
Warfare, Space, and Identity in the South-Central Andes: Constraints and Choices

Elizabeth Arkush
University of Virginia
arkush@virginia.edu

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The innovative focus of this volume offers the chance to look at warfare through the lens of practice theory in a cultural context in which the approach is perhaps counter-intuitive. In many other contexts, including those discussed by several other contributors – Maya, Mississippian, and Moche, to name a few – there is ample evidence that elaborate ideologies surrounded warfare, death in war, and warrior personae. Archaeologists working in these regions can draw on a body of material culture freighted with symbolic meaning about warfare: *sacra* (to use Knight's [1986] term) proclaiming warrior prowess and valorizing elite status, human trophies, prestige goods circulated in peacemaking or alliances, monuments intended to display the military might of a center or a leader, and iconographies that are richly illustrative of warfare practice and belief. Other material remains testify to ritually charged activities linked to warfare, such as the construction of war temples or the public sacrifice of war captives. These provide a fertile field for practice-based analyses.

In general, these kinds of evidence are lacking in the Titicaca Basin of the south-central Andes in the era prior to the Inca conquest, the Late Intermediate Period (LIP, ca. AD 1100-1450). Contact-period ethnohistoric documents state there were powerful warring leaders in the region, who might be expected to have engaged in militaristic ideologies. Earlier in the archaeological sequence in this same region, rituals of violence and the iconography of violence are highly developed. In the LIP, the evidence of fortifications, weapons, and skeletal trauma suggests that warfare was quite intense and probably affected many aspects of life at the time. However, rituals and beliefs about warfare, while they surely existed, did not leave obvious traces. Warfare in the LIP in the Titicaca Basin thus lacks the flamboyant, culturally distinctive quality of some other areas and periods.

In consequence, this case highlights some of the most basic theoretical issues raised by this volume. In particular, it begs the question of whether it is appropriate to restrict our ideas of
practice in war to warfare behavior that is strongly shaped by its cultural context – in other words, behavior that does not fit our notions of least-effort functionality or rationality. Such behavior is not particularly evident in the LIP in the Titicaca Basin; what are detectable instead are expedient choices about territory and group identity, made in a context of intensifying warfare. I argue that these choices made within the constraints of severe competitive pressure can usefully be seen as aspects of practice.

This paper first discusses the way practice theory is applied to warfare, and outlines the ways in which it can inform the differentiation of social groups and group territories in space during wartime. The next section briefly outlines the context of the LIP in the Titicaca Basin, and the archaeological sequence leading up to it. Finally, I take a practice approach to the development of a sociopolitical landscape of group identities and group boundaries differentiating ally from foe.

*Practice, agency, and constraint*

Practice theory bridges the realms of individual action and “structure,” allowing both cultural persistence and culture change to be seen as the cumulative result of many actions – often routinized or habitual – taken by many individual agents. In these actions, individuals reproduce and embody fundamental, shared beliefs about the ordering of the world. As people face new challenges and changing situations, they actively reformulate existing practices to further their interests (social, economic, and political), and to make sense of the world they inhabit. This conscious and creative retooling of practice is what archaeologists usually mean by “agency.” Practice theory is thus a powerful tool for explaining how individuals’ actions both reproduce and alter larger-scale social patterns, or structure. It rests on the assumption that both individual actions and the larger patterns they create are not determined – that there is “wiggle room” for individual improvisation as well as for cultural variability between societies. Thus, implicit in practice theory, especially in contrast to earlier anthropological theory, is the idea of relaxed constraints on action and outcome. Indeed, Bourdieu’s project, in outlining a theory of practice, was partly to explain social reproduction without recourse to “rules” or other rigid, deterministic ordering structures (Bourdieu 1978, 1980). Those examples with which he illustrates his theory are precisely behaviors and patterns that vary greatly from one society to the next: language, festivals, rituals, gift exchange, etiquette, the spatial organization of houses.

Thus, when locating practice in the archaeological record, archaeologists tend to look for those aspects of behavior that are not solely explicable through practical reason, in the sense
explored by Walker (2002) – that are not universal or obviously utilitarian. Examples of such behavior abound in warfare. Beliefs, rituals, depictions, and displays about warfare are potentially unlimited in their variability, and indeed, can only be explained with reference to their particular cultural contexts. Signals – the mutilation of a war victim, the wearing of fearsome war paint or dress, the display of group strength through various means – form a centrally important element of warfare in most societies and, like any other form of communication, belong to a culturally specific lexicon. Another example might be conventionalized practices which altered actual combat, such as counting coup among the Plains Indians (Mishkin 1940), Greek hoplite battles (Runciman 1998; Lynn 2003), or places of asylum from violence in Hawaiian warfare (Kolb and Dixon 2002). While these practices were often discarded in confrontations with external groups, they could arise and be maintained (at least for a time) among competing societies that shared a cultural framework. Finally, patterns of warfare that perpetuate themselves without an obvious external cause could be seen as the result of repeated practice reinforcing ideas about war, validating violence, and instilling a warrior identity in new generations. For instance, Robarchek and Robarchek (1998) attribute war among the Waorani of Ecuador not to external factors such as population pressure or protein scarcity, but to a variety of structural and cultural factors that are themselves exacerbated by endemic warfare. These aspects of warfare, because they allow room for cultural idiosyncrasy, are at first glance more attractive choices for a practice-based analysis than behaviors that are strongly constrained by external pressures. Particularly attractive are those behaviors that “don’t fit” – that seem to lessen (or at least not increase) the odds of winning. For instance, Walker (2002) specifically identifies evidence of (to the Western observer) “impractical,” “irrational,” and “nonutilitarian” behavior as a window into the ritual aspects of warfare in the American Southwest.

However, an alternative approach is to consider the practice of warfare as something that can and does take place within external constraints. We know that warfare is a difficult and dangerous endeavor in which the stakes are often very high. Indeed, most scholars see it as something so hazardous and traumatic that it must be explained as a response to acute needs and powerful incentives (e.g., Ferguson 1984, 1990). In addition, warfare itself creates an environment of strong competitive pressures, wherein a group that does not effectively defend itself risks physical or social extinction. As much as warfare practice is embedded in culture, it is also driven by the desire to avoid defeat. This utilitarian need results in many patterns that are not culturally specific – for instance, commonalities in the way fortifications and weapons were designed around the globe. While walls and weapons were indeed produced and reproduced through a framework of culturally
transmitted practical knowledge, one can explain their form satisfactorily without recourse to practice theory.

An alternative approach, then, is to consider the practice of warfare as something that takes place within external constraints, and within the bounded realm of what is militarily effective in a given social, demographic, and environmental context. For instance, Ferguson (1990) proposes a model of “a nested hierarchy of constraining factors, progressively limiting possibilities,” in which material and infrastructural factors are the “hard” limits within which there is play or leeway for social and ultimately ideological structure to influence warfare practice. This model may be too rigid in some ways (for instance, in insisting that warfare must always derive from material causes at root, and failing to recognize the way practices themselves alter infrastructure) but it is a useful starting point for thinking about limits on warfare practice, and their degree of flexibility.

One could make the objection that from an emic perspective, this model is meaningless. Every choice is utilitarian within its cultural framework. Cultural norms and beliefs may constrain action just as much as external factors; indeed, to an actor, the distinction between “internal” and “external” factors may be irrelevant. However, the distinction is relevant to us as observers whenever we take a comparative approach to warfare – as in this volume. Contexts of war differ greatly, and change greatly over time; we as anthropologists would naturally like to know why (even if the question would not occur to an actor within such a context). One fundamental reason for such differences is different settings of demography, environment, and sociopolitical organization, and recognizing these factors, as Ferguson (1990) suggests, allows us to identify the realm of agency and cultural variability where practice becomes useful as a conceptual tool.

In sum, here I simply restate the obvious: that human choices, including those about warfare (especially those about warfare, we could guess), take place in a world of constraints and pressures. Because there are remarkable contrasts between the Titicaca Basin and other areas covered in this volume – and perhaps even more striking contrasts between different periods in the Titicaca Basin itself – it is clear that the balance of infrastructural constraints and culturally specific practices changes from one place to another, or over time in the same place. As warfare intensifies, the pressure increases on an individual or group to do whatever is necessary to improve the chances of survival. These choices and practices made in an environment of intense competitive pressures cannot be said to violate “practical reason” – indeed, they are strongly utilitarian. In this sense, they may not strongly reflect a distinctive cultural context. Nevertheless, they can fruitfully be seen as “practice,” in that they create historically specific situations that further inform and constrain action.
One of the main ways they do so is in creating and reproducing social identities in space.

*Conflict, cultural identity, and space*

The concept of social identity, particularly ethnicity, is a dominant theoretical theme in anthropological archaeology. Since at least the 1960s, social scientists have viewed ethnic groups as defined by subjective affiliation or ascription, rather than by objective criteria such as genealogy, language or “race” (Fenton 2003). At the same time, most would agree that ethnic identity must be based on at least a perception of shared culture, history, and ancestry for it to be seen as “ethnic” to begin with. A primary question has been how much conscious awareness and control human actors have in the construction of ethnicity: whether ethnic affiliation or ethnic ascription by outsiders is tied to deep, involuntary loyalties to kin, place of origin, and “our way” of doing things (the “primordialist” view; Shils 1957, Geertz 1963, Gil-White 1999), or is constructed and mobilized strategically and expediently in pursuit of shared political interests, rendering it fluid and contingent (the “instrumentalist” view; Barth 1969, Glazer and Moynihan 1975).

For archaeologists, this question has posed problems for the most basic task of identifying cultural groups – a task which has almost always been based on stylistic differences in material culture. Much of the recent archaeological and ethnoarchaeological literature has centered on whether style reflects ethnicity, and on finding a palatable explanation for why it should do so (e.g., Wiessner 1983, 1990; Hodder 1982; Sackett 1986, 1990; Shennan 1989; Carr and Neitzel 1995; Emberling 1997; Jones 1997; Dietler and Herbich 1998; Stark 1998). Several scholars have concluded that the problem is best resolved through a practice theory approach (Bentley 1987, Jones 1997, Dietler and Herbich 1998). In this view, the repeated practices of daily life make up a sense of cultural identity and custom that is deeply felt, but can also be consciously manipulated. Style may express identity and affiliation in both routinized and intentional ways. Indeed, the act of differentiating one’s group from others through material culture style is a significant part of the “ethnic process.” Recently, archaeologists have also considered the ways cultural identity may be expressed in house structure and other aspects of the use of space, in mortuary ritual, craft production, food choices, and bodily modification; however, they have not closely examined how it is articulated in violence against outsiders.

Nevertheless, there is an obvious relationship between group affiliation and acts of violence against those outside the group. The modern world is riven with tensions that are portrayed by
outsiders and conceptualized by insiders as rooted in ethnic and religious identities, although scholars who study these conflicts vigorously reject the idea that ethnic or sectarian difference ultimately causes conflict (Allen and Eade 1996; Eller 1999). Rather, they consider other problems to lead to the mobilization and militarization of ethnic groups (see Brubaker and Latin 1998). For instance, Turton (1997) stresses the role of “ethnic entrepreneurs” in the former Yugoslavia, Rwanda and Ethiopia: politicians and intellectuals who consolidated their political power by galvanizing ethnic sentiment and selectively recrafting ethnic histories of pride and grievance. Violence further sharpens ethnic distinctions, and plays into the hands of these factional leaders. Thus, warfare can play an active role in the ethnic process.

Meanwhile, anthropologists who study conflict and violence in traditional societies have proposed interesting ideas about how kinship-based social structures direct violence outwards, towards peoples perceived as less genealogically related (e.g., Sahlins 1961; Otterbein 1968, 1970; see Solometo in press). When violent conflict arises between communities who consider themselves to be related, it is typically more restricted and less brutal than wars with outsiders – for instance, mutilation and trophy taking may be permissible in wars against outsiders, but not in wars between communities with strong social and kinship ties (Solometo 2006). Hence, while collective violence may have its roots in other phenomena – physical and economic insecurity, for instance – ideas of shared ancestry, patterns of social interaction, and alliances built on perceived relatedness, channel this violence to the boundaries of the larger social group. In the process, this structured violence reinforces and reproduces the group as a meaningful entity. Thus, regional histories of group identities, allegiances, and hostilities inform each new act of war, even if they may not ultimately cause it (Pauketat, this volume).

Ethnic groups are often closely associated with specific territories in space, and the relationship of people to the space they use is also reinforced by warfare. Wars over land or over resources fixed in space reinforce the concept of exclusive territory. They may lead the group to signal its territorial rights with visible, durable markers which become closely connected to the group’s identity and history. A group dispossessed of its land is also robbed of its cultural identity and its shared past. Even when wars are not pursued specifically to gain territory, chronic warfare creates a hostile environment in which portions of the landscape are “enemy territory” – too dangerous to venture into in the normal course of life. Warfare results in the creation of no-man’s-lands or buffer zones, further marking the difference between friendly and hostile terrain; it causes
dislocations, defensive nucleation, and the building of new communities geared for defense. These effects, while familiar to archaeologists, are not normally examined from a practice approach. However, the fit is a natural one. Since the inception of practice theory, a dominant concern has been the way people reproduce and embody the social and cosmological order in the spatial arrangements of houses or settlements, and the ways these physical structures, in turn, reinforce the social order through daily practice (Bourdieu 1978). Archaeologists have since expanded the spatial analysis of practice to treat the social meaning embedded in landscapes (e.g., Deetz 1990, Tilly 1994). Archaeologists who use insights from practice theory treat landscape as a form of materialized and lasting “structure” - something that is shaped by humans, and that in turn durably orders and influences human action. Landscapes of war certainly fit this description. They not only reflect group identities, group boundaries, and defensive measures; they reproduce these relationships through proximity with friends and distance from enemies.

While landscapes of group identities and group boundaries may have emerged in varied ways, violent conflict was probably often involved, and endemic warfare can be seen as a crucible for the creation or hardening of identities of Us and Other. For instance, Haas (1990) traces the process of tribalization in the American Southwest during a time of environmental degradation and intensified warfare after the Chaco collapse. Archaeologists and historians examine how the Persian Wars were crucial in crystallizing the idea of a pan-Greek ethnic identity vis-à-vis the foreigner (Bovon 1963, Hall 1997). The emergence and persistence of territorially defined groups in conflict-ridden contexts illustrates Barth’s fundamental insight (1969) that ethnic groups are created and maintained through the creation and active maintenance of ethnic boundaries.

The Andean region has all the ingredients discussed above: a complex mosaic of ethnic groups; very strong ties between these groups and the lands they inhabited; and a history of endemic warfare. At the time of the Spanish conquest, the Inca empire had only been in existence for about a century, and under a veneer of empire-wide institutions lay a patchwork of native groups whose identities were closely linked to specific places in the Andean geography. (Indeed, the importance of specific lands to Andean groups is indicated by the Inca policy of the forced resettlement of recalcitrant subject populations, sometimes over very long distances.) I believe that these identities took their specific forms prior to Inca conquest in the Late Intermediate Period, and that they did so in the context of frequent warfare, evidenced by widespread defensive settlement patterns. Here, I examine how warfare may have been related to space and group identity in one case, the northern Titicaca Basin of Peru.
Warfare in the Titicaca Basin

In the Titicaca basin, the Late Intermediate Period followed the collapse of the state of Tiwanaku in the southern basin ca. AD 1000 and was succeeded by the Inca conquest of the area around AD 1450. This intervening period was described by Incas and other native informants as a general time of war in the Andes. The Titicaca basin was said to have been dominated by warlike regional ethic groups: in the northern basin, the paramount lord of the Collas had politically consolidated a large region through the conquest of many other Colla lords and battled with the lords of the Lupacas and Canas, similarly sized groups to the south and north respectively (e.g., Betanzos [1551--7] 1996:93; Cobo [1653] 1979:139--140; Cieza [1553] 1984:274, 279; [1553] 1985: 15, 22, 110, 121; Sarmiento [1572] 1988:105--6). These accounts portray the Collas and their southern neighbors, the Lupacas, as some of the largest and most politically centralized of the Andes prior to Inca conquest, proto-states led by powerful hereditary warlords who vied for control of the region.

Archaeologically, one of the most noticeable trends of the LIP was a shift to dispersed hillside and hilltop settlements, often fortified. This defensive settlement pattern is evidence of much more intense warfare than at any other point in the prehispanic sequence. The ultimate cause of intensified warfare is not certain, but the timing of the construction and occupation of fortified sites suggests that a long-term series of droughts was a significant factor (Arkush 2008). In the high-altitude, frost-prone altiplano, agriculture is very sensitive to precipitation, and productive agricultural lands are limited.

The pressure of warfare in the LIP manifests itself most strikingly to the archaeologist as a great proliferation of hilltop fortified sites known in the Andes as pukaras. From 2000 to 2002, I conducted a research project specifically aimed at clarifying pukara characteristics, use patterns, and regional distribution in the northern and northwestern Titicaca basin, territory associated with the Collas (Arkush 2005, 2008). Pukaras are very numerous in the Colla area, and in most of the rest of the Titicaca basin as well (Barreda 1958; Bennett 1933, 1950; Frye 1997; Hyslop 1976; Neira 1967; Stanish et al. 1997; Stanish 2003; Tapia Pineda 1978a, b, 1985). Their use varied; some were lightly used outposts or refuges, while others were permanent settlements.

The builders of pukaras paid close attention to the strength and design of defenses. Pukaras follow a canon of one to seven concentric defensive walls, interrupted by cliffs. Walls are thickest
and highest on the sides of the hill that are most approachable, and sometimes peter out on steep ground. Entrances usually consist of several small doorways that could be easily blocked from the inside, and they are often (though not always) staggered from one wall to the next, creating an enclosed “killing alley” that attackers would have to pass through. Walls vary greatly in size; at the largest pukaras they are truly massive, up to about 4 m thick and 5 m high. They often have a parapet remaining, especially on the most vulnerable sides. Piles of river cobbles for use as slingstones or throwing stones can be found just inside the defensive walls in some cases. Many pukaras are on very high hills that are difficult of access and exposed to stormy weather, and in over four-fifths of the 44 pukaras surveyed in the project, we could locate no year-round water source on site. For thirteen pukaras (including at least eight settlements with substantial domestic architecture or artifacts), water is at least half an hour’s walk away. In other words, the danger of attack was great enough that people made substantial sacrifices for safety; they were willing to live on high hills inconveniently far from water, and to invest considerable labor in building defenses. Nevertheless, their preparations were not always effective. At the funerary cave of Molino-Chilacachi in the southwestern basin, which dates to the time of pukara use, 15% of the 44 adult crania from disarticulated skeletons (probable secondary burials) had frontal or parietal fractures probably from maces or slingstones, including several healed injuries (de la Vega et al. 2002).

In surveying the high, windy, inaccessible peaks where Colla people chose to build, the cumulative subjective impression is of a human landscape shaped powerfully by fear. This settlement pattern suggests that intense warfare placed great constraints on the room for decision, including decisions about warfare itself: where and how to live, how to expend collective labor, how to protect a settlement, how far it was acceptable to travel to fields and water sources. These decisions and the larger patterns they constituted were rigorously driven by necessity.

**Warfare and cultural context in the LIP**

Several contributors to this volume relate warfare to its cultural context by specifically focusing on the rituals and ideologies that surround warfare. But in the LIP, in contrast to earlier periods, there are very few clues in the Titicaca Basin archaeological record about war-related ritual and belief. Weapons have been found in some LIP graves. Tombs in the northern Titicaca Basin
near Ayaviri, excavated by Bustina (1960), contained polished bola stones. Among the grave goods at the funerary cave of Molino-Chilacachi were macanas, swords made of hardwood from the lowlands east of the basin (de la Vega 2002). Because these, like most LIP burials, were multiple burials, the weapons and other grave goods were not clearly associated with any particular individual (or gender). But the fact that people were buried with weapons suggests that the weapons were an important element of their social identity, and possibly that individuals needed protection after death. Supporting evidence comes from the later contact period. In Nicasio in the middle of Colla territory in the late 1540s, the early Colonial observer Pedro Cieza de León witnessed mourning ceremonies for the funeral of a great lord, in which lamenting women went through the town carrying the lord’s arms, headdress, clothing, and seat (1984:279 [I.c]). Given that Cieza describes this as typical of Colla burial customs, the deceased was probably an important local lord rather than an Inca governor. Again, arms, as well as other symbols of status, were closely enough associated with a leader to be displayed in a procession on his death.

Rituals or conventions may have applied during and after actual combat, if early Colonial descriptions of remembered pre-Inca warfare are reliable. Mercado de Peñalosa gives one of the few accounts of warfare practice, for the Pacajes of the southern Titicaca basin (1885 [1586]:59). He states that Pacajes traditionally fought nude, protected by wooden shields, with their limbs and face bedaubed with colors, to appear fierce to their enemies. Cieza mentions war-related rituals, stating that after battle, Andean groups “went triumphantly back to the heights of the hills where they had their castles, and there made sacrifices to the gods they worshipped, pouring before the rocks and idols much blood of humans and animals” (1985:6 [II.iv]). However, this is a statement about the Andes in general, and there is no guarantee it applies to the people of the Titicaca Basin.

It is also possible to make some loose speculations based on our knowledge of later Titicaca Basin society. At the time of Spanish contact, the Titicaca Basin (like much of the rest of the Andes) was populated by a legion of powerful place spirits (associated with mountains, rivers, and springs), and ancestors were present and active in human affairs. Propitiating these powerful spirits and seeking the help of ancestors was probably an important aspect of warfare. Harry Tschopik (1946:563), in his ethnography of the Aymara, noted the importance of divination before any significant undertaking, and we might guess that several centuries before, divination was a prelude to violent action. Nevertheless, these rituals and beliefs are difficult to verify archaeologically and do

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1 The bola was a weapon made with a cord attached to several stone weights by means of a medial groove or a hole, thrown in both warfare and hunting.
not have any support at this point.

Indeed, one of the most notable changes of the LIP from the earlier MH (along with intensified warfare) is the marked diminution of material expressions of ideology, including the disappearance of long-lived forms of ceremonial architecture such as platform mounds and sunken courts. Even the largest LIP centers had relatively little in the way of civic / ceremonial architecture, elaborate elite residences, or finely crafted items, suggesting a flattening of the social hierarchy and a decreased reliance on ceremony and ideology to legitimize leaders. In particular, the indicators of a link between warfare and elite legitimation that are present earlier – warlike iconography, large scale public sacrifices, and so on - are not present in the LIP or have not been found. For instance, trophy head iconography, so central to earlier traditions, essentially disappears in the LIP (even while actual opportunities for garnering trophy heads must have increased). In fact, nearly all the complex figural iconography of the Middle Horizon disappeared, and was replaced on ceramics and in petroglyphs with primarily abstract designs. In the Colla area, representational art is restricted to rare depictions of camelids on pottery and in rock art, and small, molded ceramic figurines or vessel handles of human or animal bodies or heads (which do not appear to be trophy heads). Meanwhile, new burial traditions were adopted: above-ground circular grave markers (collar or slab-cist tombs) and less commonly, mortuary towers or chullpas. These tombs were both the religious and the physical focus of LIP communities: cemeteries are often located at the center and highest point of Colla pukaras. These shifts in iconography and burial patterns, along with the cessation of the sunken court tradition, suggest a major ideological transformation.

Despite the early Colonial accounts of powerful pre-Inca warlords, social hierarchies were not elaborately expressed in material culture at this time. There is not much evidence for segregated elite areas, and elite differentiation through house size is apparent more as a continuum than as a distinct category (see also Frye 1997). While chullpas may have signified higher status than other forms of LIP burial (such as cave burials and cist tombs), all of these types are normally multiple burials (sometimes of quite large numbers of individuals) and probably no type of burial was restricted to a single class.

2 Chullpas are clearly associated with multiple burials (e.g. Rydén 1947). While most contain much smaller numbers, Ayca (1995:135) reports the cleaning of two chullpas at Ayrampuni / Cacse, on Lago Umayo, that contained 34 and 32 mummified individuals respectively, including both sexes and children. Cave burials were always multiple and could also house large numbers: the Molino-Chilacachi cave burial contained at least 133 men, women, and children, interred in more than one episode (de la Vega et al 2002). Slab-cist graves were much smaller but also usually contained the remains of several individuals (Bustina 1960; Revilla and Uriarte 1985; M. Tschopik 1946).
To contextualize, many of the shifts of the LIP affected not only the Titicaca Basin but large portions of the Andean highlands. Defensive settlement patterns and (where the information is available) high rates of skeletal trauma are very widespread in the LIP, covering vast stretches of the Andean highlands from Argentina and Chile to Ecuador (Parsons and Hastings 1988; Arkush 2006). The widespread extent of defensive settlement patterns in the LIP begs the question of where to locate agency and cultural variability in the practice of warfare in this time period. How much leeway was there for variability, if all across the Andes, people responded to their problems in much the same way?

Colla groups and group identity in space

One of the behavioral realms in which practice altered large-scale societal patterns in the LIP was in the relationships of groups to each other and to the space they inhabited. Group identities in the LIP were probably very place-based, linked to both built and natural aspects of the environment. Prominent chullpas visibly signified ancestral ties to particular places, ties repeatedly renewed by the living in offerings, ceremonies, and successive interments. Walls not only protected those inside, they demarcated the local community and reinforced categories of insider and outsider (Adams 1966). Pacarinas, sacred natural spots on the local landscape, were identified as the origin places or mythical founding ancestors of particular groups. Settlements were enmeshed in a spatial network of powerful place spirits associated with particular mountains. Pukaras and distinctively shaped hills are visible from great distances, especially from the vantage of the hilltop settlements of the Collas, and form ever-present reference points, concretely locating the observer in space at all times.

Beyond these rather conjectural relationships to the land, a social landscape is visible archaeologically, the result of communities’ political actions (violent or otherwise) with allies against enemies. Colla people structured their societies around relationships with allies placed strategically in the local geography, and these relationships formed the seeds of ethnic and political blocs that were later documented in the early Colonial era. While these spatial patterns of allies and enemies were constrained by necessity, they nevertheless represent the accumulated and continual negotiations, affiliations, interactions, and choices that constitute “practice.”
Patterns of pukara distribution

When we turn to the archaeological landscape of the northern Basin in the LIP, the picture of political unification given in the early Colonial sources is clearly contradicted. Figure 1 shows the distribution of pukaras in the northwest Titicaca Basin. Pukaras in this map were identified mainly through examining air photos and through ground sighting, but also include all pukaras mentioned in the archaeological literature for the area. The map is centered on Colla territory, but includes some portions of Lupaca and Canas territory to the far north and south as indicated by the early Colonial literature. Pukaras are hilltop sites by definition, and here they are found not in the plains but on those hills that border the plains, river valleys, and transportation routes, where agriculture can be supported on the terraced hillsides and at the bases of hills. It can be seen that pukaras are very numerous in the study area. Even taking into account the preferential zones where they appear, pukaras are about as common in the interior of Colla territory as on its edges, a fact that is difficult to reconcile with the ethnohistoric portrayal of the Collas as a centralized kingdom. Furthermore, they are not evenly distributed across these prime zones but clustered in certain areas and largely absent in others, even where the topography is similar. In some cases, two or more pukaras are located quite close together, on the same large hill or range of hills. In other places, gaps of over ten kilometers with no pukaras separate dense clusters. The resulting picture is one of an extraordinarily fragmented landscape, with few areas of protected or pacified heartland.

However, if pukaras did not defend one unified polity, neither were they wholly autonomous. Most (65% of the total of 173 identified) are two to four kilometers away from their nearest neighbor pukara, and almost no pukaras (3%) are located 10 or more kilometers away from their nearest neighbor. This close spacing in and of itself suggests that many pukaras had friendly rather than hostile relationships; a distance of two to four kilometers is uncomfortably close for an enemy, much closer than the spacing of settlements in societies where conflict is endemic and every village is autonomous (e.g. Chagnon 1968:117). Additionally, pukaras vary greatly in size and defensibility (Figure 2). Some were minor outposts or unoccupied refuges; others were large centers with hundreds of densely packed houses. Some had high, thick walls and were located on high, steep hills, while others had minimal defenses and were much easier to approach. In other words, there is a great deal of variation in the scale of attacks that pukaras were intended to resist. I initially assumed, following Stanish (2003), that small and minimally defensive pukaras gradually gave way to larger and better protected pukaras over the course of the LIP. However, radiocarbon dates from fifteen Colla pukaras indicate that while a few small or minimally defensive pukaras were used
earlier, most pukaras of all sizes date to a time frame about 150 years long at the end of the LIP.\(^3\) The best explanation for this variation in pukara size and defensibility in the late LIP is that pukaras, including the small ones, were embedded in larger alliance or hierarchy networks that enabled the populations that used them to take refuge in larger, better protected pukaras in times of crisis, and to draw on reinforcements from neighboring allies.\(^4\) Thus, rather than existing as a well-integrated polity, Colla territory was most likely characterized by several loose defensive coalitions, perhaps each dominated by a particular center or a skilled war leader.

What were these coalitions? Because the nearest-neighbor spacing of pukaras is so consistent, it is plausible to conclude that any hill zone (that is, terrain suitable for pukaras) wider than 10 kilometers with no pukaras can be considered a buffer zone. However, a better approach to understanding spatial patterns of alliance and antagonism is through lines of sight. Lines of sight have been used by several archaeologists, primarily in the American Southwest, to reconstruct hypothetical networks of alliances (e.g. Haas and Creamer 1993; Wilcox et al. 2001), and there is some documentary evidence for the use of smoke or fire signals in wartime in the Titicaca Basin (Bandelier 1910:89; Chervin 1913:65; Garcilaso 1966:329 [1609:VI.vii]; H. Tschopik 1946:548; see Stanish 2003:220). It is expected that pukara sight lines were of great strategic importance in the largely treeless terrain of the Titicaca Basin, where an observer standing on the peak of a pukara can usually see a huge area. Pukaras may have used visual signals to summon aid from their allies, and they also probably watched other pukaras closely for signs of battle, wall-building, or a departing war party.

Figure 3 displays lines of sight between pukaras in the study area, generated through a GIS analysis and confirmed wherever possible in the field. Clearly, pukara visibility is very good in this region. It can be seen that pukaras tend to cluster in mutually inter-visible groups. Some of these clusters are quite distinct: for instance, the tight network of pukaras in the far north, around the modern town of Orurillo. Some pukaras have more line of sight connections than others, and

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\(^3\) See Arkush (2008). This time frame is admittedly a long one for discussing alliance relationships that may have shifted as pukaras came in and out of use. However, the broad outlines of the spatial patterns discussed here appear to be robust because they are supported by other evidence. Unfortunately, the imprecision of carbon dates and the long-lived ceramic styles of the LIP may hinder the construction of any finer-grained chronology of pukara use. Here, pukaras are treated as essentially contemporaneous.

\(^4\) In this discussion, “alliance relationships” are not necessarily meant to denote politically equal status. A pukara may have dominated its allies politically, exacting tribute or service. An allied cluster may in fact have been one center with a number of outposts. In addition, violent conflict may have sometimes occurred within an alliance group; however, it is expected that conflict between alliance groups was more frequent or intense than within.
pukaras with exceptionally good viewsheds may have been used partly as signaling or sentry “hubs.” By contrast, some pukaras are arranged in chains that may have been used to pass signals over long distances. An example is found to the northwest of Azangaro, where four pukaras form a chain on a single long range of mountains (Figure 4). Each of these pukaras can see only its immediate neighbors in the chain, not the pukaras further away. They are strategically placed so that a signal could be relayed from one end of the chain to the other.

Building on this pattern, possible alliance clusters, defined as networks of pukaras connected by lines of sight less than ten kilometers long, can be tentatively proposed (Figure 5). This is a very conservative interpretation of the size of groups; for instance, where two larger clusters are connected by only one pukara, they are represented as two overlapping groups rather than one. These groups are about 20 to 30 kilometers in diameter and would take no longer than a day’s journey to cross. On the ground, some alliance networks may have incorporated several of the indicated groups, or may have grown to include several over time.

The hypothetical political landscape in Figure 5 can be evaluated against other evidence. One line of evidence is spatial patterns in ceramic style.

**Ceramic type distributions**

Ceramics in the project were collected from all 44 pukaras groundchecked, pukaras spread across a large swath of Colla territory. Grab-bag surface collections of ceramics were made, with the conscious attempt to collect a large number of diagnostic ceramics that seemed representative of the assemblage at the site. At sites with particularly dense ceramics, one or a few collection blocks were judgmentally placed and all diagnostics within them were collected; at sites with very sparse ceramics, all diagnostics seen were collected. In a test of the methodology, systematic collections of about 10% of the surface at Llongo (S4), one medium-sized pukara with very dense surface artifacts, corresponded well in ceramic type frequency to grab-bag collections made earlier at the same site. While systematic surface collections at all pukaras would have been preferable, they were not possible due to time and labor constraints, and this test indicates that the collections from the project can be considered an acceptable basis for the broad spatial patterns identified here.

LIP ceramics appearing in the study zone fall into three major types: Collao, Sillustani, and Pucarani. In addition, this analysis was able to identify a distinctive subtype of Collao, termed Asillo (Figure 6). Collao is the most common type and is distributed across the survey area. First defined
by M. Tschopik (1946), it consists of bowls, vertical-sided vessels (keros), and both large storage jars and smaller pouring or serving jars, as well as a variety of less common miniature vessels, figurines, appliquéd animals, and other elements. The defining characteristic of Collao wares is a paste with large, angular or subangular grit inclusions that often show through on the surface and are visible through slip (if any). Collao vessels may be decorated with rather crudely executed abstract designs in matte black paint (Collao Black-on-Red); again, paste inclusions show through the black. These motifs are quite variable.

Asillo is a Collao subtype restricted to jars. Most common around the town of the same name, Asillo jars are distinguished by appliquéd bands marked by grooves or indentations, placed vertically or horizontally anywhere on the vessel wall. (Collao jars frequently have punctuate bands, but always horizontally around the neck.) In addition, Asillo jars often have a design motif of branching lines unique to this subtype. (Collao bowls found near Asillo also have a distinctive motif - a pair of horizontal or curving bands connected by short lines or dots, like a ladder – however, they are otherwise indistinguishable from other Collao bowls, and were not split off into the Asillo subtype).

Pucarani is a type found in the southwest Titicaca basin (de la Vega 1990) that extends into the southern portion of the study zone. Pucarani pastes are sand-tempered and softer than Collao pastes. This type is composed of bowls, small or medium wide-mouth jars, and a double-stacked large jar form; bowls may be slipped a deep, matte red on the interior, and jars slipped red around the inside rim. De la Vega (1990) also illustrates some Pucarani bowl motifs that were not found in this survey.

Finally, Sillustani (M. Tschopik 1946) is a type that includes bowls and large jars with quite fine pastes and thick, glossy slip. Sillustani Black-on-Red bowls are slipped red and often burnished, and feature a small set of distinctive motifs in black; Sillustani Polychrome bowls have red and black fine-line designs on a white ground. Among the ceramic types of this region, Sillustani is the most standardized and skillfully crafted, and seems the most likely to be associated with special serving events or prestigious uses.

In Figure 7, the previous map of line-of-sight clusters is overlaid with proportions of ceramic types at surveyed pukaras. (This map also includes later territorial divisions, discussed below.) As shown in the map, there is very clear regional variation in LIP ceramic types across the survey zone. In general, pukaras within a line-of-sight cluster have a homogenous ceramic assemblage. Collao is distributed throughout. The extent of Pucarani distribution within Colla
territory is essentially coterminous with the southern pukara cluster identified here; it also extends to the south into Lupaca territory. The Asillo subtype is found within the cluster around the modern town of Asillo, in the north-central part of the study zone, and is distributed in smaller amounts on the northeast side of the study zone. The large extent of the Sillustani ceramic style, which spans several clusters in the middle and west of the study area, suggests that these groups may have interacted frequently or perhaps belonged at some points to a larger confederation.

16th century administrative and ethnic divisions

Line-of-sight clusters and spatial ceramic patterns also align in some cases with administrative and ethnic divisions documented in early Colonial sources. These territorial divisions have been explored in some depth by Julien (1983, 1993) and Spurling (1992), and this section borrows heavily from their research. Both authors have proposed that Spanish Colonial rulers reused Inca-period provincial boundaries in the Titicaca Basin instead of redrawing them from scratch, especially since there is evidence for these territorial units from the earliest years of Spanish control; additionally, Spurling (1992) speculates that they originated before Inca times, in LIP sociopolitical boundaries. Here, these territorial divisions are briefly reviewed; then the “fit” is assessed between them and the sociopolitical landscape of the Collas in the LIP as evidenced archaeologically.

Colonial era documents, in listing the ethnic affiliation of different individual encomiendas in the Titicaca Basin - land grants to Spaniards of specific Indian communities and their native leaders - allow for the reconstruction of the territorial extent of large ethnic groups such as the Collas, Lupacas, and Canas. In the early Colonial period, a large portion of the north Titicaca Basin was recognized as Colla. This area was carved into a number of smaller pieces for administrative purposes (Figure 8). The northern portion of Colla territory was administered from Cuzco, while the southern was governed from La Paz. On at least the eastern side of the lake, the Cuzco / La Paz border followed an Inca-period administrative boundary; a litigation document presented by

5 Julien (1983, 1993), Bouyssse-Cassagne (1978, 1986), and scholars following them (Sainges 1986; Spurling 1992; Torero 1987) have used one principal source to reconstruct the spatial extent of the Collas and neighboring groups during the late Inca and the early Colonial periods: the list of capitanías de mita given by Luis Capoche (1959 [1585]), spatial parcels used for labor recruitment for the Potosí mines. This source lists individual encomiendas with their ethnic affiliation (Colla, Lupaca, Cana) and further subdivides the basin into Urcosuyu and Umasuyu sides.
Spurling (1992) attributes the boundary to Inca times, and the recruitment of *mitima* colonists for Cochabamba under the Inca ruler Wayna Qhapaq followed the boundary (Julien 1993:184). It is duplicated in the early *encomienda* grant of much of Colla Umasuyu-La Paz to Francisco de Carvajal by the 1540s (Julien 1983:29).

Another major division split the Collas, and other groups, into two on the west (Urcosuyu) and east (Umasuyu) sides of Lake Titicaca. The sociopolitical significance of the *suyu* division is supported by several early documents that refer to inhabitants of the two *suyus* separately, as coming from separate ethnic groups, polities, or labor recruitment divisions, rather than lumping them together as Collas (Arkush 2005; Spurling 1992). Urco and Uma sides were also associated with different lifeways and different extra-basin colonies in the documents (Bouysse-Cassagne 1986). For instance, in the Toledo *tasa*, a tax census compiled in 1570, much of Colla Urcosuyu to the west (as well as Cana Urcosuyu) paid no tax in agricultural products, but only in livestock and wool (Figure 9). This area may have been largely pastoral in the sixteenth century. Inhabitants of the Umasuyu side to the east, on the other hand, were universally taxed in agricultural products (always *chuño* – potatoes dehydrated for long-term storage - and often maize), as well as livestock. Most of the maize probably came from the warmer valleys of Larecaja and Carabaya to the east, where nearly every Colla Umasuyu *encomienda* had *mitima* colonists, purportedly since the time of the Incas (Spurling 1992:95-98; Saignes 1986); meanwhile, no Colla Urcosuyu *encomienda* was taxed in maize. This division between west and east is also evident in tribute assessments in precious metals (Figure 10). All Colla Umasuyu taxpayers were expected to pay tax in gold as well as silver, demonstrating that they had access to the gold mines in the eastern valleys; no Colla Urcosuyu community paid gold, except for the borderline *encomienda* of Pucará and Quipa.

The Urcosuyu / Umasuyu division, while it was apparently not an ethnic distinction, did have associations with essentialist personality stereotypes and basic Andean conceptual dichotomies (Bouysse-Cassagne 1986). An early Colonial document explains that inhabitants of the Urcosuyu side of the lake lived on hilltops, were strong, masculine, and held in high esteem, while Umasuyu people were feminine, had lower status, and lived in lowlands near water (Capoche 1959:140 [1585], cited in Bouysse-Cassagne 1986:222). As Bouysse-Cassagne (1986) discusses, drawing on the 1612 Aymara dictionary of Ludovico Bertonio, the terms “*urco*” and “*uma*” formed a conceptual dichotomy with manifold meanings (male / female, dry / wet, high / low), a dichotomy that

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6 For simplicity, this section and the accompanying maps lump together the tribute assessments of Aymaras and Urus.
corresponded to indigenous Aymara characterizations of the inhabitants of the Urco and Uma suyus of Lake Titicaca, and that was reutilized and reworked for Inca administrative purposes. Finally, the Urcosuyu / Umasuyu division also corresponded to two branches of the Inca road that split at Ayaviri and went around the lake. While there is evidence for smaller territorial blocs, especially in the Umasuyu (eastern) side (Spurling 1992; Julien 1993), their extent is not as clear.

Let us return to the question of how far back in time these territorial divisions went. Figure 8 overlays the LIP spatial patterns already identified with these 16th century divisions, and largely supports Spurling’s (1992) contention of their pre-Inca origin. The correspondence is particularly clear for Colla ethnic boundaries with the Canas and Lupacas. The Colla - Lupaca boundary to the south corresponds to a mountainous but nearly pukara-less zone, south of the southern pukara cluster shown on the map (N). The Colla – Canas division lies along pre-Inca buffer zones dividing the Orurillo cluster (B) from those at Pucará and Asillo (D and C). Within Colla territory, the Cuzco – La Paz administrative division on the eastern side, which (as reviewed above) followed an Inca-period boundary, corresponds to a range of high hills that blocks most lines of sight. It thus runs between clusters centered near Huancané (H) and near Chupa (F). On the other hand, the Cuzco – La Paz division on the western side crosses a line-of-sight cluster that shared ceramic styles, so this division may have been an Inca or Colonial-period innovation. Finally, the division between Colla Urcosuyu and Umasuyu runs between the clusters centered at Arapa and Nicasio (G and J, respectively), although it bisects the Pucará group (D), following the Río Pucara. In fact, this division is closely paralleled not by one single pukara cluster, but by the extent of the Sillustani pottery style. Overall, several of the administrative / ethnic divisions inherited from the Inca era were probably based on sociopolitical realities of the LIP.

To summarize, patterns of pukara placement and inter-visibility suggest that the Colla area in the LIP was broken into smaller territories associated with allied groups of pukaras. The evidence for these groups is supported by ceramic type distributions, and duplicated in several cases by territorial divisions attested in later documents. These patterns suggest that LIP ceramic types did indeed have associations with particular group identities in this region. Furthermore, ethnic or essentialist meanings were connected to these groups, according to later documents.

_The case of Pucará_

The locality of Pucará is anomalous in a number of ways in this analysis, and can be considered the exception that proves the rule. The cluster of pukaras in the vicinity (D) is located
more or less on the border that later divided Colla Urcosuyu from Umasuyu. It is separated from the Nicasio cluster to the south (J) by an apparent buffer zone without pukaras, and linked to the cluster near Azángaro (E) by short lines of sight, but only tenuously. Its participation in the Sillustani ceramic style is ambiguous – pukaras on the western side of the Río Pucara have Sillustani surface ceramics, but in considerably smaller quantities than pukaras further south. East of the river, there are no Sillustani ceramics among 79 diagnostic sherds collected at the pukara site of PKP8.

This ambiguity is reflected in later documents. The communities of Pucará and nearby Quipa (which was later resettled to Pucará) belonged to Colla Urcosuyu, but other documents show they were sometimes grouped instead with communities in Colla Umasuyu. For instance, Thupa Inka Yupanki owned a royal estate comprising Asillo, Azángaro, a portion of Carabaya to the northeast, and Quipa (near Pucará), according to a list of the Inca ruler’s land holdings (Rostworowski 1970:162). Cobo likewise recounts that a son of Thupa Inka won from him in a gambling game “the five towns of … Nuñoa, Oruro, Asillo, Asangaro, and Pucará” (1979:149 [1653: Bk. 12, Ch.15]). All the towns in Thupa Inka’s holdings belonged to the Umasuyu side except for Pucará. Pucará, like other communities in the Inca’s royal estate, traditionally sent mitima colonists to the eastern mines in Carabaya, and thus, Pucará, alone among Colla Umasuyu towns, paid taxes in gold in the 1570 Toledo tasa (Figure 10). Finally, in an early list of tambos – the way stations that dotted the Inca roads at periodic intervals - Vaca de Castro (1908:457-8 [1543]) groups the tambo at Pucará, not with Nicasio and centers to the south, but with Ayaviri to the north and Pupuja to the east on the Umasuyu side. This grouping, again, may indicate an early separation of some sort between Pucará and the rest of Colla Urcosuyu to the south. By the 1550s, the encomienda ownership of Pucara and Quipa was split off from any other place in the Colla region, and instead lumped with lands near Cuzco (Covey and Amado 2008:52)

Thus, Pucará does not fall neatly into one or another category. Its reduced participation in the Sillustani ceramic style in the LIP, and its physical separation from pukaras further to the south, suggest that the sociopolitical links of Pucará inhabitants with others to the south in the LIP were limited. The locality may have had social ties to groups on both sides, a position that may be reflected in its eventual assignment to Tupa Inca’s royal estate, and in its administrative categorization and its ownership in encomienda in the first decades of the Colonial period.

7 Pucará and Quipa are assigned to the Urcosuyu side in both the capitaniá list of Capoche (1959 [1585]) and the corregimiento list of Cristóbal de Miranda (1906 [1583]).
Discussion

How does the case presented here relate to a practice-based framework; how can we reinterpret spatial pattern as process, and what does this case tell us about the practice of war?

In the Titicaca Basin in the LIP, the necessity of affiliating politically with other nearby communities led to a built landscape in which cooperative and conflictual relationships were reproduced through patterns of proximity, fortification, and visibility. For Collas living in and near pukaras in the LIP, other communities nearby were probably allies and confederates, forming a network whose common identity was emphasized through the use of distinctive ceramic types or varieties. Members of these clusters reinforced their relationships through repeated cooperative action in wartime, and perhaps in peace as well. While violent conflict may sometimes have erupted within a cluster, conflict between clusters should have been fiercer and more frequent: buffer zones with no pukaras are visible evidence of these antagonisms over terrain that could instead have supported a network of allied pukaras. In the case of the Sillustani-using people of the area later called Colla Urcosuyu, a larger collection of allied clusters also participated in stylistic exchange, and may have recognized a paramount leader for at least some portion of the time frame of pukara use. This Sillustani-using group is the most likely candidate for the subjects associated with the Colla lord who is described in the chronicles. At the broadest scale, numerous clusters made up the group which was known to the Incas and later Spaniards as “Collas” – an ethnic and political affiliation, one that was defined by bitter antagonisms with other Titicaca Basin groups such as the Canas and Lupacas.

These sociopolitical affiliations of the LIP retained salience for Titicaca basin people two centuries later, long after endemic warfare had ceased. In the sixteenth century, they were partly expressed in ethnic identities of Colla vs. Lupaca vs. Cana, or in essentialist ideas about altiplano inhabitants’ qualities: urco (masculine, high) vs. uma (feminine, low). They also affected the relationships of Titicaca basin communities with lowland groups or colonies, relationships later reflected in tribute-payment categories in the Toledo tasa. These categories could be elided at times to suit changing conditions. After the basin had been conquered by the Incas, its people rebelled at least once, and in this revolt, we are told, many Titicaca basin peoples participated: Collas of both Urcosuyu and Umasuyu sides, Lupacas, and possibly Pacajes—defining themselves as a group against their common foes, the Incas (Cieza 1985:155 [II.iii]; Rowe 1985:214). However, ethnic identities persisted and continued to affect warmaking in the Titicaca basin. Lupacas attacked Colla
settlements in 1538, prompting the Collas to appeal for help to the Spanish conquistadors based in Cuzco (Hemming 1970:242). Hernando Pizarro, with a small force of Spaniards and a much larger one of Andean auxiliaries, routed the Lupacas and quelled the unrest in the altiplano. The eastern portion of Colla lands, from Huancané southward, was also warring with Canas and Canchis to the north shortly after the fall of the Incas, according to local testimony in the 1580s (Saignes 1986 note 27). It seems that in the Titicaca basin, while larger coalitions could be built (as in the rebellion against the Incas), old identities and enmities were entrenched enough to have lasting effects long after the period of pervasive conflict.

This is just one of many archaeological landscapes of groups and group boundaries. That it crystallized in a time of war is not surprising. But approaching it through practice theory allows us to glimpse warfare as a process of cumulative actions - negotiations, relocations, enmities, and choices about affiliations - leading to a durable landscape that reflected and reinforced these social relationships.

Warfare in practice and in representation went through extraordinary transformations in the Titicaca Basin over the course of the archaeological sequence. Mined by elites as a conceptual source of symbol and prestige in the Middle to Late Formative and Middle Horizon, after the collapse of Tiwanaku, warfare became a pragmatic concern of great salience to daily life in the LIP, yet one that people and leaders chose not to celebrate in material culture. These contrasts illustrate the extent to which an environment of shifting external constraints affected practice over time. In the LIP, a local group’s survival depended on its ability to create and cement relationships with allied communities. Within the constraints of geography and defensive pressures, many individual and collective choices about warfare and group affiliation resulted in a specific sociopolitical landscape that in turn participated in the reproduction of lasting identities and animosities. A practice approach is as appropriate for examining these subtle choices made within narrow constraints as for the most culturally distinctive behaviors in the repertoire of human violence.

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Figure 1: Known pukaras of the northern Titicaca Basin, identified primarily through air photos. Topography is derived from JPL SRTM (Shuttle Radar Topography Mission) data.
Figure 2: Two Colla pukaras with contrasting sizes and uses.

- house foundation
- tomb
- broken ground
- wall

Tombs shown slightly larger than scale for map legibility.
Figure 3: All unimpeded lines of sight between pukaras. (Where sightlines cross a lake, the distance to detour around the lake is used instead).
Figure 4: A line-of-sight chain of four pukaras on a single range, northwest of Azangaro (center of image).
Figure 5: Potential networks of allied pukaras, as indicated by lines of sight under 10 kilometers.
Figure 6: Predominant ceramic types and subtypes of the northern basin in the LIP.
Figure 7: Spatial comparison of line-of-sight clusters, LIP ceramic types, and later administrative divisions.
Figure 8: Ethnic and administrative divisions in the northern basin according to the *capitania* list of Luis Capoche (1585).

*Ayaviri is listed as Colla Umasuyu (Cuzco) in Luis Capoche's capitania list (1585); however, Cieza (1553) states that this town was originally Canas.*
Figure 9: Tax assessments in livestock, wool, and agricultural products (values in silver *pesos*) from the Toledo *tasa* (1570) for the northern Titicaca Basin.

*Coata was a *repartimiento* of only Uru, and thus paid no taxes in livestock or wool.*
Figure 10: Tax assessments in gold and silver from the Toledo *tasa* (1570) for the northern Titicaca Basin.
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