

TIFFINY TUNG

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Edited by
Charles Stanish,
Amanda B. Cohen, and
Mark S. Aldenderfer



Cotsen Institute of Archaeology at UCLA
Los Angeles, California

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one site can be considered a political capital. Instead, as the systematic survey and reconnaissance data show, the pattern of small habitation sites located near fortified sites is one that is repeated throughout the Lupaqa territory. The high number of similar fortified and refuge sites, the nature and wide distribution of chullpa burials, and the pattern of locally developed ceramic assemblages in the western Lake Titicaca area indicate the existence of many small-scale polities. At least during most of the Altiplano period, these polities, though they may have been periodically aligned with their immediate neighbors, do not appear to have been under the direction of a centralized leader. However, by the end of the Altiplano period, major fortified sites had become the focus of ritual feasting and political activity going beyond their initial function as refuge centers. For instance, Altiplano period decorated ceramics are found in the highest concentrations in major fortified sites, sometimes in burials, and almost never in unfortified habitation sites. The ceramic component at these major fortified sites is composed of a high frequency of crudely decorated bowl forms, large serving pots, and liquid containers that probably were part of local

feasting ceremonies. Although we consider fortified sites to have been important political centers, accession to leadership roles in these peer polities does not appear to have been institutionalized. By the end of the Altiplano period, large fortified sites probably became the centers of political and economic activity, most likely headed by an emerging elite group, which expanded its political and economic influence through feasting ceremonies and political alliances.

Despite the appearance of large fortified sites across the Lupaqa landscape, the complexity attributed to the Lupaqa in several ethnohistorical documents appears to be due more to the effects of Inca imperial expansion into the region than to internal political development during the Altiplano period. At present there are no archaeological indicators to suggest the existence of a Lupaqa king, a Lupaqa capital, or a unified Lupaqa confederation during the Altiplano period. These findings differ from the view contained in ethnohistorical documents, which suggest a politically unified Lupaqa. Instead, the Altiplano period Lupaqa appeared to have been comprised of a series of small-scale peer polities who competed among themselves.

12.

The Cave Burial from Molino-Chilacachi

Edmundo de la Vega, Kirk L. Frye, and Tiffany Tung

THIS CHAPTER PRESENTS the preliminary results of a rescue operation conducted at the cave burial site of Molino-Chilacachi. Pertaining to the Late Intermediate or Altiplano period (AD 1100–1450), the Molino-Chilacachi site, along with other recently discovered cave burials, enables us to define a new burial tradition within the western Lake Titicaca region. The study of funerary traditions continues to provide archaeologists with valuable information about ethnic identity and ideological systems and is traditionally used to define the level of social ranking within and between different social groups.

Three basic tomb types are defined for the western Titicaca Basin: subterranean cist tombs, below-ground or partially above-ground slab-cist tombs, and *chullpa* burial towers (Hyslop 1977a; M. Tschopik 1946). While multiple burials may be found in all types, in general cist tombs are primarily associated with individual interments, with slab-cist and *chullpas* more frequently containing multiple burials (Cieza de León 1984 [1553], 1985 [1553]; Cobo 1964 [1653]; Hyslop 1976, 1977a; Ponce Sanginés 1993; Rydén 1947; M. Tschopik 1946). Hyslop (1977a) suggested a chronological dimension to the appearance and use of different burial traditions, with below-ground burials preceding above-ground ones. He speculated that the use of a particular tomb type may have served to delimit territorial boundaries as well as to signal the relative status of those interred, such that larger above-ground tombs may have served as a visual repertoire for displaying relative status position. The appearance of *chullpas*, which show greater labor costs than in

earlier periods for burials during the Altiplano and (especially) Late Horizon, bears out this observation. Our understanding of the social and political importance of different burial traditions within the circum-Titicaca region is substantially enhanced by the recent study of several cave burials. Additionally, material from the Molino-Chilacachi cave burial helps clarify enigmatic references to burial practices contained in the Aymara dictionary of Ludovico Bertonio (1936 [1612]).

Located approximately 50 km southeast of the city of Puno, the site of Molino-Chilacachi is part of a topographic feature of Tertiary period age comprised of the Puno, Maure, and Tacaza geologic groups. Characterized by a combination of rounded and flat-topped peaks, this mountain chain forms the southeastern edge of the Río Grande Basin, the Río Grande being one of the principal rivers of the Río flave drainage system (Figure 12.1). The basin floor contains an extensive pampa bordered to the west by the mountains rising along the western edge of Lake Titicaca. Although the ecology of the region is complex, characterized by warmer microclimates in selected sheltered areas, in general, agriculture in the region is limited in scope. The primary economic activity pursued in the region today is a form of transhumant animal husbandry. During the wet season, animals are grazed throughout the pampa, becoming increasingly concentrated in river channels and in natural and artificial depressions until the dry season, when herds are moved to higher drainage basins and *bofedales* (swamps) in the surrounding mountains.

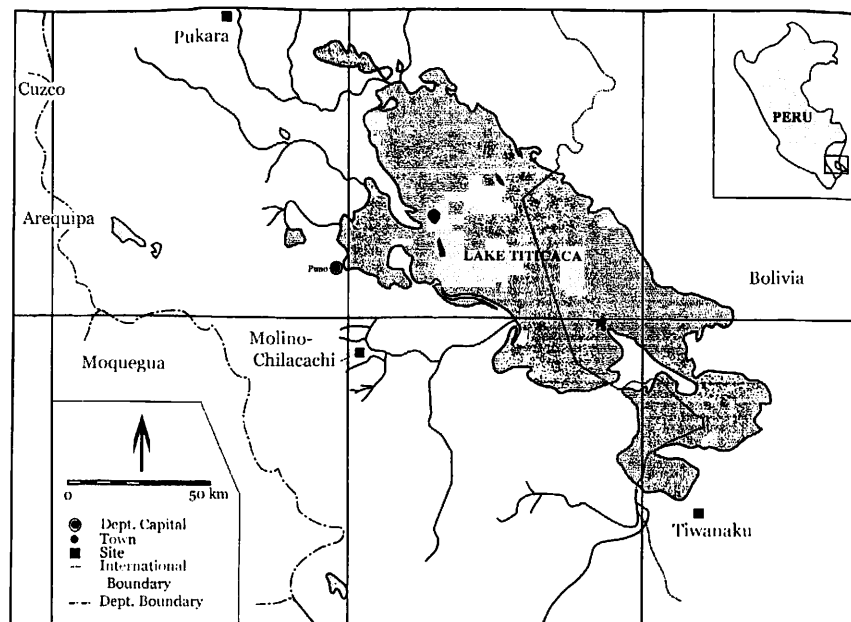


Figure 12.1 Map of the Lake Titicaca Basin with Molino-Chilacachi indicated

THE LOCATION AND SPATIAL LAYOUT OF THE CAVE

The cave is situated at an elevation of 4045 m above sea level on the northeastern side of a flat-topped mountain named Cerro Pukara, whose uppermost geological layer is a horizontal volcanic tuff measuring between 5 and 10 m in thickness. Similar to other mountains in the immediate area, the top of Cerro Pukara forms a flat mesa containing typical Altiplano period architectural remains. Architectural features at the site include boundary walls and circular stone foundations (similar to those found at other local fortified or refuge sites containing well-built circular chullpa burial towers), located along its southern base. Compared to other nearby Altiplano period sites—including Nunumaraca, Cutimbo, and Chaata, all of which are large ma-

ior fortified sites (see Frye and de la Vega, Chapter 11, this volume)—Cerro Pukara is a small refuge area, characterized by sparsely distributed architectural remains. Because the cave is located below the mesa top at the junction of the hill slope and the volcanic layer, which is away from standing architecture, the temporal relationship between the two areas is unclear.

The cave was entered through a small opening measuring 90 x 40 cm, but the original entrance is oriented to the northeast and measures 2.2 m in width. The original entrance remains closed and is concealed by a large and possibly intentional rock fall. The volcanic tuff forming the cave walls is an excellent insulator, moderating the high diurnal temperature extremes of the region. During the month of May, when readings were taken, the relative humidity inside the cave was between 83 and 88%, with an interior

temperature of 9.8° Celsius. Measuring 14.5 m in overall length, the cave varies between 1.5 and 4 m in width, with variations in elevation between 1 m in the entrance area and 5 m in the main vault. The burial chamber is divided into three basic areas: Area I is a small space that includes the original opening; Area II corresponds to the central and largest part of the cave; and Area III, a narrow and constricted space, extends approximately 3 m beyond Area II to the end of the cave (Figures 12.2 and 12.3). A study of the distribution of grave goods and mummies inside the cave resulted in the definition of three separate burial contexts designated A, B, and C.

Context A, a surface level extending from the back end of the cave to near the opening, is made up of a mixture of mummy bundles, unwrapped bodies, crania, and whole and fragmented ceramics. Although it was clear that looting activities had substantially altered the original positioning of the surface materials, Context A units (especially Units 8 through 11), were the most intact of all surface material. Context B is defined from material recovered from Units 4, 5, 6, and 7. Specifically, it contained the jumbled remains of unarticulated crania, vertebral elements, and long bones mixed together with broken pottery and fragmented basket and textile pieces. The extremely mixed nature of the majority of materials within Context B suggests that it is a secondary burial feature, partially overlaid by Context A. Although in some areas it was difficult to distinguish a clear boundary between Context C and those overlaying it, Context C corresponds to a subsurface level below Contexts A and B. Context C may correspond to an earlier burial event, with additional mummies and artifacts embedded in a soft matrix comprised of a mixture of dried grass, animal dung, and dust.

A small test excavation into Context C was initiated, but due to logistical constraints, we were unable to determine the depth of the deposit. Based on a test probe we made along the edge of the cave, however, we estimate that Context C, especially in the Area 2 units, may be between 70 cm to 1 m thick. A more thorough investigation of this layer remains a top priority for future research.

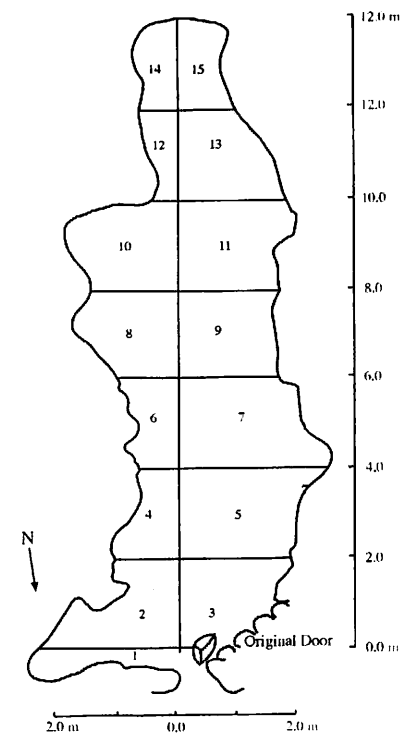


FIGURE 12.2. Cave layout with unit numbers.

MUMMY BUNDLES

Although lithics, ceramics, wooden tools, and basketry were recovered, mummy bundles represent the single most impressive artifact category recovered from the site. Bundles contain individuals flexed in a fetal position, fully encased by *Stipa ichu* cords of variable thickness, intertwined around the body to form a cocoon-like bag. A total of sixty-two mummy bundles were recovered. Of these, forty-eight contained human remains, while others were cut open by looters, and still others remained only as fragments.

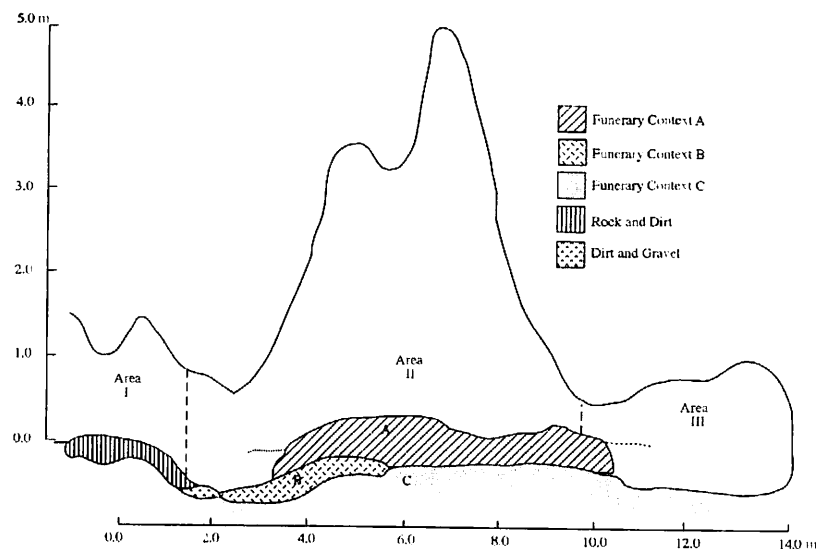


FIGURE 12.3. Cave profile and archaeological contexts

Concentration of mummy bundles was highest in Areas II and III. It is possible that the examples found in Area I were displaced during looting episodes (Figure 12.4). Reports by community members, who first saw the cave when it was opened, stated that the mummies had been placed in an upright position and that Area III had been filled with upright bundles. There is some independent indication that the bundles may have originally been placed in a vertical position. The position of mummies in units 8 and 9 suggests that the bundles there were upright but fell over, either because of their own weight, because of the addition of additional bundles over time, or from animal disturbances. Although some areas in the cave appeared to be more intact than others, in general the mixed spatial relationship between mummies and other artifacts made it very difficult to associate specific grave goods with individual bodies.

Casement Material and Braiding Types

Locally referred to as *Chiwah*, *Stipa ichu* is a common grass native to the Altiplano, which, when rubbed together and intertwined, produces strong and durable cords that are used today for a variety of household purposes. Two basic encasing techniques were used to enclose the cadavers at Molino-Chilacachi. Type 1 consists of a thick horizontal element, coiled from a tightly wound base upward around the body. Between twenty and sixty thinner cords were attached to the base, with a hitch forming two cords that were used as the vertical element. One of the cords ran along the exterior of the body, looping at every other horizontal row binding the interior cord, which ran straight up the space between horizontal and vertical elements. Type 1 includes both a tight and loose variant. Consisting of a simple over-under interlacing of

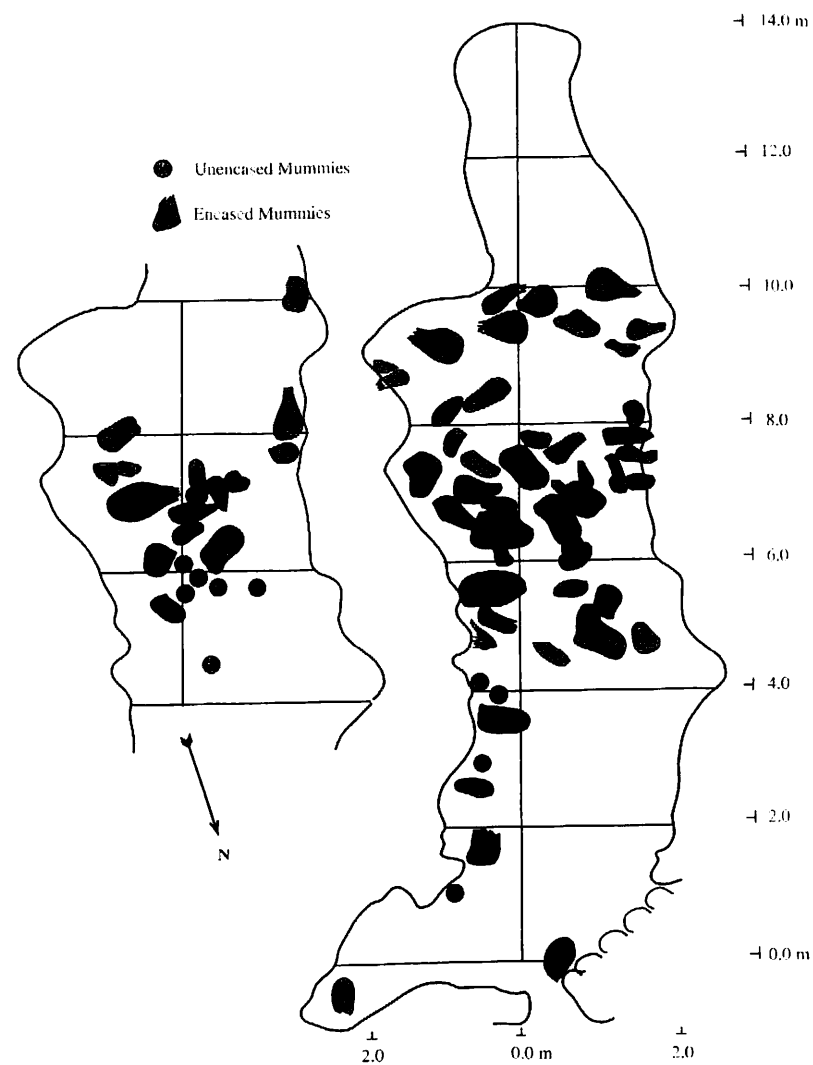


FIGURE 12.4. Distribution of mummies in the cave

horizontal and vertical cords, the Type 2 technique is less complex and more variable in quality than the Type 1 technique (Figure 12.5). Braiding quality was variable; some bodies were tightly encased with very closely spaced cords, while others were loosely enclosed with large gaps between the cords. Future research may indicate if casement quality can be correlated with gender, age, and/or social status categories. The term *chullpa*—referred to by Bertonio (1956 [1612]:93) in his Aymara dictionary as an “[e]ntiero o serón donde se metían sus difuntos...”—likely represents these *Stipa inchu* casements and not the burial towers so prevalent on the Altiplano landscape.

THE HUMAN POPULATION

The human remains from Molino-Chilacachi represent one of the best preserved and complete skeletal populations in existence from the Peruvian Altiplano. Skeletal data were collected in 1995 to document demographic profiles, developmental health status, evidence of trauma, and cranial deformation practices. At least 166 individuals were recovered from the surface of the cave. Of these, 143 were removed, including sixty-two individuals either within or associated with ichu casings and another eighty-one individuals represented by partially commingled skeletal elements. Of the eighty-one crania studied, fifty-nine were

complete or partially complete, ten were still covered in soft tissue and articulated with postcranial remains, and twelve were fragmented.

The age-at-death profile of the skeletal population shows that more than a third died between birth and seven years of age (Table 12.1). This frequency is similar to that of contemporaneous (Late Intermediate period) populations from the nearby Osmore-Moquegua drainage, where infants and children (individuals 0–10 years of age) comprise 36% of the skeletal population at both the sites of Estuquiña in Moquegua (Williams 1990) and San Geronimo in the Osmore Valley (Burgess 1999). In contrast, the contemporaneous Osmore Valley sites of Chiribaya Alta and El Yaray have a higher rate of infant and child deaths (deaths of individuals aged 0–10 years), ranging from 43 to 47%, respectively (Burgess 1999). The latter age-at-death distributions appear to be more characteristic of prehistoric populations, leading Burgess (1999) to suggest that there may be a sampling bias at San Geronimo whereby infants and children are underrepresented. Perhaps a sampling bias is also present among the Molino-Chilacachi sample, resulting from differential preservation, mortuary practices that limited infant/child burials in the cave, or recovery bias. Conversely, the age-at-death profile could be representative of the once-living population, which would suggest that Molina-Chilacachi and Estuquiña populations shared similar population structures, both of which differed from those at Chiribaya Alta and El Yaray.

Skeletal sex was assigned based on the morphology of partial and complete pelvic bones. Among the thirty adults whose sex could be determined, fourteen (47%) were male and sixteen (53%) were female/possible female, indicating a roughly equal sex distribution among the cave burial population (Table 12.2). There were four adults whose sex could not be determined.

The presence of *criba orbitalia* and porotic hyperostosis suggests that some of the population suffered from iron deficiency anemia during childhood (see Stuart-Macadam 1987). The anemia may have developed as a result of malnutrition, intestinal parasites that led to diarrheal disease, or, what is most likely, a combination of both.

Fifteen percent of the adult population displayed cranial wounds, all of which were located on the frontal parietal bones. The anteriorly placed wounds suggest that they were sustained in face-to-face combat. Several head wounds were healed, indicating that the victims did not die as a result of the head injury. In contrast, two adults displayed perimortem cranial trauma, suggesting that a blow to the skull may have resulted in death.

Based on an extensive analysis of cranial deformation styles from cemeteries on the south central coast, Lisa Hoshower, Jane Buikstra, Paul Goldstein, and Anne Webster (Hoshower et al. 1995) concluded that models correlating deformation styles with broad geographic regions (altiplano-coast) are too simplistic. Their study found that “...the patterns

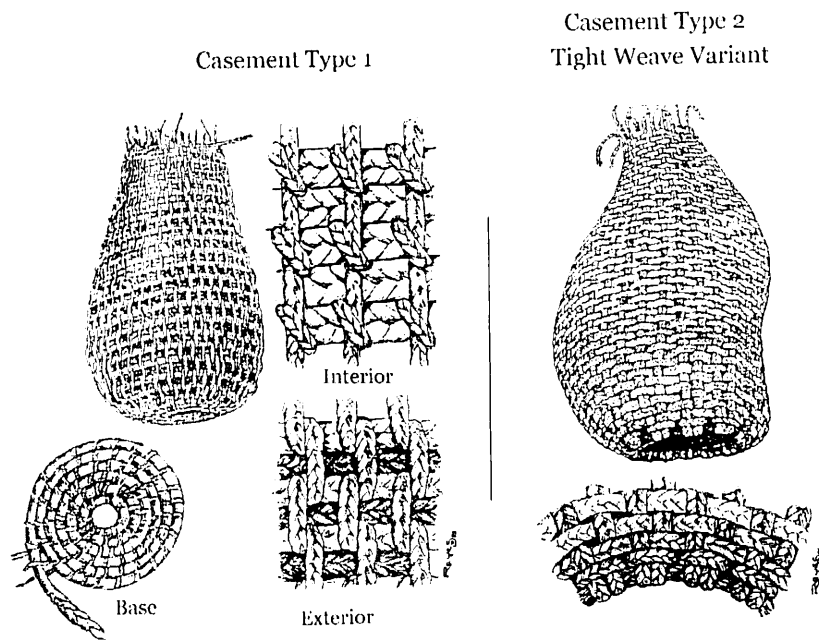


FIGURE 12.5. Casement types

TABLE 12.1. Sex of individuals from Molino-Chilacachi

Sex	Number of Individuals	%
Male	14	27
Possible male	0	0
Female	14	27
Possible female	2	4
Prepubescent	13	25
Sex undetermined	9	17
Total	52	100

TABLE 12.2. Age range of individuals from Molino-Chilacachi

Age Group	Number of Individuals	%
Infant (0–2 years)	18	22
Child (2–7 years)	10	12
Adolescent (8–14)	5	6
Subadult (15–21 years)	4	5
Adults (22–40)	32	40
Elderly (> 41 years)	12	15
Total	81	100

of cranial deformation within the Omo M10 cemetery complex clearly emphasize homogeneity within individual cemeteries and heterogeneity across cemeteries" (Hoshower et al. 1995:145). In contrast, the Molino-Chilacachi cave burials exhibit at least two, possibly three, deformation styles within a single cemetery context. Of the eighty-one crania examined, sixty display cranial deformation. The most common is the tabular oblique style (39 cases), which is a type of fronto-occipital deformation (Buikstra and Ubelaker 1994) and is associated with both males and females. The second deformation style is also a fronto-occipital modification, but of the tabular erect form (10 cases). This type is primarily observed on infant crania, suggesting that the deformations could have been accidental (i.e., from cradle boards), rather than intentional. A third type, designated simply as "other," is characterized by nearly normal skulls exhibiting pressure marks on the frontal bone and parietal bosses (11 cases). Although still encased, a detailed study of the remaining mummies might help explain whether the deformation categories can be correlated with age, sex, social status, and ethnicity, or whether they pertain to changes in deformation style through time.

The skeletal data suggest that the Molino-Chilacachi population suffered from childhood iron deficiency anemia as well as skeletal trauma that may have been linked to interpersonal violence. This pattern may partially be explained by economic and social instability arising from long-term periodic drought episodes documented for the Altiplano period throughout the Titicaca Basin (Orloff and Kolata 1992; Thompson et al. 1988; and see Chapter 11, this volume).

MATERIAL REMAINS FROM THE SITE

Several whole ceramic vessels were recovered from the cave, including large double- and smaller single-handled pitchers, cooking pots, and serving bowls. The majority of the ceramics were poorly made utilitarian wares characterized by highly friable pastes and surface finishes of variable quality. Decorative styles were more common on bowl forms and were

similar to those found on the Sillustani brown-on-cream and black-on-red wares, the Collao black-on-red ware, and the Allita Amaya wares described by M. Tschopik (1946:23, 26, 34). Interestingly, the ceramic component bears little resemblance to the Pukarani styles defined in the Lupaqa region farther to the south (de la Vega 1990; Frye 1994, 1997a). Three radiocarbon dates from the site were processed. Two samples were carbonized material from ceramics and are derived from Units 5 and 7. One sample is a textile fragment from Unit 8. The two radiocarbon dates from the ceramic scrapings both date to approximately AD 1300 ± 18 and the date from the textile is AD 1350 ± 55. These dates place the use of the cave firmly in the Altiplano period.

The presence of a hallucinogenic kit in the cave, similar in style to those defined from the Bolivian site of Niño Korin (Wassén 1972) and those defined from burial contexts from the Northern Chilean coastal region (Torres 1985), represents an extraordinary find. Unfortunately, none of the recovered items was directly associated with any specific individual or came from any one collection unit. Hallucinogenic paraphernalia included cane tubes closed at one end that contained leather-tipped sticks and/or spines. One tube contained the residue of an unidentified, white powder. Wassén (1972:43-44) reports similar tubes from the Niño Korin site, which he suggests may have been used as part of a kit for administering enemas. Other specimens from the complex included leather containers, a bone spoon, quills, and a small wooden mortar. Also recovered were an incised wooden snuff tablet bearing the central figure of a raptorial bird, as well as snuff tubes, one with polychrome incised designs portraying a bird figure and geometric motifs (Figure 12.6). Taken as a whole, the materials probably formed one complete hallucinogenic ingestion kit. Stylistically, the snuff tablet and incised tube are derived from Tiwanaku motifs and were likely produced during the Middle Horizon. However, their association with Altiplano period ceramics suggests that the tray and tubes were curated for use over a long period of time.

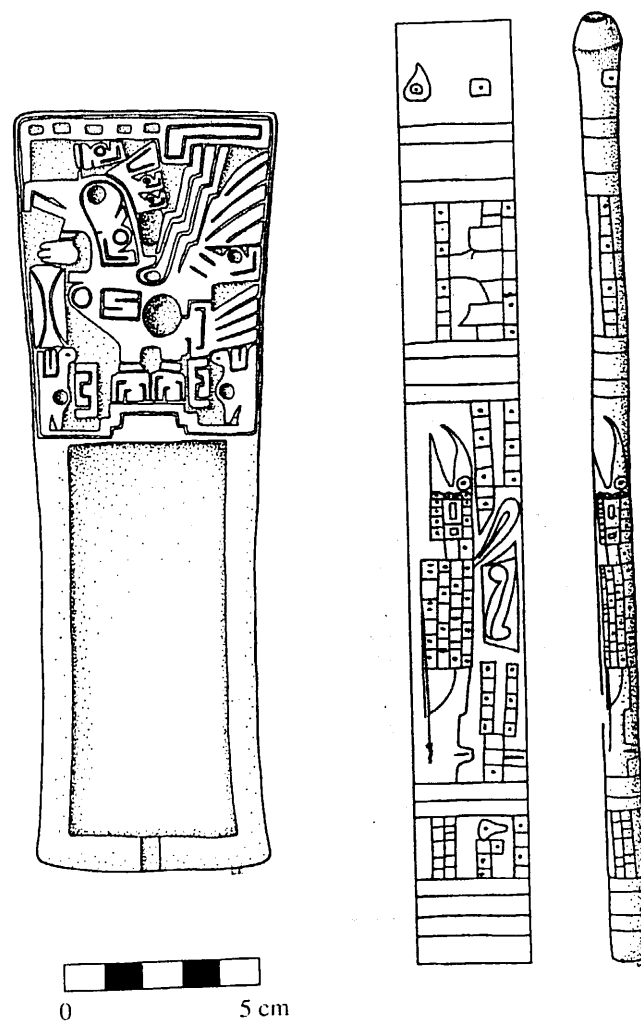


FIGURE 12.6. *Rapé* and snuff tube

SPATIAL DISTRIBUTION OF CAVE BURIALS

At present, the distribution of cave burials in the south central Andes is not well documented. There are, however, several references to multiple burials in natural openings, including caves, niches, grottoes, and rock shelters throughout the region. In the northern area of Omasuyu, Erland Nordenkiöld (1953), Heath MacBain (1959), and Stig Rydén (1947) describe burials in rock openings, while in the Callawaya sector to the southeast, sites including Niño Korin have been studied by Enrique Oblitas (cited by Wassén 1972). Several publications refer to burials in rock cavities in the Mallku territory to the south (Arellano López and Berberían 1981; Arellano López and Kuljis 1986; Berberían and Arellano López 1980). Oscar Ayca (1995) reports the presence of funerary grottoes from the Colla site of Sillustani. Limited almost exclusively to the agro-pastoral zone located well inland from the lake shore, at least thirty cave burials have been located in the Lupaqa territory. Nine cave burials were found in the Chucuito-Cutimbo survey zone and southward into the Río Ilave and Río Huenque Basins, and Mark Aldenderfer (personal communication) located another twenty cave burials, some associated with presumably Archaic period cave art. Significantly, no cave burials have yet been found within the Juli-Pomata survey area farther to the south.

DISCUSSION

We offer important observations concerning cave burials in the circum-Titicaca Basin region. The presence of burials in natural cavities from Archaic period contexts (Aldenderfer 1990) and the association of cave burials with cave art support the interpretation that burying the dead in natural cavities and caves has a long, if not well-documented, history in the region. Oblitas's (cited by Wassén 1972:14) mention of a cave with multiple burials containing funerary material similar to that from Niño Korin may indicate that a cave burial tradition continued through Tiwanaku III times; but at present, there is no clear evidence that the practice was maintained in Tiwanaku IV-V times. Although habitation

sites spanning the early Archaic through the Late Horizon have been documented in the Ilave drainage basin and in the Chucuito region, as yet few burials from the pre-Altiplano period have been found. The only exceptions are the Tiwanaku-related materials from the Molino-Chilacachi site and a cave burial with Tiwanaku-style sherds found in the Ilave River drainage (Cynthia Klink, personal communication 1996). An overwhelming association between cave burial sites and Altiplano period ceramics indicates that it was during this time period that cave burials were most common. At present, there is no evidence that cave burials were used in the Late Horizon or in the Colonial period, although de la Vega believes that the secondary burial context from Molino-Chilacachi may have resulted from the movement of burials from other sites to Molino-Chilacachi during the Colonial period destruction of indigenous burial and ritual centers by Spanish missionary zealots.

In the Lupaqa territory, with the exception of one cave burial in view of the lake, cave burials are primarily found in the agro-pastoral zone located away from the lakeshore. Although this geographic zone contains diverse and highly variable microclimates, it is primarily inhabited by groups whose economic livelihood centers on pastoralism. Based on the distribution of cave burials within this zone, there appears to be a strong correlation between cave burials and these pastoral groups. It remains to be seen whether the practice of cave burials can be used as an ethnic marker for a pastoral lifestyle, and whether the practice was continuously used through time.

The collapse of a state level political system is often coupled with radical realignments of political power, characterized by a shift from centralized bureaucratic structures to ones centered at the local level. We speculate that a resurgence of cave burials and the use of collective burials in discrete cemeteries during the Altiplano period are tied to the collapse of the Tiwanaku state and to the need for diverse and newly established corporate and political groups to express their identities in territorially defined geographic boundaries. Group burials, then, are a tangible expression of a shift throughout the Titicaca Basin from more complex and central-

ized political systems, whose burial practices emphasized individuals, to smaller scale and localized political groups. These group burials may signal the emergence of pastoral groups as important political entities.

The practice of preserving the bodies of community members in a central locale, as in the case of the Molino-Chilacachi cave burial, represents a social mechanism for strengthening ethnic or corporate identity through time. The fact that many cave burial sites are difficult to find and are not easily visible on the landscape suggests that their use may be independent of tradi-

tional territorial demarcation behavior. Rather, their use may reflect internally focused ritual behavior of the pastoral groups in the region. We suggest that cave burials represent an early form of collective burial, a system that was replaced through time by the more visible forms of above-ground slab-cist tombs and chullpa burial towers. These burial forms developed as authority became more centralized and the need to express political power and define territorial boundaries intensified between increasingly competitive Altiplano period groups.