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 Lupapa 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, did 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 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 Lupapa landscape, the complexity attributed to the Lupapa 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 Lupapa king, a Lupapa capital, or a unified Lupapa confederation during the Altiplano period. These findings differ from the view contained in ethnohistorical documents, which suggest a politically unified Lupapa. Instead, the Altiplano period Lupapa 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 chullpas 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, while slab cist and chullpas more frequently containing multiple burials (Cieza de León 1553; 1983; [1553]; Cobo 1953; 1853; Hyslop 1976; 1977a; Ponce Sanginés 1991; 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 later 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, helps us to observe our understanding of the social and political importance of different burial traditions within the 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 Ludovic Bertonio (1564 [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, Mauy, and Lacasa geologic groups. Characterized by a combination of rounded and flat-topped peaks, the mountain chain forms the southeastern edge of the Río Grande Basin, the Río Grande being one of the principal rivers of the Río Huay drainage system (Figure 12.1). The basin floor contains an extensive pampa bordered to the west by 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 bebedores (swamps) in the surrounding mountains.
THE LOCATION AND SPATIAL LAYOUT OF THE CAVE

The cave is situated at an elevation of 4045 m above sea level on the northwestern 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 Nurumara, Cutimbo, and Chatoa—all of which are large major 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 instrumental 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 3 m in the main vault. The burial chamber is divided into three basic areas: Area I is a large 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 and 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 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 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 Context A.
Concentration of mummy bundles was highest in Areas II and III. It is possible that the examples found in Area I were displaced during leveling 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 evidence that the bundles may have originally been placed in a vertical position. The position of mummies in areas 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 minimal 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 Chitcho, 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 weaving techniques were used to encase the cadavers at Molino-Chilacachi. Type I 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 inside (Figure 12.5). Differentiated by the space between horizontal and vertical elements, Type I includes both a tight and loose variant. Consisting of a simple over-under interlacing of
THE HUMAN POPULATION

The human remains from Molina-Chilcacachi 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 116 individuals were recovered from the surface of the site. Of these, 143 were removed, including sixty-two individuals either within or associated with inhumation burials, 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 fragmentary.

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-Moqueguí drainage, where infants and children (individuals 0–12 years of age) comprise 36% of the skeletal population at both the sites of Estuquía in Moquegua (Williams 1996) and San Gerónimo in the Osmore Valley (Burgess 1999). In contrast, the contemporaneous Osmore Valley site of Chiribaya Alta and El Yaral 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 Gerónimo whereby infants and children are underrepresented. Perhaps a sampling bias is also present among the Molina-Chilcacachi 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 cave-living population, which would suggest that Molina-Chilcacachi and Estuquía populations shared similar population structures, both of which differed from those at Chiribaya Alta and El Yaral.

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/pseudo-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 split orbitalia and pterygoid hypoplasia 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 diarrhea 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 bow 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 Bukvica, 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...
of cranial deformation within the Omo M10 cemetery complex clearly emphasized homogeneity within individual cemeteries and heterogeneity across cemeteries" (Hoshower et al. 1995:145). In contrast, the Molino-Chilaca cave-burials exhibit at least two, possibly three, deformation styles, within a single cemetery context. Of the eighty-five crania examined, sixty display cranial deformation. The most common is the tabular oblique style (39 cases), which is a type of fronto-occipital deformation (Huiskita 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 rect 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-Chilaca 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 (Orthloff 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 Silbatani brown-on-cream and black-on-red wares, the Collao black-on-red wares, and the Allita Amanu wares described by M. Tschopik (1946:23, 26, 34). Interestingly, the ceramic component bears little resemblance to the Pukarasti styles defined in the Lupaca 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 hallucigenic 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 (Tornoe 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. Hallucigenic paraphernalia included cane tubes closed at one end and 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 hallucigenic ingestion kit. Stylistically, the snuff tablet and incised tube are derived from Tawanaku 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.
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 Omatawa, Ecuador (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 Wassen 1972). Several publications refer to burials in rock cavities in the Maliku territory to the south (Arelano López and Berberian 1981; Arellano López and Kujis 1986; Berberian and Arellano López 1988). Oscar Ayca (1965) 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 Lurupaca territory. Nine cave burials were found in the Chucuito-Cotumbo survey zone southeast of the Río Huancayo and Rio Huancayo Basins, and Mark Alender (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 circumpolitical region. The presence of burials in natural cavities from Archaic period contexts (Alender 1990) and the association of cave burials with cave art suggests that the interpretation that burying the dead in natural cavities and caves is a long, if not well-documented, history in the region. Oblitas's (cited by Wassen 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 lake 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-Chilca site and a cave burial with Tiwanaku-style sherds found in the Río Huancayo drainage (Cynthia D'Souza, personal communication 1990). An overwhelming association between cave burial sites and Altiplano period ceramic sites 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 at Molino-Chilca may have resulted from the movement of burials from other sites to Molino-Chilca during the Colonial period destruction of indigenous burial and ritual centers by Spanish missionaries.

In the Lurupaca 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-