133	Ni	[4.0]	2.2
133	Cu	3.8	1.7
133	Zn	48.2	1.8
133	Ga	11.8	1.3
133	Rb	159.6	2.3
133	Sr	118.7	2.1
133	Y	13.5	2
133	Zr	93.3	2.2
133	Nb	13.6	2.4

133	Pb	35.1	1.2
133	Th	19.1	3.5
134	Ti	966	32
134	Mn	355.3	8.8
134	Fe	9334	26
134	Co	16	0
134	Ni	[0.6]	2.3
134	Cu	7.1	1.9
134	Zn	79.2	2.3
134	Ga	15.1	1.4
134	Rb	189.8	2.5
134	Sr	130.3	2.2
134	Y	15.9	2
134	Zr	102.8	2.3
134	Nb	13.2	2.5
134	Pb	38.1	1.3
134	Th	25.4	3.7
135	Ti	943	31
135	Mn	371.7	8.9
135	Fe	9292	26
135	Co	16	0
135	Ni	[2.5]	2.4
135	Cu	6.1	1.9
135	Zn	111.4	2.6
135	Ga	11.7	1.4
135	Rb	185.2	2.5
135	Sr	128.8	2.2
135	Y	17.6	2.1
135	Zr	99.5	2.3
135	Nb	10.1	2.5
135	Pb	37.5	1.3
135	Th	22.2	3.8
136	Ti	910	28
136	Mn	344.6	7.7
136	Fe	9056	23
136	Co	16	0
136	Ni	[-0]	0
136	Cu	[2.5]	1.6
136	Zn	60.9	1.9
136	Ga	14	1.3
136	Rb	180	2.3
136	Sr	129.9	2

136	Y	15	1.9
136	Zr	100.6	2.1
136	Nb	14.2	2.3
136	Pb	38.5	1.2
136	Th	22.1	3.4
137	Ti	933	31
137	Mn	372.1	8.8
137	Fe	9457	26
137	Co	16	0
137	Ni	[0.3]	2.3
137	Cu	4.5	1.8
137	Zn	99.6	2.4
137	Ga	15.9	1.4
137	Rb	180.4	2.4
137	Sr	126.4	2.1
137	Y	14.9	1.9
137	Zr	96.7	2.2
137	Nb	11.3	2.4
137	Pb	37.5	1.2
137	Th	16	3.5
138	Ti	1078	33
138	Mn	409.3	9.3
138	Fe	10097	28
138	Co	16	0
138	Ni	[4.0]	2.4
138	Cu	7.3	1.9
138	Zn	99.7	2.5
138	Ga	16.6	1.5
138	Rb	204.7	2.6
138	Sr	145.4	2.3
138	Y	16.7	2.2
138	Zr	104.4	2.4
138	Nb	9.8	2.6
138	Pb	43.9	1.4
138	Th	27	4
139	Ti	1089	34
139	Mn	389	9.5
139	Fe	10059	28
139	Co	16	0
139	Ni	[3.2]	2.6
139	Cu	35.6	2.4
139	Zn	339.4	4.2

139	Ga	15.9	1.6
139	Rb	159.2	2.4
139	Sr	107.1	2.1
139	Y	10.8	2.1
139	Zr	79.8	2.2
139	Nb	8.1	2.5
139	Pb	38.3	1.3
139	Th	14.8	3.9
140	Ti	994	34
140	Mn	408.6	9.6
140	Fe	10194	29
140	Co	16	0
140	Ni	[4.8]	2.5
140	Cu	16.2	2.2
140	Zn	239.1	3.7
140	Ga	13.7	1.6
140	Rb	193.4	2.7
140	Sr	130.8	2.4
140	Y	14.7	2.3
140	Zr	94	2.4
140	Nb	10.8	2.7
140	Pb	40.1	1.4
140	Th	22.5	4.3
141	Ti	852	30
141	Mn	339.3	8.5
141	Fe	9010	25
141	Co	16	0
141	Ni	4.8	2.2
141	Cu	[3.1]	1.7
141	Zn	49.8	1.8
141	Ga	13.6	1.3
141	Rb	172.4	2.4
141	Sr	120	2.2
141	Y	13.5	2.1
141	Zr	95.9	2.3
141	Nb	10.6	2.4
141	Pb	37.3	1.3
141	Th	23.3	3.7
142	Ti	1065	33
142	Mn	484	10
142	Fe	11562	32
142	Co	16	0

142	Ni	[1.9]	2.4
142	Cu	5.4	1.9
142	Zn	123	2.7
142	Ga	19.6	1.5
142	Rb	158.2	2.4
142	Sr	257.7	2.7
142	Y	27.4	2.1
142	Zr	158.7	2.5
142	Nb	18.3	2.5
142	Pb	37.5	1.3
142	Th	16.3	3.7
143	Ti	921	32
143	Mn	357.2	8.9
143	Fe	9455	26
143	Co	16	0
143	Ni	5.4	2.5
143	Cu	15.4	2.1
143	Zn	242.2	3.6
143	Ga	15.6	1.5
143	Rb	180.7	2.6
143	Sr	128.5	2.3
143	Y	14.1	2.2
143	Zr	91.4	2.3
143	Nb	9.4	2.6
143	Pb	36.8	1.4
143	Th	28.6	4.1
RGM2#1	Ti	1397	39
RGM2#1	Mn	287.1	8.9
RGM2#1	Fe	13687	38
RGM2#1	Co	16	0
RGM2#1	Ni	7.1	2.7
RGM2#1	Cu	9.7	2
RGM2#1	Zn	44	1.9
RGM2#1	Ga	14	1.5
RGM2#1	Rb	147.9	2.4
RGM2#1	Sr	102.9	2.2
RGM2#1	Y	25.6	2.1
RGM2#1	Zr	213.9	2.8
RGM2#1	Nb	9.2	2.5
RGM2#1	Pb	23.2	1.1
RGM2#1	Th	16.6	3.7
RGM2#2	Ti	1347 ppm	40

RGM2#2	Mn	280.4 ppm	8.8
RGM2#2	Fe	13687 ppm	38
RGM2#2	Co	16 ppm	0
RGM2#2	Ni	[2.2] ppm	2.6
RGM2#2	Cu	6.6 ppm	2
RGM2#2	Zn	43.6 ppm	1.9
RGM2#2	Ga	12.0 ppm	1.4
RGM2#2	Rb	145.3 ppm	2.4
RGM2#2	Sr	101.7 ppm	2.1
RGM2#2	Y	25.5 ppm	2.1
RGM2#2	Zr	218.1 ppm	2.8
RGM2#2	Nb	11.1 ppm	2.5
RGM2#2	Pb	22.8 ppm	1.2
RGM2#2	Th	8.9 ppm	3.7
RGM2#3	Ti	1498 ppm	40
RGM2#3	Mn	277.0 ppm	8.8
RGM2#3	Fe	13723 ppm	39
RGM2#3	Co	15.69 ppm	0.88
RGM2#3	Ni	[4.0] ppm	2.8
RGM2#3	Cu	13.2 ppm	2
RGM2#3	Zn	44.5 ppm	1.9
RGM2#3	Ga	13.6 ppm	1.4
RGM2#3	Rb	150.3 ppm	2.4
RGM2#3	Sr	104.1 ppm	2.2
RGM2#3	Y	24.3 ppm	2.1
RGM2#3	Zr	216.8 ppm	2.8
RGM2#3	Nb	11.2 ppm	2.5
RGM2#3	Pb	23.5 ppm	1.2
RGM2#3	Th	14.4 ppm	3.7
RGM2#4	Ti	1514 ppm	40
RGM2#4	Mn	285.3 ppm	8.9
RGM2#4	Fe	13808 ppm	39
RGM2#4	Co	16 ppm	0
RGM2#4	Ni	[1.6] ppm	2.7
RGM2#4	Cu	8.7 ppm	2.1
RGM2#4	Zn	46.6 ppm	2
RGM2#4	Ga	15.4 ppm	1.4
RGM2#4	Rb	149.6 ppm	2.4
RGM2#4	Sr	106.7 ppm	2.2
RGM2#4	Y	25.8 ppm	2.1
RGM2#4	Zr	218.6 ppm	2.8
RGM2#4	Nb	10.8 ppm	2.6

RGM2#4	Pb	24.4 ppm	1.2
RGM2#4	Th	14.5 ppm	3.7
RGM2#5	Ti	1564 ppm	50
RGM2#5	Mn	242 ppm	16
RGM2#5	Fe	12761 ppm	57
RGM2#5	Co	15.2 ppm	3.5
RGM2#5	Ni	[5.2] ppm	3.1
RGM2#5	Cu	8.1 ppm	2.4
RGM2#5	Zn	42.9 ppm	3
RGM2#5	Ga	14.7 ppm	1.3
RGM2#5	Rb	144.9 ppm	2.8
RGM2#5	Sr	103.3 ppm	2.5
RGM2#5	Y	26.2 ppm	2.4
RGM2#5	Zr	211.9 ppm	3.7
RGM2#5	Nb	7.7 ppm	2.9
RGM2#5	Ba	735 ppm	25
RGM2#5	Pb	18.3 ppm	1.7
RGM2#5	Th	16.8 ppm	4.1
RGM2#6	Ti	1501 ppm	39
RGM2#6	Mn	295.3 ppm	8.9
RGM2#6	Fe	13652 ppm	39
RGM2#6	Co	16.71 ppm	0.89
RGM2#6	Ni	[3.4] ppm	2.8
RGM2#6	Cu	13.6 ppm	2.1
RGM2#6	Zn	41.2 ppm	1.9
RGM2#6	Ga	12.8 ppm	1.4
RGM2#6	Rb	151.0 ppm	2.4
RGM2#6	Sr	106.2 ppm	2.1
RGM2#6	Y	21.8 ppm	2.1
RGM2#6	Zr	212.5 ppm	2.8
RGM2#6	Nb	10.0 ppm	2.5
RGM2#6	Pb	23.4 ppm	1.2
RGM2#6	Th	11.6 ppm	3.7
RGM2#7	Ti	1386 ppm	39
RGM2#7	Mn	287.0 ppm	8.9
RGM2#7	Fe	13731 ppm	39
RGM2#7	Co	16.18 ppm	0.88
RGM2#7	Ni	[2.7] ppm	2.7
RGM2#7	Cu	5.7 ppm	2
RGM2#7	Zn	45.0 ppm	1.9
RGM2#7	Ga	12.1 ppm	1.5
RGM2#7	Rb	151.6 ppm	2.4

RGM2#7	Sr	103.1 ppm	2.2
RGM2#7	Y	22.0 ppm	2.1
RGM2#7	Zr	210.7 ppm	2.8
RGM2#7	Nb	9.6 ppm	2.5
RGM2#7	Pb	21.6 ppm	1.2
RGM2#7	Th	17.9 ppm	3.7
RGM2#8	Ti	1416 ppm	40
RGM2#8	Mn	273.6 ppm	9.1
RGM2#8	Fe	13788 ppm	39
RGM2#8	Co	16 ppm	0
RGM2#8	Ni	[0.1] ppm	2.6
RGM2#8	Cu	10.4 ppm	2.1
RGM2#8	Zn	42.1 ppm	1.9
RGM2#8	Ga	14.3 ppm	1.5
RGM2#8	Rb	148.9 ppm	2.4
RGM2#8	Sr	106.1 ppm	2.2
RGM2#8	Y	27.7 ppm	2.2
RGM2#8	Zr	217.8 ppm	2.8
RGM2#8	Nb	10.1 ppm	2.6
RGM2#8	Pb	24.5 ppm	1.2
RGM2#8	Th	16.1 ppm	3.8
RGM2#9	Ti	1397 ppm	39
RGM2#9	Mn	287.1 ppm	8.9
RGM2#9	Fe	13687 ppm	38
RGM2#9	Co	16 ppm	0
RGM2#9	Ni	7.1 ppm	2.7
RGM2#9	Cu	9.7 ppm	2
RGM2#9	Zn	44.0 ppm	1.9
RGM2#9	Ga	14.0 ppm	1.5
RGM2#9	Rb	147.9 ppm	2.4
RGM2#9	Sr	102.9 ppm	2.2
RGM2#9	Y	25.6 ppm	2.1
RGM2#9	Zr	213.9 ppm	2.8
RGM2#9	Nb	9.2 ppm	2.5
RGM2#9	Pb	23.2 ppm	1.1
RGM2#9	Th	16.6 ppm	3.7
RGM2#10	Ti	1396 ppm	38
RGM2#10	Mn	289.8 ppm	8.9
RGM2#10	Fe	13639 ppm	39
RGM2#10	Co	15.70 ppm	0.88
RGM2#10	Ni	8.5 ppm	2.8
RGM2#10	Cu	5.4 ppm	2
RGM2#10	Zn	42.8 ppm	1.9
RGM2#10	Ga	15.8 ppm	1.4
RGM2#10	Rb	147.8 ppm	2.4
RGM2#10	Sr	103.2 ppm	2.1
RGM2#10	Y	23.2 ppm	2.1
RGM2#10	Zr	215.5 ppm	2.8
RGM2#10	Nb	11.7 ppm	2.5
RGM2#10	Pb	23.3 ppm	1.1
RGM2#10	Th	17.3 ppm	3.7
RGM2#11	Ti	1472 ppm	40
RGM2#11	Mn	283.1 ppm	8.7
RGM2#11	Fe	13657 ppm	38
RGM2#11	Co	16 ppm	0
RGM2#11	Ni	6.1 ppm	2.7
RGM2#11	Cu	12.9 ppm	2.1
RGM2#11	Zn	39.9 ppm	1.9
RGM2#11	Ga	13.8 ppm	1.4
RGM2#11	Rb	148.6 ppm	2.4
RGM2#11	Sr	106.5 ppm	2.1
RGM2#11	Y	27.7 ppm	2.1
RGM2#11	Zr	211.1 ppm	2.8
RGM2#11	Nb	7.2 ppm	2.5
RGM2#11	Pb	24.2 ppm	1.1
RGM2#11	Th	15.2 ppm	3.7

Appendix F: Starch grain analysis (presence/absence) of stone tools from Yanawilka, laboratory report by Vásquez and Tham (2013)

ARQUEOBIOS

CENTRO DE INVESTIGACIONES ARQUEOBIOLÓGICAS
Y PALEOECOLÓGICAS ANDINAS

INFORME FINAL

ANALISIS MICROSCOPICO DE ALMIDONES ANTIGUOS EN HERRAMIENTAS LÍTICAS DEL PROYECTO POMACOCHA

Por

Biól. Víctor F. Vásquez Sánchez
Arql. Teresa E. Rosales Tham

TRUJILLO, ENERO 2013

I. MÉTODOS DE ANÁLISIS

En primer lugar, se con aire comprimido se limpiaron las herramientas líticas para eliminar el polvo adherido y otras partículas. Una aguja estéril (una para cada caso) se utilizó para raspar áreas de los líticos con sedimentos de color blanco a amarillo que pudieran contener los almidones. El residuo se transfirió directamente a una luna portaobjetos donde se había añadido previamente unas gotas de solución salina fisiológica. Este procedimiento se realizó entre tres a cinco veces por separado mediante un muestreo de las diferentes áreas tales como los intersticios y grietas de cada lítico estudiado. Se aplicó luego una solución de agua destilada y glicerina v/v, la cual se añadió a la suspensión de residuos para retardar el secado y permitir que los granos sean más fáciles de girar cuando estos son detectados. Para la identificación de los granos de almidón, se utilizó una colección de referencia moderno de plantas comestibles, tanto tubérculos, raíces reservantes, cereales, frijoles de diversas especies y frutas nativas. Los granos de almidón fueron identificables porque conservaron su forma y características de la superficie, y algunos todavía exhibieron bien la típica cruz que produce cuando se pasa la luz polarizada. Una vez identificados los granos de almidón, estos fueron medidos mediante un retículo de medición en micras que esta insertado dentro del ocular. Los granos de almidón fueron así fotografiados con una cámara digital SONY Cybershot de 12 megapixel, para su análisis posterior. Finalmente se utilizaron los trabajos de Guevara (1973), Reichert (1913); Loy (1990); Piperno (2006); Torrence & Barton 2006) y para confirmar las identificaciones y realizar los comentarios respectivos para cada muestra.

II. RESULTADOS

Se realizaron análisis microscópicos a partir de una muestra de 31 herramientas líticas, los cuales permitieron aislar cuatro tipos diferentes de granos de almidón. Las plantas identificadas a partir de estos análisis son: *Zea mays* "maíz", *Sonalum tuberosum* "papa", *Manihot esculenta* "yuca" y *Phaseolus vulgaris* "frijol". Se aislaron también algunos almidones dañados, los cuales no permiten realizar una buena identificación por estar dañados por el tiempo y procesos tafonómicos, quedan en nivel de no identificados. No se aislaron granos de almidón de plantas hispánicas, tampoco de frutas o de plantas altoandinas o de la selva.

Tabla Nº 1. Muestras líticas, procedencia y especies identificadas mediante granos de almidón

Nº Muestra	Procedencia	Especie Identificada	Medidas L x A (micras)	Observaciones
			10,4 x 9,1	almidón dañado
		No Identificado	11,7 x 9,1	almidón dañado
		Manihot esculenta	15,6 x 15,6	esférico con fisura típica hilum
1	Y/U: II Est. 5, Capa A, Locus 2W Bolsa 395-E	Solanum tuberosum	52 x 49,4	dañado y mala birrefringencia
			20,8 x 18,2	dañado y mala birrefringencia
			9,1 x 9,1	esférico y mala birrefringencia
			26 x 22,1	dañado y mala birrefringencia
			23,4 x 19,5	dañado por calor
			20,8 x 15,6	típico y conservado
		Solanum tuberosum	20,8 x 15,6	típico y conservado
2	Y/U: I Est. 006 Locus 03E Capa B Nº Casa 24 Bolsa 390	Solanum tuberosum		tejido epidérmico tubérculo
	Y/U: III Est 28 Locus 2W		41,6 x 26	elíptico, con lamelas y conservado
	2 líticos, uno negativo para almidones		23,4 x 19,5	dañado por calor
3		Solanum tuberosum	23,4 x 18,2	dañado por calor
			42,4 x 33,8	
		Oxalis tuberosa	18,2 x 18,2	típico forma trapezoidal
			18,2 x 15,6	poligonal parcialmente digerido
4	Y/U: II Est. 023 Lado W Capa B Locus 03W Bolsa 396	Zea mays	19,5 x 18,2	esférico
		Manihot esculenta	15,6 x 15,6	fisura típica en hilum y mala birrefringencia
		Zea mays	18,2 x 15,6	esférico, hilum hundido, dañado
5	Y/U: I Est. 6 Locus 2W	Solanum tuberosum	39 x 26	elíptico, birrefringencia y conservado
	Y/Unid. II Est. 5 Locus 2E			
6	02 líticos, uno negativo	Zea mays	18,2 x 18,2	esférico, birrefringencia
		Zea mays	15,6 x 13	faceteado, poligonal
7	Y/U: I Est. 6 Locus 2E (02 líticos, uno negativo)	Solanum tuberosum	23,4 x 18,2	dañado
8	Y/U: IV Est 16 Locus 2E	Zea mays	18,2 x 15,6	con hilum perforado
			16,9 x 16,9	esférico con hilum fisura típico
9	Y/U: I Est. 6 Locus 2W	Manihot esculenta	18,2 x 18,2	esférico, debil birrefringencia
		a.- Zea mays	16,9 x 16,9	faceteado, forma cuboide
		Manihot esculenta	18,2 x 18,2	dañado
		b. Manihot esculenta	18,2 x 18,2	esférico
		c.- Solanum tuberosum	20,8 x 15,6	dañado por calor
			10,9 x 7,8	gelatinizados
			26 x 18,2	gelatinizados
10	Y/U: III Est. 23 Locus 2E (4 líticos, positivos)	d.- Solanum tuberosum	26 x 15,6	en vista lateral
		a.- Solanum tuberosum	26 x 23,4	dañado por calor
		b.- Solanum tuberosum	23,4 x 13	gelatinizados
			23,4 x 23,4	
		Zea mays	11,7 x 11,7	esféricos con fisura en hilum
			24,7 x 18,2	gelatinizados
			20,8 x 14,3	gelatinizados
11	Y/U: III Est 23 Locus 1 (03 líticos)	c.- Solanum tuberosum	23,4 x 16,9	gelatinizados
		a.- Manihot esculenta	18,2 x 15,6	hemiesférico, fisura transversal
		Solanum tuberosum	46,8 x 28,6	típico, conservado
		b. NEGATIVO		
		c.- Phaseolus vulgaris	18,2 x 14,3	regular conservación
12	Y/ U: IV Est. 16 Locus 1W (04 líticos)	d.- Solanum tuberosum	36,4 x 20,8	elíptico alargado, conservado
13	O/U: V (G) Capa K Locus 014 Bolsa 383-E	No Identificado	20,8 x 18,2	dañado
14	Y/U: IC Est. 16 Locus 2W	Solanum tuberosum	28,6 x 19,5	dañado
		Solanum tuberosum		bordes fracturados
15	Y/ U: II Est. 5 Locus 3W	Zea mays	23,4 x 20,8	poligonal parcialmente digerido
16	Y/U: IV Et 16 Locus 3E	NEGATIVO		
		Manihot esculenta	15,6 x 14,3	digerido forma triangular
17	Y/U: IV Est. 16 Locus 4w	Solanum tuberosum	26 x 19,5	dañado por calor
		a.- NEGATIVO		
			20,8 x 18,2	poligonal, faceteado
18	Y/ U: IV Est 16 Locus 4E (02 líticos)	b.- Zea mays	20,8 x 18,2	poligonal cons fisura transversal
19	Y/U: I Est 6 Locus 2W	No Identificado	18,2 x 15,6	dañado por calor

Muestra 1: se trata de un lítico, que proviene de la muestra 1 (tabla 1), en este lítico se aislaron almidones de *Zea mays* “maíz” dañados, *Solanum tuberosum dañados* “papa”, y un grano del almidón de *Manihot esculenta* “yuca” conservado, esférico y con su fisura típica en el filum (figura 1A). Según esta variedad y calidad de almidones aislados, no hay evidencias de contacto directo del lítico con estos vegetales, posiblemente su presencia ahí sea accidental.

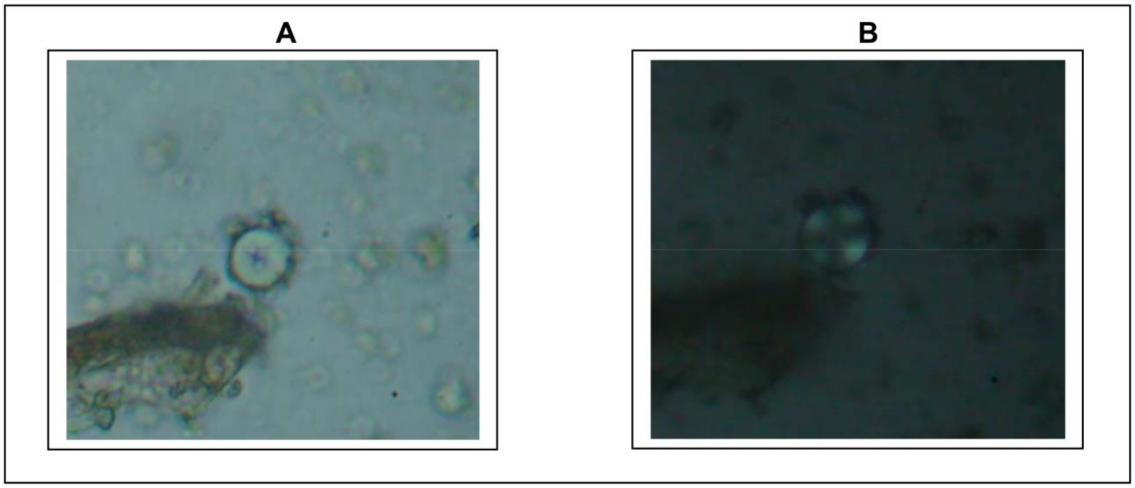

Figura Nº 1.- (A) Grano almidón de *Manihot esculenta* “yuca” mide 15,6 micras de largo por 15,6 micras de ancho, tomado con microscopio de luz simple a 400X, (B) el mismo grano anterior pero tomado con luz polarizada a 400X, se observa una tenue birrefringencia

Muestra 2: es una mano de moler donde se observa restos vegetales adheridos (posiblemente epidermis de tubérculo de papa), y tiene almidones dañados, pero también se lograron aislar dos granos de almidón conservados, típicos de “papa” con buena birrefringencia (figura 2B). Por las evidencias que tiene y la forma del lítico, es posible que haya sido utilizado para la preparación de “chuño” de “papa”. Procede de la muestra 2 (tabla 1)

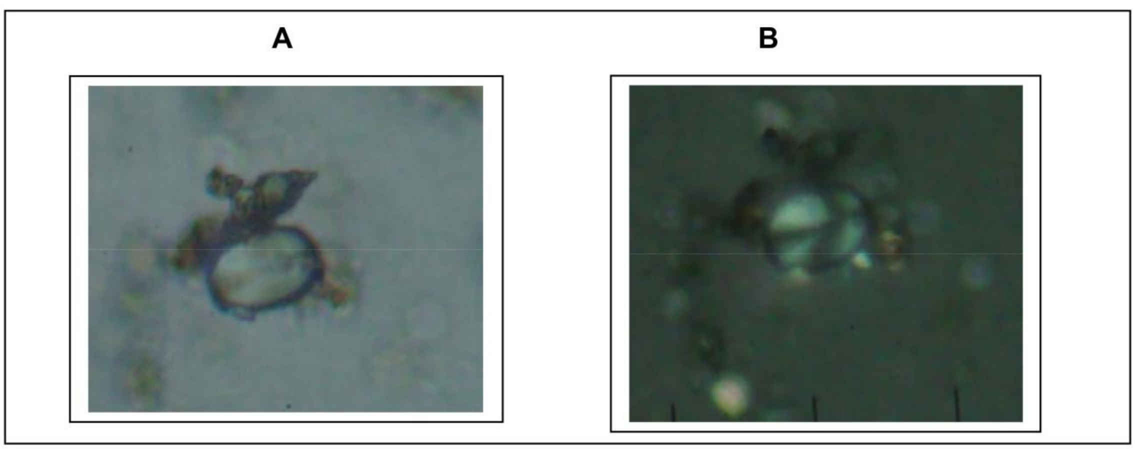

Figura Nº 2.- (A) grano de almidón de *Solanum tuberosum* “papa” miden 20,8 micras de largo por 15,6 micras de ancho, tomado con luz simple a 400X, (B) el mismo grano de almidón anterior tomado con luz polarizada, muestran una buena birrefringencia, tomado a 400X

Muestra 3: esta muestra tiene 2 líticos, uno de ellos dio negativo para granos de almidón, procede de la muestra 3 (tabla 1). El segundo lítico tuvo almidones de *Solanum tuberosum* “papa” conservados y típicos (figura 3B) y también almidones dañados por el calor. Estas evidencias indican que esta herramienta lítica tuvo contacto directo con tubérculos de papa.

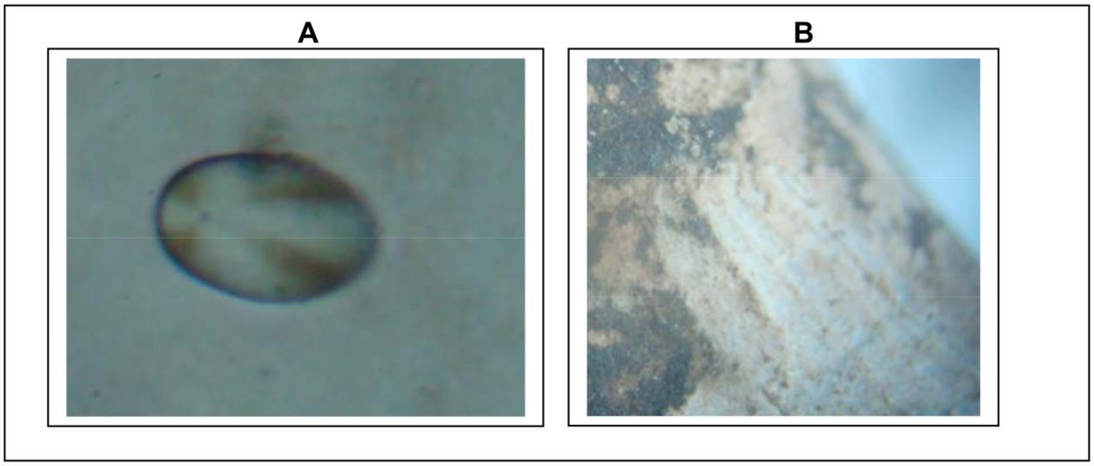

Figura Nº 3.- (A) grano de almidón de *Solanum tuberosum* “papa” mide41,6 micras de largo por 26 micras de ancho, tomado con microscopio de Luz Simple a 400X, se observa filum excéntrico y lamellas (B) superficie del lítico con sedimento amarillento del cual se extrajeron los granos de almidón de “papa”, tomado con microscopio estereoscopio de luz simple a 20X

Muestra 4: en este lítico que procede de la muestra 4 (tabla 1), se extrajeron dos tipos de almidones, *Oxalis tuberosa* “oca”, que aún estaban dentro de su matriz de tejido de reserva (figura 4A) y también grano de almidón de *Zea mays* “maíz”. Por la presencia de tejido de reserva se puede inferir que el lítico tuvo contacto directo con este tubérculo y también con maíz

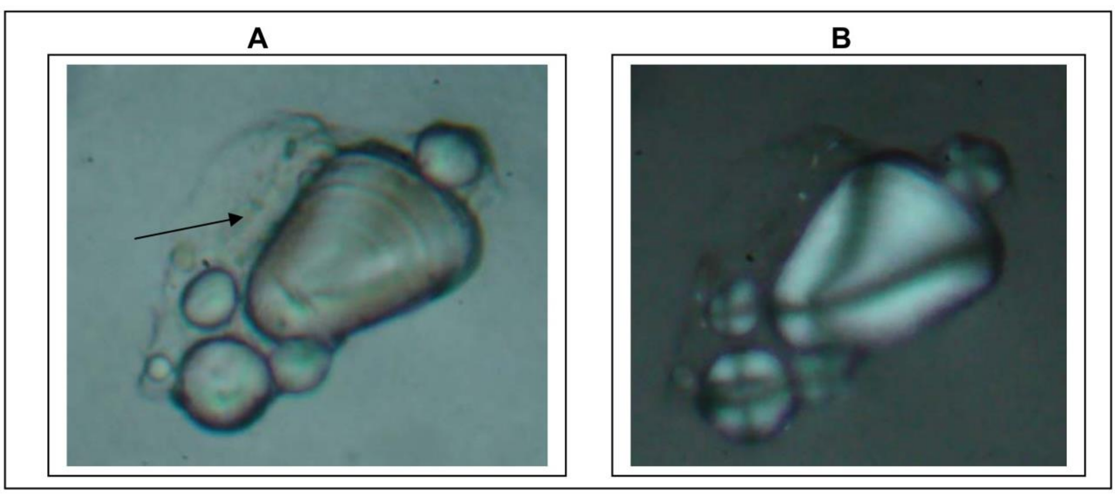

Figura Nº 3.- (A) granos de almidón de *Oxalis tuberosa* “oca” mide 41,6 micras de largo por 33,8 micras de ancho, tomado con microscopio de Luz Simple a 400X, se observa la matriz de reserva (flecha) (B) los mismos granos anteriores tomados con luz polarizada a 400X, se observa buena birrefringencia.

Muestra 5: en esta herramienta lítica que procede de la muestra 5 (tabla 1), se han aislado tres tipos de almidones: “yuca” pero dañado, con escasa birrefringencia, “maíz” dañado, de forma esférica, con hilum hundido (figura 5A). Un almidón de “papa” bien conservado, de forma típica y con buena birrefringencia (figura 5B). Por la variedad y estado de conservación de los almidones, es posible que llegaran por contaminación al lítico y no por contacto directo.

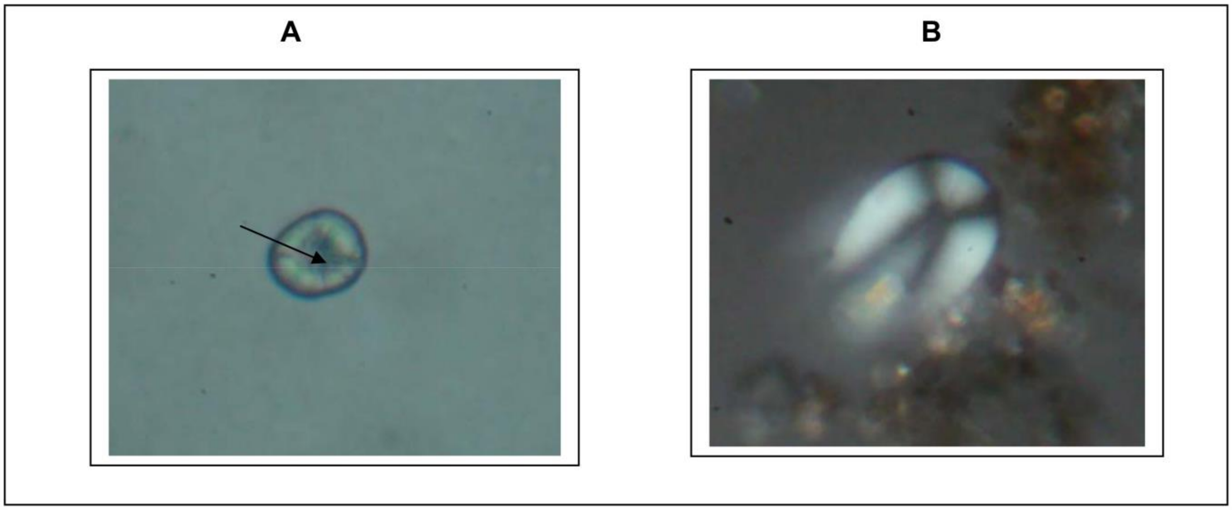

Figura Nº 5.- (A) grano de almidón de *Zea mays* “maíz” mide 18,2 micras de largo por 15,6 micras de ancho, tomado con luz simple a 400X, se observa el hilum hundido (flecha) (B) grano de almidón se *Solanum tuberosum* “papa”, mide 39 micras de largo por 26 micras de ancho tomado con luz polarizada, a 400X, se observa buena birrefringencia.

Muestra 6: esta muestra tiene dos líticos, que proceden de la muestra 6 (tabla 1). Uno de ellos dio negativo para granos de almidón, es un artefacto esférico, y el segundo es una lasca donde se logró aislar un grano de almidón de *Zea mays* “maíz” pero dañado, es esférico y por estas evidencias podemos concluir que esta lasca no tuvo contacto directo con los almidones, solo fue casual (contaminación)

Muestra 7.- en la muestra 7 (tabla 1), también hay dos líticos, pero uno de ellos no tuvo granos de almidón. El otro lítico tuvo en superficie un grano de almidón de “maíz” faceteado, poligonal, posiblemente de razas de maíz vítreas, y un grano de almidón de “papa” dañado. No hay evidencia que este lítico haya servido para procesar vegetales, por tanto los almidones llegaron ahí por contaminación.

Muestra 8: se trata de un lítico con sedimento blanquecino en superficie de la cual se aislaron granos de almidón de *Zea mays* “maíz”, uno de ellos con el hilum perforado. Procede de la muestra 8 (tabla 1). Posiblemente se trata de contaminación y no de contacto directo con la planta.

Muestra 9: es un lítico con sedimento amarillo-blanquecino situado en un extremo, con grietas y orificios de donde se aislaron granos de almidón típico de *Manihot esculenta* “yuca” (figura 6). La muestra 9 (tabla 1), posiblemente sirvió para procesar “yuca”.

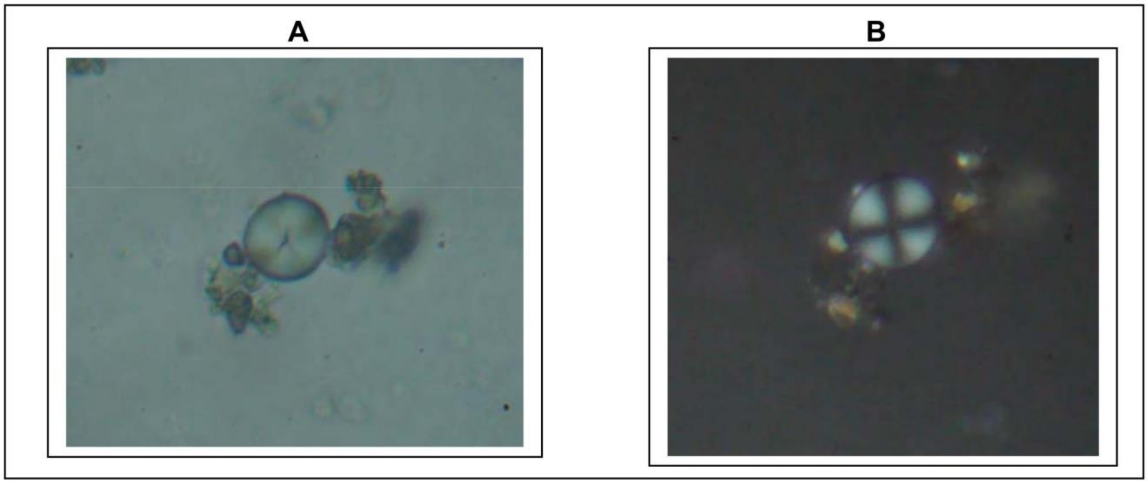

Figura Nº 6.- (A) grano de almidón de *Manihot esculenta* “yuca” mide 16,9 micras de largo por 16,9 micras de ancho, tomado con luz simple a 400X, se observa el típico hilum (B) el mismo grano de almidón anterior tomado con luz polarizada, a 400X.

Muestra 10: la muestra 10 (tabla 1), tiene 4 líticos. El primero (a) tuvo almidón de “maíz” (figura 7A) y de “yuca” dañado. Se trata de una lasca, por lo que es posible que los almidones llegaron ahí por contaminación. El segundo lítico (b) también es una lasca, de donde se aisló un grano de almidón de “yuca”. En el caso del tercer lítico (c) que también es una lasca, se aisló un grano de almidón de “papa” dañado, y en el caso del cuarto lítico (d) se aislaron granos de almidón de “papa” gelatinizados, producto de su procesamiento por calor (figura 7B). En este último lítico que es de forma redondeada, la parte activa tiene sedimento blanquecino de aquí se aislaron los almidones gelatinizados, por tanto es posible que hubiera tenido contacto directo, o también haya sido contaminado con algún alimento en base a este tubérculo.

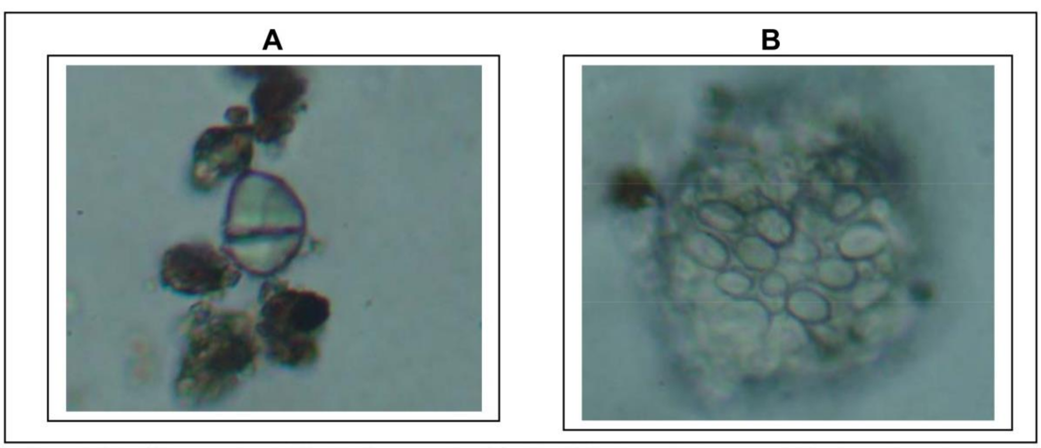

Figura Nº 6.- (A) grano de almidón de *Zea mays* “maíz” mide 18,2 micras de largo por 14,3 micras de ancho, tomado con luz simple a 400X, se observa fisura transversal (B) granos de almidón de *Sonalum tuberosum* “papa” gelatinizados formando una masa, tomado con microscopio de luz simple a 400X.

Muestra 11. Esta muestra (tabla 1) consta de tres líticos. El lítico A es de forma semilunar ligeramente aplanado y presenta granos de almidón de papa dañados, así como conglomerados gelatinizados, que posiblemente indicaría contacto directo del lítico con estos almidones (figura 7A). El lítico B es alargado, poroso, con evidencias de conglomerados de almidones dañados que podrían ser de papa y también se aislaron dos granos de almidón típicos de yuca (figura 7B), lo que implicaría un contacto directo con las raíces de esta planta. Para el caso del lítico C, es una lasca con bordes afilados, tiene en superficie un sedimento terroso de color negro, en algunas zonas bien impregnadas, dando la impresión de tener algo de grasa. De estos sedimentos se aislaron conglomerados de granos de almidón de papa, lo que supone contacto directo.

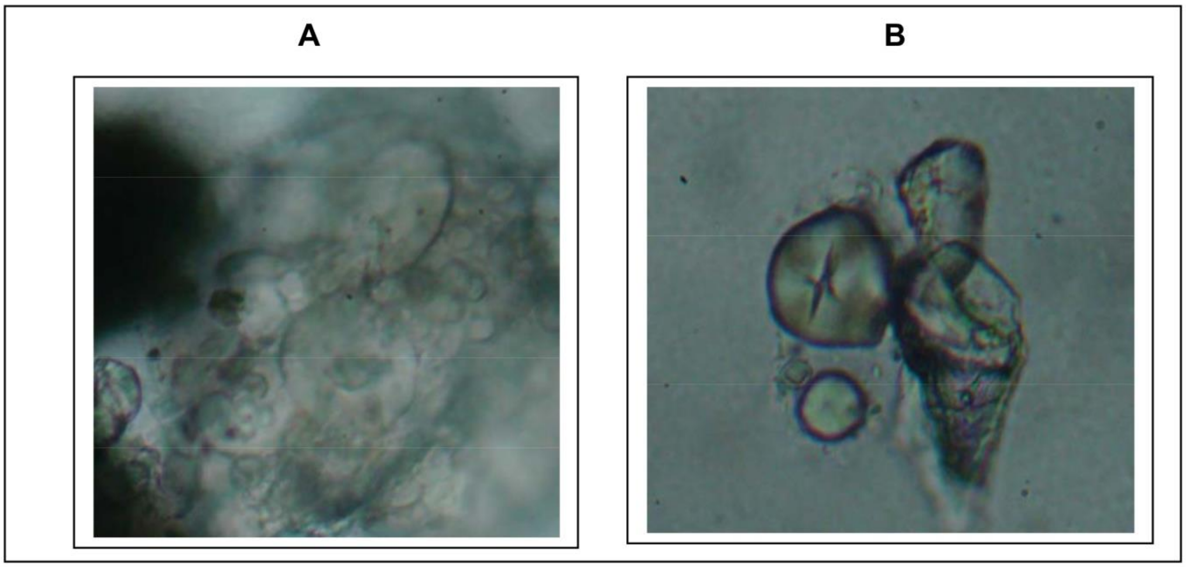

Figura Nº 7.- (A) granos de almidón de *Solanum tuberosum* “papa” gelatinizados, provienen del lítico A, tomado con luz simple a 400X, (B) granos de almidón de *Manihot esculenta* “yuca” mide 23,4 micras de largo por 23,4 micras de ancho, tomado con microscopio de luz simple a 400X, proviene del lítico B.

Muestra 12. La muestra 12 (tabla 1) consta de 4 líticos. El lítico A tuvo dos tipos de granos de almidón, uno de “yuca” y otro típico de “papa”. Los granos de almidón están conservados, pero es difícil proponer si hubo contacto directo. En el lítico B que es de obsidiana, no se aislaron granos de almidón, la superficie del lítico con tierra oscura. El lítico C es de obsidiana, tiene sedimento blanquecino, hay almidones dañados y un almidón de “frijol” *Phaseolus vulgaris* (Figura 8A). También es difícil proponer si hubo contacto directo con estos vegetales. En el caso del lítico D que también es de obsidiana, hay granos de almidón de papa aglomerados y uno bien conservado (figura 8B). Es posible que este lítico si tuvo contacto directo con los almidones de este tubérculo.

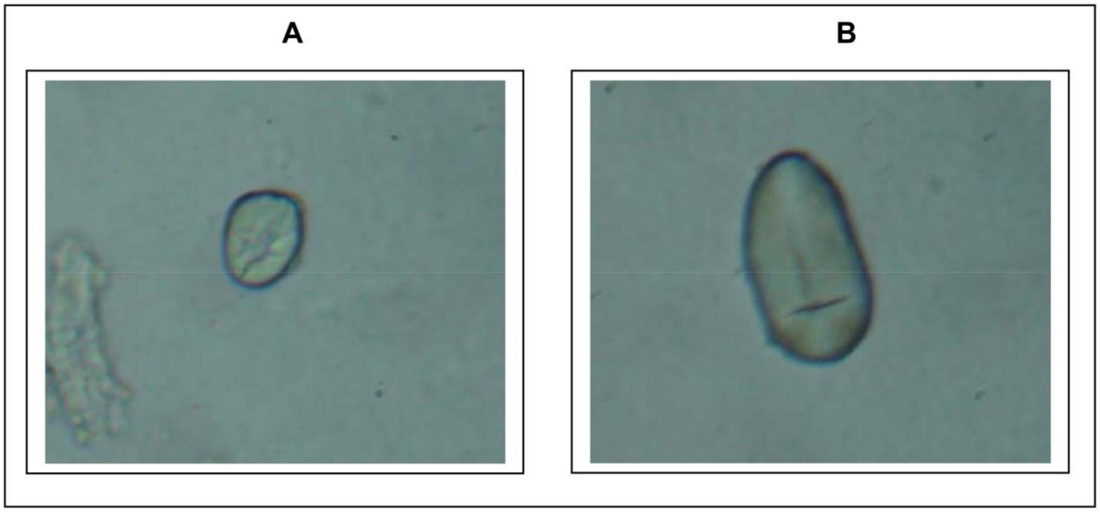

Figura Nº 8.- (A) grano de almidón de *Phaseolus vulgaris* “frijol” mide 18,2 micras de largo por 14,3 micras de ancho, provienen del lítico C, tomado con luz simple a 400X, (B) grano de almidón de *Solanum tuberosum* “papa” mide 36,4 micras de largo por 20,8 micras de ancho, tomado con microscopio de luz simple a 400X, proviene del lítico D.

Muestra 13. Esta muestra 13 (tabla 1), proviene del sector Obrajes, es un fragmento lítico que tuvo granos de almidón dañados, no identificables, por lo tanto el lítico se contamino accidentalmente con estos granos de almidón. No hay otros datos relevantes de esta muestra.

Muestra 14. Se trata de un lítico que tiene escaso sedimento en superficie, es de obsidiana, y solo se pudo aislar dos almidones de papa dañados, por lo tanto son contaminantes.

Muestra 15. Esta muestra 15 (tabla 1) tuvo un grano de almidón de papa dañado, con los bordes fracturados, y un grano de maíz poligonal, que posiblemente llegaron por contaminación al lítico.

Muestra 16. El lítico de la muestra 16 (tabla 1) contenía granos de almidón muy dañados, había escaso sedimentos en este lítico. Por lo tanto los resultados fueron negativos para esta muestra.

Muestra 17. La muestra 17 (tabla 1) es un lítico que presenta adherencias terrosas, no hay indicios de haber tenido contacto directo con vegetales almidonosos, los almidones aislados como yuca y papa dañado, son posiblemente contaminantes.

Muestra 18. Son dos líticos que corresponden a la muestra 18 (tabla 1), el lítico A es un fragmento de obsidiana, con escaso sedimento, y no tuvieron granos de almidón. El lítico B tuvo almidón de maíz de características poligonales (figura 9A), lo que esta asociado a razas de maíz vítreas, el otro grano de almidón de maíz también es poligonal con fisura transversal, posiblemente por molienda (figura 9B). Por lo tanto es posible que esta obsidiana haya servido para procesar maíz vítreo.

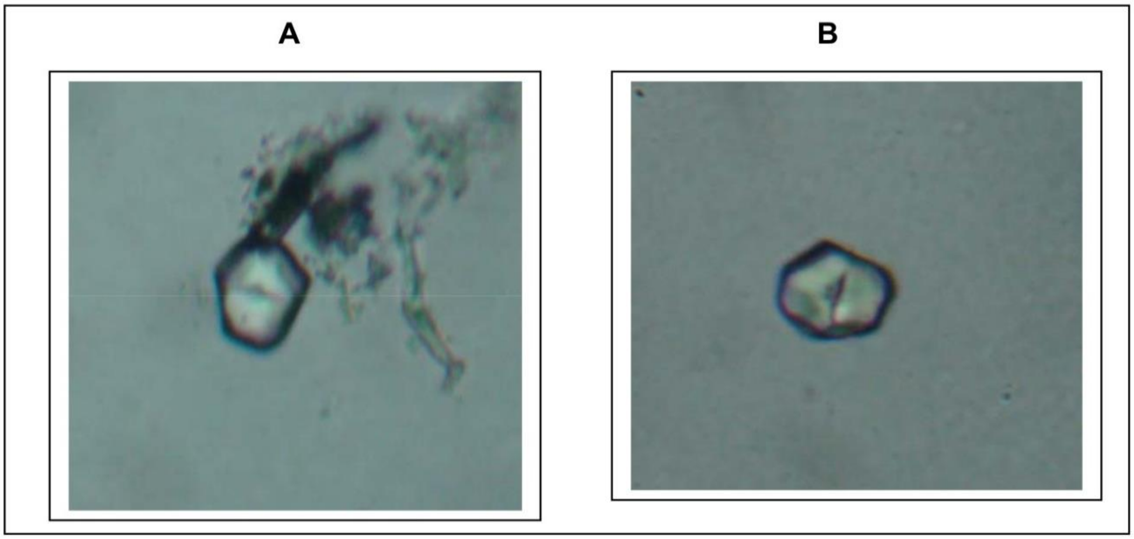

Figura Nº 9.- (A) grano de almidón de *Zea mays* “maíz” mide 20,8 micras de largo por 18,2 micras de ancho, provienen del lítico B, tomado con luz simple a 400X, (B) grano de almidón de *Zea mays* “maíz” mide 20,8 micras de largo por 18,2 micras de ancho, provienen del lítico B, tomado con luz simple a 400X

Muestra 19. La última muestra es la 19 (tabla 1), es un lítico alargado con tierra adherida en superficie, solo hay granos de almidón dañados no identificables y que son contaminantes. Es la última muestra de la colección analizada, en total 31 líticos.

III. COMENTARIOS

De las 31 muestras de líticos analizados, hay evidencias claras de utilidad lítico-planta, en la muestra 2, que es una mano de moler y que tuvo restos de epidermis de tubérculo de papa, así como granos de almidón típicos de este tubérculo, por lo que es posible que este lítico haya servido para preparar chuño. La muestra 2, también tiene evidencias de uso con tubérculos de papa, por la calidad de conservación de los granos de almidón aislados.

La muestra 4 es otro de los líticos con evidencias de uso directo del lítico con los almidones de las plantas identificadas. Aquí pudimos aislar varios granos de almidón de “oca” que incluso tenían matriz de parénquima reservante, las mismas características se pudieron observar para los granos de almidón de “maíz” que también tenían matriz reservante en su alrededor.

Otra muestra que tiene evidencias de contacto directo lítico-planta es la muestra 9. En la superficie de este lítico que tenía sedimento amarillo-blanquecino, se aislaron granos de almidón de “yuca” bien conservados, por lo tanto es posible el contacto directo del lítico con la planta.

La muestra 10, lítico D tiene evidencias de contacto directo del lítico con los almidones, porque se encontraron granos de almidón gelatinizados. La gelatinización es un proceso irreversible, que consiste en que una masa de almidones es sometida a calor para su cocción, lo cual causa que los granos de almidón de aglomeren formando racimos, lo cual es procuro de la temperatura. De este lítico se aislaron varios racimos de almidón gelatinizaos, por lo tanto es una clara evidencia de contacto directo del lítico con los almidones. Esta misma evidencia se encuentra en la muestra 11, lítico C, donde también se aislaron granos de almidón de papa gelatinizados.

Finalmente en la muestra 18, lítico B, tiene evidencias de contacto directo del lítico con el almidón de maíz, posiblemente de un maíz vítreo, por las características poligonales del almidón. En las otras muestras no hay evidencias de contacto directo entre el lítico y la planta, es decir que el lítico haya servido para procesar los vegetales identificados a partir de los almidones.

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Appendix G: Starch grain analysis (manual and sonicated washes) of stone tools from Yanawilka and the *obraje*, laboratory report by Vásquez and Tham (2015)

ARQUEOBIOS
CENTRO DE INVESTIGACIONES ARQUEOBIOLÓGICAS
Y PALEOECOLÓGICAS ANDINAS

INFORME FINAL

ANALISIS MICROSCOPICO DE ALMIDONES ANTIGUOS AISLADOS DE HERRAMIENTAS LÍTICAS DE YANAWILCA

Por

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TRUJILLO, ENERO 2015

I. MÉTODOS DE ANÁLISIS

En el presente estudio, se analizaron bajo microscopio de luz simple y luz polarizada, un total de 62 láminas cuyo montaje fue realizado a partir de un protocolo de extracción de almidones de herramientas de obsidiana realizado por Rob Q. Cuthrell.

Para la identificación de los granos de almidón, se utilizó una colección de referencia moderna de plantas comestibles, tanto tubérculos, raíces reservantes, cereales, frijoles de diversas especies y frutas nativas de la costa, sierra y selva. La mayoría de los granos de almidón fueron identificables porque conservaron su forma y características de la superficie, y algunos todavía exhibieron bien la típica cruz que produce cuando se pasa la luz polarizada.

Una vez identificados los granos de almidón, estos fueron medidos mediante un retículo de medición en micras que esta insertado dentro del ocular. Los datos obtenidos fueron ingresados en una hoja Excel para su procesamiento estadístico, como es el caso de las estadísticas descriptivas que se realizaron con los granos de almidón de *Zea mays* "maíz" que son los más abundantes en esta muestra.

Los granos de almidón fueron así fotografiados con una cámara digital SONY Cybershot de 12 megapixel, para su análisis posterior. Se utilizaron los trabajos de Guevara (1973), Reichert (1913); Loy (1990); Piperno (2006); Torrence & Barton 2006), para confirmar las identificaciones y realizar los comentarios respectivos para cada muestra.

Las plantas identificadas a partir del aislamiento de sus granos de almidón, se contrastan con imágenes de los almidones modernos

II. RESULTADOS

Se realizaron los análisis microscópicos a partir de una muestra de 62 láminas montadas, que provienen de igual número de herramientas líticas. Los resultados obtenidos permitieron aislar tipos diferentes de granos de almidón. Las plantas identificadas a partir de estos análisis son: *Zea mays* “maíz”, *Solanum tuberosum* “papa”, *Manihot esculenta* “yuca”, *Phaseolus sp.* “frijol”, cf. *Lupinus sp., Cucurbita cf. ficifolia* “chiclayo”, y unos almidones que se corresponden con la familia *Marantaceae*.

Algunos almidones aislados no pudieron ser identificados, por estar dañados por el tiempo y procesos tafonómicos, quedan en nivel de no identificados. No se aislaron granos de almidón de plantas hispánicas, tampoco de frutas o plantas de lagos o lagunas, igualmente no se pudieron visualizar fitolitos y otras estructuras microscópicas como diatomeas, por ejemplo.

La sistemática y taxonomía de las plantas identificadas a partir de los granos de almidón aislados e identificados es la siguiente:

División XVII: Angiospermae

Clase I: Dicotyledoneae

Familia Leguminosae	
Phaseolus sp.	“frijol”
cf. Lupinus sp.	“chocho”
Familia Euphorbiaceae	
Manihot esculenta	“yuca”
Familia Cucurbitaceae	
Cucurbita cf. ficifolia	“chiclayo”
Familia Solanaceae	
Solanum tuberosum	“papa”

Clase II: Monocotyledoneae

Familia Marantaceae	
Familia Poaceae	
Zea mays	“maíz”

Tabla Nº 1. Especies identificadas mediante granos de almidón, medidas y código de procedencia

Código	Taxa identificado	Medidas LxA (µ)	Observaciones
M-61A	*Zea mays*	20,8 x 18,2	Poliédrico
		15,6 x 13	Poliédrico
		18,2 x 15,6	Poliédrico
		13 x 10,4	Poliédrico
		15,6 x 14,3	Poliédrico
		16,9 x 16,9	Esférico
		13 x 13	Poliédrico
		13 x 13	Esférico
		23,4 x 20,8	Poliédrico
		13 x 13	Poliédrico
		14,3 x 13	Poliédrico
		18,2 x 18,2	Esférico
		18,2 x 14,3	Poliédrico
		16,9 x 15,6	Poliédrico
		20,8 x 18,2	Poliédrico
		15,6 x 13	Poliédrico
		15,6 x 13	Poliédrico
		23,4 x 18,2	Poliédrico
		18,2 x 18,2	Poliédrico
		23,4 x 22,1	Poliédrico
	Solanum tuberosum	18,2 x 15,6	
M-61B			Negativo
M-63A	*Zea mays*	7,8 x 7,8	Esférico
		13 x 10,4	Poliédrico
		10,4 x 10,4	Poliédrico
		13 x 10,4	Poliédrico
		15,6 x 13	Poliédrico
		22,1 x 20,8	Poliédrico
		16,9 x 11,7	Esférico
		15,6 x 10,4	Poliédrico
		13 x 10,4	Poliédrico
		15,6 x 13	Poliédrico
		15,6 x 13	Poliédrico
		18,2 x 16,9	Poliédrico
	Solanum tuberosum	20,8 x 13	
M-63B	*Zea mays*	15,6 x 15,6	Poliédrico
M-64A	*Zea mays*	20,8 x 20,8	Poliédrico
		18,2 x 15,6	Poliédrico
		13 x 13	Poliédrico
		16,9 x 13	Poliédrico
		11,7 x 10,4	Esférico
		19,5 x 14,3	Poliédrico
		15,6 x 13	Poliédrico
		13 x 10,4	Poliédrico
		13 x 13	Poliédrico
		18,2 x 18,2	Esférico
		14,3 x 13	Poliédrico
		18,2 x 13	Poliédrico
		19,2 x 18,2	Poliédrico

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Código	Taxa identificado	Medidas LxA (µ)	Observaciones
M-64A	*Zea mays*	20,8 x 20,8	Poliédrico
		15,6 x 15,6	Poliédrico
		18,2 x 18,2	Poliédrico
		15,6 x 14,3	Poliédrico
		15,6 x 13	Poliédrico
		13 x 11,7	Esférico
		18,2 x 15,6	Poliédrico
		18,2 x 18,2	Poliédrico
		10,4 x 10,4	Esférico
	cf. Lupinus sp.	18,2 x 9,1	
M-64B	*Zea mays*	14,3 x 14,3	Poliédrico
M-67A	*Zea mays*	11,7 x 10,4	Poliédrico
		13 x 13	Poliédrico
		18,2 x 13	Poliédrico
		10,4 x 10,4	Esférico
		13 x 13	Esférico
		18,2 x 13	Poliédrico
		15,6 x 15,6	Esférico
		18,2 x 13	Poliédrico
		18,2 x 13	Poliédrico
		19,5 x 19,5	Poliédrico
		15,6 x 14,3	Poliédrico
		14,3 x 13	Poliédrico
		15,6 x 15,6	Poliédrico
		18,2 x 15,6	Poliédrico
		15,6 x 15,6	Poliédrico
		13 x 13	Esférico
	Solanum tuberosum	13 x 10,4	
		15,6 x 13	
	Cucurbita cf. ficifolia	20,8 x 19,5	
		18,2 x 15,6	
		13 x 13	Hemiesférico
	Marantacea	15,6 x 13	
M-67B			Negativo
M-72A	*Zea mays*	13 x 13	Poliédrico
		15,6 x 13	Poliédrico
		15,6 x 15,6	Poliédrico
		13 x 13	Esférico
		18,2 x 13	Poliédrico
		18,2 x 15,6	Poliédrico
		15,6 x 11,7	Poliédrico
		15,6 x 13	Poliédrico
		16,9 x 15,6	Poliédrico
		18,2 x 16,9	Poliédrico
		18,2 x 18,2	Esférico
		15,6 x 13	Poliédrico
		16,9 x 14,3	Poliédrico
		18,2 x 13	Poliédrico
		15,6 x 13	Poliédrico
		15,6 x 13	Poliédrico

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Código	Taxa identificado	Medidas LxA (µ)	Observaciones
M-72A	*Zea mays*	15,6 x 13	Esférico
	Solanum tuberosum	20,8 x 13	Digerido, polarización positiva
		14,3 x 11,7	
M-72B	*Zea mays*	13 x 13	Poliédrico
M-73A	*Zea mays*	10,4 x 10,4	Esférico
		18,2 x 15,6	Poliédrico
		18,2 x 15,6	Poliédrico
		15,6 x 14,3	Poliédrico
		18,2 x 15,6	Poliédrico
		18,2 x 13	Poliédrico
		18,2 x 15,6	Poliédrico
		18,2 x 16,9	Poliédrico
	Solanum tuberosum	19,5 x 13	
M-73B			Negativo
M-75A	*Zea mays*	15,6 x 13	Poliédrico
		15,6 x 13	Esférico
		18,2 x 14,3	Poliédrico
		15,6 x 13	Poliédrico
		16,9 x 15,9	Poliédrico
		23,4 x 22,1	Poliédrico
		13 x 11,7	Poliédrico
		18,2 x 15,6	Poliédrico
		18,2 x 15,6	Poliédrico
		18,2 x 18,2	Poliédrico
		18,2 x 13	Poliédrico
		14,3 x 14,3	Esférico
		18,2 x 15,6	Poliédrico
		18,2 x 16,9	Poliédrico
		15,6 x 15,6	Poliédrico
		15,6 x 15,6	Esférico
	Marantaceae	18,2 x 13	
M-75B	*Zea mays*	10,4 x 10,4	Esférico
M-81A	*Zea mays*	11,7 x 11,7	Poliédrico
		18,2 x 13	Poliédrico
		10,4 x 9,1	Poliédrico
		13 x 13	Poliédrico
		15,6 x 15,6	Poliédrico
M-81B			Negativo
M-89A	*Zea mays*	14,3 x 13	Poliédrico
		15,6 x 13	Poliédrico
		23,4 x 23,4	Poliédrico
		18,2 x 15,6	Poliédrico
		23,4 x 18,2	Poliédrico
		15,6 x 13	Poliédrico
		13 x 13	Poliédrico
		18,2 x 18,2	Poliédrico
		15,6 x 13	Poliédrico
	Cucurbita cf. ficifolia	20,8 x 13	Hemiesférico
	Manihot esculenta	18,2 x 14,3	Poliédrico
M-89B	No Identificado	13 x 10,4	

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Código	Taxa identificado	Medidas LxA (µ)	Observaciones
M-91A	*Zea mays*	13 x 13	Esférico
		13 x 10,4	Esférico
		16,9 x 13	Poliédrico
		18,2 x 18,2	Poliédrico
		18,2 x 18,2	Poliédrico
		15,6 x 13	Poliédrico
		18,2 x 15,6	Poliédrico
		18,2 x 15,6	Poliédrico
	Solanum tuberosum	15,6 x 13	Elíptico
M-91B	*Phaseolus sp.*	26 x 26	
	Zea mays	20,8 x 19,5	Poliédrico
		18,2 x 15,6	Poliédrico
		14,3 x 13	Poliédrico
M-92A	*Zea mays*	18,2 x 15,6	Poliédrico
		19,5 x 18,2	Poliédrico
		15,6 x 15,6	Poliédrico
		18,8 x 15,6	Poliédrico
		14,3 x 14,3	Poliédrico
		13 x 13	Esférico
		18,2 x 15,6	Poliédrico
		18,2 x 15,6	Poliédrico
		20,8 x 13	
		15,6 x 15,6	Poliédrico
		15,6 x 14,3	Poliédrico
		15,6 x 10,4	Hemiesférico
		15,6 x 13	Poliédrico
		18,2 x 15,6	Poliédrico
		18,2 x 16,9	Poliédrico
	Solanum tuberosum	13 x 11,7	Esférico
M-92B			Negativo
M-94A	*Zea mays*	18,2 x 15,6	Poliédrico
		16,9 x 15,6	Poliédrico
		13 x 13	Poliédrico
		18,2 x 14,3	Poliédrico
		19,5 x18,2	Poliédrico
M-94B			Negativo
M-95A	*Zea mays*	18,2 x 15,6	Oblongo
		16,9 x 14,3	Poliédrico
		23,4 x 23,4	Poliédrico
		18,2 x 14,3	Poliédrico
		14,3 x 13	Poliédrico
		14,3 x 13	Poliédrico
		13 x 13	Poliédrico
		10,4 x 10,4	Esférico
M-95B	*Zea mays*	18,2 x 13	Poliédrico
		18,2 x 15,6	Poliédrico
M-97A	*Zea mays*	15,6 x 11,7	Poliédrico
		13 x 11,7	Poliédrico
M-97B	*Zea mays*	11,7 x 10,4	Poliédrico
		16,9 x 14,3	Poliédrico
		14,3 x 14,3	Poliédrico

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Código	Taxa identificado	Medidas LxA (µ)	Observaciones
M-99A	*Zea mays*	15,6 x 10,4	Poliédrico
		18,2 x 13	Poliédrico
		15,6 x 15,6	Poliédrico
		11,7 x 11,7	Poliédrico
		14,3 x 14,3	Poliédrico
		15,6 x 15,6	Poliédrico
		13 x 13	Poliédrico
		15,6 x 15,6	Poliédrico
		19,5 x 18,2	Poliédrico
		18,2 x 16,9	Poliédrico
		11,7 x 11,7	Esférico
		19,5 x 18,2	Poliédrico
	Solanum tuberosum	13 x 13	Esférico
M-99B			Negativo
M-103A	*Zea mays*	18,2 x 15,6	Poliédrico
		11,7 x 11,7	Poliédrico
M-103B	*Zea mays*	15,6 x 13	Poliédrico
		15,6 x 13	Poliédrico
		11,7 x 11,7	Esférico
		18,2 x 18,2	Poliédrico
	Solanum tuberosum	26 x 15,6	Vista lateral
M-106A	*Zea mays*	13 x 10,4	Poliédrico
		15,6 x 15,6	Esférico
		13 x 10,4	Esférico
		13 x 13	Poliédrico
		13 x 13	**Poliédrico**
		13 x 11,7	Poliédrico
		15,6 x 13	Poliédrico
		18,2 x 18,2	Poliédrico
M-106B			Negativo
M-107A	*Zea mays*	20,8 x 18,2	Poliédrico
		14,3 x 14,3	Poliédrico
		16,9 x 15,6	Poliédrico
		15,6 x 15,6	Poliédrico
		16,9 x 11,7	Poliédrico
		23,6 x 16,9	Poliédrico
	Solanum tuberosum	15,6 x 11,7	Elíptico
	Manihot esculenta	15,6 x 15,6	Hemiesférico
M-107B	*Zea mays*	13 x 13	Poliédrico
		14,3 11,7	Poliédrico
M-108A	*Zea mays*	18,2 x 14,3	Poliédrico
		15,6 x 14,3	Poliédrico
		13 x 13	Esférico
		15,6 x 15,6	Poliédrico
		20,8 x 15,6	Poliédrico
		23,4 x 20,8	Poliédrico
		13 x 11,7	Esférico
		18,2 x 16,9	Poliédrico
		13 x 13	Poliédrico
		10,4 x 10,4	Poliédrico

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Código	Taxa identificado	Medidas LxA (μ)	Observaciones
M-108A	*Zea mays*	13 x 13	Poliédrico
	Cucurbita cf. ficifolia	20,8 x 13	Digerido bordes
		19,5 x 13	Hemiesférico
		15,6 x 10,4	Hemiesférico
M-108B			Negativo
M-109A	*Zea mays*	15,6 x 14,3	Poliédrico
		15,6 x 15,6	**Poliédrico**
		26 x 20,8	Poliédrico
		18,2 x 15,6	Poliédrico
		15,6 x 13	Poliédrico
		20,8 x 20,8	Poliédrico
	Manihot sculenta	18,2 x 18,2	Hemiesférico
M-109B	*Zea mays*	13 x 13	Poliédrico
		20,8 x 20,8	Poliédrico
M-114A	*Zea mays*	23,4 x 18,2	Poliédrico
		13 x 13	Poliédrico
		15,6 x 13	Poliédrico
M-114B			Negativo
M-116A	*Zea mays*	13 x 13	Poliédrico
		13 x 13	Esférico
		14,3 x 13	Poliédrico
		13 x 13	**Poliédrico**
M-116B	*Zea mays*	10,4 x 10,4	Esférico
		18,4 x 18,4	Poliédrico
		15,6 x 10,4	Poliédrico
M-117A	*Zea mays*	15,6 x 14,3	Poliédrico
		13 x 13	Esférico
		15,6 x 15,6	Poliédrico
		15,6 x 15,6	Poliédrico
		15,6 x 15,6	Poliédrico
		18,2 x 13	Poliédrico
M-117B	*Zea mays*	13 x 13	Poliédrico
		13 x 13	Poliédrico
		13 x 10,4	Poliédrico
		18,2 x 18,2	Poliédrico
	Marantaceae	14,3 x 11,7	
M-119A	*Zea mays*	13 x 10,4	Poliédrico
		15,6 x 13	Poliédrico
		18,2 x 16,9	Poliédrico
M-119B	*Zea mays*	13 x 10,4	Poliédrico
		11,7 x 11,7	Esférico
M-121A	*Zea mays*	20,8 x 19,5	Poliédrico
		14,3 x 14,3	Poliédrico
		15,6 x 13	Digerido - Esférico
		15,6 x 14,3	Poliédrico
		19,5 x 15,6	Poliédrico
		15,6 x 14,3	Poliédrico
		15,6 x 15,6	Poliédrico
		18,2 x 15,6	Poliédrico
		15,6 x 13	Poliédrico

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Código	Taxa identificado	Medidas LxA (µ)	Observaciones
M-121A	*Zea mays*	15,6 x 13	Poliédrico
		16,9 x 13	Poliédrico
	No Identificado	20,3 x 10,4	Hemiesférico
	Cucurbita cf. ficifolia	15,6 x 13	Hemiesférico
M-121B			Negativo
M-132A	*Zea mays*	10,4 x 10,4	Esférico
		13 x 11,7	Esférico
		15,6 x 14,3	Esférico
		11,7 x 11,7	Esférico
		13 x 13	Esférico
		18,2 x 15,6	Poliédrico
		11,7 x 11,7	**Poliédrico**
		15,6 x 13	Poliédrico
		18,2 x 16,9	Poliédrico
	Solanum tuberosum	31,2 x 20,8	Elíptico
	No Identificado	18,2 x 10,4	Hemiesférico
M-132B	*Zea mays*	18,2 x 10,4	Poliédrico
M-133A	*Zea mays*	13 x 10,4	Poliédrico
		15,6 x 10,4	Poliédrico
		13 x 10,4	Poliédrico
		15,6 x 13	Poliédrico
		15,6 x 15,6	Poliédrico
	No Identificado	13 x 13	Hemiesférico
M-133B	*Zea mays*	20,8 x 19,5	Poliédrico
		18,2 x 15,6	Poliédrico
		15,6 x 13	Poliédrico
		15,6 x 15,6	Poliédrico
	No Identificado	20,8 x 15,6	
		20,8 x 15,6	
M-134A	*Zea mays*	20,8 x 13	Poliédrico
		14,3 x 13	Poliédrico
		14,3 x 13	Poliédrico
		15,6 x 14,3	Poliédrico
		15,6 x 10,4	Poliédrico
		13 x 13	Poliédrico
		23,4 x 20,8	Poliédrico
		14,3 x 14,3	Poliédrico
		23,4 x 23,4	Poliédrico
	Manihot esculenta	14,3 x 13	Hemiesférico
		14,3 x 14,3	Esférico
M-134B			Negativo
M-136A	*Zea mays*	20,8 x 20,8	Poliédrico
		16,9 x 15,6	Poliédrico
		23,4 x 20,8	Poliédrico
		20,8 x 20,8	Poliédrico
		19,5 x 18,2	Poliédrico
		16,9 x 15,6	Poliédrico
		18,2 x 18,2	Poliédrico
		20,8 x 20,8	Poliédrico
		26 x 20,8	Poliédrico

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Código	Taxa identificado	Medidas LxA (μ)	Observaciones
M-136A	*Zea mays*	26 x 20,8	Poliédrico
		20,8 x 18,2	Poliédrico
		26 x 20,8	Poliédrico
		15,6 x 13	Poliédrico
		18,2 x 15,6	**Poliédrico**
		18,2 x 18,2	Poliédrico
		20,8 x 18,2	Poliédrico
		23,4 x 20,8	Poliédrico
		18,2 x 15,6	Poliédrico
	Manihot esculenta	16,9 x 15,6	
	Marantaceae	20,8 x 13	
		20,8 x 15,6	
		18,2 x 13	
	Solanum tuberosum	20,8 x 15,6	
M-136B	*Zea mays*	18,2 x 18,2	Poliédrico
		13 x 10,4	Poliédrico
		18,2 x 15,6	Poliédrico
		20,8 x 15,6	Poliédrico
		20,8 x 15,6	Poliédrico
		26 x 20,8	Poliédrico
M-141A	*Zea mays*	16,9 x 15,6	Poliédrico
		15,6 x 15,6	Poliédrico
		18,2 x 18,2	Poliédrico
		18,2 x 18,2	Esférico
		18,2 x 18,2	Esférico
		20,8 x 20,8	Poliédrico
		20,8 x 20,8	Poliédrico
		20,8 x 15,6	Esférico
		15,6 x 15,6	**Poliédrico**
		18,2 x 18,2	Poliédrico
		20,8 x 15,6	Poliédrico
		15,6 x 15,6	Poliédrico
		18,2 x 15,6	Poliédrico
	Solanum tuberosum	18,2 x 13	
	No Identificado	20,8 x 13	
M-141B	*Zea mays*	18,2 x 15,6	Poliédrico
M-142A	*Zea mays*	14,3 x 13	Poliédrico
		15,6 x 15,6	Esférico
		15,6 x 13	Poliédrico
		20,8 x 18,2	Poliédrico
		13 x 13	Poliédrico
		18,2 x 16,9	Poliédrico
		15,6 x 13	Poliédrico
		15,6 x 15,6	Poliédrico
		15,6 x 15,6	Poliédrico
		15,6 x 15,6	Poliédrico
		18,2 x 13	Poliédrico
		15,6 x 14,3	Poliédrico
		18,2 x 18,2	Poliédrico
		18,2 x 14,3	Poliédrico

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Código	Taxa identificado	Medidas LxA (µ)	Observaciones
	Manihot esculenta	13 x 11,7	Hemiesférico
		13 x 13	Esférico
		18,2 x 15,6	Hemiesférico
	Marantaceae	18,2 x 10,11	
	Cucurbita cf. ficifolia	14,3 x 14,3	
M-142B	*Zea mays*	13 x 13	Poliédrico
		15,6 x 13	Poliédrico

Estadísticas Descriptivas de Granos de Almidón de *Zea mays*

De las 62 láminas analizadas, hemos podido identificar que en 48 láminas, es decir 48 herramientas líticas se pudo aislar e identificar granos de almidón de *Zea mays* “maíz”. Los granos de almidón de “maíz” identificados, se caracterizan por tener dos formas características, una de ellas es la forma poliédrica y la otra es de forma esférica.

Para los granos de almidón poliédricos, estos han podido ser aislados e identificados de un total de 47 láminas cuyos códigos se pueden observar en la tabla 1. En el caso de los granos de almidón esféricos, estos se presentan en menos frecuencias, en total de 23 láminas.

Los granos de almidón de formas poliédricas, exhiben una serie de fisuras en el hilum, que según los especialistas, son producto de la molienda (milling and grinding), y es lógico porque se trata de herramientas líticas que están procesando las semillas de este cultivo.

En varios casos, como aquellos de los códigos M-61A, M-63A, M-67A, M-72A, M-73A, M-91A, M-92A, M-103B, M107A, M-132A, M-136A y M-141A, se encontraron conjuntamente con granos de almidón de *Solanum tuberosum* “papa”. En otros casos, los granos de almidón de “maíz” estaban conjuntamente con granos de almidón de una cucurbitaceae, como es *Cucurbita cf. ficifolia*, así tenemos en los códigos M-67A, M-89A, M-108A, M-121A y M-142A

En un caso y en el código M-91B, se encontraron asociados con un grano de almidón de *Phaseolus sp.* “frijol”. En seis casos, se encontraron asociados con granos de almidón de *Manihot esculenta* “yuca”, es códigos son: M-89A, M-107A, M-109A, M-134A, M-136A y M142A. Finalmente en cinco casos se han encontrado conjuntamente con granos de almidón de una *Marantaceae*, los códigos donde coincidieron son: M-67A, M-75A, M-117B, M-136A y M-142A.

Tabla 2.- Estadísticas descriptivas para los granos de almidón poliédricos de *Zea mays* - Largo

Poliédrico Largo (micras)	
Media	16,95
Mediana	16,9
Moda	15,6
Desviación estándar	3,03
Coeficiente Variacion	17,87
Varianza de la muestra	9,17
Rango	15,6
Mínimo	10,4
Máximo	26
N	294
Nivel de confianza(95,0%)	0,348

Tabla 3.- Estadísticas descriptivas para los granos de almidón poliédricos de *Zea mays* - Ancho

Poliédrico Ancho (micras)	
Media	15,02
Mediana	14,3
Moda	13
Desviación estándar	2,89
Coeficiente de Variación	19,13
Varianza de la muestra	8,34
Rango	14,3
Mínimo	9,1
Máximo	23,4
N	294
Nivel de confianza(95,0%)	0,331

Figura 1.- Distribución del largo (micras) de los granos de almidón poliédrico de *Zea mays*

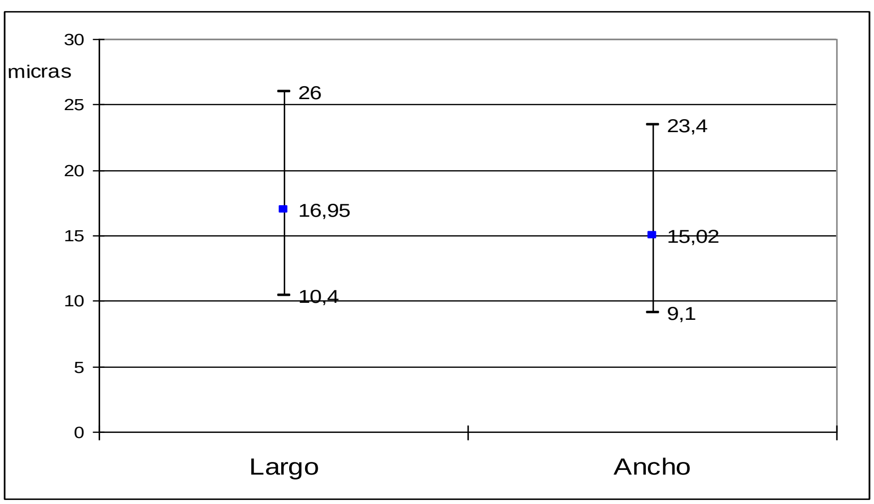


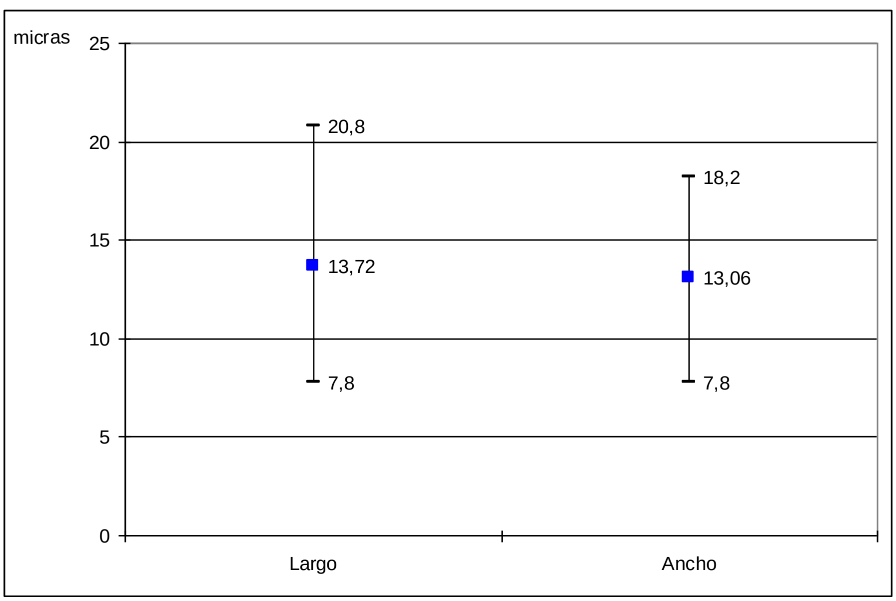
Tabla 4.- Estadísticas descriptivas para los granos de almidón esféricos de *Zea mays* - Largo

Esférico Largo (micras)	
Media	13,72
Mediana	13
Moda	13
Desviación estándar	2,75
Coeficiente de Variación	20,04
Varianza de la muestra	7,57
Rango	13
Mínimo	7,8
Máximo	20,8
N	45
Nivel de confianza(95,0%)	0,827

Tabla 5.- Estadísticas descriptivas para los granos de almidón esféricos de *Zea mays* - Ancho

Esférico Ancho (micras)	
Media	13,06
Mediana	13
Moda	13
Desviación estándar	2,55
Coeficiente de Variación	19,52
Varianza de la muestra	6,53
Rango	10,4
Mínimo	7,8
Máximo	18,2
N	45
Nivel de confianza(95,0%)	0,767

Figura 2.- Distribución del largo (micras) de los granos de almidón esférico de *Zea mays*



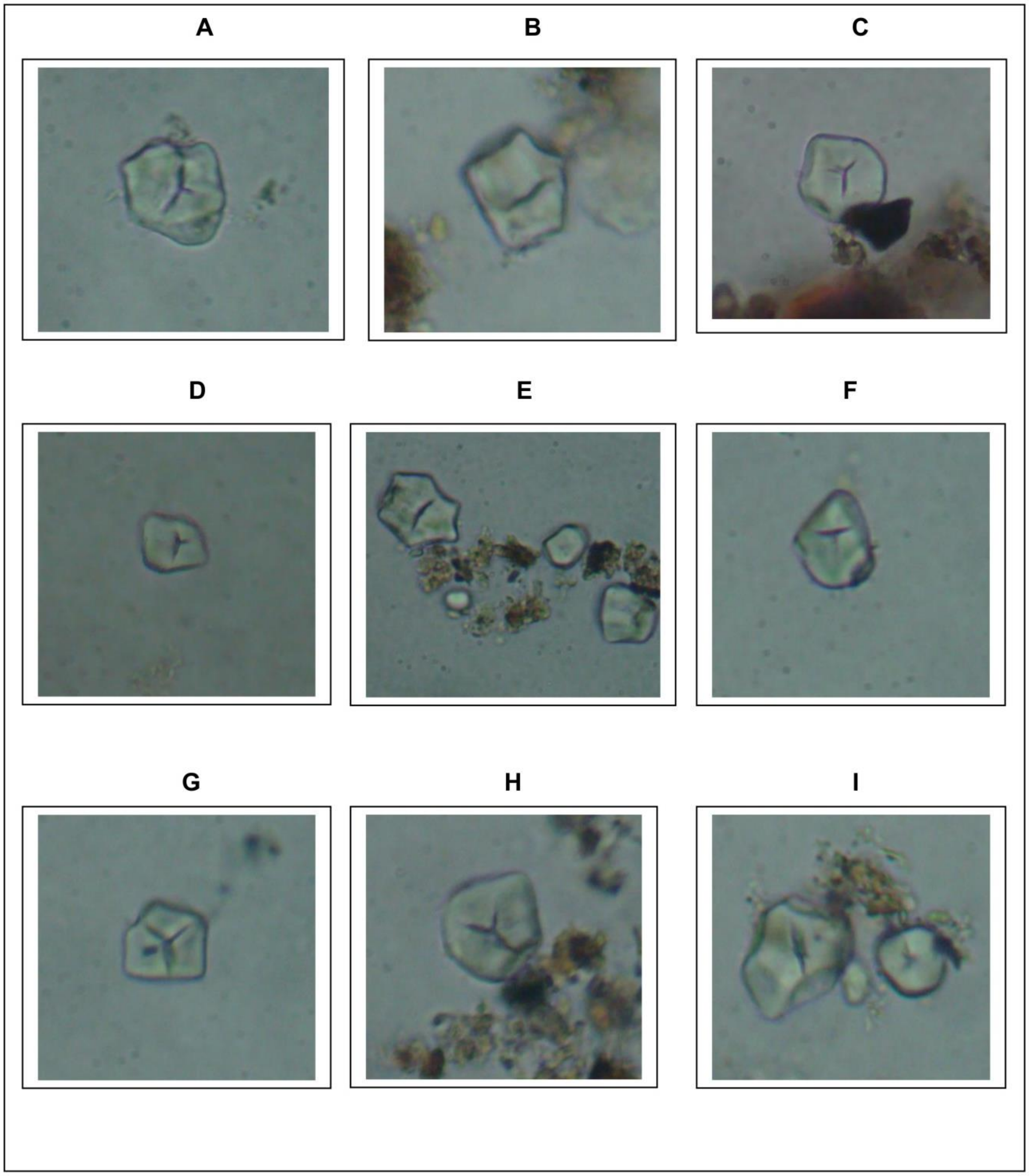


Figura Nº 1.- Granos de almidón de *Zea mays* "maíz" de forma poliédrica (A) procede de M-63A, (B) y (C) provienen de M-64A, (D) proviene de M-67A, (E) procede de M-75A, (F) procede de M-91A, (G) procede de M-92A, (H) procede de M-95A y (I) procede de M-104A. Capturas tomadas con microscopio de luz simple a 400X

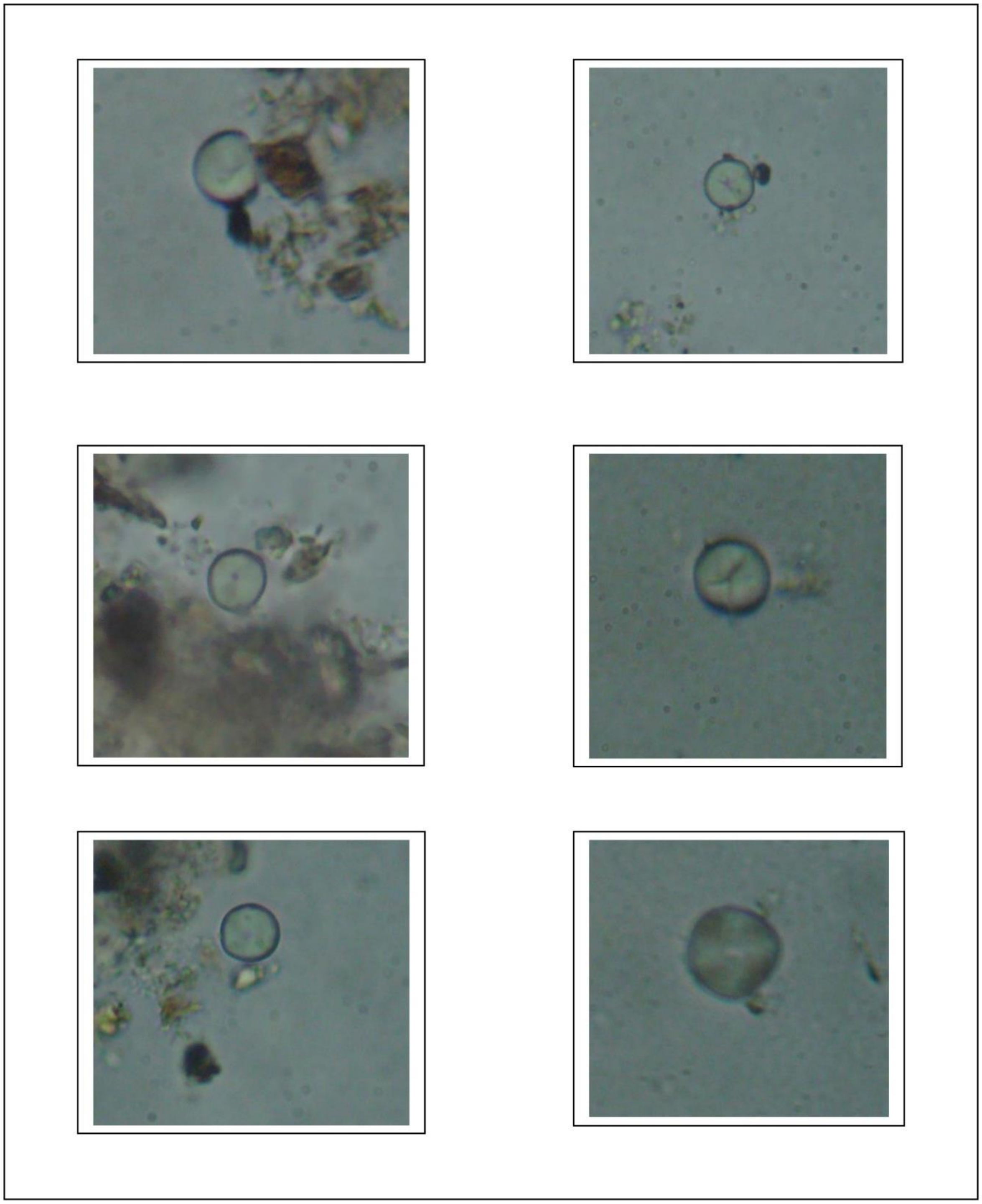


Figura Nº 2.- Granos de almidón de *Zea mays* "maíz" de forma esférica (A) procede de M-91A, (B) procede de M-95A (C) proviene de M-99A, (D) proviene de M-108A, (E) procede de M-116A, (F) procede de M-141. Capturas tomadas con microscopio de luz simple a 400X.

Solanum tuberosum “papa”

Figura 3.- (A) Grano de almidón de *Solanum tuberosum* “papa”, proviene de M-141A, (B) el mismo grano anterior captura con luz polarizada a 400X

Manihot esculenta “yuca”

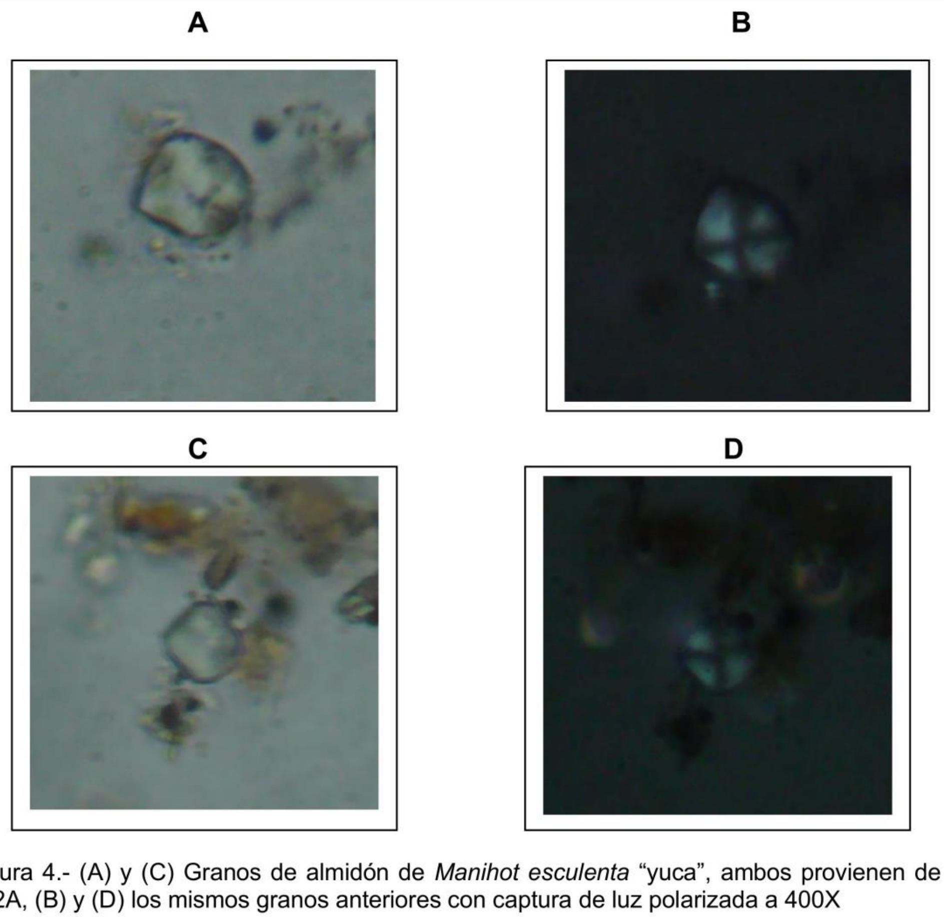


Figura 4.- (A) y (C) Granos de almidón de *Manihot esculenta* “yuca”, ambos provienen de M-142A, (B) y (D) los mismos granos anteriores con captura de luz polarizada a 400X

Cucurbita cf. ficifolia “chiclayo”

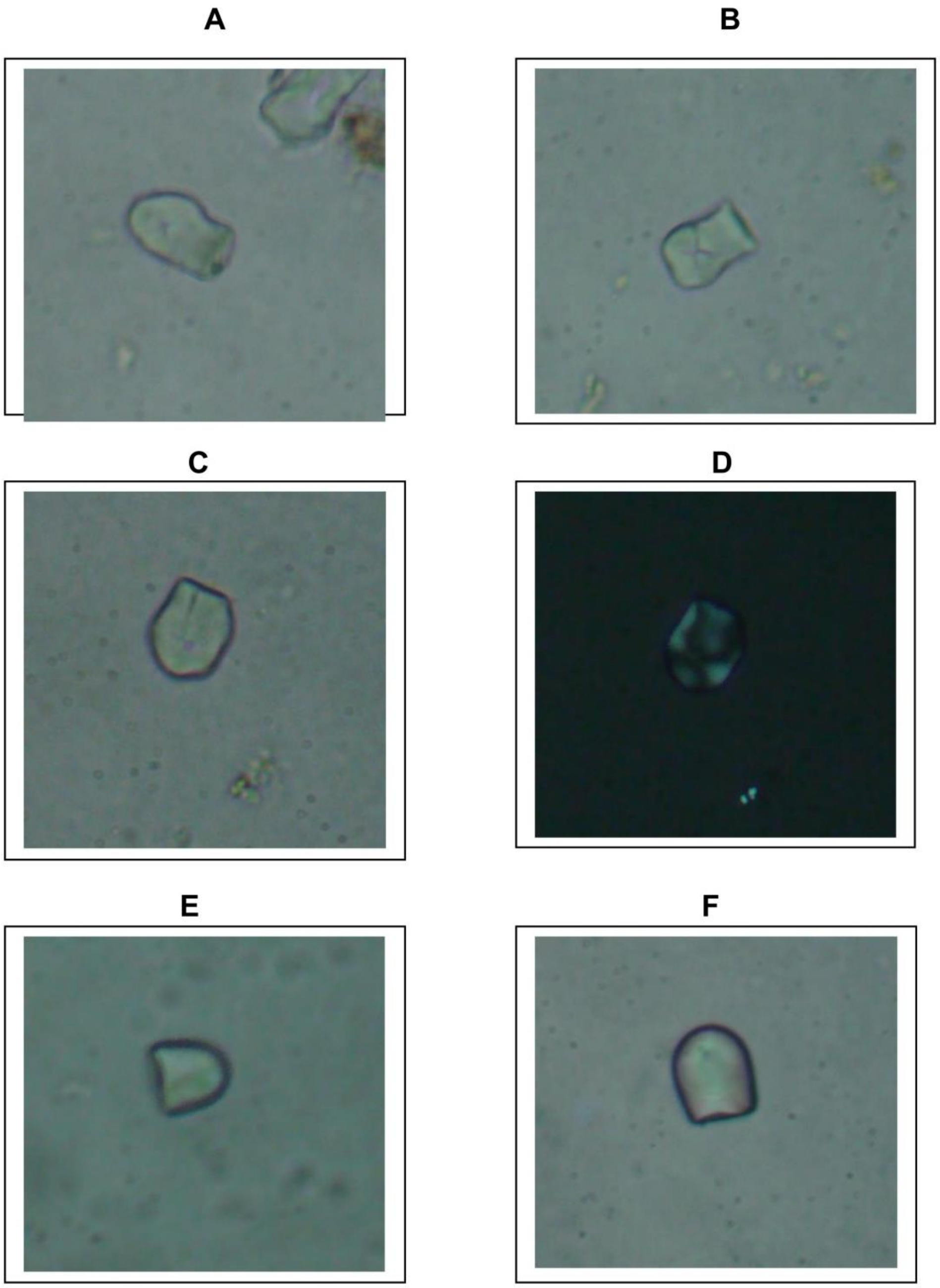


Figura 5.- (A) y (B) Granos de almidón de *Cucurbita cf. ficifolia* “chiclayo”, ambos provienen de M-108A, (C) grano de almidón de *Cucurbita cf. ficifolia* proviene de M-121ª, captura con microscopio de luz simple a 400X, (D) el mismo grano de almidón anterior, con captura de luz polarizada a 400X, (E) y (F) Granos de almidón de *Cucurbita ficifolia* “chiclayo” modernos, miden 18,2 micras de largo por 15,6 micras de ancho, capturas con microscopio de luz simple a 400X

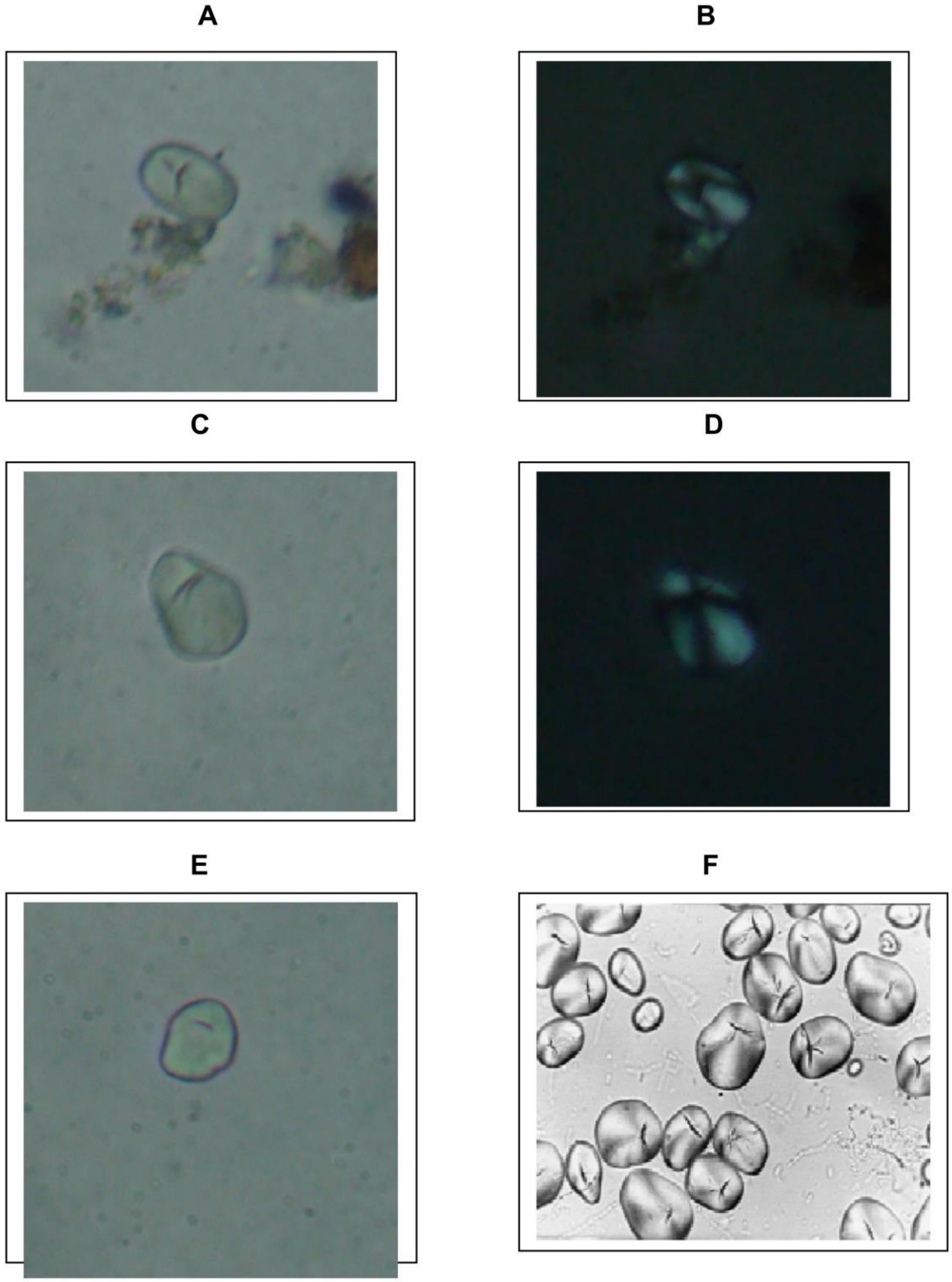


Figura 6.- (A) Grano de almidón de *Marantaceae* proviene de M-75A, (B) El mismo grano anterior capturado con luz polarizada a 400X, (C) Otro grano de almidón de *Marantaceae*, proviene de M-136A, captura con microscopio de luz simple a 400X, (D) el mismo grano anterior con captura de luz polarizada a 400X, (E) Grano de almidón de *Marantaceae* proviene de M-117B, captura con microscopia de luz simple a 400X (F) Granos de almidón modernos de *Maranta arundinacea* "arrowroot", una planta que pertenece a la familia *Marantaceae*

III. COMENTARIOS

Los análisis microscópicos a partir de una muestra de 62 láminas montadas, que provienen de igual número de herramientas líticas permitieron aislar diferentes tipos de granos de almidón. Las plantas identificadas a partir de estos análisis son: *Zea mays* “maíz”, *Solanum tuberosum* “papa”, *Manihot esculenta* “yuca”, *Phaseolus sp.* “frijol”, cf. *Lupinus sp., Cucurbita cf. ficifolia* “chiclayo”, y unos almidones que se corresponden con la familia *Marantaceae*.

Algunos almidones aislados no pudieron ser identificados, por estar dañados por el tiempo y procesos tafonómicos, quedan en nivel de no identificados. No se aislaron granos de almidón de plantas hispánicas, tampoco de frutas o plantas de lagos o lagunas, igualmente no se pudieron visualizar fitolitos y otras estructuras microscópicas como diatomeas, por ejemplo.

Del total de las 62 láminas analizadas, 12 láminas no tuvieron ningún grano de almidón aislado, lo que indica que similar número de herramientas líticas, no tuvieron ningún contacto con semillas, tubérculos, rizomas o frutos de plantas con contenido de almidón. Estas láminas son: M-61B, M-67B, M-73B, M-81B, M-92B, M-94B, M-99B, M-106B, M-108B, M-114B, M-121B y M-134B. Curiosamente están signadas con la letra B en todos los casos.

Los resultados negativos tienen una repercusión positiva en los análisis que se realizan en laboratorio, especialmente cuando hay riesgo de contaminación con almidones modernos. La ausencia de granos de almidón en estas 12 muestras, de alguna forma garantiza la confiabilidad de los resultados positivos, obtenidos en las 50 láminas que fueron positivas por la presencia de granos de almidón.

Hay 22 herramientas líticas que tienen aislados almidones de *Zea mays* “maíz” y tienen los siguientes códigos: M-63A, M-72B, M-75B, M-81A, M-94A, M-95A, M-95B, M-97A, M-97B, M-103A, M-106A, MJ-107-B, M-109B, M-116A, M-116B, M-116B. M-119A, M-119B, M-132B, M-136B, M-141B y M-142B. En total 22 herramientas líticas con evidentes huellas de uso con semillas de *Zea mays* “maíz”.

De estas herramientas líticas que contienen granos de almidón de *Zea mays,* hay M-99A, M-103B, M-61A, M-63A, M-72A, M-73A, M-91A y M-92A, que tienen almidones de maíz y de *Solanum tuberosum* “papa”. Es posible que los granos de almidón sean producto de la manipulación de una acción secundaria antigua (manos contaminadas con almidones de “papa”) que producto de una acción producida por acción con tubérculos de papa. Según la cantidad y conservación de los granos de almidón de “papa” es posible que sean contaminaciones antiguas con el artefacto lítico. También es posible que algunas de ellas hayan sido manipuladas en algún momento de ser utilizadas y contaminadas con las manos utilizadas por consumo (ejemplo consumo de papas).

También tenemos, según la interpretación de los resultados obtenidos, que hay herramientas que posiblemente tuvieron multiusos, es decir que fueron utilizadas para procesar maíz, tienen huellas de “papa”, pero también hay almidones de *Cucurbita cf. ficifolia, Manihot esculenta* y *Marantaceae,* como es el caso de los códigos M-67A, M-89A, M-107A, M-109A, M-117B, M-121A, M-134A, M-135A, y M-142A.

Este multiuso, no es estrictamente contacto con todas las plantas de las que se aisló almidón de ellas, por ejemplo es seguro que las herramientas de los códigos anteriormente indicados, han tenido contacto con semillas de maíz, adicionalmente sirvieron para abrir la cáscara dura del fruto de *Cucurbita cf. ficifolia* y así acceder a la pulpa que es la parte comestible, quedando en está acción impregnados algunos almidones. Lo mismo debe haber sucedido con el procesamiento de las raíces de *Manihot esculenta* y los rizomas de *Marantaceae.*

Según la cantidad de los granos de almidón de *Cucurbita cf. ficifolia, Manihot esculenta* y *Marantaceae*, las actividades de los líticos con estas plantas debe haber sido eventual. Esto implica que las herramientas no tuvieron un uso exclusivo para una determinada planta.

En relación a los granos de almidón de *Zea mays* “maíz” aislados e identificados, hay dos tipos que se han identificado: uno de forma poliédrica, y otro de forma esférica. En el departamento de Ayacucho, actualmente existen las siguientes razas primarias de maíz: Confite Morocho, Confite Puntiagudo, Kulli y Chullpi.

De estas razas las que tienen endosperma vítreo y por lo tanto granos de almidón poliédricos, son Confite Morocho, Confite Puntiagudo y Chullpi. La única raza que tiene endosperma harinoso-suave y por lo tanto granos de almidón esféricos, es la raza Kulli. Como se tratan de razas de maíz nativas primarias, que evolucionaron de las antiguas razas de maíz, como Proto-Confite Morocho (Confite Morocho), Proto-Kculli (Kulli) y Proto-Confite Chavinense (Chullpi), las herramientas líticas de Yanawilca, estuvieron procesando con bastante posibilidad semillas de las razas Proto-Confite Morocho y Proto-Confite Chavinense, que tienen granos de almidón poliédricos, y son usados para hacer harinas con los cuales se hacen guisos.

La mayor parte de las herramientas que tienen almidones de “maíz”, son de forma poliédrica, lo que implica que una de las formas favoritas de consumir el “maíz” era generando una buena cantidad de harina de este maíz para prepararla como guisos (especie de mazamorra, posiblemente el *sanco*).

Un total de 294 granos de almidón poliédricos, fueron aislados de las herramientas líticas con resultados positivos. Las estadísticas descriptivas de estos granos de almidón para el caso del largo (micras) indica que el tamaño medio para el largo es de 16,95 micras, la medida para el largo mas común hallada (moda) es de 15,6 micras, el largo mínimo es de 9,1 micras, el largo máximo es de 23,4 micras y el coeficiente de variación es de 17,87% (tabla 2). Cuando el coeficiente de variación de una muestra poblacional esta por encima de 20%, se indica que la variabilidad poblacional no esta controlada y la muestra medida proviene de diferentes poblaciones y por lo tanto mas heterogénea.

En el caso de las medidas del largo y ancho de los almidones poliédricos, los valores de 17,87% para el largo y 19,13% para el ancho, indican que hay homogeneidad entre los valores de estas variables, y por tanto las cosechas de este maíz provienen de poblaciones homogéneas.

El mismo caso se observa para los granos de almidón esféricos, donde el promedio del largo es de 13,72 micras, el largo máximo es de 20,8 micras y el largo mínimo es de 7,8 micras, el coeficiente de variación es de 20,04% para el largo (tabla 4) y 19,52% para el ancho (tabla 5). Esto significa que la muestra estudiada proviene de poblaciones con bastante homogeneidad.

Otra característica observada en los granos de almidón poliédricos, son las fisuras que ha causado la molienda en el hilum del grano de almidón, tal como se observa en la figura 1 (A, B, C, D, E, F, G, H, I), la mayoría exhiben fisuras en forma de "Y", y las formas suelen ser muy comunes entre estos almidones poliédricos.

En la mayoría de los casos ambos tipos de almidón (poliédricos y esféricos) provienen de las mismas herramientas, a excepción de M-75B, donde solo hay almidones esféricos (tabla 1). Otro detalle observado, es que no se pudieron observar fitolitos de maíz, ni de otra planta, lo que podría ser, porque el protocolo de extracción de los almidones de las herramientas líticas es selectivo para almidones.

La figura 4, muestra la identificación de granos de almidón de *Manihot esculenta* "yuca". Este cultivo debió ser llevado a Yanawilca (3000 msnm) desde valles interandinos más cálidos (2000-2500 msnm), teniendo en cuenta que esta planta se cultiva mejor en estas ecologías. La cantidad de granos de almidón de "yuca" ha sido identificada en seis herramientas líticas, como M-89A, M-107A, M-109A, M-134A, M-136A y M-142A.

En cinco herramientas líticas, se han aislado granos de almidón identificados como *Cucurbita cf. ficifolia* "chiclayo". Esta cucurbitacea como la mayoría de las especies de *Cucurbita*, es de hábito rastrero; herbácea, anual en zonas templadas, y perenne en zonas tropicales; el tallo velloso alcanza una extensión de 5 m (no es raro que alcance 15 m), y arroja zarcillos que utiliza para trepar en la vegetación adyacente.

Se ignora con exactitud su origen; distintas líneas de examen apuntan a México o a la cordillera de los Andes, pero no se ha podido corroborar cualquiera de las hipótesis. La evidencia lingüística favorecería un origen mexicano, ya que el nombre empleado casi universalmente es de origen náhuatl; sin embargo, los restos arqueológicos más antiguos conservados provienen del Perú. Se desconoce la variedad silvestre de la que se haya originado, y las hipótesis apuntan a una especie aún desconocida, posiblemente nativa de la región oriental de la cordillera andina.

Esta especie, es la menos intensamente cultivada de las especies comerciales de *Cucurbita*, pero quizá la que muestra una distribución geográfica más amplia; en estado silvestre no es difícil encontrarla en las zonas altas (1000 a 3000 msnm) y templadas del continente americano. Esta facilidad se debe en parte a su probada resistencia a varios virus que afectan a otras especies afines, lo que hace más problemática la imposibilidad de obtener híbridos sin medios muy sofisticados.

C. ficifolia requiere suelos húmedos y clima templado; prefiere condiciones de día largo, aunque en regiones cálidas se la cultiva todo el año. No es resistente a las heladas en el primer año de vida. El fruto maduro presenta una importante concentración de azúcares, por lo que se consume como dulce y se utiliza para elaborar bebidas. Las semillas, ricas en lípidos y proteínas, son el ingrediente principal de un típico postre de la región mexicana de Chiapas, las palanquetas. Las semillas también se comen saladas y tostadas en diversas regiones de ese país.

En las herramientas signadas como M-67A, M-89A, M-108A, M-121A y M-142A, se han aislado e identificado granos de almidón que según la figura 5E y 5F, que son de almidones modernos de esta cucurbitacea, pertenecen a *C. ficifolia*. Lo cual implica que las herramientas señaladas sirvieron para procesar los frutos, en este caso romper la dura cubierta para obtener la pulpa.

Finalmente en las herramientas M-67A, M-75A, M-117B, M-136A y M-142A, se aislaron e identificaron almidones que por sus características morfológicas y sus medidas (figura 6A, 6C y 6E), encajan dentro de la familia *Marantacea*, en la cual se encuentra un especie con antecedentes arqueológicos, como es el caso de *Maranta arundinacea* “arrowroot”, una especie herbácea perenne originaria de la cuenca del Orinoco cuyo hábitat son las selvas tropicales. Sus rizomas dan un almidón fácil de digerir.

Como se trata de una planta que se cultiva en ecosistemas selváticos, su presencia en Yanawilca, es solo posible por intercambio con sitios selváticos, posiblemente por obsidiana. Por tanto estas evidencias microbotánicas, podrían ser los indicadores de los contactos entre los ecosistemas de puna y los sitios selváticos más inmediatos de la geografía antigua del departamento de Ayacucho.

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Appendix H: Flotation laboratory report by Vásquez and Tham (2013)

ANÁLISIS DE RESTOS DE FAUNA Y VEGETALES RECUPERADAS EN MUESTRAS DE FLOTACION, POMACOCHA-DPTO. AYACUCHO

Por

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1. MÉTODOS DE ESTUDIO

a. ANÁLISIS ARQUEOZOOLÓGICO

i. Acondicionamiento e Identificación Taxonómica:

La identificación taxonómica de los restos de gasterópodos terrestres aislados de las muestras de flotación se realizó utilizando manuales, colecciones comparativas y trabajos especializados sobre este grupo de invertebrados como: Breure (1978, 1979) y Ramírez *et al,* (2001).

La utilización de la bioinformática mediante la consulta con los bancos de datos de Animal Diversity (http://www.animaldiversity.ummz.umich.edu), FAO (http://www.fao.org), ITIS (http://www.itis.usda.gov) entre otras, permitió acceder a las muestras de esqueletos craneales y post-craneales de fauna Neotropical, para su comparación respectiva en cuanto a datos morfológicos y osteométricos.

b. ANÁLISIS ARQUEOBOTÁNICO

i. Restos Microbotanicos: Acondicionamiento e Identificación Taxonómica, Cantidad de Restos.

Todas las evidencias fueron acondicionadas para su identificación taxonómica. Los criterios adoptados para la identificación taxonómica de los diversos restos botánicos abarcaron lo siguiente:

a) la morfología externa: la identificación taxonómica se realizó mediante el microscopio estereoscopio, y se basa en el examen global sobre un conjunto de muchos caracteres de la variabilidad biológica de los restos, estas se fundamentan sobre los principios de la anatomía comparada, es decir, por confrontación de los caracteres morfológicos presentes en ambos lados de las muestras arqueológicas con los de las muestras actuales homólogas y,

b) la comparación de algunos caracteres biométricos de los restos: esta se realiza mediante cálculo de dos parámetros métricos (largo y ancho).

El examen de los restos botánicos a partir de los caracteres morfológicos permitió discernir los rasgos característicos del género o especie vegetal a que pertenecen. También se utilizó bibliografía especializada como: Bonavía (1982), Buxo (1997), Esau (1977), Macbride (1943), Mostacero y Mejía (1993), Metcalfe (1960), Pearsall (1989, 1992), Sagástegui (1973), Sagástegui y Leiva (1993), Soukup (1987), Towle (1961), Weberbauer (1945) e Yacovleff y Herrera (1934-35), Ugent y Ochoa (2006), Martín y Barkley (2000).

La identificación taxonómica de los restos se realizó mediante el uso de un Microscopio Estereoscópico de 20X. y para comprobar las identificaciones se hicieron tomas de algunos restos de fauna y semillas con un microscopio electrónico de barrido de marca FEI QUANTA 200, donde fueron capturados en fotografías de alta resolución, para posteriormente ser grabados en un disco de almacenamiento masivo.

Todos los restos identificados fueron cuantificados según su proveniencia estratigráfica y contextual. Al final se agruparon todas las cantidades de restos microbotánicos identificados para los dos sectores excavados y se hicieron cálculos de frecuencias porcentuales para observar la contribución de cada una de las especies en los dos sitios.

2. RESULTADOS

Se presenta a continuación los resultados obtenidos de los análisis de los restos de fauna y vegetales, aislados de las muestras de flotación de las excavaciones arqueológicas realizadas en los dos sectores de Pomacocha.

2.1 Restos de Fauna

Sistemática y Taxonomía

A continuación se presenta la sistemática y taxonomía de la fauna identificada a partir de los restos de fauna recuperados en Monte Viudo, mediante la flotación.

Phyllum Mollusca

Clase Gastropoda

Sub-Clase Pulmonata

Familia Vertiginidae
Gastrocopta sp.
Familia Bulimulidae
Bostryx sp.
Familia Charopidae
Familia Systrophiidae
Drepanostomella sp.
Familia Clausilidae
Steeriana sp.

Phyllum Chordata

Clase Amphibia

Clase Aves

Clase Mammalia

Orden Rodentia
Familia Muridae
Familia Caviidae
Cavia porcellus "cuy"
Orden Artiodactyla
Familia Bovidae "ovicaprino"

2.2 Restos Vegetales

Sistemática y Taxonomía

Se presenta la sistemática y taxonomía de los restos de vegetales recuperados de las muestras de suelo procesadas mediante flotación de Monte Viudo.

División XVII Angiospermae

Clase I: Dicotyledoneae

Familia Betulaceae	
Alnus sp.	"aliso"
Familia Chenopodiaceae	
Chenopodium quinoa	“quinua”
Familia Amaranthaceae	
Amaranthus sp.	
Familia Cactaceae	
Familia Papaveraceae	
Argemone sp.	
Familia Fabaceae	
Prosopis sp.	"algarrobo"
Trifolium sp.	"trebol"
Familia Euphorbiaceae	
Euphorbia sp.	
Familia Brassicaceae	
Brassica sp.	
Familia Linaceae	
Linum sp.	"lino"
Familia Convolvulaceae	
Convolvulus sp.	
Familia Anacardiaceae	
Schinus molle	"molle"
Familia Rubiaceae	
Galium sp.	
Familia Solanaceae	
Solanum melongena	"berenjena"
Solanum sp.	
Familia Apiaceae	
Conium sp.	

Clase II: Monocotyledoneae

Familia Poaceae

2.3 Cuantificación según Sitios

Se han identificado un total de 194 restos que fueron aislados de las muestras de flotación. De este total, 39 restos corresponden a restos de fauna, específicamente conchillas de moluscos terrestres. Los 155 restos corresponden a restos de semillas de plantas (tablas 6 y 7).

La diversidad de taxas identificados para el sitio, indica que se han identificado un total de 25 taxas, de los cuales 2 taxa son de fauna y 23 taxa son de vegetales. De los grupos de vegetales se han identificado 20 restos que corresponden a plantas cultivadas, 20 a plantas que proporcionan frutos silvestres, 18 restos a plantas que viven en zonas pantanosas o con agua, 92 restos plantas silvestres y 5 restos de semillas que no pudieron ser identificadas (tabla 7).

Tabla Nº 1. Fauna y vegetales aislados e identificados de las muestras de flotación del sector O

SECTOR O						
Taxa	U: 1 (A)		U: 1 (A) N		U: 2 (B)	
	Locus 10		Locus 10		Locus 4	
	Light	Heavy	Light	Heavy	Light	Heavy
Gastrocopta sp.						
Bostryx sp.						
Charopidae						
Steeriana sp.						
Drepanostomella sp.						
Anfibio n/i						
Ave n/i				Frag cascarón de huevo		
Cavia porcellus						
Rodentia						
Muridae						
Ovicaprino		1 diente 5 frag diáfisis		5 frag óseos		
Artiodactyla						
Mamífero n/i						
Alnus sp.					2 frag carbón	
Amaranthus sp.						
Chenopodium quinoa						
Cactaceae						
Argemone sp.						
Prosopis sp.						
Trifolium sp.						
Linum sp.						
Galium sp.						
Conium sp.						
Convolvulus sp.						
Brassica sp.						
Schinus molle	2 frag carbón			2 frutos carbonizados		
Euphorbia sp.						
Solanum melongena						
Solanum sp.					1 semilla	
Poaceae						
Semilla n/i 1						
Semilla n/i 2						
Tallo n/i						
Carbón n/i		5 frag	10 frag			5 frag

Tabla Nº 2. Fauna y vegetales aislados e identificados de las muestras de flotación del sector O

SECTOR O												
Taxa	U: 4 (D)											
	Locus 3		Locus 4	Locus 5	Locus 6		Locus 7		Locus 8		Locus 9	Locus 10
	Light	Heavy	Light	Heavy	Light	Heavy	Light	Heavy	Light	Heavy	Light	Light
Gastrocopta sp.												
Bostryx sp.												
Charopidae												
Steeriana sp.												
Drepanostomella sp.												
Anfibio n/i				1 vértebra								
Ave n/i												
Cavia porcellus												
Rodentia												
Muridae		1 fémur										
Ovicaprino												
Artiodactyla												
Mamífero n/i												
Alnus sp.	10 frag carbón		2 frag carbón				2 frag carbón		2 frag carbón			
Amaranthus sp.												
Chenopodium quinoa												
Cactaceae												
Argemone sp.												
Prosopis sp.												
Trifolium sp.												
Linum sp.												
Galium sp.												
Conium sp.												
Convolvulus sp.												
Brassica sp.		1 semilla Q										
Schinus molle												
Euphorbia sp.												
Solanum melongena												
Solanum sp.												
Poaceae												
Semilla n/i 1												
Semilla n/i 2												
Tallo n/i												
Carbón n/i			10 frag	3 frag	4 frag	5 frag		4 frag		4 frag	3 frag	4 frag

Tabla Nº 3. Fauna y vegetales aislados e identificados de las muestras de flotación del sector O

SECTOR O														
Taxa	U: 5 (G)													
	Locus 4	Locus 6	Locus 7		Locus 8		Locus 9		Locus 10	Locus 11		Locus 12	Locus 13	Locus 14
	Light	Light	Light	Heavy	Light	Heavy	Light	Heavy	Light	Light	Heavy	Light	Light	Light
Gastrocopta sp.														
Bostryx sp.														
Charopidae														
Steeriana sp.														
Drepanostomella sp.														
Anfibio n/i								2 frag vérteb						
Ave n/i														
Cavia porcellus														
Rodentia														
Muridae														
Ovicaprino														
Artiodactyla											2 frag óseos			
Mamífero n/i						1 frag óseo								
Alnus sp.									2 frag carbón					
Amaranthus sp.														1 semilla
Chenopodium quinoa														
Cactaceae														
Argemone sp.														
Prosopis sp.														
Trifolium sp.														
Linum sp.														
Galium sp.														
Conium sp.														
Convolvulus sp.														
Brassica sp.														
Schinus molle														
Euphorbia sp.														
Solanum melongena														
Solanum sp.			2 semillas				1 semilla			2 semillas			1 semilla	
Poaceae			1 semilla				4 semillas							
Semilla n/i 1			1 semilla											
Semilla n/i 2														
Tallo n/i														
Carbón n/i	2 frag	3 frag		5 frag	5 frag	5 frag		10 frag			6 frag	5 frag		

Tabla Nº 4. Fauna y vegetales aislados e identificados de las muestras de flotación del sector O

Taxa	SECTOR O										
	U: 6 (H)										
	Locus 5		Locus 7		Locus 9		Locus 10		Locus 11	Locus 13	
	Light	Heavy	Light	Heavy	Light	Heavy	Light	Heavy	Light	Light	Heavy
Gastrocopta sp.											
Bostryx sp.											
Charopidae											
Steeriana sp.											
Drepanostomella sp.											
Anfibio n/i											
Ave n/i											
Cavia porcellus											
Rodentia											
Muridae											
Ovicaprino											
Artiodactyla								3 frag óseos			
Mamífero n/i											
Alnus sp.	2 frag carbón										
Amaranthus sp.						1 semilla Q	2 semillas				
Chenopodium quinoa											
Cactaceae									2 semillas		
Argemone sp.											
Prosopis sp.											
Trifolium sp.											
Linum sp.											
Galium sp.											
Conium sp.											
Convolvulus sp.											
Brassica sp.											
Schinus molle											
Euphorbia sp.								1 semilla Q			
Solanum melongena	3 semillas										
Solanum sp.										1 semilla Q	
Poaceae											
Semilla n/i 1			1 semilla								
Semilla n/i 2											
Tallo n/i											1 frag corteza
Carbón n/i			10 frag	10 frag	5 frag	10 frag				2 frag	

Tabla Nº 5. Fauna y vegetales aislados e identificados de las muestras de flotación del sector Y

Taxa	SECTOR Y								
	U: 1								
	Locus 2E	Locus 3E	Locus 4E	Locus 2W		Locus 4W		Locus 6W	
	Light	Light	Light	Light	Heavy	Light	Heavy	Light	Heavy
Gastrocopta sp.	10	40		15		4		5	
Bostryx sp.									
Charopidae	6	15	3	6		5			
Steeriana sp.		3							
Drepanostomella sp.				2		3			
Anfibio n/i									
Ave n/i									
Cavia porcellus					coprolitos		1 premolar Q		coprolitos
Rodentia									
Muridae									
Ovicaprino									
Artiodactyla							1 frag óseo		
Mamífero n/i					3 frag óseos				
Alnus sp.									
Amaranthus sp.									
Chenopodium quinoa								1 semilla Q	
Cactaceae									
Argemone sp.	1 semilla								
Prosopis sp.							1 semilla Q		
Trifolium sp.									
Linum sp.									1 semilla
Galium sp.									
Conium sp.									
Convolvulus sp.								1 semilla	
Brassica sp.									
Schinus molle									
Euphorbia sp.									
Solanum melongena									
Solanum sp.									
Poaceae	10 semillas			5				5 semillas	
Semilla n/i 1								1 semilla	
Semilla n/i 2								1 semilla	
Tallo n/i									
Carbón n/i									

Tabla Nº 6. Fauna y vegetales aislados e identificados de las muestras de flotación del sector Y

SECTOR Y								
Taxa	U: 2				U: 2 (Est 5)	U: 3 (Est 23)		
	Locus 2E	Locus 3E	Locus 3W	Locus 5W	Locus 2W	Locus 2E	Locus 2W	
	Light	Light	Light	Light	Light	Light	Light	Heavy
Gastrocopta sp.	10	3	4	5	10	35	15	
Bostryx sp.					1			
Charopidae	5	3		1	2	2	3	
Steeriana sp.								
Drepanostomella sp.	3	3			1		1	
Anfibio n/i								
Ave n/i								
Cavia porcellus								
Rodentia								
Muridae								
Ovicaprino								
Artiodactyla								
Mamífero n/i								1 frag óseo
Alnus sp.								
Amaranthus sp.								
Chenopodium quinoa								
Cactaceae				2 semillas				
Argemone sp.								
Prosopis sp.								
Trifolium sp.								
Linum sp.								
Galium sp.						1 semilla		
Conium sp.							1 semilla	
Convolvulus sp.								
Brassica sp.								
Schinus molle								
Euphorbia sp.								
Solanum melongena								
Solanum sp.								
Poaceae	10 semillas		1 semilla			25 semillas	20 semillas	
Semilla n/i 1								
Semilla n/i 2								
Tallo n/i								
Carbón n/i								

Tabla Nº 7. Fauna y vegetales aislados e identificados de las muestras de flotación del sector Y.

SECTOR Y									
Taxa	U: 4 (Est 16)								
	Locus 2E	Locus 3E		Locus 4E	Locus 1W	Locus 2W		Locus 4W	
	Light	Light	Heavy	Light	Heavy	Light	Heavy	Light	Heavy
Gastrocopta sp.	1	5		2		5		8	
Bostryx sp.									
Charopidae				3				10	
Steeriana sp.									
Drepanostomella sp.								3	
Anfibio n/i									
Ave n/i									
Cavia porcellus									coprolitos
Rodentia							2 coprolitos		
Muridae									
Ovicaprino									
Artiodactyla									
Mamífero n/i			1 frag diente		2 frag óseos				
Alnus sp.									
Amaranthus sp.									
Chenopodium quinoa									
Cactaceae									
Argemone sp.									
Prosopis sp.									
Trifolium sp.	1 semilla								
Linum sp.									
Galium sp.									
Conium sp.									
Convolvulus sp.									
Brassica sp.									
Schinus molle									
Euphorbia sp.									
Solanum melongena									
Solanum sp.									
Poaceae	5 semillas	2 semillas				10 semillas			
Semilla n/i 1									
Semilla n/i 2									
Tallo n/i									
Carbón n/i					10 frag				

Tabla Nº 8. Cantidades y frecuencias de los restos de fauna aislados e identificados de las muestras de flotación del sector O y sector Y

Taxa	Sector O		Sector Y	
	N	%	N	%
Gastrocopta sp.			177	64.4
Bostryx sp.			1	0.4
Charopidae			64	23.3
Steeriana sp.			3	1.1
Drepanostomella sp.			16	5.8
Anfibio n/i	3	13.6		
Ave n/i	1	4.5		
Cavia porcellus			4	1.5
Rodentia			2	0.7
Muridae	1	4.5		
Ovicaprino	11	50.0		
Artiodactyla	5	22.7	1	0.4
Mamífero n/i	1	4.5	7	2.5
Total	22		275	

Figura Nº 1. Distribución porcentual de los restos de fauna aislados de las muestras de flotación del sector O y sector Y

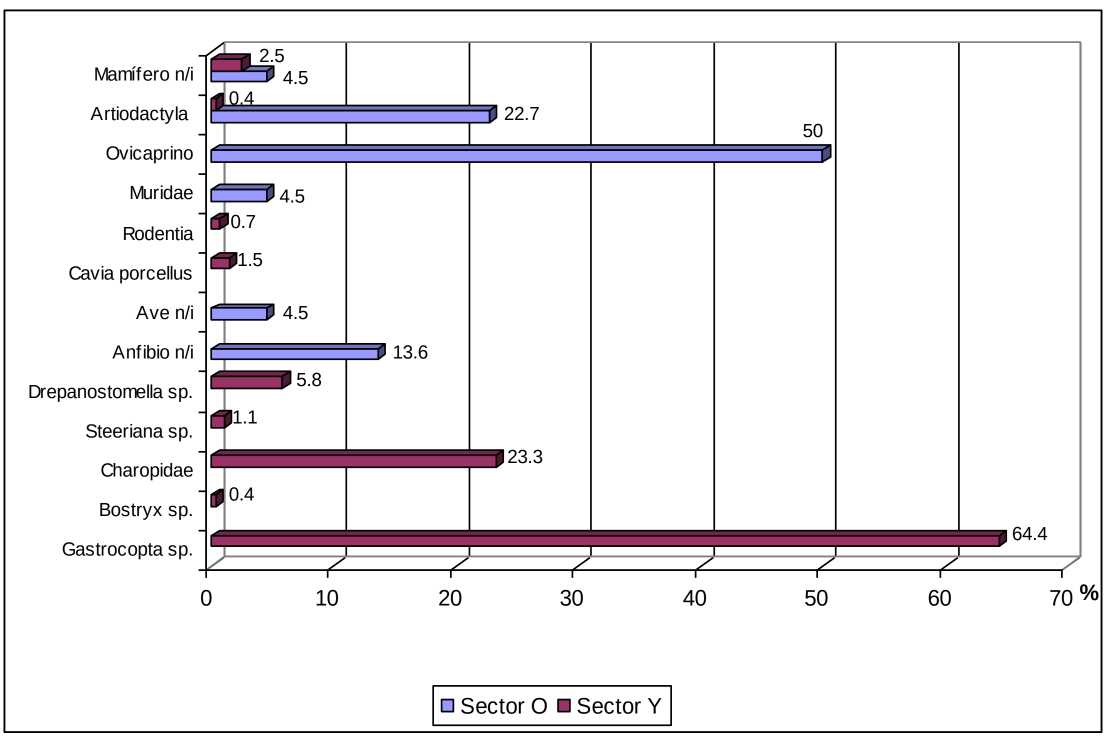
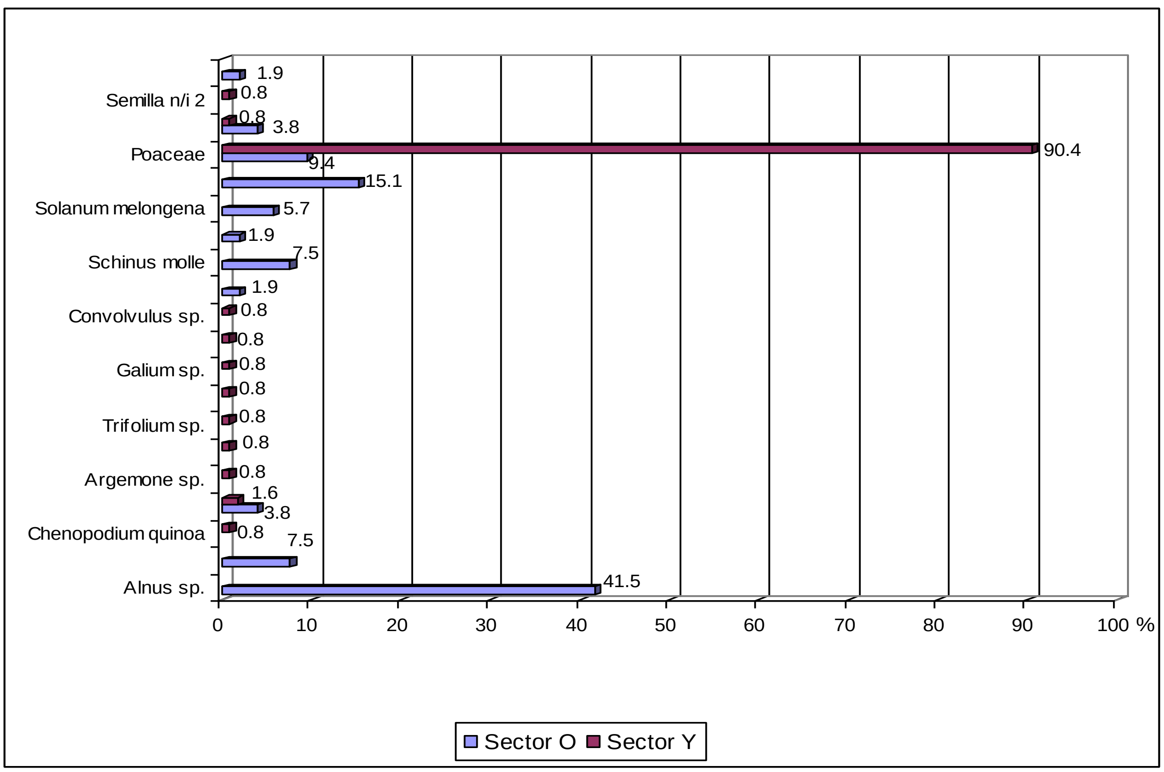


Tabla Nº 9. Cantidades y frecuencias de los restos vegetales aislados e identificados de las muestras de flotación del sector O y sector Y

	Sector O		Sector Y	
Taxa	N	%	N	%
Alnus sp.	22	41.5		
Amaranthus sp.	4	7.5		
Chenopodium quinoa			1	0.8
Cactaceae	2	3.8	2	1.6
Argemone sp.			1	0.8
Prosopis sp.			1	0.8
Trifolium sp.			1	0.8
Linum sp.			1	0.8
Galium sp.			1	0.8
Conium sp.			1	0.8
Convolvulus sp.			1	0.8
Brassica sp.	1	1.9		
Schinus molle	4	7.5		
Euphorbia sp.	1	1.9		
Solanum melongena	3	5.7		
Solanum sp.	8	15.1		
Poaceae	5	9.4	113	90.4
Semilla n/i 1	2	3.8	1	0.8
Semilla n/i 2			1	0.8
Tallo n/i	1	1.9		
Total	53		125	

Figura Nº 2. Distribución porcentual de los restos vegetales aislados de las muestras de flotación del sector O y sector Y



3. COMENTARIOS

De todas las muestras de flotación obtenidas de las excavaciones, se han aislado e identificado un total de 475 restos, de los cuales, 75 restos corresponden al sector O y 400 restos al sector Y. En el sector O hay 22 restos de fauna y 53 restos de vegetales. Para el sector Y tenemos 275 restos de fauna y 125 restos de vegetales, aquí predominan los restos de moluscos (micromoluscos) terrestres, que nos brindan información importante del clima y la ecología (tablas 8 y 9).

La diversidad de taxas identificados para ambos sectores, indica que se han identificado un total de 29 taxas, de los cuales 12 taxa son de fauna (moluscos terrestres, anfibio, ave y mamíferos) y 17 taxa son de vegetales (hierbas y árboles).

De los grupos de vegetales se han identificado 2 taxa que corresponden a plantas cultivadas (*Chenopodium quinoa* y *Solanum melongena*), 3 taxa que son árboles (*Alnus sp,*, *Prosopis sp.* y *Schinus molle*), 1 taxa que corresponde a semillas de Cactaceas, 11 taxa que son de hierbas silvestres, algunas asociadas a campos de cultivo (*Amaranthus sp., Argemone sp.*, *Trifolium sp., Galium sp., Convolvulus sp., Brassica sp., Euphorbia sp., Solanum sp.,* y *Poaceae*), 1 taxa que es de una hierba medicinal (*Conium sp.*) y 2 tipos de semillas no identificadas, que son silvestres.

En el sector O, los restos de fauna indican una clara diferencia con el sector Y. Aquí solo pudimos aislar e identificar huesos de anfibio, de ave, y restos de huesos de mamíferos (roedor, ovicaprino y artiodactyla en general). No hay restos de moluscos terrestres, lo que indica evidentemente que se trata de un sitio diferente en lo que se refiere a su sustrato en este caso. Los restos de vegetales, hemos identificado restos de carbón de "aliso" *Alnus sp.* un árbol de media altura (20-30 m), caducifolio, su madera es utilizada en construcción y como combustible (Mostacero y Mejía, 1993)

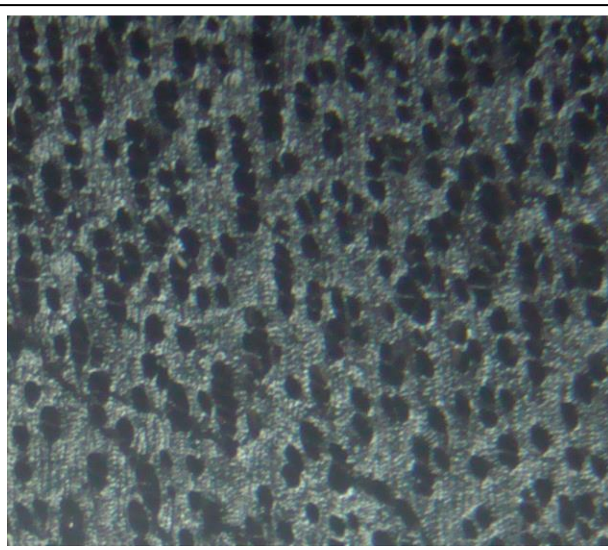


Figura Nº 1. Sección transversal de carbón de *Alnus sp.* “aliso”, donde se observa vasos múltiples radiales de 4 o más (flecha), con 40 a 100 vasos por milímetro cuadrado, parenquima axial difuso, tomado a 10X con microscopio esteroscopio de luz simple.

También tenemos 4 semillas de *Amarathus sp.* que posiblemente sean cultivadas, y se trata de trata de *kiwicha* (*Amaranthus caudatus*). Lo seguro es que se trata de *Amaranthus,* como atestiguan las vistas obtenidas mediante microscopia electrónica de barrido, que presentamos a continuación.

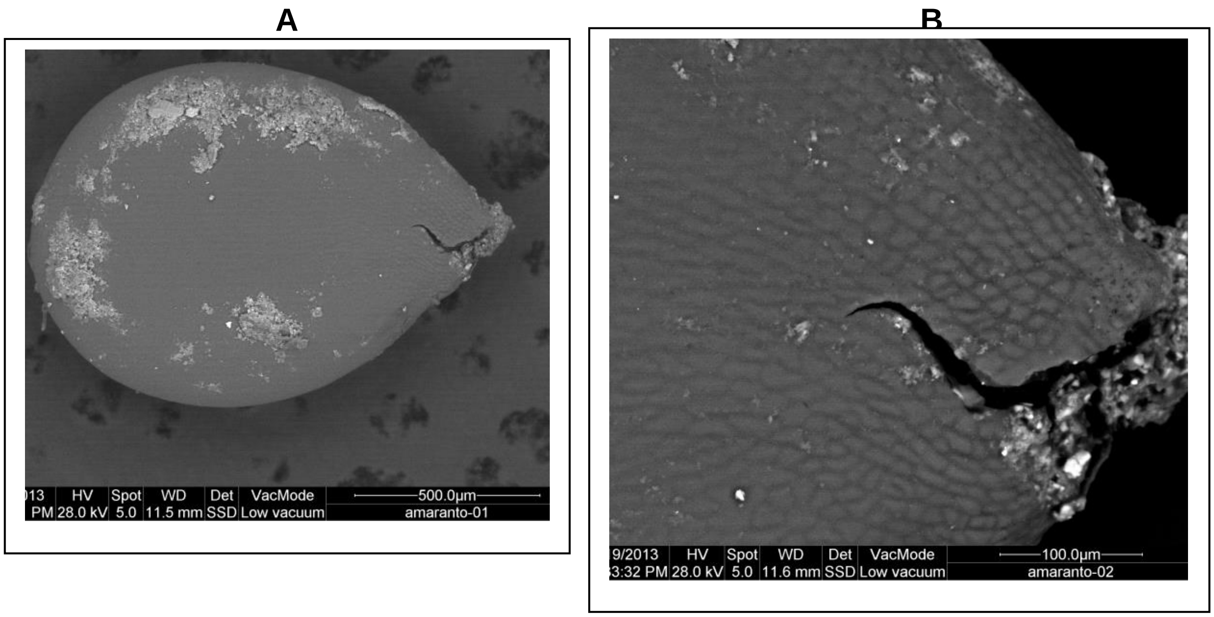


Figura Nº 2. (A) vista panorámica de una semilla de *Amaranthus sp.* tomada con SEM a 160X, (B) detalle de la superficie del pericarpio de la semilla de *Amaranthus sp.* que confirma la identificación a nivel de género, tomada con SEM a 600X.

Siguiendo con las semillas aisladas del sector O, hay 2 semillas que por sus características corresponden a alguna *Cactaceae*. Es posible que hayan consumido algún fruto de estas plantas y las semillas fueron depositadas en el sitio. Luego tenemos semillas de hierbas asociadas a campos de cultivo, como *Brassica sp.* (1 semilla), *Euphorbia sp.* (1 semilla), *Solanum sp.* (8 semillas), posiblemente se traten de alguna especie de papa silvestre, la conservación de algunas semillas, que llevan mucho sedimento en superficie y fragilidad ni permite conocer mas detalles taxonómicos. Hay 5 semillas de *Poaceae*, son hierbas o gramíneas de zonas altas, y en este sector tenemos una semilla no identificada.

La novedad en este sector es la presencia de 3 semillas de *Solanum melongena* "berenjena". El fruto es comestible, es una baya de 5 hasta 30 cm de longitud de forma cilíndrica, oblonga o alargada en la mayoría de los casos, de color morado o negro al madurar, presenta pequeñas semillas de color amarillo. Es originaria de Birmania y China, y también en Perú tenemos una especie relacionada a esta, se trata de *Solanum incanum*, pero la fotografia tomada mediante SEM, nos indica que se trata de *Solanum melongena*.

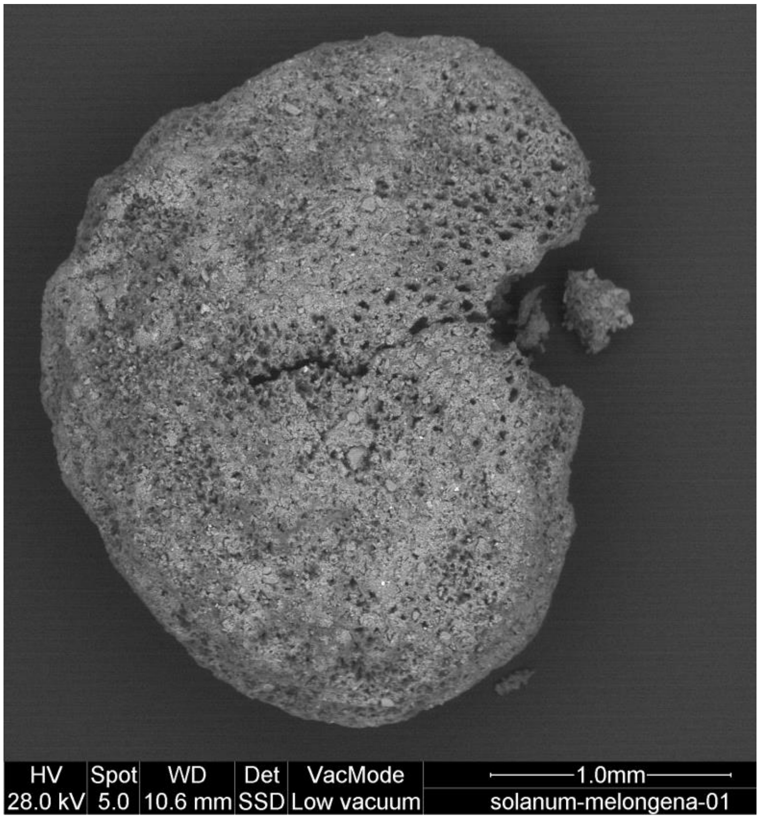


Figura Nº 3.- Semilla de *Solanum melongena* tomada con SEM a 67X

Podemos observar diferencias notorias en relación a los restos vegetales identificados en el sector Y, tal como repasaremos mas adelante. La lista de vegetales identificados en el sector O, nos indica solo una especie de planta cultiva, y es *Solanum melongena*, las demás son silvestres, y salvo la probabilidad hayan consumido frutos de *Cactaceae*, todas las demás silvestres llegarían al sitio por otros motivos que desconocemos.

En el sector Y y dentro de los restos aislados de la muestra de flotación, hubo restos de fauna, en especial moluscos terrestres, los cuales por sus características ecológicas y hábitats permite rescatar información valiosa del medioambiente de las épocas en este sector.

Los restos de un pequeño gasterópodo terrestre identificado como *Gastrocopta sp.* es el que predomina entre los restos de fauna con 64,4% (tabla 9). *Gastrocopta,* habita en ambientes xéricos (secos, áridos), que tal vez tienen una combinación de humedad fluctuante en el suelo y la ecología del caracol (algunos son excavadores) que tiende a conseguir suelo pegado al periostraco (Breure, 1979; Ramírez *et al,* 2001).

Siendo que las características mas diagnósticas para identificar las especies de este género son los dientes dentro del peristoma y la protoconcha, y siendo que estas se hallan cubiertas de tierra, y se hace difícil sacarlas, confiamos en una identificación a nivel de género, tal como demuestran las características que se observan mediante SEM.

A **B**

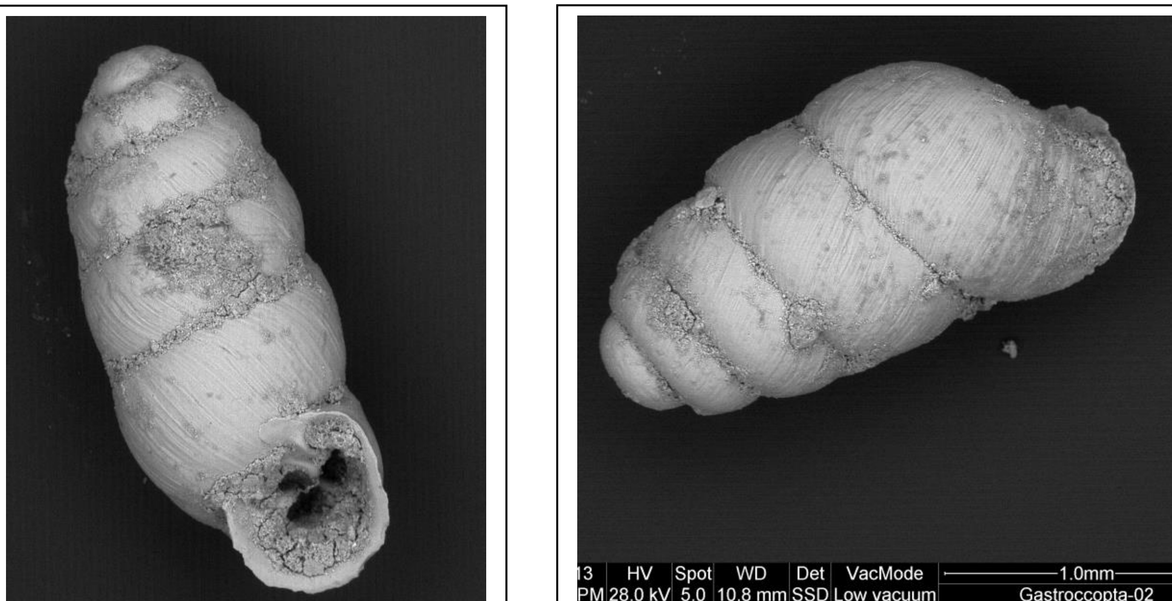


Figura Nº 4. (A) vista anterior de *Gastrocopta sp.* tomada con SEM a 100X, se observa el peristoma lleno de tierra que no permite observar bien los dientes (B) vista posterior de *Gastrocopta sp.* donde se observa las estriaciones del periostraco, tomada con SEM a 100X

Las unidades 1 y 3 son las que presentan mayor cantidad de este caracol, y sus contextos pueden indicar deposiciones en suelos con ambientes secos en ese momento, en los cuales los caracoles excavan para buscar un poco de humedad. Esto implicaría que estarían asociados a momentos secos (sin lluvia) del clima en aquella época.

Otros caracoles terrestres identificados y que tienen una importante significancia son aquellos de la familia *Charopidae* (posiblemente del género *Radiodiscus sp.*). Estos caracoles viven en climas fríos y húmedos, aunque también se adecuan a ciclos climáticos menores, signados por una tendencia hacia un clima más cálido y húmedo. Lo constituyen especies que por lo general viven en el dosel (hojarasca sobre arbustos o árboles) y en la hojarasca del suelo. (Miguel y Steffan, 2005).

La muestra aislada lo constituyen 64 especímenes y que representan el 23,3% del total de restos aislados de las muestras de flotación (tabla 9). La mayoría de ejemplares están cubiertos de sedimento fino en superficie del periostraco, pero hemos podido hacer unas buenas vistas en el SEM para dilucidar su identidad.

Figura Nº 5.- Caracoles terrestres de la Familia Charopidae, posiblemente del género *Radiodiscus*, recuperados de las muestras de flotación del sector Y, tomadas con SEM a 100X

También se ha podido aislar e identificar un total de 16 especímenes de unos pequeños gasterópodos, identificados como *Drepanostomella sp.* los cuales son carnívoros, y en la evaluación que realizaron Ramírez *et al,* (2001) verificaron que se trata de gasterópodos predadores que se alimentan de larvas y juveniles de coleópteros que viven en los suelos. En la mayoría de los contextos del sector Y estuvo asociado con individuos de *Charopidae* y *Gastrocopta* (tabla 9). Estas asociaciones de estos micromoluscos terrestres, nos indican aspectos climáticos que envuelven la historia del sitio, tal como lo demuestran los datos de *Gastrocopta* y *Charopidae*.

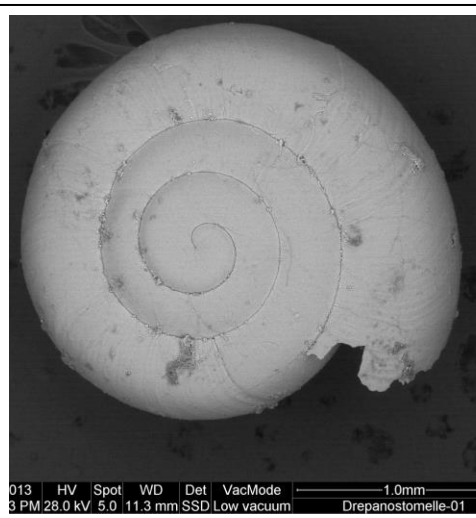


Figura Nº 6.- Conchillas de *Drepanostomella sp.* aisladas del sector Y, tomado con SEM a 100X

También hemos podido identificar otro gasterópodo terrestre que nos proporciona información adicional del habitát, se trata de *Steeriana sp.*, estos caracoles (en total 3 especimenes) viven en la piedra caliza, es decir en zonas de cerros con rocas de este tipo. Por tener este tipo de hábitat esta relacionada con vegetación como cactaceas, cuyas semillas también han sido recuperadas en este sector. El problema para su identificación, fue la mala conservación, mucho sedimento en su periostraco, y el peristoma roto. Sin embargo la resolución de SEM resolvió el problema y pudimos acercarnos a nivel genérico.

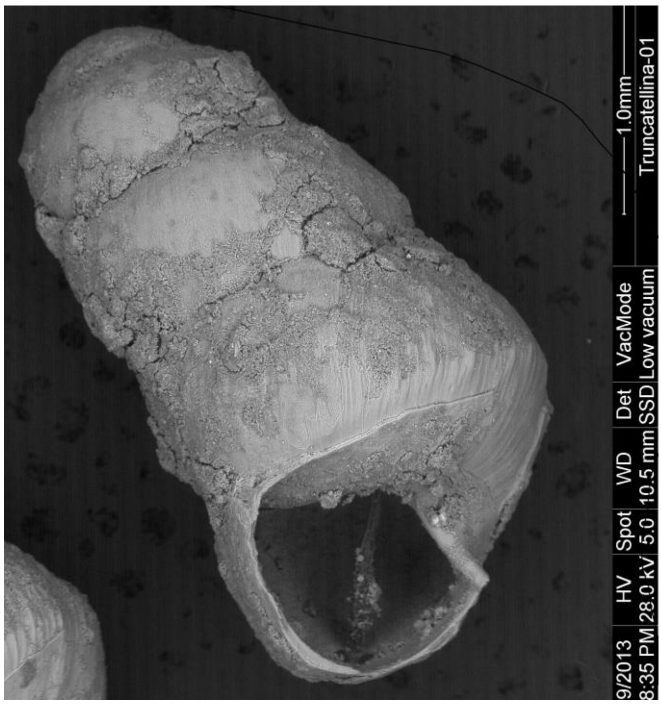


Figura Nº 7.- conchilla de *Steeriana sp.* en vista anterior mediante SEM a 70X, se observa el peristoma al lado contrario de la mayoría de gasterópodos.

En relación a los restos botánicos identificados de las muestras de flotación de este sector Y, la información es mas variada, pero la cantidad de restos de semillas es pequeña, salvo el caso de las 113 semillas de *Poaceae*, que pueden ser resultado de intrusiones a lo largo de la historia de estos contexto, pero no tienen un significado mayor.

Es posible rescatar la presencia de 1 semillas carbonizada de *Chenopodium quinoa* “quinua”, lo cual demuestra que este sector tenia aún dentro de sus menus, las plantas nativas prehispánicas. La semilla no esta bien conservada, pero se observa en SEM, detalles diagnósticos de la especi, como los granos de almidón y las drusas (estructuras de oxalatos) como podemos apreciar en las siguientes figuras.

A **B**

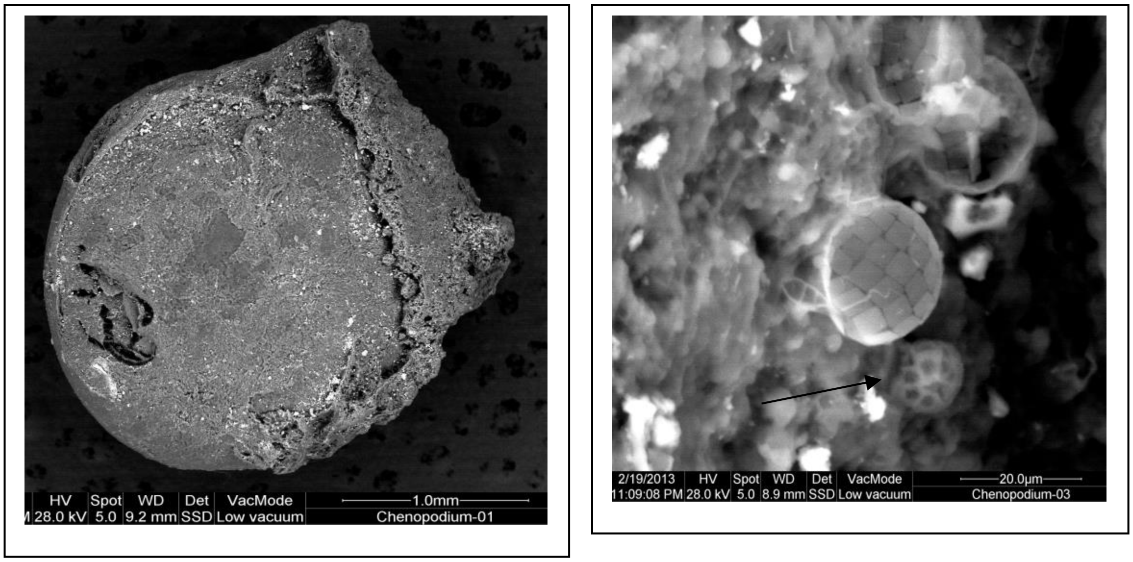


Figura Nº 8.- (A) Semilla carbonizada de *Chenopodium quinoa* “quinua” con el tegumento (pericarpio) roto, se observa parte de la radicula rota, tomada con SEM a 77X (B) detalles del interior de la semilla de quinua, mostrando las drusas (flecha) y los granos de almidón, tomada con SEM a 1200X

Finalmente tenemos una variedad de semillas de hierbas silvestres asociadas a campos de cultivo como *Argemone sp.*, *Trifolium sp, Galium sp. Convolvulus sp.*. Hay también, una semilla de *Conium sp.* que es una planta que contiene sustancia tóxicas, pero desconocemos la función de esta planta en el sitio.

Esta es la historia natural del material identificado a partir de las semillas y otros restos aislados de las muestras de flotación, que muestran el acceso y manejo vertical de los pisos ecológicos, la colecta de diversas especies vegetales, los tipos de clima y hábitats posibles que existieron en aquella época del sitio.

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Appendix I: Raw counts, masses and densities of lithics, ceramics, and faunal remains from Yanawilka by locus.

Locus	Lit ct.	Lit mass (g)	Lit dens (ct./m³)	Cer ct.	Cer mass (g)	Cer dens (ct./m³)	Faun ct.	Faun mass (g)	Faun dens (ct./m³)
Y1.1	10	65.3	12.3	199	1103.6	245.7	16	39.9	19.8
Y1.2E	82	3764.6	63.6	820	4452.6	635.7	240	350.4	186.0
Y1.2W	55	270.9	52.4	906	4211.6	862.9	151	257.5	143.8
Y1.3E	1	33.4	2.6	79	504.1	202.6	20	146.0	51.3
Y1.3W	0	0.0	0.0	0	0.0	0.0	1	32.8	22.2
Y1.4E	4	55.3	4.8	81	551.1	96.4	3	2.2	3.6
Y1.4W	2	1.3	1.3	47	227.0	29.6	19	22.5	11.9
Y1.6W	1	2.6	6.1	10	284.8	60.6	1	1.7	6.1
Y2.1	1	25.0	2.1	73	397.6	152.1	0	0.0	0.0
Y2.2E	14	130.5	10.4	308	2150.9	228.1	16	45.9	11.9
Y2.2W	5	12.7	3.7	258	1251.7	191.1	16	38.6	11.9
Y2.3E	0	0.0	0.0	62	396.1	98.4	0	0.0	0.0
Y2.3W	4	9.3	8.6	99	379.6	212.9	4	23.8	8.6
Y2.5W	0	0.0	0.0	38	202.1	194.9	1	1.6	5.1
Y3.1E	7	90.9	10.6	437	2118.3	662.1	12	16.9	18.2
Y3.1W	7	90.9	14.6	465	2113.4	968.8	3	2.3	6.3
Y3.2E	9	144.4	9.4	281	1455.0	292.7	48	47.4	50.0
Y3.2W	7	58.8	4.6	797	2900.7	520.9	15	25.5	9.8
Y3.3E	3	24.8	2.0	42	511.6	27.5	6	9.3	3.9
Y3.3W	3	91.9	1.1	27	142.6	9.9	10	18.6	3.7
Y4.1E	0	0.0	0.0	56	152.9	143.6	0	0.0	0.0
Y4.1W	14	13.8	25.2	109	364.6	196.4	2	2.2	3.6
Y4.2E	9	346.6	17.1	105	380.5	200.0	2	7.0	3.8
Y4.2W	16	80.6	23.7	98	369.5	145.2	3	0.2	4.4
Y4.3E	13	11.4	16.7	174	596.2	223.1	6	6.7	7.7
Y4.4E	10	23.0	13.1	48	180.9	62.7	4	3.4	5.2
Y4.4W	9	42.4	6.7	91	480.0	67.8	1	3.1	0.7
Y4.5E	0	0.0	0.0	24	420.0	22.9	6	44.0	5.7
Y4.5W	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Y4.6E	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Grand Total	**286**	**5390.5**	**312.4**	**5734**	**28299.0**	**6754.4**	**606**	**1149.5**	**605.2**

Appendix J: 1729 complaint by Nicolas Guaman, mayor of Pomacocha. Spanish transcription from Mendizabal (1958: 275-276). Translated by Di Hu.

Emo--eltto--Señor--El Alcade Nicolas Guaman en Vos Yen nombre del Comun de Yndios del Obraje de Pomacocha puesto a las Pies de Ve, Dize que Dn Domingo del Poso y Dn Alonso Garcia Araujo Arrendatarios que fueron antes de la Ruina del Temblor que causo la de Cadencia de Obraje que lo fueron por tiempo de Diez, Y ocho años antenido enel tiempo referido adho Comun padeciendo Repetidoas Extorciones en grave per Juicio de sus Vidas yla de muchos Pobres que endho Terremoto perecieron mas de sesenta personas de todo Sexos, pues en el discurso Referido dhos Arrendatarios han Vsado del pesado Yugo de pensionar al dho Comun aqui enes Recibian Ynconsultamente porciones considerables de Ropa no licita asu Naciom como Bretaña, Cambrai En Caxes y Brocatos Yotros generos Nobles de Exsorvitante precio enque al presente se allan Empeñados en mas de Treinta mill pesos, averse podido (aun con lu continuo trabajo) Rescatar de carga tan pesada allandose ael presente con la de querer intentar de nuebo los sobre dhos Arrendatarios Violentarlos atras parlos sobre Obraje en donde nose puede dudar lo Executara pues entra a Exercer el oficio de dha Provincia Ysiendo el suso dho Corregidor Yaquien la Ycumbe nuestra defensa omienda esta pues ade ver el que mas nos moleste aquien occuriran en donde el Ynmenso trabajo ls aga satisfazer dho decreto con la presuracion de sus dias por no podran con su afan, agregandose desto los nuebos Empeños aque seran Violentados Yque las predicen como asta aqui han hecho para vesarselos aque trabajen lape nosa tarea desde la queatro de la Mañana hasta las dies Yonce de la noche as ta aqui loemos Experimentado sin Reservarnos los dias de fiesta y Domingos obligandonos alomesmo con Titulo de faenas siendo todo lo Referido contra ordenanzas y Rl mente de su Magd como Ve tendra presente se ade Señor su Venignidad y Santo Celo deatender a la Miseria enque Vedividos estos Pobres Tributarios que aelpresente los son todos a los quales en Carga tanto su Magd con Repetidos en Cargos que haze asus Vireis y Gouernadores para la mejor Conservacion de su Vasallaje y Reales Aueres portodolo Expresado Suplican a Ve, se irva de Nombrar lapersona que fuere mas Combeniente ante quien daremos amplia prueba detodo lo aqui Expresado sirviendose Ve dequeta persona no sea Vecino de esta Ciudad de Guamanga por el mucho Respecto y Valimiento que dhos Arrendatarios tienen con los autoridades dela Ciud Yen fuerza de nuestra prueba Ve se serua de conceder amplia facultad al Jues nombrado para que nos Exeptue Y deje Libres de la es Clavitud en que emos estado asta el presente que dho Comun queda obligado a conservar el servicio Personal en dho Obraje para el alivio del Santo Monasterio de Santa Clara de esta Ciudad, pues su Magd nos tiene asignados ael Yno aotro por estar estos Traspasos prohibidos por Cedulas Rs quedando apoyar esta Comun cada Vno la cantidad liquida de catorce pesos ques la cantidad este que se puede empenar el Yndio Tributario por estar asi dispuesto Y Mandado por Cedulas Rs por lo qual Yaviendo aquello Expresion que mas nos Yn cumbe que por Expresa Ave Pido y Suplico en nom bre d dho Comun sea apreciada nuestra humil de Velacion en la alta Comprehencion de Ve sirviendose nombrar Juez que actue dha Ynformacion Ex Clareciendo a los Vecinos de esta Ciudd por los Yncombenientes Referidos Yque conosca el Comun Remobido por ninguna

Causa ni Razon antes de enla Posesion Enque a netado Seguiendose de Padres ahijos Ynosean obligados asatisfacer mas cantidad que la que Esta Ympuesta y Tasada por la Catholica Magd q Diosgd Y la con dusión de Ve por otros parajes atribuyendose amilagrasa para la Redension de tanto Pobre Desualido que esta la occasion presiente encarecido de Justizia la qual Esperan alcanzar de la Poderosa Mano de Vé para Vien Yamparo de estos Vecinos Yalibio de sus Vasallos Naturales pues aunlas muchachas ymuchachos de edadde ocho a diez años se allan siendo menores yenedad pupilar Empeñados en cantidad tan Exsorvitante como son la de Setenta Yochenta pesos sin Lisencia delos Tutores deellos ni Conocimiento del Protector pido Justizia delapoderosa mano de Vé.

Nicolas Guaman

The mayor Nicolas Guaman in voice and in name of the común of the Indians of the obraje of Pomacocha put at your feet, says that Don Domingo del Poso and Don Alonso Garcia Araujo who were renters before the ruination of the earthquake that caused the fall of the obraje, and who were renters for 18 years, having had, in that referred time, the común suffering repeated extortions in grave prejudice of their lives and the life of many poor people, that in the said earthquake perished more than 60 people of all sexes, so in the referred discourse the said renters had used the heavy yoke of aggrieving the said común, to whom [the renters] are received unquestionable and considerable portions of cloth illegally, types such as Britanny [Bretaña], Cambric [Cambrai], laces [Encajes], and brocades [Brocatos], and other expensive types of exorbitant price in which to the present they are indebted for more than thirty thousand pesos, having been able (even with one's continuous work) to repay the very heavy load found at present which the aforementioned renters want to try again to force to transfer onto the obraje where one cannot doubt that it would be done [transferring the debt]. So entering the office of the said Province and being the previously mentioned Corregidor and to whom the obligation of our defense this duty (?) [omienda->encomienda?], so one has to see that which most troubles us to whom will occur in where the immense work satisfies the said decree with the hurrying of their days because they will not with their desire, adding to this new debts to which they will be forced. And that they predict them as up to now they have done to harass those who labor under the awful manual tasks from four in the morning until ten and eleven at night. Up to now we have experienced this treatment without giving us the rest of festivals and Sundays, obliging us to faenas [obligated communal work], and all the mentioned mistreatments are against ordinances, and truly of your Majesty, as your excellence having present the Lord his benevolence and sanctity, should tend to the misery in which your excellence divided [¿?] these poor tributaries who at present are all those who are so much the responsibility of your Majesty, with repeated orders that you send to the Viceroys and Governors for the better conservation of your vassals and royal property [¿? aueres]. For all the expressed [grievances] we supplicate to your Excellency, to name the person who is most convenient before whom we will give ample proof of all expressed here, serving your Excellency, and that this person should not be Vecino of this city of Guamanga [Huamanga] because of the much respect and value that the said renters have with the authorities of the city and in force of our proof your Excellency it would serve to concede ample faculty to the named Judge so that we can be exempt and freed from slavery in which we have been up to the present, that the said común remains obligated to maintain personal service in the said obraje for the relief of the Sacred Monastery of Santa Clara of this city, as your Majesty has us assigned to it [the Monastery] and not to another, because these transfers are prohibited by the royal decrees, leaving the común only the monetary obligation of fourteen pesos which is the quantity that the indian tributary can bear, because it is organized and ordered by royal decrees and having that expression that most fails us to express to your excellency, I ask and supplicate in the name of the said común [of Pomacocha] that our humble [velación] in your Excellency's esteemed understanding, serving to name a Judge who would act on the said information, to bring to light the Vecinos of this city for the referred inconveniences, and to recognize that the común should not be ousted without prior cause or reason in the possession in which [a netado] sons following fathers, and should not be obligated to satisfy more quantity than that is imposed and taxed by the Catholic Majesty whom God watches over, and your Excellency's management in other places attributing to miracles for the redemption of the extremely poor and unvalued that this present occasion lacking the justice that is hoped to achieve from the powerful hand of your Excellency for the good and shelter from those vecinos and the relief of his [Excellency's] native vassals. Therefore, although the girls and boys from the ages of eight to ten, minors who are supposed to be tutored, they are also obligated to pay the extremely exorbitant seventy or eighty pesos without permission from their tutors nor the knowledge of the Protector [Protector of Natives], I ask for justice from your Excellency's powerful hand.

Nicolas Guaman