8.

Excavations at Sillumocco-Huaquina

Edmundo de la Vega

SILLUMOCCO-HUAQUINA IS LOCATED on the southwestern margin of Lake Titicaca, in the circum-lacustrine region of the south-central Andes in the community of Huaquina-Sapijicani.[1] The site area is divided into small landholding parcels as well as community land. Most of the landowners live in the community of Huaquina-Sapijicani, but at least three families from the town of Juli own the site property and at the time of our field study (1995) used it for residential and agricultural purposes. Identified as Site 158 during the survey conducted by the Proyecto Lupaqa (Stanish et al. 1997), Sillumocco-Huaquina lies approximately 1 km west of Juli, at 16°12′22″ latitude south and 69°28′32″ longitude west, with an elevation of 3,850 m above sea level (Figures 3.1 and 8.1).

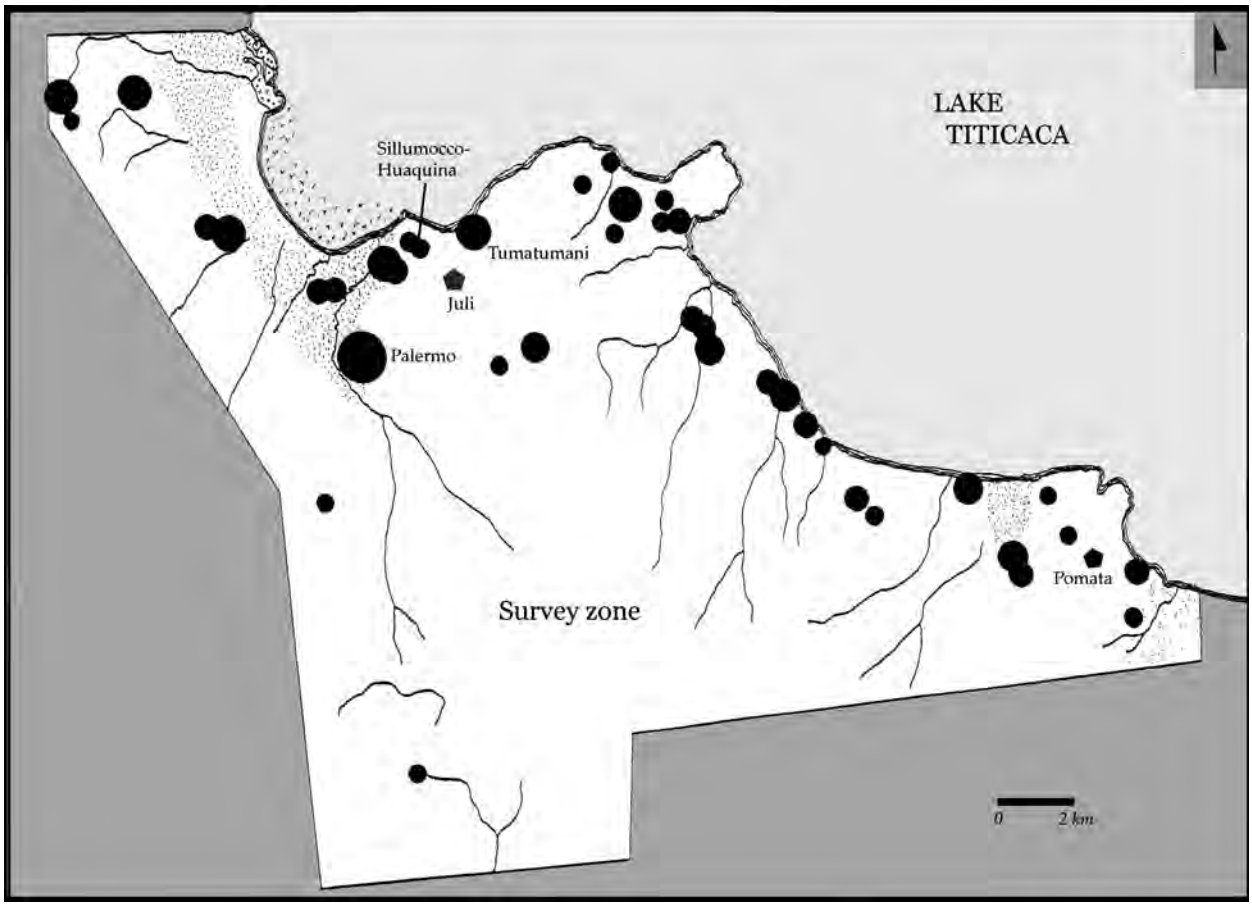

FIGURE 8.1. Tiwanaku sites in the Juli-Pomata area and the Moyopampa Complex

THE MOYOPAMPA COMPLEX

Although our work was concentrated on Sillumocco-Huaquina itself, the study area that encompasses it is known as the "Moyopampa Complex." This complex is comprised of at least thirteen sites with Sillumocco (Formative period) or Tiwanaku occupations, which are part of a sophisticated agricultural system of *waru warus* (raised fields) and irrigation canals that capture and redirect the water from the Río Salado in the lower reaches of the watershed.

The complex lies west of the city of Juli, extending throughout the range of the pampa below 4,000 m, bounded naturally by the Zapacollo, Caracollo, Chocorasi, Chila-Pukara, Caspa, and Suankata Hills and the lakeshore. The northeastern boundary is defined by the absence of Sillumocco and Tiwanaku settlements, with an arbitrary line running from the base of Suankata to the lakeshore. The Río Salado crosses the pampa, running from south to north (Figure 8.2).

The two principal sites in the Moyopampa Complex are Palermo (Site 212) and Sillumocco-Huaquina (Site 158), which appear to be local administrative centers (see Hastorf, Chapter 5, this volume). According to the Proyecto Lupaqa's classification system, these sites fall into the category of Type 3 sites, characterized as ones on low hills with domestic terraces and a sunken court complex at the top (Stanish et al. 1997). All other Moyopampa Complex sites are either Type 1 (Site 210, which has a possible semisubterranean structure); Type 2, or small mound sites (Sites 208, 228, and 271); Type 4, or domestic terrace sites (Sites 147, 148, 157, 160, 179, and 236, some of which have yielded possible post-Tiwanaku burial remains); or Type 12, or miscellaneous sites (Site 220).

WARU WARUS (RAISED FIELDS)

The Moyopampa region had previously been identified as an area of raised-field agricultural activity (Erickson 1988b; Smith et al. 1968). This

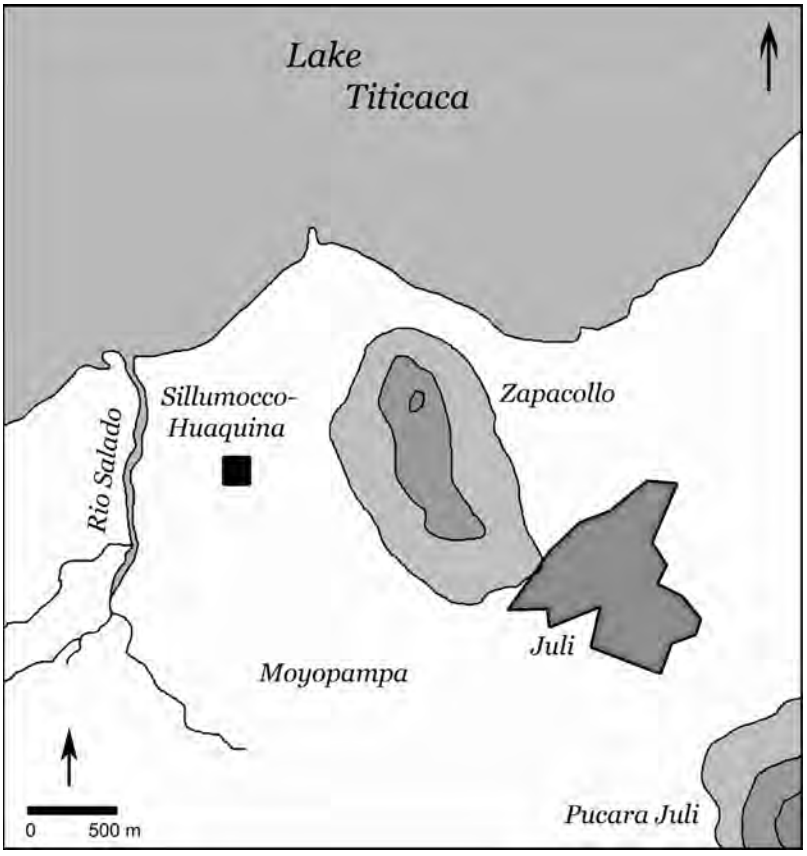

FIGURE 8.2. Sillumocco-Huaquina site location

was again confirmed by the Proyecto Lupaqa survey, which calculated that waru warus extend over an area of at least 10 km^2, and further confirmed the association of waru warus with structures that reflect hydraulic engineering, such as small canals to catch water from *puquios* (springs) and *bofedales* (swamps) at Palermo and Sillumocco-Huaquina, and canals that altered the natural flow of the Río Salado (Stanish 1994a; Stanish and de la Vega 1991; Stanish et al. 1997). Examination of aerial photographs and maps, and subsequent field visits, further confirmed the existence of very extensive and sophisticated hydraulic systems.

The remains of one of the most interesting hydraulic systems lies approximately 500 m southeast of Sillumocco-Huaquina, on the course of the Río Salado. This hydraulic system is a canal that would have deviated the natural course of the river. This detour was made for two purposes: (1) to capture water by means of a network of canals extending several kilometers south of Sillumocco-Huaquina, and (2) to direct part of the captured water toward a canal that runs across a network of waru warus at the edge of Sillumocco-Huaquina before finally draining into the lake. This canal also merges with a smaller canal that runs in a broken line from the *bofedal*, at the base of Zapacollo, to some 150 m north of the site.

The canal network consists of two main canals. The first collects water from the *quebradas* between the hills of Zapacollo and Pukara Juli. The second canal captures water from the Río Salado, which it then redirects to run parallel to the river. In its final stretch, this canal cuts a zigzag pattern with sharp 90° angles. The course of this canal is associated with the large site of Palermo.

The canal system was of such magnitude that it undoubtedly required significant manpower. It is very important to chronologically place the construction of this hydraulic system. If it pertains to the Sillumocco period, this would imply that the Formative social organization was very evolved and complex. On the other hand, if it represents a Tiwanaku development, this canal system would have required special attention and control from the Tiwanaku seat of power.

The presence of the diverse site types associated with the extensive waru warus and hydraulic system suggests that these sites were articulated within a local agricultural system. The differences between sites reveal the distinct role each site played within the settlement system.

SITE DESCRIPTION

Sillumocco-Huaquina is found on the western end of the Pampa de Moyo (Moyopampa), at the foot of the western slope of the Zapacollo Hill. The site is on a small natural knoll that has been extensively terraced along its slopes and top. The surface bears an abundant scatter of sherds and lithics spanning several occupational periods from the Formative period to the present. Several post-Tiwanaku funerary structures are also found on the south slopes (*chullpas* and collared tombs). The site covers an area of approximately 3.5 ha, and rises up to 16 m above the pampa. The general orientation of the site is southeast to northwest, with its main access probably at the southeast. Raised fields and remains of canals are found in the pampa surrounding the site, as well as terraces along the western slopes of Zapacollo. Although the terraces have no architectural features, there are at least four small sites associated with them, identified by surface finds as Tiwanaku.

Terraces

The site consists of five levels of irregular terraces, which correspond to the irregularity of the natural terrain (Figure 8.3). At the southeastern end, where the height of the knoll is only 5 m from base to top, only three terraces can be identified, T1 being the thickest, at 2 m. On the other hand, at the northeastern end, where the knoll height reaches 16 to 17 m, all five terraces can be recognized, varying in thickness between 2 m (T1, T3b, T4c, and T4d) and 4 m (T2 and T4b).

A striking feature that is observed is the way the terrace retaining wall follows a broken line with angles up to 90°. This can best be observed in the T2 terrace where, at the northern and southern extremes, they form a segment of the Andean cross, or squared cross, with three angles pointing out and two pointing in. A similar

pattern with an irregular squared cross is revealed in a floor plan of T1. Both the site dimensions and the terrace configurations are very similar to those of the pyramid of Akapana, in the urban ceremonial center of Tiwanaku (Manzanilla et al. 1990:84). Another significant aspect is the presence of inclined earthworks on three of the T1 corners that seem to have functioned as entries to the uppermost terrace. The average size of the earthworks is 6 x 3 m, spanning an average depth of 2 m.

The lower terraces have been seriously damaged by the modern homesteads on the western portion of the knoll, as well as by the heavy machinery that stripped the site for fill in the construction of the Pan-American highway. Members of the community report that a chullpa was looted and destroyed at that time and that numerous "gold and silver objects" and a mummy with a deformed cranium were removed. The destruction occurred in the late 1980s when the owner of the property used a

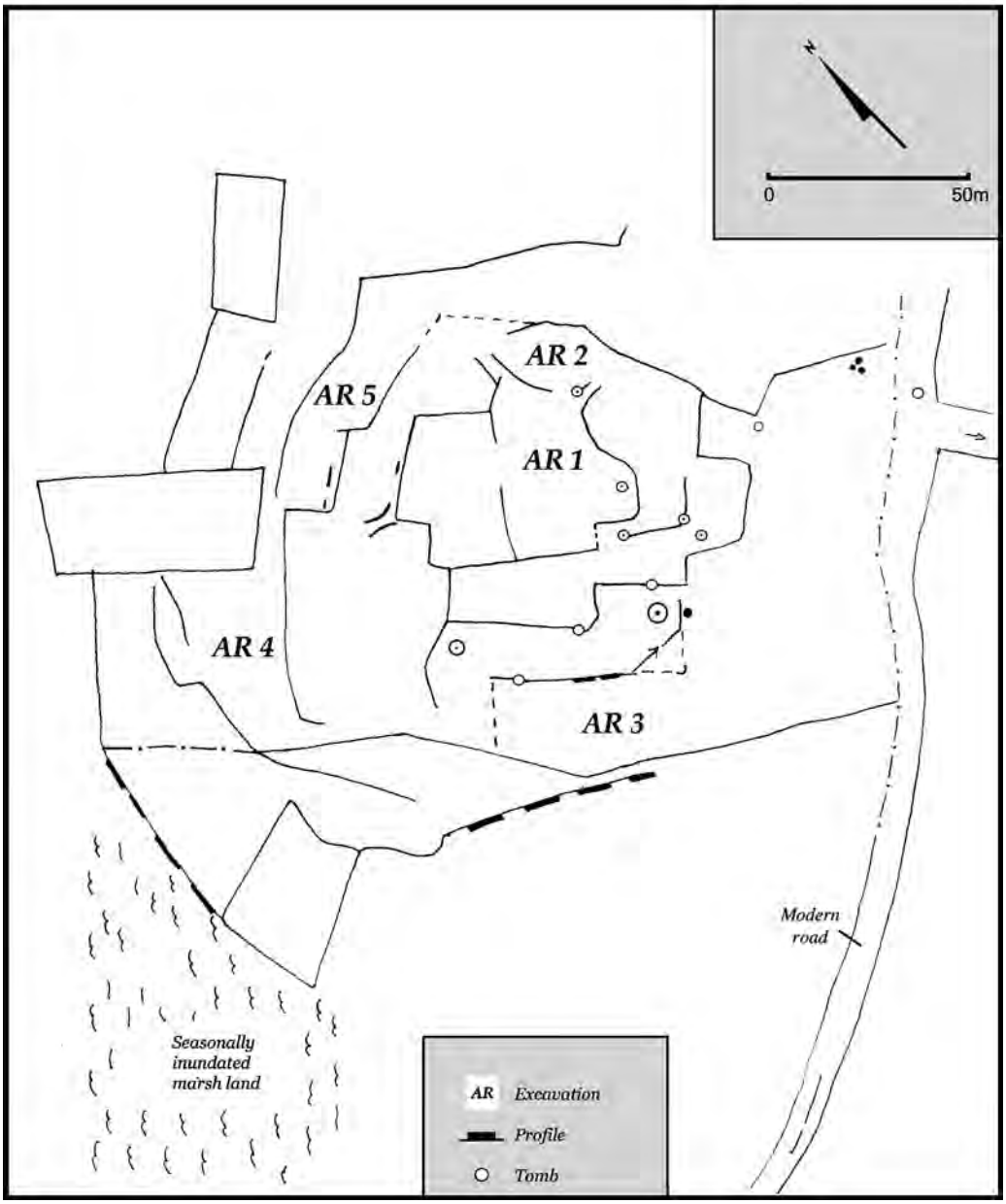

FIGURE 8.3. Sillumocco-Huaquina site plan

Caterpillar tractor to level the terrain. A great part of T4a (where the destroyed chullpa was reported to have been), the southern corner of T3a, the surface and the southeastern sector of T3c, and the wall and surface of T2 were most severely impacted. Currently, the entire site is utilized for cultivation and for grazing animals.

Funerary Structures

A variety of funerary structures are concentrated on top of the knoll and on the south and southeastern sectors. These include chullpas, collared tombs, and subterranean tombs. A total of four chullpas were identified (Tombs 2, 3, 4, and 8) on the T3a terrace. The largest of these was Tomb 8, with an external dia7 of approximately 4.5 m (although the tomb wall is almost completely destroyed) and with large stone blocks (up to 1.1 m long) strewn around it. Tomb 3 shows a double-ring rock base. The exterior ring (3.1 m in diameter) consists of fragments of worked stone, while the interior ring consists of field stones (2.3 m in diameter). Some cranial fragments and human long bones were seen inside this structure.

Tombs 1 and 2, atop the knoll, are seemingly the most important, not only because of their prominent location on the site, but because they are the only ones to have been built on a large platform (8.6 x 6.5 x 1.7 m). Tomb 1 is a collared tomb with an external diameter of 2.4 m, delimited by seven large stone blocks embedded vertically. Tomb 2, on the other hand, is a chullpa, recognized only by the remains of its foundation, which measures 3.8 m in its external diameter. Cists of subterranean tombs have been found on T2 and T3c. Cist openings range between 1 and 1.5 m in width, and the average depth is 0.7 m.

The remaining funerary structures are collared tombs, formed by vertically arranged stone blocks of various sizes and enclosing a circular area with internal diameter between 1.5 and 2 m. These funerary components of the site all seem to correspond to the post-Tiwanaku period.

SITE EXCAVATION

The excavation strategy theoretically was to entail two stages of excavation. Initially, the excavation of test units was planned with the objective of evaluating the terrace architecture and internal structures (if any were to exist), as well as to identify the various occupations of the site. The testing results confirmed the need to expand the excavations, and in a second stage, excavation of at least 50% of the terrace was planned. However, the unfortunate denial of permission to excavate by the landowners made it impossible to realize the second stage.

Testing was completed throughout the site (Figure 8.3), either by means of test units or by cleaning a terrace profile. Detailed descriptions of the test results of areas 2, 3, 4, and 5 are presented below. Area 1, however, was tested by another person, and will not be included in this report.

Excavation Area 2

This area is located on the northeastern arm of T1, and lies 5 m from the northern corner of the terrace (Figure 8.3). Three test units were excavated in this area: one 2 x 2 m square and two 1-m extensions of the north and east wall profiles. A sequence of three levels of occupation was represented in a depth of 2.2 m: two Formative levels and one Tiwanaku level. Above these were post-Tiwanaku fill and a cap of recent deposit.

The Formative occupation was partially exposed in the northern profile and was deposited directly over bedrock. A wall made of large stone blocks was seen to run east-west, parallel to the T1 wall, which is thought to be the base of the first retaining wall of the terrace. Formative ceramics consist of fiber-tempered wares. Superimposed on this, the second Formative occupation was also revealed in the north profile. Several disturbed burials were associated with this level.

The remains of a circular structure, associated with the Tiwanaku occupation and approximately 3.0 m in diameter, was evidenced by a fieldstone block foundation that was arranged in two rows. The structure's interior showed a red compacted clay floor. To the west of the structure, a thick layer (50–60 cm deep) of guano was found, leading to the interpretation that the area had been a corral relating to the habitations. This hypothesis is reinforced by the analysis of faunal remains, which demonstrates large quantities of both adult and young camelids and a full range

of skeletal parts (skull, vertebrae, ribs, scapula, pelvis, and long bones). Since all body parts are represented, it can be concluded that the animals were killed and butchered close to the residential area (Elkin 1994). These data conflict with the interpretation that Sillumocco-Huaquina was a ceremonial site, but they do not eliminate the possibility that the animals were used for sacrificial purposes as part of ritual activities. The Tiwanaku occupation was covered by a 0.35-m fill layer either at the end of the period or in post-Tiwanaku times.

PROFILE 1

This test area is located on the eastern wall, along the northeastern arm of the upper T1 terrace. Three test units were excavated with the intent of defining the construction of the retaining wall. Test Unit 1 was placed on the talus, toward the interior of the terrace, behind the wall. Test Units 2 and 3 were located at the foot of the wall, outside the terrace.

Test Unit 1. Test Unit 1 was excavated with the objective of defining the characteristics of the terrace fill, as well as the occupational or construction levels. The unit measured 1.9 x 1.5 m, and had an average depth of 1 m. Nine levels were excavated, resulting in the definition of the following strata: (1) the modern surface, (2) terrace fill, (3) possible wall foundation, and (4) natural deposits (Figures 8.4 and 8.5).

Stratum A (Level 1) is the modern surface, consisting of an accumulation of agricultural soil

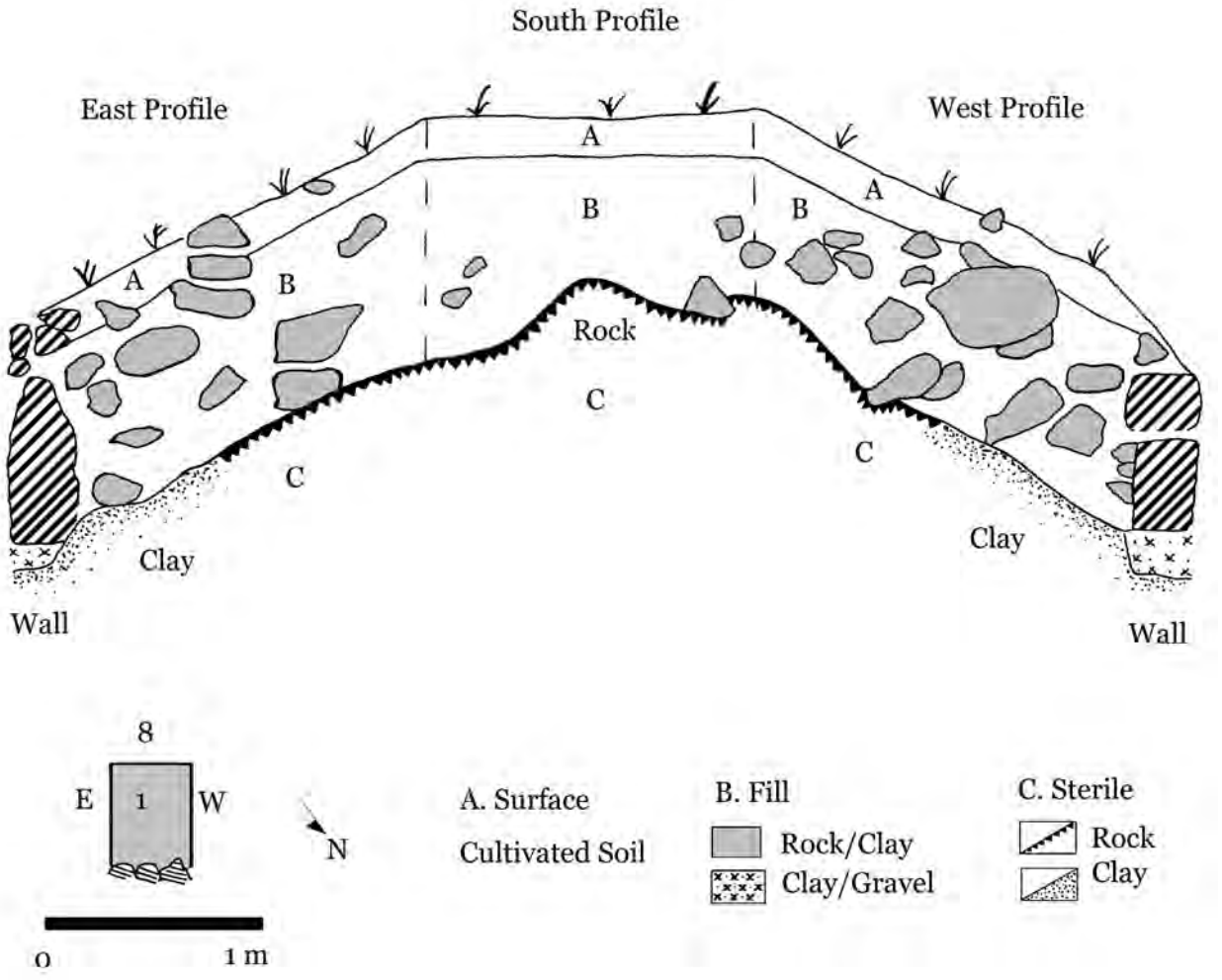

FIGURE 8.4. Stratigraphic profile of Area 2, Unit 1

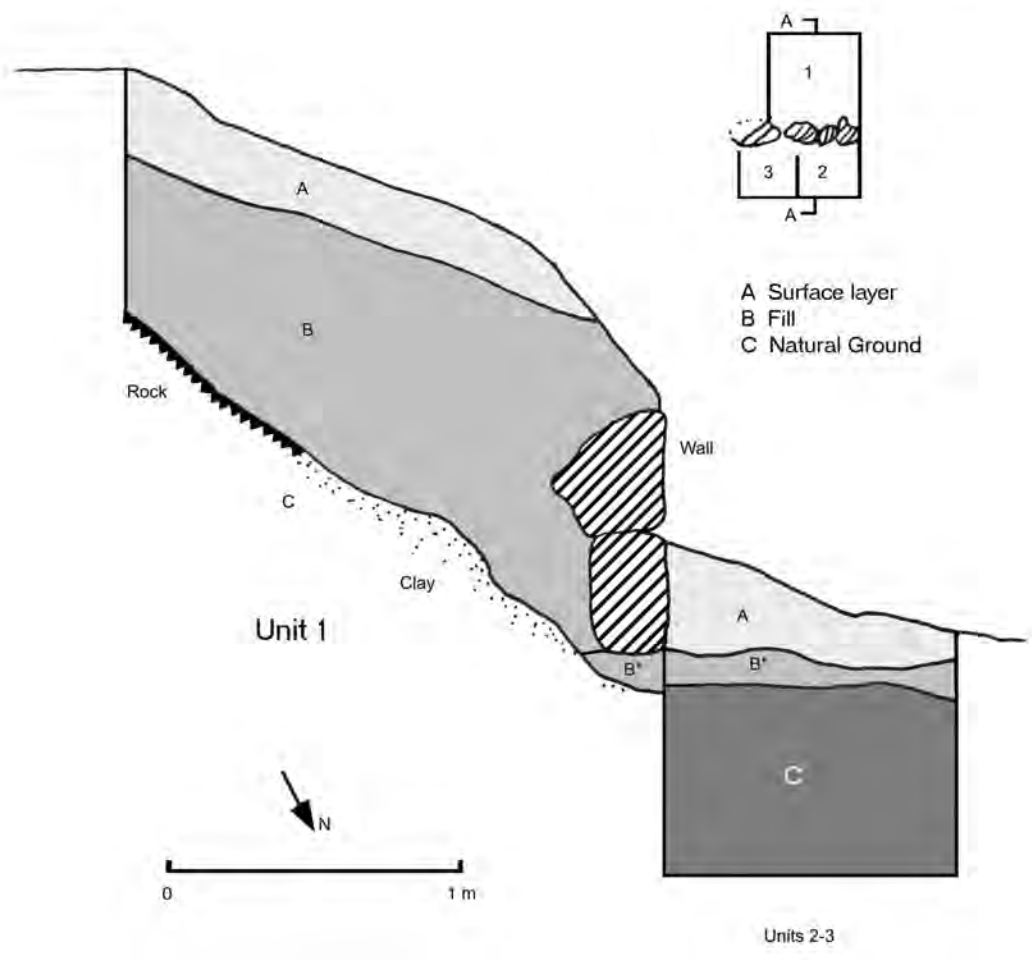

FIGURE 8.5. Profile of Area 2, Units 1, 2, and 3

atop the terrace. It is a dark brown (10YR4/3), semicompacted sandy clay, containing 1- to 3-cm pebbles, and having an average depth of 0.2 m. Artifacts recovered from this level include a mixture of Formative, Tiwanaku, and Altiplano ceramics, lithic debris, andesite hoe fragments, and some sandstone pebbles, as well as an abundance of camelid faunal remains (carpals, ribs, scapulae, etc.).

Stratum B (Levels 2–9) is composed of terrace fill. The soil is a sandy clay with stone blocks, which range in size from large (60 x 40 x 20 cm to 40 x 30 x 18 cm), medium (30 x 25 x 20 cm to 20 x 15 x 12 cm), small (10 x 8 x 6 cm to 15 x 12 x 8 cm), to very small (8 to 10 cm). Despite the complex nature of the fill, it was still possible to distinguish two distinct features. Feature 1 is found immediately behind the wall, occupying more than half the test unit floor. It consists of numerous stone blocks of variable sizes, loosely arranged and mixed with a dark brown (7.5YR4/2) sandy clay soil with a granular structure, the matrix being loosely compacted, with air bubbles and inclusions of reddish clay. It is interesting to note that grinding stones (*manos* and *batanes*) were used for the fill, broken down to the medium and small block sizes, and sometimes fractured at right angles.

Feature 2 primarily consists of reddish brown (5YR5/3) semicompacted sandy clay soil with abundant air pockets. It also contains small and very small stone blocks. Its average thickness is 1 m. This fill rests directly atop the natural deposit (Stratum C).

The cultural content consists of ceramic fragments from the Formative and Tiwanaku periods

(Figure 8.6) in all levels, although in the uppermost levels (2 and 3) there are also fragments of what appears to be Altiplano style ceramics. This is a significant find, as it helps to place the terrace construction into a chronological framework. The presence of Tiwanaku and Altiplano ceramics in the fill eliminate the possibility that the construction date from the Formative period. The absence of Altiplano ceramics in the lower level (where only Formative and Tiwanaku sherds are found) leads us to conclude that the terrace was built during the Tiwanaku period. The fill content includes an abundance of lithic materials (primarily hoe fragments and lithic debris, consisting primarily of andesite and, less frequently, basalt, as well as quartzite, red jasper, and chalcedony) and sandstone and rhyolite pebbles. The faunal remains reflect a heavy reliance on camelids (99% of the bone recovered is camelid bone), and include vertebrae, ribs, scapulae, and phalanges. These faunal remains represent individuals ranging in age from neonate to juvenile and adults. The bones had been cleaned and burned; some exhibit butchery marks. The remaining 1% of the faunal assemblage is unidentifiable, but could possibly be rodent or bird.

Stratum B′ is a thin, compacted lens of brown (7.5YR5/2) sandy clay, mixed with gravel and slivers of charcoal. It is found beneath the rock wall and functions as a foundation for the wall. It was not excavated. Stratum C is a culturally sterile level of natural soil that corresponds to bedrock. It consists of a red clay (2.5YR5/6) that is compacted and homogeneous.

Test Units 2 and 3. Both Units 2 and 3 were 1 x 1 m squares that were placed in front of the wall, with the objective of defining the characteristics of the wall construction, as well as seeking evidence for ritual offerings. Three strata were identified (Figure 8.5).

Stratum A is the modern ground surface, featuring rubble from the wall and fill. The soil is a dark brown (10YR4/3), semicompact, sandy clay with 1- to 3-cm pebbles. The crumbled wall reveals only medium-sized (20 x 20 x 14 cm to 20 x 15 x 10 cm) and small (10 x 8 x 6 cm) stone blocks. The average depth of this stratum is 0.20 m, although in the area adjacent to the wall it is almost double that.

In Stratum B, Formative, Tiwanaku, and Altiplano ceramic fragments are mixed in the deposit, the most notable of which is a *kero* (drinking cup) base retrieved from the wall base. Additionally, hoe fragments, andesite, quartzite, and basalt debris, and fragmentary camelid remains were found in this stratum.

Stratum B′ is defined as terrace fill. It consists of a brown (7.5YR5/2), compact, sandy clay, with 1- to 5-cm pebbles, and contains charcoal fragments and ceramics. Its average depth is 0.1 m. The T1 retaining wall rests directly upon this level. Although infrequent, Formative and Tiwanaku sherds are present. Andesite flakes continue to be present. However, other raw material types (quartz, jasper, and rhyolite) are also represented.

Stratum C is again the natural sterile deposit. Compact and homogeneous red clay (2.5YR5/6) predominates, although there are a few whitish inclusions. The excavation of this level was abandoned at a depth of 0.7 m.

Retaining Wall East of the T1 Terrace. The orientation of this wall runs southeast to northwest, with a length of 22.5 m and a width between 0.4 and 0.5 m, depending on the dimensions of the stone blocks. Based on the current terrace height (0.8 to 1 m), it is calculated that the original wall height was 2 m. The terrace construction seems to have been done over the red clay natural deposit by first digging a trench to use as a foundation. A clay mixture was placed at the bottom of the trench before arranging the stone blocks over it.

The wall consists of a single row of masonry comprised of irregular blocks of various sizes: large blocks (1 x 1 m, 90 x 50 cm, and 60 x 40 cm), medium-sized blocks (25 x 12 cm, 40 x 20 cm, and 20 x 12 cm), and small blocks (15 x 8 cm and 10 x 5 cm). The small blocks seem to have been used as shunts to plug the empty spaces left between larger blocks. The stone blocks seem to have been paired randomly and are cemented with clay. Irregular blocks were primarily used, although some appear to have been lightly shaped and others have worked or cut surfaces.

Preliminary interpretations of these data enable us to define two important things: (1) construction of the uppermost terrace took place during the Tiwanaku period, and (2) fill material

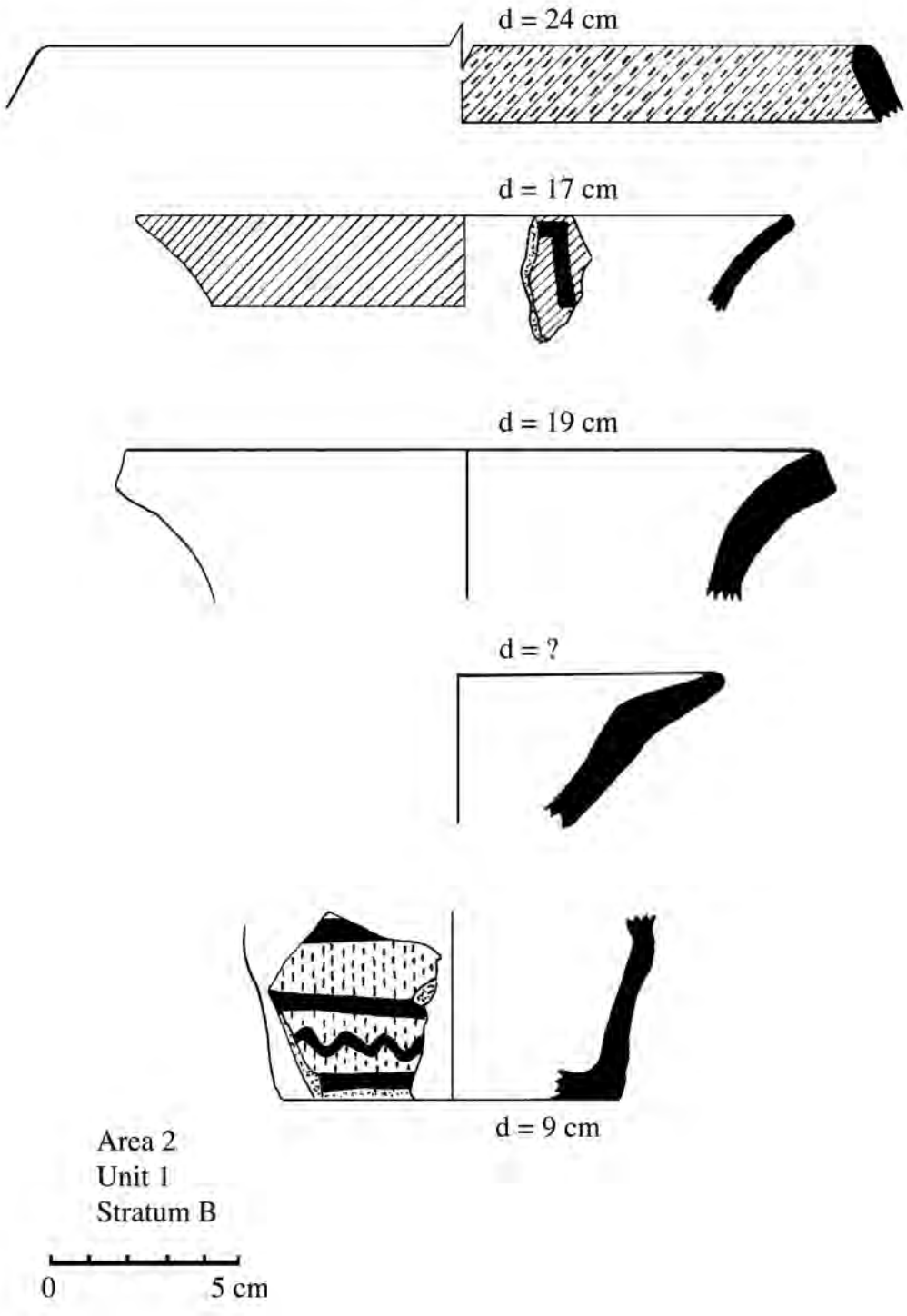

FIGURE 8.6. Test Unit 1, Formative and Tiwanaku period pottery fragments

used for terrace construction was derived from previous occupations, probably from residential contexts. It would thus appear that Sillumocco-Huaquina had two episodes of Tiwanaku occupation. The first of these features a residential component, while the second reveals the expansion of the T1 terrace, using fill from prior occupations, including the those from Formative period. It is quite likely that part of the destruction of residential Tiwanaku sites occurred toward the end of the Tiwanaku period itself.

Excavation Area 3

PROFILE 2

Excavation Area 3 is situated by the wall of the T3 terrace at the corner where heavy machinery may have truncated the retaining wall and dragged the fill some 2 to 3 m toward the interior of the terrace (Figure 8.3). A highly impacted area was selected to be cleaned, excavating a 1.6 x 1.1 m (at surface), 0.3 m (at base) trench. Several levels were distinguished within five strata (Figure 8.7).

Stratum A (Level 1) consists of an agricultural surface. The soil is a homogeneous, semicompact, brown (10YR4/3) sandy clay with gravel (1–3 cm), pebble (6–10 cm), and rock (> 10 cm) inclusions and many roots. The average depth is 0.25 m, and ceramic fragments reflect the Formative, Tiwanaku, and Altiplano periods.

In Stratum B (Levels 2 and 3), Fill 3 consists of at least three pockets of sandy clay, distinguished by color and compactness: B1 is a compact, dark brown (10YR3/3) soil with air pockets; B2 is a semicompact to loose brown (7.5YR5/4) soil with air pockets, and B3 is a compact, homogeneous brown (7.5YR5/2) soil with carbon flecks, gravel, and pebble inclusions. The average depth of Stratum B is 0.65 m, and the ceramics consist of Formative, Tiwanaku, and possibly Altiplano styles in the uppermost portion.

In Stratum C (Level 4), Fill 2 has small and medium (1–6 cm) rolled cobbles, as well as some large (10–20 cm) cobbles mixed in with homogeneous, semicompact brown (10YR4/3) sandy clay. This stratum has an average depth of 0.4 m. It is practically a single layer of rocks that, because of their abundance and homogeneity in size, would appear to have been the result of a natural deposition. However, the presence of ceramics, lithics, hoes, and some bone splinters suggests that the rock layer had been mixed to form the terrace fill. Plain wares that cannot be positively classified were recovered, as were a few fragments that have Tiwanaku-like pastes.

Stratum D (Level 5) Fill 1 consists of homogeneous, compact, dark brown (7.5YR4/2) sandy clay, mixed with gravel inclusions (1–2 cm) and a quantity of small rocks (15–20 cm).

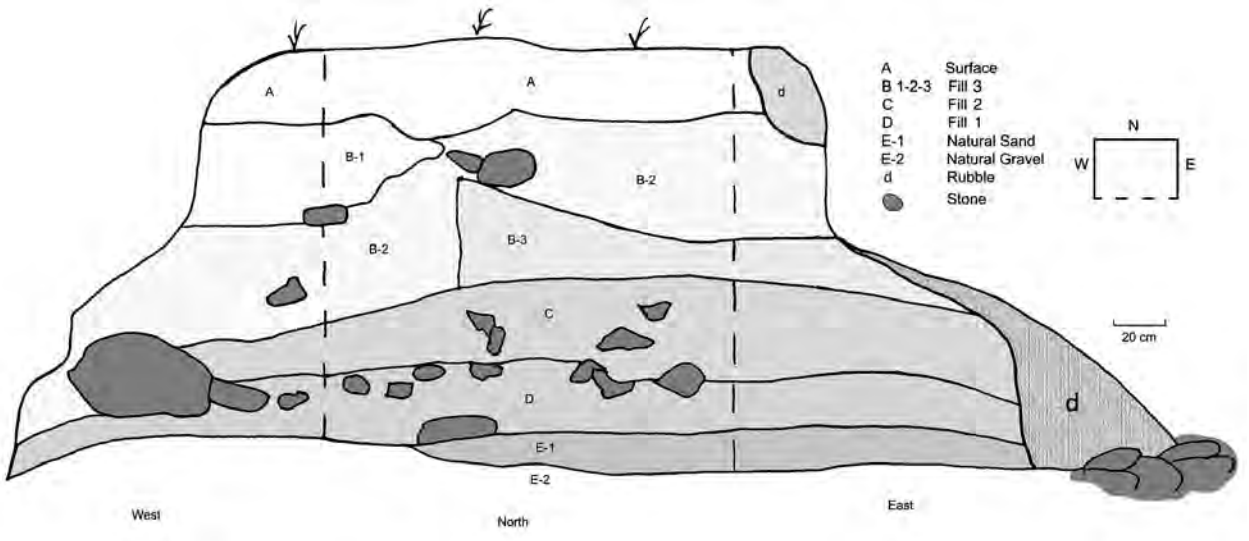

FIGURE 8.7. Profile of area 3

Resting directly atop a natural deposit, its average thickness is 0.2 m. Because of its stratigraphic position, no evidence of walls or floors was found, although this stratum seems to correspond to the earliest occupation of this sector of the site. It is interesting to note that the surface of this level is so flat and even that it appears to have been leveled. Fragments of Formative ceramics were recovered, but the majority of ceramics recovered are plain and nonclassifiable. Nonetheless, the fiber and mica tempering in the ceramics recovered is suggestive of the Formative period. It seems that the content of this level is randomly mixed.

For Stratum E (Level 6), the natural deposit yields two well-defined and distinct superimposed levels. The uppermost, E1, is a coarse sand (1–5 mm grain size), generally compact and homogeneous, reddish gray in color (5YR5/2), and including some small (1–3 cm) cobbles. The lower level, E2, consists of compact gravel and rolled cobbles that could possibly have been the source for the cobbles in Stratum C. Neither of these layers yielded any evidence of human occupation.

The data from Profile 2 confirm two observations made from the excavation of Profile 1: (1) that overall, the terrace construction occurred during the Tiwanaku period, and (2) that construction materials consisted of recycled earlier deposits. At the same time, two new observations can be made: (1) it is possible that the terrace was constructed directly over previous occupations (Stratum D), which were leveled prior to construction, and (2) natural rocky deposits were utilized for construction materials (Stratum C).

Excavation Area 4

This excavation area is situated along the western slope of the knoll (Figure 8.3). The excavation units were placed on the T4b terrace with the objective of finding evidence of an occupational component on the lower terraces. Although two test units were excavated, no significant discoveries were made. On the basis of the relative frequency of Formative ceramics in the lower levels, it can be postulated that a significant Formative occupation would likely be found in this area, either because of the great intensity of use of the area or because the area had not been affected by later reconstructions.

TEST UNIT 1

The excavation of Test Unit 1, a 2 x 2 m square, enabled us to evaluate the terrace fill (Figure 8.8). This fill averages 0.5 m in thickness and consists of rock and soil. It is estimated that more than half of the fill has been removed recently, during the course of modern agricultural activities. The deepest and least disturbed levels (Levels 6 and 7) demonstrated an irregular north-south alignment of debris, which was originally thought to be wall remnants. On closer inspection, it was determined that this debris was merely scattered fill. There was no evidence of architectural structures, nor evidence of any form of habitation. The deepest levels (Levels 5, 6, and 7) yielded an abundance of Formative ceramics.

The stratigraphy of Test Unit 1 revealed only three strata. Stratum A (Levels 1–4) consists of terrace fill. The uppermost 0.3 m can be considered a plow zone, disturbed by agricultural activities. The soil in the plow zone is a brown (10YR4/3) sandy clay matrix with 1- to 3-cm gravel and 3- to 5-cm pebbles, as well as 10- to 12-cm rocks. The plow zone soil is relatively loose, but is semicompact throughout the rest of the stratum, which ranges in depth between 0.4 and 0.5 m. This entire stratum has been churned recently, as evidenced by the recovery of glass, metal, and modern wares in Level 4, which is approximately 0.4 m below the ground surface. The ceramics from Stratum A are diverse, ranging in style from Formative trumpets to modern materials such as glass tempered wares and china. There is an abundance of very small fragments (< 1 cm) that have been heavily eroded, which again confirms the extent of churning of artifacts coupled with erosion. Lithics and hoe fragments made from andesite, basalt, and quartzite are numerous, and camelid and rodent remains are also common.

Stratum B (Levels 5–7) consists of more terrace fill. Similar to Stratum A, it features sandy clay soil mixed with abundant mid-sized (15–20 cm long) fieldstone blocks. This fill is primarily concentrated on the upper part of the east profile of the terrace and was initially mistaken for

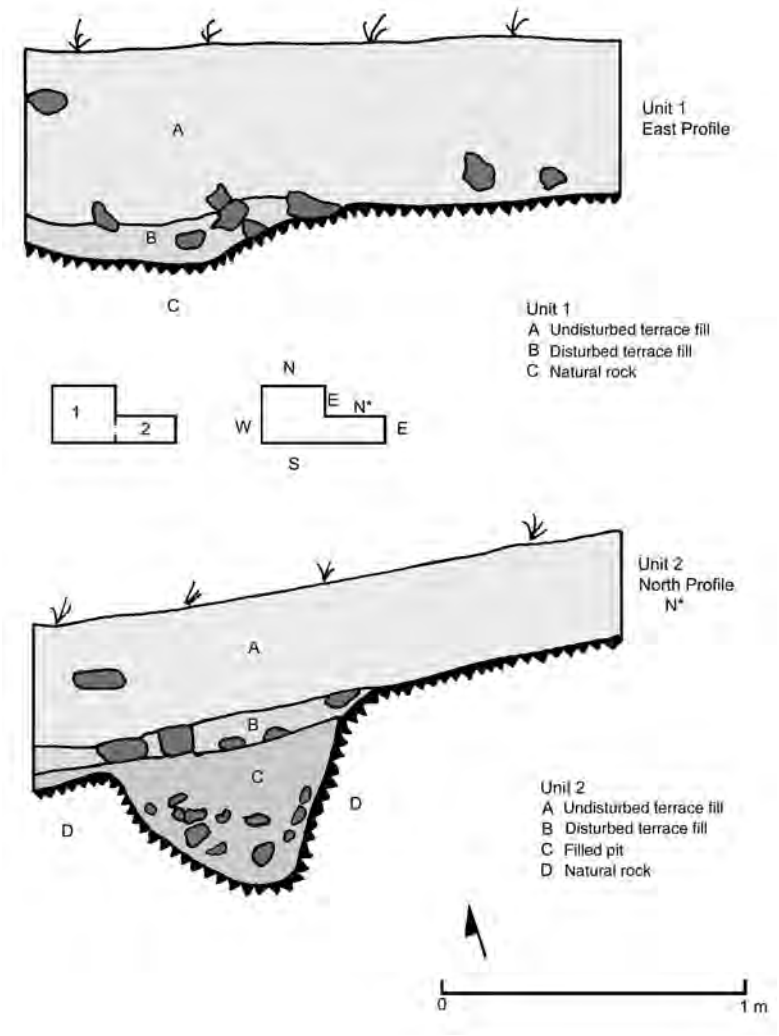

FIGURE 8.8. Stratigraphic profile of Area 4, Units 1 and 2

wall fragments. The thickness of this varies between 0.1 and 0.15 m. For the most part, the ceramic assemblage reflects the Formative period, although various Tiwanaku elements are also present. Faunal remains and lithic materials decrease sharply in this stratum compared to the concentration of these found in Stratum A. Stratum C is a sterile, natural rocky deposit of a light brown (2.5YR6/2) color.

TEST UNIT 2

In Area 4, the 1 x 2 m extension of the eastern wall of Test Unit 1 was designated as Test Unit 2 and excavated to follow a rock concentration that had appeared in Test Unit 1 and was thought to be a collapsed wall. The content of both test units is essentially similar, with only a few variations as described below.

The stratigraphy shows four well-defined strata. The content and composition of Stratum A differs in the two test pits only inasmuch as Test Unit 2 is slightly shallower (0.35 to 0.4 m) and yields a slightly greater proportion of Formative ceramics. Similar to Stratum B in Unit 1, Stratum B in Unit 2 also contains medium-sized fieldstone blocks, but includes slightly smaller stones as well (10–20 cm). Similarly, Formative ceramics were recovered from this stratum.

Stratum C reveals an attempt to fill a depression with a mixture of soil, rocks, and artifacts. The full extension of the depression was not excavated, but the excavated sample had a 0.8 m

diameter at the top and a 0.3 m diameter at its base with a seemingly elongated shape, oriented north to south. The ceramic assemblage from both test units was predominantly Formative, although some Tiwanaku fragments were also recovered. Among the lithic artifacts collected were some ground stone fragments and a sandstone rock with a polished surface. Faunal remains consisted primarily of camelid bones with a few fish and/or rodent bone fragments.

Stratum D is a rocky natural deposit, similar to that of Test Unit 1.

Excavation Area 5

Excavation Area 5 is situated on the northern sector of T2 below Area 1 (Figure 8.3). This location was selected for comparative purposes, in order to contrast T1 with T2 and to define the functional or occupational differences that might exist between them. Two units were excavated: TU 1, a 2 x 2 m square, and TU 2, a 2 x 1 m extension of the TU 1 northern wall. Because both units are so similar and represent a single depositional process, they will be described simultaneously.

Two levels of fill, each yielding Formative artifacts, are associated with the construction of the terrace. Fill B is superimposed over Fill C, and appears to have been built to raise the height of the knoll, as well as to increase its size. Both fills primarily yield Formative sherds, although an occasional Tiwanaku sherd is found in the upper levels of Fill B.

The stratigraphy consists of five levels (Figures 8.9 and 8.10). Stratum A (Levels 1 and 2) consists of the modern terrace surface. It is a light brown (7.5YR5/4), loose, sandy clay, with gravel inclusions (1–3 cm) and some pebbles (6–10 cm). Its average depth is 0.20 m, with roots

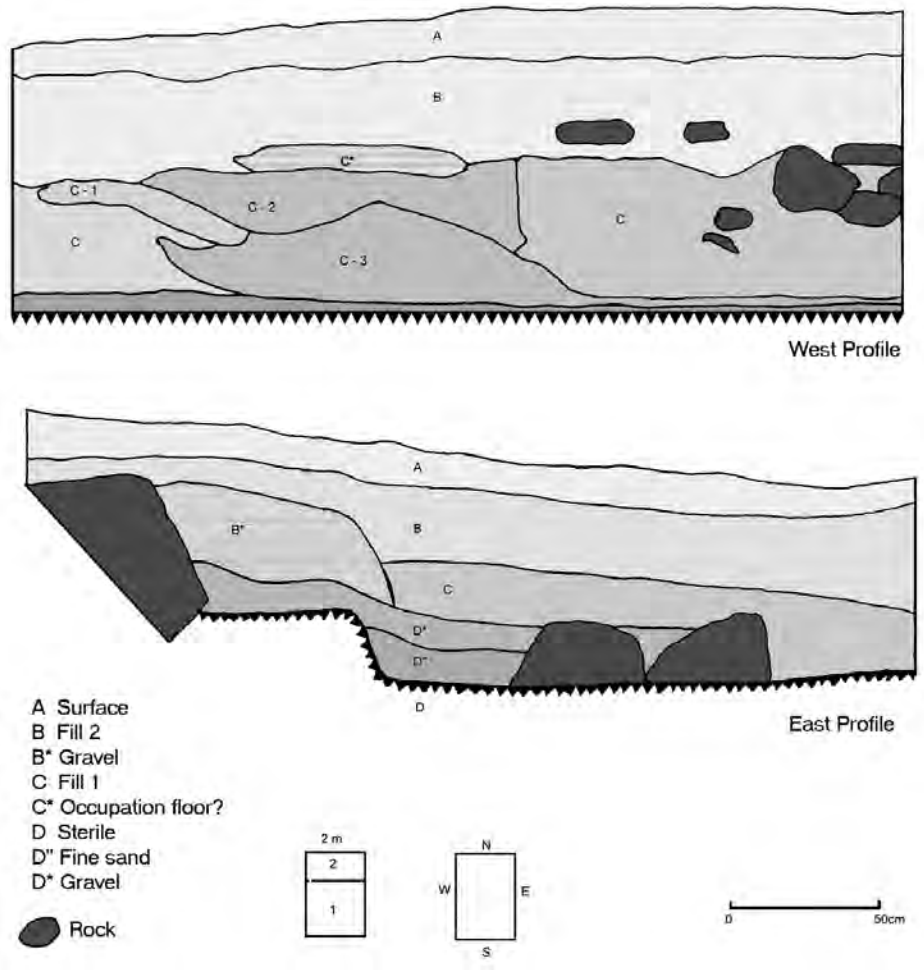

FIGURE 8.9. Stratigraphic profiles of Units 1 and 2 in Area 5, east and west profiles

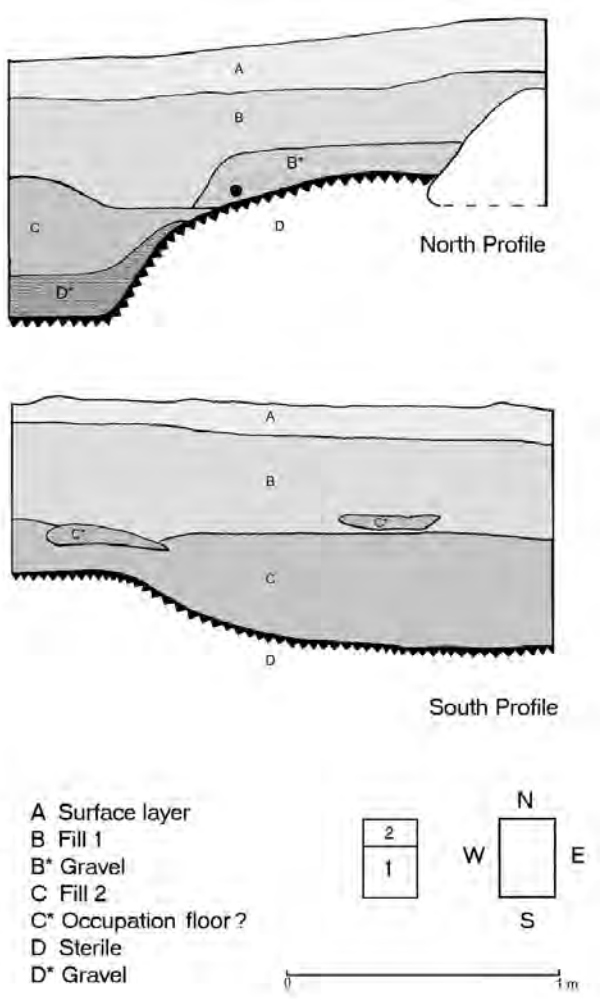

FIGURE 8.10 Stratigraphic profiles of Units 1 and 2 in Area 5, north and south profiles

that penetrate into the next level. The cultural content includes Formative and Tiwanaku ceramics, as well as material from later periods. Andesite, basalt, quartzite, and sandstone flakes were recovered. While this portion of the site is currently not cultivated, it is apparent that previous cultivation has mixed the archaeological deposit.

Stratum B (Levels 3–5) corresponds to Fill B. It is primarily formed by a dark brown (7.5YR3/2), very loose, sandy clay, with large air bubbles, and sits directly atop a rocky bedrock. Its average depth is 0.6 m and it is fairly homogeneous in its horizontal distribution. Artifact recovery was higher in this stratum than in the upper stratum, with Formative ceramics having the highest relative frequency (Figure 8.11). In Level 3 and part of Level 4, however, fragments of Tiwanaku-like wares (in terms of paste and finish) or Late Intermediate wares were also found (Figure 8.11). The lithic collection includes andesite, basalt, and quartzite debris, as well as stone hoes and adzes. An abundance of camelid and fish remains was also recovered.

Stratum B′ is a gravel stratum mixed in with Stratum B that blends into the underlying bedrock. With a depth between 15 and 30 cm, it is dark grayish-brown (10YR4/4) color. A collapsed human cranium was found on the rock surface, covered by this gravel, and encrusted in the northern profile. It is possible that the skull is associated with a disturbed burial from Stratum C.

Stratum C′ is an occupational level wedged between Strata B and C. A semicircular stone configuration contained the partial remains of a looted burial; only three vertebrae, a pelvis, the left leg and the articulated bones of the left foot, and fragments of the right leg were present. The cranium and other disarticulated bones were strewn outside the tomb. Formative ceramics were found in association with the burial, including a clay mask. A compact gray (7.5YR6/4) clay lens, thought to be a floor, was found in this level. Clearly seen in the south and west profiles, it showed a variable thickness between 5 and 20 cm. Slightly below this, but still in association with the clay lens, was a 10-cm (average) lens of ash (Stratum C′) containing Formative ceramics. This level lies directly over the Stratum C fill and is directly associated with it. The first fill that was used for terrace construction for this occupation seems to have been severely disturbed and totally covered by the second fill (Stratum B).

Stratum C (Levels 6 or 7–11) shows that the first terrace construction phase consists of Fill 1, a light brown (7.5YR5/2) compact, sandy clay, with some air bubbles. The matrix has intrusive pockets of clayey soil, mixed with ash (C-1, C-2, C-3, and C-4) and it is covered by large stone blocks. This fill lies over the natural soil of Stratum D. The material associated with this consists of Formative ceramics and a large quantity of andesite, basalt, and quartzite lithic debris, as well as fragments of stone hoes. Abundant camelid bones, as well as fish scales, constitute the faunal assemblage.

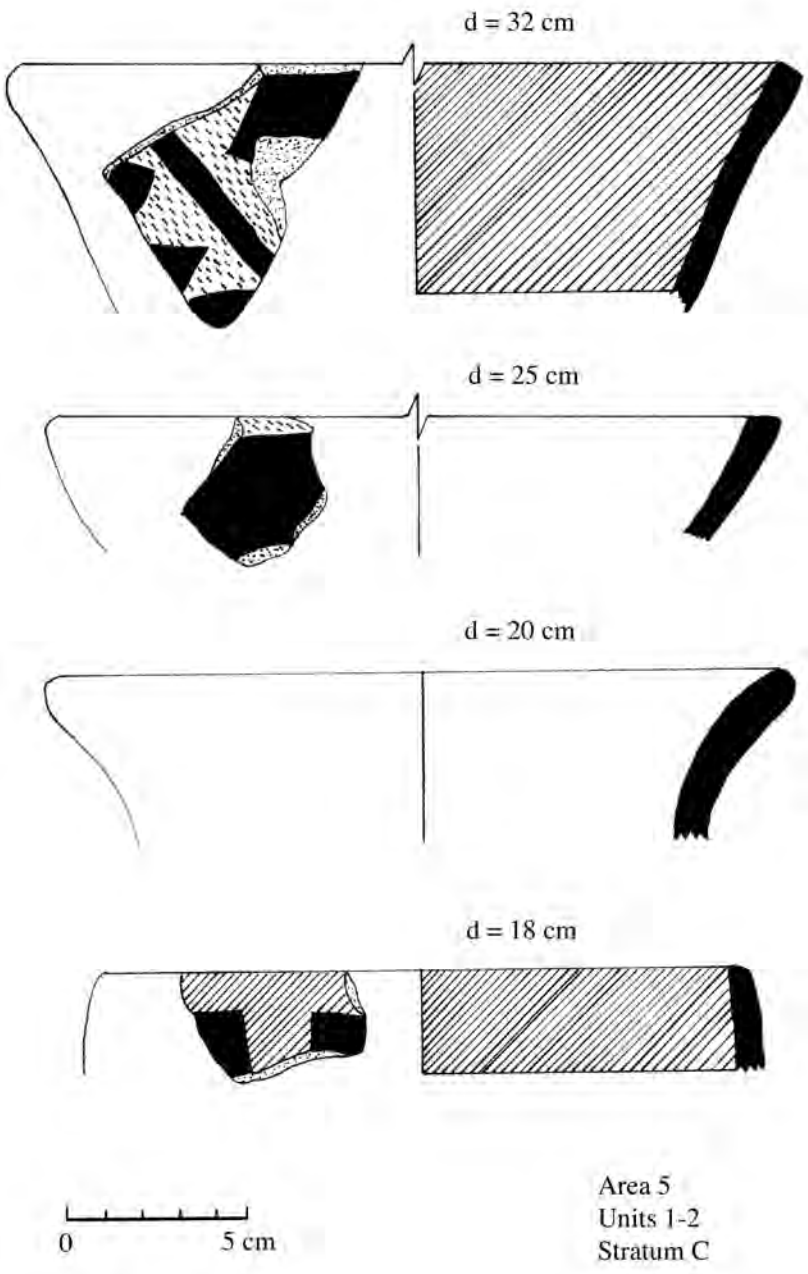

FIGURE 8.11. Formative and Tiwanaku pottery from Units 1 and 2, Stratum B, Area 5

Stratum D consists of the natural deposit—a rocky foundation with a steep slope at the western end. The highest point is 0.17 m below the actual ground surface (visible in the east profile), and the lowest point is 1 m below, seen in the west profile. Gravel deposits (D′) are intermittent.

The excavation results of this area were especially significant, enabling the identification of the Formative period for the terrace construction (Strata C and C′). It is still unclear whether the later Fill B, which raised the level of the terrace, pertains to the Late Formative or the Tiwanaku occupation of the site. In identifying Formative

residential occupations in the T1 and T2 terraces on the northeastern slopes, we can conclude that (1) the occupation during this time period was concentrated in this area and (2) the first phase of terrace construction took place during the Formative.

THE SILLUMOCCO OCCUPATION

With these test results, the Sillumocco settlement system begins to take shape, enabling an evaluation of the changes and continuities that transpired into the Tiwanaku occupation of the site. The Sillumocco occupation can best be described as a residential occupation, since no ceremonial architecture has been discovered at the site. Sillumocco remains have been found across the site, indicating that the entire site was utilized. The terrace complex on the western portion of the site, in Area 4, has the most extensive residential use, which undoubtedly also is responsible for the terrace construction. The north and northeastern upper slopes (Area 5) are very similar, where there is an almost exclusive Sillumocco presence that is associated with funerary and residential contexts.

A Formative occupation with at least two construction phases has been documented on the upper terrace (T1). These data are currently being analyzed to describe their characteristics and functions.

THE TIWANAKU OCCUPATION

Tiwanaku influences are superimposed upon the Sillumocco tradition in a manner very similar to that seen at the nearby site of Tumatumani (Stanish and Steadman 1994). Using the preexisting architectural features, the Tiwanaku period peoples were able to reconstruct the upper terraces (T1 and T3) and reproduce a pyramid very similar to the Akapana pyramid at the site of Tiwanaku itself. In changing the morphology of Sillumocco-Huaquina, its function was also modified, resulting in a site of ceremonial or administrative importance. Residential structures found within this context imply that the site housed individuals who performed some administrative or ceremonial function.

Distribution of Tiwanaku artifacts and features suggests that the northern slopes of the upper terraces were primarily occupied; the Tiwanaku occupation was not very extensive on the southern slopes, perhaps reflecting the elite nature of the occupation. Another important aspect of the Tiwanaku presence is the fact that there were at least two phases of occupation. No in situ remains of the first have been identified, although it is clear that the remains were used for extending the T1 and T3 terraces. The second phase is recognized by a reconstruction of the terrace complex. It has not yet been possible to establish the chronology of these events.

Additionally, the association of terrace complexes for cultivation with the raised fields and canal irrigation systems further confirms that the ceremonial function of Sillumocco-Huaquina would have necessitated administration and control of the agricultural production. This helps to better delineate and explain the Tiwanaku presence at the site and Tiwanaku expansion in the region.

Two models have been proposed. One sees Tiwanaku as a unified state, while the other perceives it as a fragmented state. In order to address these two models we must look to the similarities between the architecture at Sillumocco-Huaquina and the Akapana pyramid at Tiwanaku.

MODEL OF TIWANAKU AS A UNIFIED STATE

This model defines Tiwanaku as a state that expanded its domination and control over a vast territory with minor political entities, and then governed its subordinates with strict control under a central bureaucracy (Kolata 1983, 1985; Mathews 1992a; Ponce Sanginés 1981, 1991, 1992; and see Stanish 1992, 2002, 2003; Stanish and Steadman 1994; and this volume, Chapter 7).

Taking this perspective, the replication of sacred symbols, as in the case of the Akapana pyramid, must have been done under the direct orders of the state bureaucracy. In the study of states such as Tiwanaku, the public architecture built for civic, military, or religious functions is an indicator of the degree to which the social or-

ganization has evolved. The large-scale ceremonial architecture is interpreted as the manifestation of the economic and political power of the state, inasmuch as it reflects the ability to organize and control an immense work force, and it also reflects the hierarchical class structure as well as the ideological framework of the state. When these kinds of structures are found outside the nuclear centers, it demonstrates the extent of dominance and expansion, the degree of political integration, and the mechanisms of social control (Goldstein 1993a).

In the study of Andean state expansion, "typical" architectural features of public structures (such as *ushnu,* or sunken courtyards) seen outside the nuclear area are an expression of control over that political entity. In the case of the Inkas, sites like Hatun Xauxa (D'Altroy 1981), Huánuco Pampa (Morris 1982; Morris and Thompson 1985), Huancay Alto (Dillehay 1977), and Hatuncolla (Julien 1983) functioned as provincial centers or capitals, administering for the region. For the Wari time period, Pikillacta, Wiracochapampa, and Jinkamocco had a similar function (Isbell 1985, 1987; Isbell and Schreiber 1978; McEwan 1990; Schreiber 1992).

Two main monumental construction styles have been recognized for the Tiwanaku period: (1) pyramids (Akapana, Pumapuncu, Wila Pukara), and (2) walled enclosures (Kalasasaya, Putuni, semisubterranean temple) (Manzanilla et al. 1990:83). To these we must also add the important architectural features of doorways and ramps that give access to the important spaces (Goldstein 1993b:24).

Two expansion spheres with provincial centers have been attributed to Tiwanaku on the basis of ceremonial architecture featuring sunken courtyards similar to the semisubterranean temple found in Tiwanaku proper. The first is in one of the Pacific valleys, represented by the central site, Omo, in Moquegua (Goldstein 1989, 1993b). The second sphere is in the circum-lacustrine region, represented by Pajchiri (Bennett 1936), Pokotia (Lumbreras 1974b), Chiripa (Browman 1978a, b), Pachatata (Niles 1988), Lukurmata and mounds PK-5 and PK-6 (Kolata 1985), and Tumuku (Stanish et al. 1997).

The only known replication of the Akapana pyramid is at Sillumocco-Huaquina. The only possible exception is the highest hill on Esteves Island that may have also been modeled after the Akapana (see Stanish et al., Chapter 7, this volume). The Akapana pyramid is the principal urban structure in the Tiwanaku complex (Mesa and Gisbert 1957; Ponce Sanginés 1981; Posnansky 1957). Its central location, the associated ceramic offerings, and the animal and human sacrifices reflect its importance in Tiwanaku (Alconini Mújica 1995; Manzanilla et al. 1990). The excellent quality of the masonry, the complex architecture, and the sophisticated internal and external canal systems of Akapana underscore its importance among Tiwanaku structures for its pivotal point in ideological organization (Manzanilla et al. 1990:102).

The association that may exist between the very common stepped motif in Tiwanaku iconography and the profile of the Akapana pyramid with its superimposed terraces is an interesting concern (Goldstein 1993a:24). One would only need to add another horizontal extension to make it resemble a segment of the Andean cross, much like the one reported by Linda Manzanilla and her crew. It has also been suggested that Akapana is a representation of the sacred mountains of the western cordilleras (Goldstein 1993a; Kolata and Ponce Sanginés 1992; Reinhard 1991), which would reinforce the sacred importance attributed to this structure.

With this perspective, the reproduction of such important traits at Sillumocco-Huaquina suggests that the Tiwanaku state directly influenced the local population. In addition to its ceremonial importance, Sillumocco-Huaquina's association with agricultural and irrigation systems implies that its function extended to control over the agricultural production for the area. Both facts unquestionably support the assumption that Sillumocco-Huaquina was under Tiwanaku state control.

NESTED HIERARCHY MODEL

The model put forth by Albarracin-Jordan (1992, 1996a) is known as the nested hierarchy model. It is indirectly substantiated by the work of Erickson (1982, 1988b), Graffam (1992), and Platt (1987b). This model suggests that Tiwanaku constituted a fragmented state, composed

of different minor socio-political entities that maintained a local control over populations and territories and simultaneously participated in a larger socio-political Tiwanaku infrastructure.

Social cohesion of the different entities was achieved by a shared ideology that was continuously reinforced and revitalized by public ceremony and ritual. These rituals responded to "a specific hierarchy; some carried out at the level of the most basic social segments, others at the level of the territorial nodes, and others at the regional or multi-regional level" (Albarracin-Jordan 1996a:218).[2]

That is to say, the most important rituals were conducted at Tiwanaku itself, while the lesser rituals were relegated to sites of lesser importance within a hierarchic order. This division of ritual hierarchy was also expressed in a hierarchy of settlements. In the case of Sillumocco-Huaquina, the arguments that favor this model are derived from an analysis of the construction traits and contextual associations, rather than from a general perception of the architectural features or the associated production systems.

The replication of the most important Tiwanaku ceremonial structure provides a series of details that are absent when contrasted to the sacred prototype, the Akapana at Tiwanaku itself. For example, the quality of masonry is rustic at Sillumocco-Huaquina and lacks the fine finish characteristic of the Akapana blocks. The general outline of terrace size and corner angles lacks the uniformity featured at Akapana. That is, the overall structure does not appear to have a predetermined orientation. A second important divergence is the absence of canals or water-collection systems built into the architectural design. Sacrificial offerings are also absent.

These features indicate that if Sillumocco-Huaquina was modeled after the Akapana, it was not constructed as an exact replica. This, in turn, can be interpreted to mean that Sillumocco-Huaquina was not charged with a major role in implementing state control. Rather, it was simply a local development, built by local workers who had neither the technical knowledge nor experience to build a perfect replica, or perhaps enjoyed a greater autonomy and could modify these state designs, sacred symbols, and ideology.

The differences between the Akapana and Sillumocco-Huaquina can also be attributed to chronological differences. The Akapana was built during Stage III (Manzanilla et al. 1990; Ponce Sanginés 1981), with reconstructions taking place in later periods until the structure was abandoned at the end of Tiwanaku V (Alconini Mújica 1995). The Sillumocco-Huaquina ceramics suggest construction during Stage V, which would correspond to the time when the Akapana proper was in a state of decline. In acknowledging this possibility, the local elite could mobilize a workforce to construct such projects with a margin of independence, reinterpreting and modifying the expression of the important sacred symbols. This conclusion fits well. There is a cohesion of sociopolitical entities based on a shared, common ideology, with a hierarchical system of ceremonial and ritual expression. In summary, the data from Sillumocco-Huaquina help to explain the Tiwanaku expansion into the region, although the information is as yet insufficient for definitive conclusions to be drawn about the mechanisms of social integration or the degree of Tiwanaku control over local populations during its expansion.

SUMMARY

In conclusion, the following assertions can be made about Sillumocco-Huaquina:

- The pre-Hispanic occupation of Sillumocco-Huaquina is a multicomponent occupation, spanning the local Formative period (Sillumocco) to the Inka period.
- The terrace construction represents two separate episodes of construction and use, one during the Formative and the other during the Tiwanaku period.
- The Tiwanaku occupation reflects changes of terrace size, shape, distribution, and use.
- The Tiwanaku occupation at Sillumocco-Huaquina has at least two distinct phases.
- The architectural similarities to the Akapana pyramid suggest that Sillumocco-Huaquina had primarily a ceremonial function and the residential component of the

site was reserved for the elite. This, however, does not rule out the possibility that it may also have served an administrative function for control of the agricultural production on the raised fields associated with the site.

- While the terraces were not significantly altered by post-Tiwanaku occupations, their function did change. During the Late Intermediate period, they were used for funerary purposes and during the Inka and Colonial periods, they were used for agricultural purposes.

Translated by Karen Doehner

NOTES

1. Politically, the site is located in the Department of Puno, Province of Chucuito, District of Juli.
2. Translated by the editors: "una jerarquía específica; algunos realizados al nivel de los segmentos más simples, otros al nivel de los nódulos territoriales, y otros a nivel regional o multiregional" (Albarracin-Jordan 1996a:218).