

CHAPTER 2
ARCHAEOLOGICAL BACKGROUND

Archaeological investigation of both the Cochabamba region and the Tiwanaku polity has made important advances in the last decade. This work provides the basis for detailed problem-oriented research. In the next sections I will review current understanding of the Tiwanaku polity and the Cochabamba ceramic style sequence.

The importance of the Cochabamba region to understanding the effects of precolumbian imperialism in the South-Central Andes is great, given the region's interaction with two of the largest polities in Andean prehistory, the Tiwanaku and Inka states. However, the lack of dissemination of the research of the last decades in the region (Bennett 1936; Byrne 1964; Ibarra Grasso 1944, 1965; Rydén 1954, 1959; Walter 1966), including that by Cochabamba's current archaeologists (Céspedes 1982; 1983; Pereira 1982a, 1982b, 1983) has produced many misunderstandings of Cochabamba's prehistory.

Some of the misunderstandings revolve around the local pottery styles that developed in the Formative and post-Formative Periods prior to the appearance of Tiwanaku style materials (Anderson and Céspedes 1994; Brockington and Pereira 1989; Brockington et al. 1985, 1986, 1987). Other misunderstandings concern the processes of interaction that

produced a widespread distribution of Tiwanaku style material in Cochabamba, in a stylistic variant that W.C. Bennett named Derived Tiahuanaco (1936).

The Cochabamba Derived Tiwanaku style materials are often distinguished from Tiwanaku style pottery at Tiwanaku itself on the basis of specific differences in form and decoration (Alconini 1993; Janusek 1994; Rivera 1994). However, I agree with Janusek (1994:127) who argues that, overall, Derived Tiwanaku "being similar to Tiwanaku IV vessels, is difficult to isolate precisely." Goldstein (1989:238) also notes the similarity in Chen Chen (Peru) ceramics and the Cochabamba assemblages.

The chronological sequence adopted in this research consists of four temporal periods: Formative, Early Intermediate, Intermediate, and Late (Figure 3). All these periods, but the Early Intermediate, have been used in the past by Cochabamba archaeologists. The temporal ranges of the four periods defined are the product of stratigraphic and radiocarbon information (Anderson and Céspedes 1994; Brockington et al. 1985, 1987), and three syntheses published on Cochabamba archaeology (Ibarra Grasso 1965; Ibarra Grasso and Querejazu 1986; Céspedes, in press).

The Early Intermediate Period is introduced in this research to replace a "Final Formative Period" used by Brockington et al. (ca. AD 200-600; 1985, 1987). The changes starting at AD 200 with the introduction of painted pottery styles in Mizque and the Central Valley

warrant this decision (Anderson and Céspedes 1994). This does not preclude, however, that styles might transcend the arbitrary temporal limits of the periods. For purposes of comparison, the occupation of each period is defined by the styles assigned to that period, and consideration of long-term coexistence of some styles is omitted.

Finally, unlike the chronology of the central Andes, the periods in this sequence have no evolutionary connotations. I am not assuming that these periods, especially the two earlier ones, represent stages in a trajectory of increasing complexity in the organization of local polities. There is still a lack of evidence to relate stylistic diversity to political fragmentation, or to suggest the level of socio-political development of the local societies.

THE CHRONOLOGICAL SEQUENCE IN COCHABAMBA

My main concerns in approaching the Cochabamba chronological sequence were to: (1) gauge the local stylistic diversity prior to the appearance of Tiwanaku style materials in the region; and, (2) define the periods of use of the Tiwanaku style materials in a "provincial" context.

The first problem has only been partly addressed by assigning the local styles to the Early Intermediate Period. Little is known of settlement, political integration, or societal change among the group of local polities represented by these distinctive pottery styles; in fact, it is still not known if the distribution of these styles reflects the

territories of actual polities. The details on political constituency and structure in the Early Intermediate Period will need to await future research.

The second problem centers on the Tiwanaku style pottery sequence in Cochabamba. Unlike other cases, where the **altiplano** sequence is used in non-altiplano settings (Goldstein 1990b), I treat the Tiwanaku style material in this dissertation as a single unit. Céspedes has adopted the altiplano Periods IV and V to divide the Tiwanaku pottery in Cochabamba based on burials from Piñami (Figure 2), although most of the vessels correspond to Bennett's Derived Tiwanaku style pottery. In addition, a few examples of altiplano "classic" Period IV pottery occur in the region (Bennett 1936; Rydén 1959; Byrne 1964).

My position is that the Tiwanaku style tradition in Cochabamba represents a locally produced "provincial" version of the Tiwanaku pottery. Because of its ample distribution, as presently documented in Cochabamba, this pottery cannot be considered a trade or prestige item (as it indeed was in San Pedro de Atacama, for instance; Tarragó 1992). The process that led to a relatively rapid development of a Derived Tiwanaku style in Cochabamba, given the very rare occurrence of "classic" Tiwanaku style materials, and the role of local pottery styles in such process, is an avenue for future research.

The evidence of this ample distribution supersedes the analysis of the local Tiwanaku style pottery tradition per se. In my research, the spatial distribution of the Cochabamba Tiwanaku style materials was

secondary to a concern with the diachronic shifts in land-use and settlements in the local context of the Cochabamba region. Assessment of the patterns of political organization prior and after the development of the Cochabamba Tiwanaku style materials will rely on settlement patterns rather than stylistic distributions.

The Formative Period (1150 BC-AD 200)

The Formative Period is characterized by a tradition of monochrome pottery with low proportions of decorated pottery (incised or painted), and extensive regional variation in pottery types (Figure 4; Brockington et al. 1985; Rydén 1952). Little is known of Formative sociopolitical organization. The lack of monumental architecture or large centers in Cochabamba suggests relatively simple societies in comparison to altiplano Formative developments such as Pukara and Chiripa.

The following Formative Period pottery description draws on the research conducted by Donald Brockington and the Cochabamba Museum (Brockington et al. 1985, 1986, 1987). The ceramic types for the sequence were defined on the basis of paste and temper at the Sierra Mokho site and firing and surface finishing for the Mizque sites. Different vessel forms exist within each type, meaning that shape is not the primary temporal indicator. Some types continued in use into Post-Formative periods. The Formative pottery at Sierra Mokho (Figure 2) of the Early and Middle Formative Periods is characterized by two main types. One type has a sandy, unlaminated paste with ground rock and gravel temper, with smoothed or rarely polished exterior surfaces, and

dark brown to red colors (Type 6). Cantaros, urns and bowl forms continue to be made with this paste into Post-Formative times. The second type, Sierra Mokho Rosado type (Type 2), has a compact, very fine, and laminated paste with scattered small and medium gravel temper. Forms are mostly bowls and globular ollas. These have an orange to red slip on a pink-fired surface and normal to highly burnished patterns on the external surface.

Both ceramic types have high frequencies in the Early Formative Period and dominate the Middle Formative Period. A ware with light colored mica appears in this latter period. In the Early Intermediate Period, the two main types decline in proportion to the occurrence of the Tupuraya style. Changes during the Middle Formative Period included a decrease in overall sherd densities, and changes in the manufacture of pottery to vessels with lower firing temperatures and narrower walls. Cantaros and urns of Type 6 decline in frequency and disappear. They were replaced by necked ollas and amphora-like vessels typical of Early Intermediate Period traditions.

The Mizque Formative sites are overwhelming dominated by a single type (Type 4) that occurs in all stratigraphic levels. This type can be subdivided by surface color. This type has a compact, slightly sandy unlaminated fine clay. The temper is fine gravel and crushed rock, usually shale which has natural mica inclusions. Forms are mostly open plates and bowls, and cantaros. The **keru** shape occurs in the Middle Formative Period in orange ware. Surface treatment is highly polished

and lustrous, and somewhat later will change to smoothed finishing. The three ware colors that occur in this type have some chronological significance: (1) ocher is the earliest and most common ware along the sequence; (2) black ware accompanies ocher in lower levels; and (3) the orange ware grew proportionately to the decline of ocher ware, and developed as the principal ware in the latter part of the sequence. Formative Period Mizque pottery is rarely decorated. Fine and deep incisions with triangular patterns (Figure 4), and punctuation was found only on clay pipes from Sierra Mokho. Painted pottery of this period is suggested to have been associated with the Middle Formative Period, prior to the dominance of the orange ware.

Although the Mizque sequence is not as complete as the Sierra Mokho sequence, Brockington et al. note (1987) that 94% of all the utilitarian pottery of all periods in Mizque were "Formative" types similar in paste and temper. Brockington suggests that vessels of the Sierra Mokho Rosado type found in Mizque might have been imported from the Cochabamba Central Valley.

The Early Intermediate Period (AD 200-600)

Quillacollo, Mojocoya, Saucos, and Tupuraya are the local styles occurring as pre-Tiwanaku traditions. No precise data on the contexts of these styles have been published, except by Walter (1966). The pre-Tiahuanacoid temporal location of the latter three styles was suggested by Ibarra Grasso (1965). The Quillacollo style has been documented in a stratigraphic pit at Quillacollo in the Central Valley (Anderson and

Céspedes 1994). These four painted decoration styles break the Formative Period general homogeneity of monochrome pottery.

The Quillacollo Style

This style, recently documented by Anderson and Céspedes (1994), is suggested to be the earliest of the styles, coexisting with monochrome Formative pottery and decreasing concomitantly. It is defined by pottery with red-dark, red to purple paint over a cream, cream-orange or orange surface (Figure 5). Painted motifs are parallel lines, cross-hatching, wavy V's or Z's in linear patterns. Few sherds are burnished, but most are smoothed on the interior. They have no cream slips, but rather a very thin, whitish, overall slip or wash. Some utilitarian forms have tentatively been associated with this style. Bases are rounded, rims are rounded and thin, differing from the thickened and squared bases and squared and flat rims of the Formative monochrome tradition. Very few sherds of this style were found during the surface survey of this research.

The Mojocoya style

This is a style whose type site, Mojocoya, is located in northern Chuquisaca, south of Cochabamba. A settlement with a dense Mojocoya occupation has been documented at El Tambo (ca. AD 200; Brockington et al. 1992; Figure 2) in Cochabamba territory, as well. However, no

important Mojocoya concentrations were documented in my research. Ibarra Grasso (1965) mentions finding Mojocoya style materials above Tupuraya style materials in excavation, but he gives no details on the context of such superposition. The pottery has narrow walls and hard baked clay. It has a bright red-orange or light brown slip on both surfaces (Figure 5). Decorative paint is dark grey to grayish blue, or dark red to violet-red. The principal motifs are spirals, staircases and triangles (Figure 5). The most popular shapes are the keru, and a conic libation vessel with perforations in the wide base. Tripod bowls have mostly flat or rectangular legs.

The Sauces style

This style, identified by Ibarra Grasso (1965) in the Mizque Valley (at site MI 39 in the Mizque survey sample; Figure 37), is characterized by large "arybaloid" urns with wide necks and flat handles on the lower section of the body. The large urns used for burials are undecorated. Smaller jars and everted walls cups have a "staircase" decoration (two to three triangles) in black outlined with white, on a dark red thick slip that covers the entire vessel (Ibarra Grasso and Querejazu 1986:185-188; Figure 5). Anthropomorphic jars have wide and high necks, and facial features made with clay pasting (e.g., "ojo grano de café"). The large undecorated Sauces urns are the type in which burials with Tiwanaku style materials were made in Cochabamba (Rydén 1959).

The Tupuraya style

Rydén documented the Tupuraya style at the Tupuraya mound and at Cayhuasi in the altiplano, naming it Mojocoya Tricolor Ware (Rydén 1959:84-89). Bennett, according to Rydén, found it on surface at Arani. Ibarra Grasso (1965:181-184) excavated a Tupuraya burial in the same Arani site. The style also occurs at Chullpapata, superimposed over the Formative occupation (Walter 1966). My research identified Tupuraya settlements in each of the survey areas. The assemblages in each survey area varied markedly in terms of the quality of production, with the Mizque region displaying extremely fine Tupuraya wares.

Tupuraya pottery is made of well-baked, cream-white kaolin-type clay, with light red firing surfaces, and a thick but fugitive cream-yellow slip (this slip is sometimes light grey due to firing problems). The painted decoration is in dark brown, black, dark red, and brick red, forming geometrical designs --mostly rectangles, triangles, staircase motifs, and, more rarely, serpentine shapes (Figure 6). The most common vessel shapes are the keru, a small jar with lugs, and a tripod bowl with angular body and round tapered legs.

The Intermediate Period (AD 600-1000)

The Intermediate Period is defined by the Cochabamba style, the Derived Tiwanaku style, the Omereque style, and the Grey Ware style (Rydén 1959). This latter style is of long duration in the chronological sequence: it appears in Early Intermediate, Intermediate and Late Period contexts in the Mizque survey area; but only in Intermediate Period contexts in the Capinota-Parotani survey area.

The Omereque style was referred as Rio Mizque Polychrome (Rydén 1959), and Nascoide (Ibarra Grasso 1965), alluding to the similarities in design and in polychrome colors to the Nasca style. Karaparial is a style defined as a variant of the Omereque tradition (Céspedes, pers.comm.). The Cochabamba style has been recently defined as a local pre-Tiwanaku style tradition (Anderson and Céspedes 1994).

The Omereque style

Omereque pottery is polychrome, and made of a well baked bright red clay. The surfaces are well polished and have an external treatment similar to Tiwanaku pottery; that is, a fine burnishing pattern. Slips are orange, red-orange, and ocher. Decoration is made in ocher, grey and light and bright cinnabar red, with black outlining the designs. The grey color does not occur in Tiwanaku style pottery.

Decoration is made of curved, naturalistic anthropomorphic or zoomorphic motifs repeated in a baroque-style on the vessel surface (Figure 7). The principal shapes are the conical libation vessel --the **chayador**, a keru with a extremely narrow base-- and handle-less vases with everted rims. The chayador is also a common shape of the Derived Tiwanaku style pottery in Cochabamba.

Karaparial has more geometric decoration than the Omereque style (Céspedes, pers.comm.) with the same type of intricate and profuse interlocking figures, and negative designs paralleling their positive counterparts. It has the colors of the Omereque pottery, with a red to dark red background; however, grey is not used (Figure 7). Omereque and

Karaparial variants have been found together in burial contexts, and some vessels have both styles on internal and external surfaces (Walter 1966:293; Anderson, pers.comm.).

Ibarra Grasso (1965) proposed that the Omereque style was earlier than Tiwanaku style materials in Cochabamba, but both are found together in burials at Lakatambo-Mizque (Walter 1966; MI 13). At this site, the stratigraphic decline of Omereque sherds parallels the decrease in Tiwanaku style materials (Walter 1966). Walter (1966:278) suggested that the Omereque style was produced by non-Tiwanaku populations, under strong Tiwanaku influence. However, he argued that both Omereque and Tiwanaku style material would have been imports at Lakatambo.

Cochabamba style

The Cochabamba style represents a local tradition that developed prior to the Derived Tiwanaku style. It has been assigned to the Tiwanaku IV Period in Cochabamba (Céspedes, pers.comm.). Anderson and Céspedes suggest some influence of the Cochabamba style in the Cochabamba Derived Tiwanaku style materials. The Cochabamba style has dark brown to black geometric decoration on orange, light brown or unslipped surfaces. Motifs are semi-circular scalloped edges with central circle, volutes, and parallel chevron patterns. The most common form is the low wall angular bowl (**puku**) painted on the interior rim (Figure 7).

A distinctive "tradition" of domestic ware begins in this period. This includes olla forms with handles that rise above the level of the rim and have protuberances at the apex of the handle (Rydén 1959:figure

47). These ollas have no slip or wash. Not present are the lug, and thickened and rounded bases of the Formative Period. Pastes include a medium size ground shale that is conspicuous on the smoothed surfaces. The vessels are red to red-orange and brown, but most have fire-darkened walls.

Derived Tiwanaku style pottery

This style dominates the pottery assemblage of the Intermediate Period and is suggested to have been locally produced. The Cochabamba Derived Tiwanaku style has several important iconographic, decorative, and technological features that differentiate it from the altiplano's classic and decadent Tiwanaku pottery, but overall it represents a very similar assemblage. Local contemporaneous styles, Omereque, Karaparial, Cochabamba, and Sauces urn-types, share with the Tiwanaku style pottery certain shapes and colors, although their iconography is very different.

Cochabamba's Derived Tiwanaku style pottery has a fine paste, light brown in color, with extremely fine sand and no inclusions or crushed shale temper. The paste and temper of this pottery is different from the Early Intermediate Period styles, but is very similar to the Omereque style pastes and temper.

In iconography, decorative technique, and vessel shape, this style is slightly different from the altiplano assemblages. Decoration consists of simple geometric patterns, "S" patterns, horizontal and vertical wavy lines, diamonds, semicircles, crosses, staircase patterns, human or feline stylized heads, and interlocking of stylized heads in

bands around the keru (Figure 8). These features are also found in highland Tiwanaku pottery (Janusek 1994:figures 7.19 and 7.22). Other highland Tiwanaku motifs are more complex and do not occur often in Cochabamba (Janusek 1994: 7.18; 8.19; Byrne 1964:figure 4; Walter 1966:figure 18). The iconography in the Derived Tiwanaku style pottery is thus simplified, with very rare complete human or animal motifs, and rather an emphasis on stylized heads (Rydén 1959:figure 48). The location of decoration on the keru is the upper portion of the vessel. The lower area is not decorated, in contrast to altiplano material.

The color spectrum of this pottery differs from altiplano pottery in having a predominance of orange-reddish slips, and darker purple-brown as a painting color. A fugitive white paint is used for lines, outlines and solid geometric figures. The most common shapes are the keru, seen also in Tupuraya style, the puku, and a small globular bowl with two vertical or horizontal handles. Kerus have several bulging rings along the vessel walls. In addition, a major diagnostic form of the Cochabamba Tiwanaku style is the chayador, the narrow-base keru, that also occurs in Omereque style. This shape is a good marker for Derived Tiwanaku style materials in the heartland.

Arguments concerning the Tiwanaku style in Cochabamba

There is little argument concerning the ubiquity in Cochabamba of a Derived Tiwanaku style tradition in the Intermediate Period. But many questions remain: Does the inception of a Derived Tiwanaku style

tradition in Cochabamba start with "classic" Tiwanaku pottery or just with borrowing of general styles from the Tiwanaku core area? Was it in any way derivative of the local Cochabamba style? These are questions that will be difficult to resolve with the data at hand for the valley, but some relationships can be hypothesized.

Very little "classic" altiplano Tiwanaku style pottery (i.e., pottery with a dark red slip, decoration on the lower bands of kerus, and dark mica from the altiplano) has been found in Cochabamba. Some "classic" Tiwanaku style vessels occur in association with Derived Tiwanaku style pottery at Tupuraya (Rydén 1956), in a single case at Arani (Bennett 1934), and with Omereque pottery, at Cayacayani (Byrne 1964).

Bennett (1936) noted that Cochabamba's Tiwanaku style pottery is different from the "decadent" Tiwanaku style of the altiplano, and identified at Arani the Derived Tiwanaku style pottery. Rydén (1956) considers that "classic" Tiwanaku style pottery occurs at Tupuraya, arguing that not all the Cochabamba-Tiwanaku tradition is stylistically "decadent". He suggests the development of a "decadent" tradition from this local "classic" Tiwanaku style stock in interaction with local societies (Rydén 1956:83), leading to "exaggerated decadence and conventionalization" in later pottery traditions. In fact, the Tupuraya material from urn burials interred in slab-stone and pit burials is mostly of Derived Tiwanaku style.

The Derived Tiwanaku style assemblage is characterized by the absence of highland "classic" feline, condor or human heads motifs in the decoration, and by the use of new forms, motifs and fine surface treatment, different from the altiplano's "decadent" style (Tiwanaku V). The Derived Tiwanaku style assemblage at Arani is followed by a Decadent assemblage, with a decrease in the colors used, simplification of shapes and designs and a less careful surface treatment. Bennett considers this pottery as a continuation of the preceding phase.

Walter (1966) produced at Lakatambo a gross stylistic sequence of Mizque's Early Intermediate and Intermediate styles: Tupuraya and Mojocoya styles in the same layer; in the next layer Tupuraya declined, and Mojocoya sherds were mixed with Omereque and Derived Tiwanaku style materials. Derived Tiwanaku sherds made up 70%-86% of the sherds (Walter's Expansive Tiahuanaco). Only three sherds can be suggested as Classic Tiwanaku pottery. Walter (1966:287) thinks the Omereque and Yampara styles are related to Tiwanaku, but cannot be viewed as simple local variants of it. Two burials in Lakatambo have Derived Tiwanaku style materials with Omereque vessels and use Sauces-type urns for burial.

Finally, Byrne (1964) found Omereque pottery in association with Derived Tiwanaku pottery in one grave and with "classic" Tiwanaku in a second grave at Cayacayani. Byrne argues that Omereque is earlier than "classic" Tiwanaku style materials in Cochabamba and influenced it in forming a Cochabamba Derived style.

Grey Ware style

This largely utilitarian ware was defined by Rydén (1956:104) in Nordeskiöld's Mizque collections, where it is associated with Late Period Yampara pottery. More recently, this ware has been found in contexts as early as 400 BC with Mojocoya monochrome pottery (Brockington, pers.comm.). This ware was used up to the Late Period. In the Mizque sequence, this style has been associated with the last three periods of the sequence depending on its surface associations. The color of the Grey Ware ranges from brown to reddish pastes mostly in ollas and urns. These display a wide neck and wide collar; the latter is decorated with a broad punctated pattern that may be result of corn cob impressions.

The Late Period (AD 1000-1600)

This period is defined by a range of styles particular to each of the survey areas (Figure 3). Their respective sequences will be described individually. A common Late Period domestic ware is found in both areas. During this period, Grey Ware style was found only in the Mizque survey area.

The Capinota-Parotani survey area

The Ciaco style, the main style in this area during the Late Period, was first identified by Bennett (1936) at Arani with the last occupation at that site, and at Colcapirhua (Figure 2). The Ciaco style pottery displays red and black painting of wavy and triangle designs on

orange surfaces (Figure 9). This style was typical of the orange undecorated burial urns, a burial tradition in Cochabamba since the Early Intermediate Period. It was related by Bennett to the La Paya-Inca style of northwest Argentina.

The Pacajes and Inka styles occur in extremely low proportions. The former style is identified by its decorated dark red sherds and black llama-like designs. The identification of Inka occupation is only partly based on pottery evidence, with equal weight given to the architecture and stonework of the sites where it does occur (e.g. sites CP 18, 25 and 36). No similarities exist with Cuzco Imperial pottery types. The Cochabamba Inka pottery consists of dark red and ocher polished ware, although it is extremely similar to the Ciaco pottery, as was noted by Bennett (1936). The general Late Period domestic wares consist of rounded rim vessels manufactured with a paste containing a high proportion of ground shale that shows up on the light to dark brown surfaces of the pottery.

The Mizque survey area

The two most important pottery styles in Mizque are the Yampara style (Barragán 1988; Ibarra Grasso 1965; Walter 1966) and the Mizque Lakatambo style. The first style was named Mizque-Tiahuanaco by Rydén in his analysis of Nordenskiöld's collections (1956). This Yampara style was originally viewed as an outgrowth of the Derived Tiwanaku style. It has grayish-brown slipped surfaces. Colors used in decoration are brown,

black, white, and sometimes grey and orange. The brown color shades frequently to violet; the white has a chalky appearance, often washed out, and the black is a sometimes faded or dark grey (Figure 10).

Ibarra Grasso (1965) divided the Late Period styles into two subcategories in addition to Yampara: Presto-Puno, and Mizque Lakatambo styles. The Mizque Lakatambo, the second most important style of this Late Period (also named Mizque Inka, because of its resemblance to the dark fine-line designs of Cuzco-Inka patterns; Pereira, pers.comm.). It has a compact and fine white paste, with a thin fugitive slip of cream, yellowish or light red color, and brown, dark brown to black fine-line decoration. Designs are small in size and include geometric designs: parallel lines, hatched, dots, squares, spirals, and curved lines. Its most typical shapes are globular jars with two vertical handles and "bec verseur", pukus, and plastic applications (Figure 11). The Presto Puno style is similar to the Yampara style, but has fine white designs such as dots and lines over the traditional polychrome designs.

Research on the Tiwanaku polity

The history of the development of Tiwanaku studies will not be described here (see Albarracín 1992; Mathews 1992; Rivera 1994; Kolata 1993a; Lumbreras and Mujica 1983; Ponce Sanginés 1989). It is worth noting, however, that the study of Tiwanaku in Bolivia -and of Bolivian prehistory- has focused largely on the site of Tiwanaku. Most studies of Tiwanaku outside the core area have been in Chile and Peru. Four decades

ago, Ibarra Grasso (1944) called for --with no result-- research to advance knowledge of cultural developments earlier and later than Tiwanaku and in other regions of Bolivia. More recently, Condori (1989) has criticized how the Tiwanaku-centric, politicized, archaeology has restricted other perspectives on the Bolivian past.

The Tiwanaku polity developed on the South-Central Andes altiplano south of Lake Titicaca between AD 200-1000/1100 (Bermann 1994). After coexistence in the Formative period with the Pukara (Mujica 1985, 1988), Sillumoco (Stanish 1994b), and other local centers (Bermann 1990; Ponce Sanginés 1970), Tiwanaku came to dominate the region as the capital of the most important polity by AD 400. The site grew to 400 ha by AD 900, with extensive monumental stone architecture (Alconini 1993; Kolata 1982; Ponce Sanginés 1972) and distinctive iconographic styles in stone and ceramic art.

Tiwanaku studies have made important advances in the last decade: systematic survey in the Tiwanaku valley (Albarracín 1992; Albarracín and Mathews 1991; Mathews 1992), study of secondary sites in Tiwanaku's immediate hinterland and in regions in the periphery (Bermann 1994, 1994; Goldstein 1989, 1993; Owen 1994; Stanish 1992, 1994b; Tarragó 1992), excavation of residential, monumental and workshop sectors in the capital (Alconini 1993; Bawden 1990; Bermann 1989, 1993; Bermann and Graffam 1989; Janusek 1994; Manzanilla et al. 1992; Rivera 1994), investigation of agricultural infrastructure in the hinterland areas (Kolata 1985, 1986, 1991; Seddon 1993); and, analysis of Tiwanaku's

collapse (Bermann et al. 1989; Graffam 1992; Ortloff and Kolatta 1993; Owen 1992).

The five-period ceramic chronological sequence proposed by Ponce Sanginés (1972; 1978), based on Bennett's original division (Bennett 1934), has only been recently challenged (Alconini and Janusek 1993; Janusek 1994). Most research has made use of the original Bennett-Ponce sequence differentiating a "classical" (Tiwanaku Period IV) and a "decadent" pottery (Tiwanaku Period V) (Kolata 1993a).

Alconini and Janusek (1993) have produced a revised sequence with a more detailed evolution of pottery forms and iconography for Periods IV and V. They discerned a spatial differentiation in the distribution of the two period styles within Tiwanaku's core area. For example, the fine ware pottery common at the Akapana (Alconini 1993) and Putuni (Janusek 1994), the most important monumental structures in the site, are rarely found in any other area of the site or the valley (Albarracín 1992; Janusek 1994; Mathews 1992). The two pottery "periods" therefore may not be completely consecutive in time, but rather contemporaneous representing elite or ritual setting, and rural and lower class settings, respectively.

Other variations on the chronology have been proposed: transitional periods (Period IV/V; Albarracín 1992), and collapsed periods (Bermann 1993:57) as when Period V materials are found in Period IV contexts. Vettors (pers.comm.) analyzed a collection of Tiwanaku pottery assuming no period divisions; her final results do not suggest a

segregation of periods by iconographic or morphological features (in contrast to Wallace 1957).

Non-local pottery is present in minor proportions at the Tiwanaku core sites. At Chiji Jawira (a section of the capital), a pottery workshop assumed to date to the Tiwanaku Period V (Rivera 1994:68), "derived" Tiwanaku style pottery from Cochabamba makes up 0.8-1% of the total sherds, with a handful of Omereque and Karaparial sherds. Janusek (1994) found a substantial quantity of non-local pottery in the Late Tiwanaku IV period (AD 600-800) in residential areas of Tiwanaku. A consistent presence of non-local assemblages --with no Omereque style-- has also been documented in the Putuni area in the Early Tiwanaku IV period (AD 400-600; Janusek 1994:159). The residential areas of Putuni showed Omereque, Mojocoya, Yampara and Juruquilla sherds, and Derived Tiwanaku style sherds.

The Tiwanaku III period at Lukurmata (AD 200-400), a period of relative autonomy for this site, included low proportions of non-local pottery, of which Tiwanaku III pottery from the core site was the most common style. Minor evidence of Mojocoya and Omereque styles is suggested to have reached Lukurmata through direct ties with that region (Bermann 1993: 147). Janusek has documented more non-local material in Lukurmata assigned to the Late Tiwanaku IV period with significant proportions of Omereque sherds at the Misiton II compound (Janusek 1994:213). In this period, non-local sherds are suggested to have come

indirectly to Lukurmata, in a period where the site was probably strongly tied to the Tiwanaku site.

Interaction with the Cochabamba region is documented by generally low but consistent percentages of Cochabamba styles material in the Tiwanaku Valley region. The earliest non-local pottery styles at Lukurmata (Bermann 1994) may represent independent trade ties preceding the period of Tiwanaku state control of Lukurmata. In the capital itself, evidence of non-local materials are found in Tiwanaku IV and V contexts.

This evidence allows us to place a temporal estimate on the arrival of Cochabamba materials in the altiplano: earlier than the period when Tiwanaku constitutes a complex polity in Period IV. In contrast, however, the dating of the arrival of Tiwanaku style materials in Cochabamba currently appears to be around AD 600, based on stratigraphic data and radiocarbon data (Brockington et al. 1987; Anderson and Céspedes 1994). Other scholars have proposed later dates for the presence of Tiwanaku style materials in Cochabamba (Bermann 1994; Browman 1978; Kolata 1993a).

Climate and cultural development

My research supported this ca. AD 600 date for the expansion of Tiwanaku style materials into Cochabamba. This date roughly correlates with the timing of climatic events affecting the Andean region as documented in the ice core from the Quelccaya Ice cap in the Cuzco

region (Thompson et al. 1985; 1988). A period of consecutive droughts and floods between AD 500 and 600 in the South-Central Andes is suggested to have generated the expansion of the Tiwanaku polity outside the core area (Richardson 1994). At this time, the Cochabamba region would have been less affected by the altiplano drought, still allowing production of maize and other crops. Drought events documented for ca. AD 1000, based on the same data, has been used to explain the collapse of the Tiwanaku's polity collapse and the abandonment of the raised fields of Pampa Koani (Kolata 1992; Ortloff and Kolata 1993; cf. Graffam 1992).

As informative as this type of information is in defining major events in the evolution of prehistoric societies, much more research is needed at identifying the socio-political implications of such environmental change for the Tiwanaku polity. Therefore, in this research, I focused on the economic mechanisms and political strategies through Tiwanaku style materials were reaching and occupying the Cochabamba region.

Tiwanaku settlement patterns and spatial organization

This research represents the first systematic land-use and settlement survey in the Cochabamba region. Survey data from other regions with Tiwanaku style occupations, even if not integrating land-use variables, are of comparative value.

The Tiwanaku IV and V periods settlement distribution documented in the Tiwanaku Valley has been interpreted as a four-tier settlement hierarchy (Albarracín and Mathews 1991; Albarracín 1992; Mathews 1992). An important change in the sequence is the drastic increase in small rural sites during the Tiwanaku V period, after domination of the valley by secondary centers. No land-use analysis was made as part of this settlement survey, however. The settlement survey of the Pampa Koani region, north of the Tiwanaku Valley has not been published.

In the Juli-Pomata region (Stanish 1993), the sequence of land-use patterns shows that in the Tiwanaku Intermediate Period occupation was concentrated on flat lands adjacent to raised fields. This pattern reflects a higher dependency on agricultural production than in previous and later periods.

The northwestern portion of Lake Titicaca has been unsystematically surveyed (Hyslop 1976). The study of the Tiwanaku occupation in Moquegua was initiated as site-oriented research at Omo in the Middle Valley; results of a recent regional survey of that area are still unavailable (McAndrews, pers.comm.). The survey of the Lower Moquegua Valley (Owen 1994) produced no sites with Tiwanaku style occupation. The survey of the Azapa Valley is also unpublished (Goldstein, pers.comm.) although sketchy settlement information exists (Focacci 1982, 1983; Muñoz 1983). An ongoing survey in the Oruro portion of the altiplano has identified several large sites with Tiwanaku style materials (Bermann and Esteves 1993). Unfortunately, no systematic

survey exists for the eastern shore of the Titicaca Lake (Arellano 1985; Faldin 1985; Portugal 1985), or the San Pedro de Atacama plateau. In Cochabamba, occasional settlement survey has taken place, of which only the judgmental data of the Mizque Valley was available to me (CUMAT-Pereira 1988). Most of the survey results for the Central Valley remain unpublished.

Territorial expansion of the Tiwanaku polity

The nature of Tiwanaku's interaction with distant regions in the South-Central Andes remains open to debate. Tiwanaku style pottery and other artifacts are found in Moquegua's Middle Valley (Goldstein 1989, 1991; García-Marquez 1990), the Azapa Valley (Dauelsberg 1985; Berenguer et al. 1980; Nuñez 1989; Rivera 1991; Santoro 1980), San Pedro de Atacama (Browman 1980; Oakland 1985; Le Paige 1961, 1977; Serracino 1980; Tarragó 1992), the southern altiplano (Berberian and Arellano 1980; Bermann and Esteves 1993; Helsley 1993), and northwest Argentina (Berberian 1977). From the perspective of the Tiwanaku core polity, the differences in the Tiwanaku style materials in these regions have been suggested to be the result of different interaction strategies. For example, in San Pedro de Atacama Tiwanaku style materials are predominantly non-ceramic materials: textiles or wood objects (Oakland 1985; 1993). Tarragó recorded only eleven Tiwanaku style vessels in a sample of 600 burials in the Solor cemetery in San Pedro de Atacama (1992). Absence of these wood and textile items in the other regions can

be explained by preservation factors, but the relative absence of Tiwanaku style pottery in Atacama is striking, whereas it is common in the other areas.

The spatial distribution of Tiwanaku style materials has been interpreted in five ways:

- (1) As a result of territorial expansion towards mesothermal Andean valleys for resource extraction purposes through the Archipelago strategy (Berenguer and Dauelsberg 1989; Kolata 1992, 1993a, 1993b; Goldstein 1989, 1990a; Mujica 1985);
- (2) As a consequence of the expansion of an altiplano commercial network (Browman 1980, 1984a; Kolata 1983; Lynch 1983, 1988; Nuñez and Dillehay 1979);
- (3) As a marker of the ideological/ritual influence of the Tiwanaku polity in other territories (Browman 1978; Kolata 1992; Oakland 1985; Wallace 1989);
- (4) as a consequence of military conquest (Ponce Sanginés 1972; Céspedes, pers.comm. 1992); and,
- (5) As a combination of the above mentioned mechanisms in parallel and/or sequence (Mujica 1988, ms.; Berenguer 1978; Berenguer and Dauelsberg 1989; Browman 1985; Nuñez and Dillehay 1979; Owen 1994).

Modeling the archaeological correlates for the different strategies should provide a solid starting point for interpreting the archaeological record in each region (Mujica et al. 1985; Stanish 1992). However, the archaeological investigations to date in each area have

been varied: regional systematic surveys; local site-oriented analysis; local household analysis; and mortuary pattern analysis. These lines of evidence are, therefore, not fully comparable. On the other hand, most of these studies focus on the timing, evidence, and character of Tiwanaku's control strategies and overlook the nature of local organization in the process. Little is known of previous or contemporaneous cultural patterns prior to the appearance of Tiwanaku style materials in any of the regions.

In a more general approach, the Tiwanaku style occupation in the Tiwanaku Valley and in the surrounding regions has been correlated with features of a state-level polity (D'Altroy 1992; Isbell and Schreiber 1978) including second-order hierarchical settlements (defined by Tiwanaku style architectural features such as sunken temples) at Sillumoco (Stanish 1994b), Pampa Huancane, Lukurmata (Bermann 1990, 1994), and at Omo (Goldstein 1989, 1993) in Moquegua. No Tiwanaku style public architecture has been reported from San Pedro de Atacama or from Cochabamba.

Goldstein (1989, 1990a) identified the Omo site, based on site-level investigations, as a colonial administrative site directly controlled by the Tiwanaku polity. In contrast, the Tiwanaku style materials in San Pedro de Atacama are usually interpreted as the result of commercial caravan activities (Berenguer 1975; Berenguer and Dauelsberg 1989; Browman 1984a, 1984b; Nuñez and Dillehay 1979; Orellana 1985; Tarragó 1992). Oakland (1985) suggests that there is a homogeneous

Tiwanaku style textile technique and iconography in these regions, a homogeneity not found in pottery, especially in Cochabamba's Tiwanaku style material, that suggests a single distribution center. As Tiwanaku style textiles are associated with local pottery and textiles in local elite burials in Atacama, she argues for a process of distribution of cult objects through exchange relations stronger than colonial imperialism. This strategy would seem particularly relevant for the Atacama region, where Tiwanaku style settlement occupation has not been documented.

Subsistence and maize in the Tiwanaku polity

Two models have been postulated to interpret the subsistence strategy of the Tiwanaku polity. Kolata's **autonomous** development model stresses the self-sufficiency acquired by the Tiwanaku population in the core area for their subsistence (Ortloff and Kolata 1993). Browman's **altiplano** model suggests an external source of staples to complement the local resources (Browman 1984a). The raised field agricultural technology developed in Tiwanaku's hinterland has been presented as proof of the high productive yields attained for the food supply of the dense urban population at Tiwanaku (Kolata 1985, 1986; 1991; Seddon 1994). Mathews (1992) has provided botanical data to support the autonomous model with a predominant proportion of local crops (tubers and chenopods) in rural sites of the Tiwanaku Valley for Period IV.

Mathews (1992) further suggests that in Tiwanaku's Period V, the Tiwanaku polity adopted an archipelago or altiplano strategy to alleviate productive shortfalls. This contradicts Kolata who argues that expansion of the Tiwanaku polity into Cochabamba would have specifically been made to acquire maize for ritual consumption, and tropical delicacies, and not for essential foodstuffs (Kolata 1992:81).

From the urban perspective, Janusek's data (1994:329) suggest a higher level of interregional interaction, possibly for subsistence purposes, developing in late Tiwanaku IV Period contexts. In the early Tiwanaku V Period, the distribution of non-local pottery was more centralized than in the previous period, indicating centralized control of the interaction with distant regions.

Maize is not a crop easily cultivated in the environment of the altiplano, at an altitude much higher than its preferred limit of 3200-3400 m.a.s.l. (Cardich 1987). In the Middle Tiwanaku valley maize remains were recovered from one Tiwanaku V context at one of the few rural sites for which botanical data is available (Mathews 1992; Lennstrom et al. 1991a; 1991b). Mathews notes that parallel to the appearance of maize in the Tiwanaku Valley was an increase in crops suited for the raised fields such as chenopod grains. Remains of maize are common in the Akapana East 1 and 2 complexes (Janusek 1994: Fig. 7.24) and Chiji Jawira (Rivera 1994). A high ubiquity of maize --half the ubiquity rate for *Chenopodium*-- is correlated, according to Janusek, with a high presence of non-local wares in AKE 2 (1994:156). In AKE 1, a

high kernel to cob ratio of 2.23:1 is found. This could reflect shelled kernels being stored in the area. Overall, archaeobotanical samples reveal a high proportion of *Chenopodium*, and a low proportion of tubers, certainly due to preservation factors.

In sum, the scale of maize consumption documented for the Tiwanaku core area is not overwhelming, although our sample is not very large. *Chenopod* crops produced in the raised fields were apparently the dominant food crop. However, maize may have been used for ritual purposes and *chicha* production, in place of, or in addition, to daily consumption. The rates of consumption for these different activities are hard to assess. On the other hand, maize remains are apparently not restricted to specialized areas of storage or cooking as would be expected if maize processing was controlled for public ritual uses. Given the lack of archeobotanical study at the highland sites, some prehistorians have turned the problem around, arguing that the magnitude of Tiwanaku style material occupation in the regions studied indicates the importance of maize acquisition for the Tiwanaku polity.

Two regions are frequently suggested as foci for Tiwanaku exploitation for mesothermal resources: the Middle Moquegua Valley, where Tiwanaku occupations are identified at Chen-Chen and Omo (García Marquez 1990; Goldstein 1989), and the Cochabamba Valley. A potential third region of interest, for which limited data exists, could have been the yungas region east of Lake Titicaca (Faldin 1985; Portugal 1985).

Tiwanaku expansion to Cochabamba: the arguments

The presence of Tiwanaku style materials in the Cochabamba Valleys has long been known (Bennett 1936; Byrne de Caballero 1984; Ibarra Grasso 1944; Money 1991; Ponce Sanginés 1972; Rydén 1956; Tapia 1984; Walter 1966). This presence has been documented through stratigraphic excavations (Brockington et al. 1985), and judgmental recording of archaeological mounds in the Central Valley and other sub-areas of Cochabamba (Céspedes, pers.comm.). No major public architecture sites with Tiwanaku style remains have been identified.

Despite the lack of systematic archeological evidence, two popular hypotheses have been advanced to explain the presence of the Tiwanaku style materials polity in Cochabamba:

- (1) The collapse of the Wari polity (ca. 800, Isbell 1978) compelled the Tiwanaku polity to seek access to goods formerly obtained by trade with Wari (Browman 1980, 1984a); and,
- (2) The Tiwanaku polity established colonies as part of a "verticality" system in the Cochabamba region deliberately seeking staple resources from mesothermal regions around AD 750 (Goldstein 1989; Kolata 1992:80; 1993a).

Both interpretations put the inception of the interaction between the Tiwanaku polity and local Cochabamba populations around AD 750-800, in the Tiwanaku V Period, traditionally seen as the "expansive" phase for the polity. This assumption does not account for the earlier evidence of interaction documented in the Tiwanaku core area, suggesting

that the processes may not have initiated entirely by the Tiwanaku polity .

Summary

This chapter has reviewed the sequence of pottery styles for the two research areas in Cochabamba, and has described the state of the research on the Tiwanaku polity emphasizing research in peripheral and provincial regions. First, the Cochabamba Derived Tiwanaku style assemblage does not present the "classic" and "decadent" chronological division seen in the highlands. Recent work has suggested contemporaneity of both style ceramics even in the Tiwanaku core. Second, given that no phase distinctions occur in the Tiwanaku pottery sequence, and stratigraphic data from Cochabamba that suggest rapid increase in use of Tiwanaku style materials followed several local styles, the timing for this event is set to the 7th-century AD.