

COSMOLOGICAL MOTIFS OF PERUVIAN HUACAS

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Abstract

Characteristics of Andean huacas are summarized with examples from Urubamba, Machu Picchu, Llactapata, and Chankillo. We identify the pillars on the ridge above the town of Urubamba as a marker of June solstice sunrise to be viewed from the Palace of Huayna Capac. Both ends of the sightline connecting the pillars and the Palace appear to have been huacas. The large carved Intiwatana stone in the Urubamba canyon symbolically ties together Machu Picchu and the nearby ceremonial center of Llactapata. The astronomically complex site of Chankillo includes evidence for ceremonial observations of the solstices and shamanic ritual, set within a large-scale geometry established by June solstice sunset/December solstice sunrise.

Key words: Inca, shrines, sun, moon, solstices, ancestor veneration, shamanism.

Introduction

The Incas honored and venerated a large variety of features of the natural landscape such as mountains, caves, springs, lakes, and rocks that were endowed with meaning and sacred power. In Quechua these shrines were known as *huacas* (the Spanish equivalent of the Quechua *wak'a*). Around Cusco the huacas were organized along lines or ceques (Quechua, *zeq'e*).

Soon after their invasion of the Inca homeland, the Spanish destroyed the most important shrines such as the Temple of Pachacamac and the Coricancha of Cusco. In 1539 the Spanish began a campaign against the indigenous religion and proceeded systematically to destroy huacas, with the consequences that attendants and worshippers of known huacas were prosecuted, sometimes tortured, and even put to death. The foundations of the shrines were dug out, the objects of worship were destroyed, anything flammable was burned, and finally a cross was often built over the site. An unintended consequence of this campaign of destruction was that the names and locations of huacas were recorded so that they could be examined in the future to make certain no religious activity continued. Some of the huacas, namely large carved rocks, could not be destroyed and remain to this day at sites such as Kenko, Chinchero, Saihuite, and Chulquipalta (Hemming 1982)

The Spanish appear to have been confounded by the variety, complexity, and alien symbolism of the huacas and probably failed to comprehend their fundamental meaning. A valuable perspective for understanding Andean huacas has been provided by the great Peruvian archaeologist, Julio Tello, who recognized that ancestor veneration has been one of the major and enduring features of Andean civilizations (DeLeonardis

and Lau 2004). Huacas appear to be major elements in Andean cosmology extending back to 1000 or 2000 B.C. and often were shrines to ancestors who, it was believed, could influence the living. Feeding of huacas was a major motivation for communication with ancestor-gods and for sacrifices (Benson 2001). Blood, corn beer (*chicha*), and water were valuable nourishments. Mummies and images of ancestors were carried in processions, placed on platforms, and fed. Shamanic communication with the supernatural world of the ancestors and movement between the three worlds (underworld, this world, heavens) were intertwined with ancestor worship (Eliade 1964). Stairways, which are signatures of shamanic ascent and descent, are abundant at sites such as Tiawanaco, Chinchero, Ollantaytambo and Machu Picchu. Huacas were often places where the ancestors could be called upon for assistance in agriculture, warfare, health, and fertility.

Sun Pillars of Urubamba

The astronomical function of the pillars on the northeastern horizon of the town of Urubamba had not been identified until recently, although they are easily visible to the local community and were identified by Bauer and Dearborn (1995) as “useful examples of what Inca solar pillars may have looked like.” We established in 2005 (Zawaski 2007) and in 2007 that these pillars mark June solstice sunrise when observed from the vicinity of the large white granite boulder (Fig. 1) in the courtyard of Quespiwanka, the palace of Huayna Capac (Fig. 2). The granite boulder may, in fact, be responsible for the Quechua name of the palace, Quespiwanka: *quespi*, “crystal” or “shimmering”; *wanka*, “standing rock” (Farrington 1995). Another translation of *quespi* as “transparent water” may relate to the Inca myth of

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Fig. 1. Granite boulder of Quespiwanka. M.Z is shown with theodolite. Photograph by J. Malville.

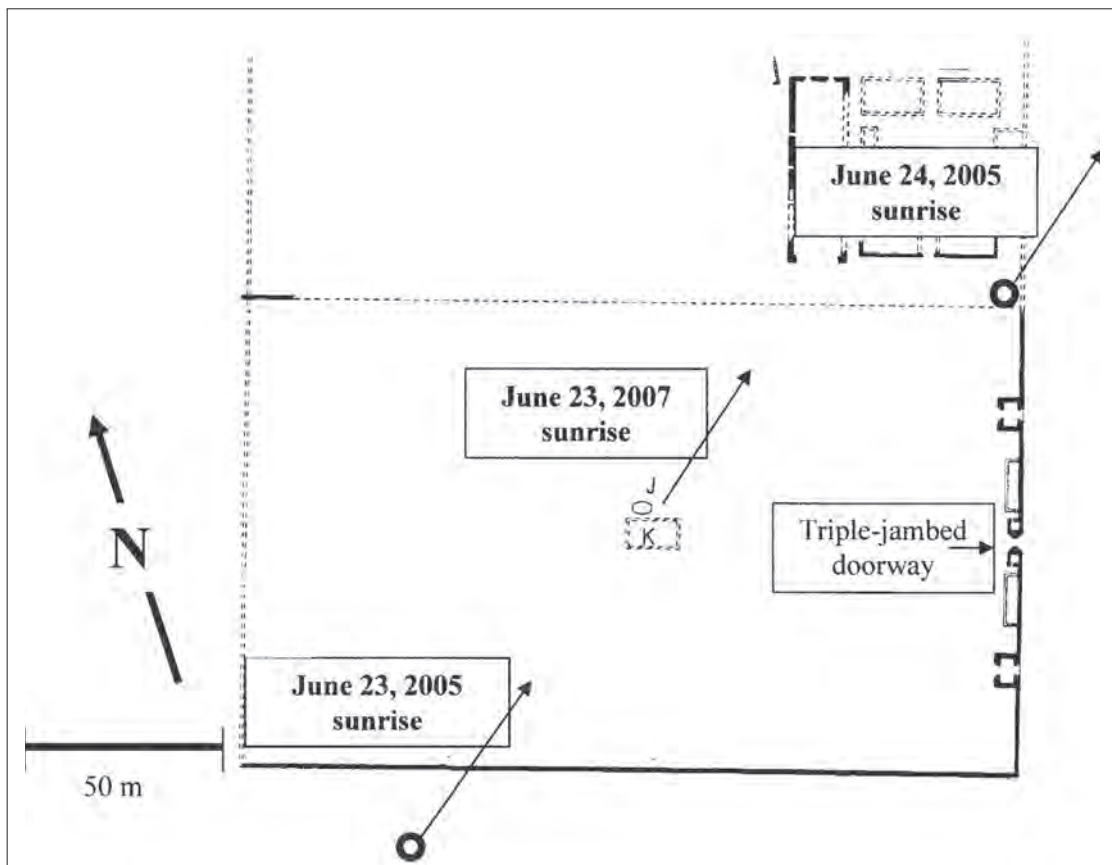


Fig. 2. Three locations in the palace of Quespiwanka where the June solstice sun was observed to rise between the sun pillars of Cerro Saywah. The southern wall contains double-jamb niches. (J, granite boulder; K, modern chapel).

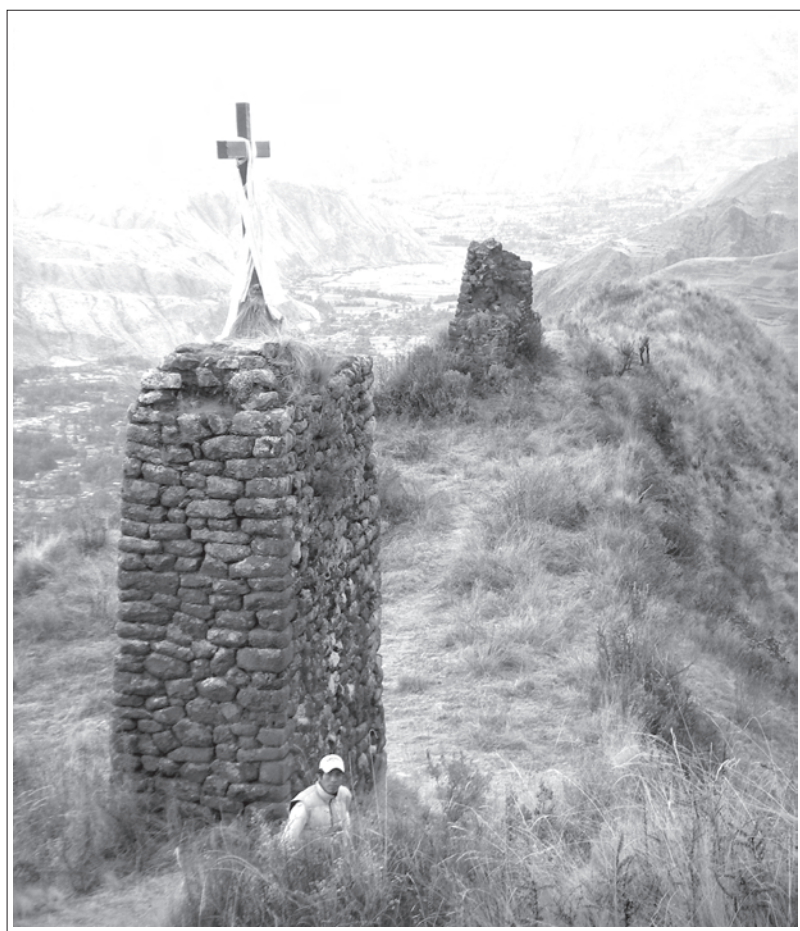


Fig. 3. Sun Pillars above Urubamba. Photograph by M.Zawasky.

the birth of the Sun from a crystal floating in water at June solstice, observed by Pachacuti before his battle with the Chancas (Zuidema 1982). Stone-lined channels in the courtyard of Quespiwanka could have surrounded the boulder with water, and today a modern channel carries water toward the boulder. Built in a previously uninhabited area of the Urubamba River valley during the last decade of the 15th Century, the palace appears to be the only Incan site in the area for observing June solstice sunrise between the pillars.

Our measurements combined multiple sunsights with a Wild T2 theodolite with GPS determinations. As viewed from the granite boulder, the azimuth of the mid point of the pillars is $56^{\circ} 53'$; their mean altitude is $22^{\circ} 59'$. The pillars are 35.3 meters apart on either end of a level terrace and are constructed out of shaped sandstone blocks in contrast to the granite of the palace. They are located along an azimuth of 100° on a ridge of Cerro Saywa at an elevation of approximately 3860 meters. When viewed from Quespiwanka, the separation of the pillars is 0.59° . The easternmost pillar has a height of 4.3 m and a base 1.5 m by 3.3 m; the base of the partially restored western pillar is similar.

Although the courtyard of the palace is greater than two hectares in area, it may not have been the scene of *public* ceremonies. Its eastern wall contains a massive triple-jamb doorway surrounded by two double-jamb doorways. Inca doorways with multiple jambs typically marked entry into a space of special importance to be used only by elites. The courtyard may thus have been similar to the Corichancha of Cusco and the Sanctuary of the Island of the Sun in that non-elites were barred from entry and participation in ceremonies (Dearborn et al. 1998; Seddon and Bauer 2004).

June solstice sunrise can also be viewed from outside the southern wall of the palace. Niles (1999) suggests that there were 40 double-jamb niches along its 190 meter length. The wall faced an artificial lake and large granite boulders. This area may have been a public viewing area where pilgrims and non-elites were allowed to view solstice sunrise between the pillars, in a manner similar to ceremonies on

the Island of the Sun (Dearborn et al. 1998; Seddon and Bauer 2004)

A third site for solar ceremony is the 40 meter-long terraced platform built between and around the pillars. On the northern and southern sides of the platform there are retaining walls, which are approximately 1 meter high. Interestingly, the pillars were not built parallel to the ridge, but were rotated such that their long sides with azimuths of 286° and 298° approximately bracket *sunset* on June solstice on the 3° northwestern horizon. Chroniclers noted that sacrifices to the sun were often made at the pillars of Cusco. Steps to a platform at the upper structure of the Island of the Sun suggest that sacrifices were made there as well. The platform between the Urubamba pillars and the orientation of the pillars suggest that this, too, was a place for ceremony. The solid rubble core of the pillars allowed no room for cultural or human remains. The lack of a crypt and the absence of scattered osteological material indicate they were not tombs (*chulpas*).

The insight provided by the Urubamba pillars is that both ends of the sightline connecting the palace and the pillars appear to have been huacas. Both real and symbolic ascent would have occurred when a procession

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Fig. 4. Water channel leading from the double jamb doorway at Llactapata toward Machu Picchu. Photograph by J.Leivers.

of celebrants climbed 950 meters from the valley to the platform, where they could make sacrifices, place offerings, and celebrate the passage of the sun across the sky from dawn to dusk.

How did the Urubamba pillars escape the ravages of colonial politics that destroyed the pillars of Cusco? They are relatively modest features on the high horizon and can easily escape detection from below. Furthermore, Quespiwanka was remote from the political center of Cusco, so remote that the mummy of Huayna Capac, ardently sought after by the Spanish, was successfully concealed in the palace for several decades (Farrington 1995). In his retreat down the Urubamba River valley in A.D. 1536, Manco Inca torched the palace to prevent the Spanish from utilizing the buildings, thereby keeping the hiding place of his father's mummy as well as the presence of the pillars unknown to the Spanish invaders.

Huacas of Machu Picchu and Llactapata

Machu Picchu appears to have served as both a sacred center (Reinhard 2002) and a royal estate (Salazar 2004; Niles 2004). It is possible that before Pachacuti adopted the dramatic location above the Urubamba

River, it was already recognized in pre-Inca times as a site of power because of its granite outcrops and caves, the peak of Huayna Picchu, and the cardinality of the surrounding sacred mountains. Salazar (2004, p.41) suggests that Pachacuti established shrines at Machu Picchu because of the special association that he felt existed between him and the “supernatural forces immanent in the landscape and the celestial sphere,” and that his connection with these forces needed to be “actively reaffirmed through daily ritual.”

The re-discovery of Llactapata, which overlooks Machu Picchu from a distance of 5 km, was reported at Oxford VII (Malville et al. 2006). A remarkable feature of Llactapata is the sun temple of sector I, which has an orientation and architectural design similar to that of the Coricancha of Cusco. The courtyard in front of the double-jamb doorway of sector I contains a stone-lined channel (Fig. 4) leading from the doorway toward the Sacred Plaza of Machu Picchu, approximately in the direction of June solstice sunrise. Ceremonies performed in that courtyard with bright reflecting material such as gold medallions could have been seen from the Sacred Plaza. Because Llactapata is higher than Machu Picchu, reflections from Llactapata on the morning of June solstice are visible 37 minutes before it reaches the sun rises as viewed from the Sacred Plaza of Machu Picchu



Fig. 5. (a) Chankillo towers; (b) Urubamba sun pillar. Photograph by C. Aranibar.

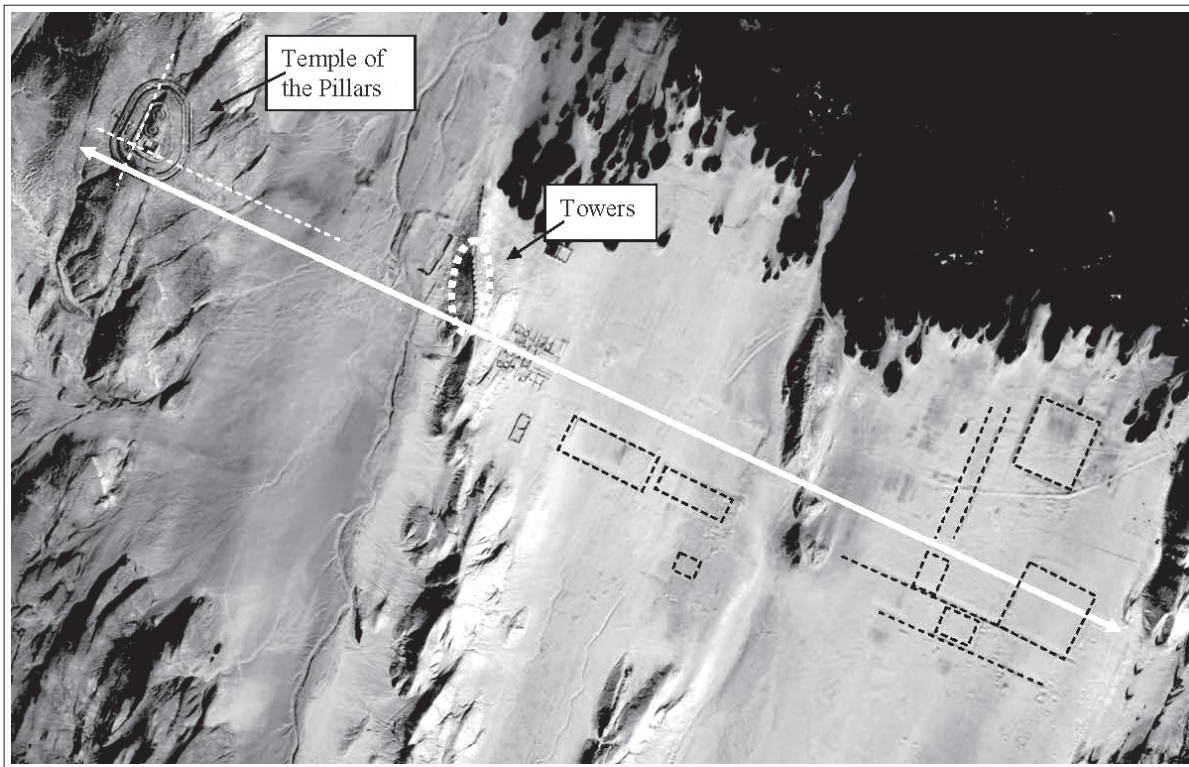


Fig. 6. Ikonos image of Chankillo. The solstitial axis (December solstice sunrise, June solstice sunset) runs diagonally from upper left to the lower right. North is to the top.

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There are no carved huacas at Llactapata. Most of the construction material is metamorphic rock. The nearest carved granite boulder with which we are familiar is the River Intiwatana some 600 meters to the northeast, deep in the Urubamba canyon. The vicinity of the huaca contains a platform, carved steps, fountains, a tower, and caves. It lies on the line between the sun temple and the Sacred Plaza of Machu Picchu.

Water or other liquid offerings must have been carried up to the double-jambed doorway at Llactapata and poured into the channel as an offering to the sun. A similar ritual may have occurred in the Coricancha, as suggested by the three small openings in the wall to Ahuacpinta Street. Artificially fed channels also face June solstice sunrise at Saihuite. There is a long standing Andean tradition that liquid offerings encourage the flow of energy necessary to maintain harmonious relations on the earth. Such harmony and balance is associated with a reciprocal exchange between humans and ancestral powers. A common motif of carved huacas is a straight or zigzag channel (Quechua: *qénqo*) through which liquids could flow. The flow of energy necessary to establish harmony and maintain equilibrium in the world was stimulated by the pouring of liquid offerings into these channels. At June solstice, the pouring of water into the Llactapata channel may have represented the feeding of the sun during the dry season (Urton 1981).

Towers of Chankillo

The impressive hilltop fortress and towers of Chankillo were first described in western literature by Squier (1878). Ghezzi (2006, p.80) interprets the area as a scene of ritual warfare and “above all a paramount ceremonial space.” Calibrated radiocarbon dates ranges from 320-200 BC, some 200 years following the collapse of Chavin de Huantar (Ghezzi 2006). On the basis of their analysis of the calendrical potential of the thirteen towers of Chankillo, Ghezzi and Ruggles (2007) conclude that the towers functioned as horizon markers for a solar observatory. They identified two observing sites that provide views of the sun rising or setting close to the towers throughout the year. Each of these approximately equally spaced towers has two stairways, to the north and south (Fig. 5a). However, the complex nature of these towers suggests they were initially intended to be more than horizon markers to be viewed from a distance. Horizon markers, such as the sun pillars of the Inca (Fig. 5b), did not need double stairways. Furthermore, in order to function throughout the year the towers needed a variable spacing, with the largest separation at equinox. If calendrical observations had been the primary intent in constructing

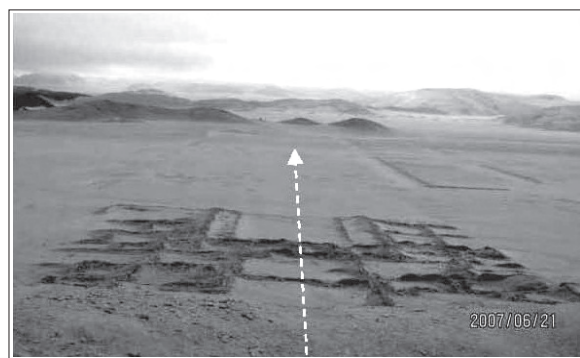


Fig. 7. View to southeast from below the 13th tower toward December solstice sunrise of 250 B.C. The solstitial axis of Chankillo is indicated. The foreground structure is near the center of Fig. 6. Photograph by C. Aranibar.

the towers, there should be well established viewing stations. The western observing station proposed by Ghezzi and Ruggles (2007) is not in the center of the major plaza to the west of the towers but is at the end of an adjacent corridor, which does not open to sunrise on June solstice. The assumed eastern observing station is a minor structure, which is noteworthy only because it provides a desired view of the towers.

Ghezzi (2006, p.77) noted that the “location and orientation of the Temple of the Pillars were carefully chosen to define the main axis of the entire site, which is aligned with the December solstice.” This axis, which extends for more than 3 km to the southeast from the Temple, has an azimuth of 114°, which corresponds to sunrise on December solstice in 200-300 B.C. (Figures 6). The solar axis is the dominant astronomical feature in the archaeological record of Chankillo. The large area of buildings, courtyards, and extensive walls to the southeast of the towers (Fig. 7) appears to have been the scene of ceremonial feasting, based upon the presence of corn beer storage facilities, remains of maize, panpipes, and spiny oyster (*Spondylus*) shells (Ghezzi and Ruggles 2007). All sizable structures in this area are contained in the grid that is aligned to the solstitial axis.

The thirteen towers are linked to this astronomical axis by the highest tower, which is rotated from the lower ones by about 22°, bringing its long side into perpendicularity with the solstitial axis. This geometry may have been intended as a symbolic transformation from the spine of the terrestrial hill to celestial axis of the sun. Shamanic transformation was a major theme at nearby Chavin de Huantar, as well as a characteristic of shamanism in general (Burger 1992).

Our interpretation of the towers is that they are essentially thirteen linked platforms with stairways allowing ritual movement between them (Fig. 5). A fourteenth platform lies 175 meters due south of the highest tower.

As viewed from this platform, the December solstice sun rises over the large enclosure that is visible in the right side of Fig. 7. As we have noted, within the tradition of Andean huacas, ritual platforms were places where sacrifices were made, offerings were presented, and huacas were fed. Processions toward the highest tower could have occurred during the bright period of the moon, between new and full moons. Ascent of the first tower could have occurred soon after the first new crescent moon was observed. If each tower was ascended on successive nights, the highest tower would have been reached close to or on the day of full moon. The presence of lunar ceremonialism is also suggested by Spondylus shells, which in Moche times were apparently associated with a lunar cult (Cordy-Collins 2001).

We have established that the June solstice sun sets over the thirteenth tower as viewed from the plazas of the structure to the southeast of that tower (Fig. 7). The Temple of the Pillars, is aligned along this axis, with its atrium and double stairways facing December solstice sunrise. The sun at June solstice also sets over the Temple as viewed from the center of the large plaza below. The wall of the surrounding fortress is lower in the southeast, allowing a view from the plaza of ceremonies performed in the Temple (Ghezzi 2006).

Summary And Conclusions

Ancestor veneration, shamanism, and origin mythologies are intertwined themes in the huacas we consider in this paper. The sun was a preeminent ancestor, and each of these sites involves attention to the solstices. The Urubamba pillars and the Palace of Huayna Capac are on the sightline to June solstice sunrise. The Sacred Plaza of Machu Picchu, the River Intiwatana, and the Llactapata sun temple lie approximately along the line established by June solstice sunrise and December solstice sunset. Water offerings to the June solstice sun could have been made from the double-jamb doorway of the sun temple at Llactapata. The extraordinary historical depth of solstitial alignments in Andean civilizations is demonstrated at Chankillo, where its major geometric axis was established by December solstice sunrise and June solstice sunset. The towers seem best understood as platform-stairway combinations within the long-standing Andean tradition of huacas. They may have been associated with both the sun and moon, ritual ascent/descent on the stairways, and sacrifices on the platforms. Celebrants may have walked along the linked huacas on the days leading up to full moon, and twice a year they could have greeted the solstice sun from the highest tower.

Acknowledgements

Carlos Aranibar has consistently provided excellent support in the field. Nicholas Ashov of Urubamba first drew our attention to the pillars. Gary Ziegler, Hugh Thomson, Greg Danforth, Ward Olin, and Deb Bovvier contributed to our fieldwork. We benefited from the support and encouragement of Xavier Ricard of Centro Bartolome de Las Casas. Our work at Llactapata and Urubamba was undertaken with permission of the Instituto Nacional de Cultura-Cusco.

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Received: 2 November 2007; Revised: 5 May 2008

KOSMOLOGINIAI PERUJIEŠKŲ HUAKŲ MOTYVAI

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Santrauka

Tiriant Peru šventyklas huakas (huacas) išryškėja trys pagrindinės tarpusavyje glaudžiai susijusios temos: protėvių garbinimas, šamanizmas ir kūrimo mitai. Saulė inkų buvo suprantama kaip pati svarbiausia iš protėvių, o šamanizmas greičiausiai yra pati seniausia pasaulio religija. Nagrinėdami daugiau kaip pusantro tūkstančio metų laikotarpį apimančių archeologinių vietų astronominius ypatumus, aptikome, kad visose jose atsižvelgiama į solsticijas. Kiti bendri bruožai yra kilimo aukštyn simbolika ir ritualams skirti paaukštini- mai. Vanduo, akmenys ir olos inkų kosmologijoje yra

susiję su kūrimo mitais. Urubamba kolonos ir Huayna Capac rūmai Urubambos mieste yra orientuoti saulėtekio kryptimi vasaros saulėgrįžos metu. Maču Pikču Šventoji aikštė, Intiwatana upė ir Llactapata Saulės šventykla yra išsidėsčiusios beveik tiksliai pagal saulėtekio vasaros saulėgrįžos metu ir saulėlydžio žiemos saulėgrįžos metu ašį. Urubambos Intiwatana upė yra archetipinė šventykla (huaka), kuriai priklauso olos, versmės, laiptai ir platformos.

Ypač senas šaknis turinčią solsticinę orientaciją, būdingą Andų civilizacijai, gyvavusiai 1700 metų, atskleidžia Chankillo vietovė. Pagrindinė geometrinė Chankillo ašis atitinka saulėtekį per žiemos ir vasaros saulėgrįžas. Tikėtina, jog kalendorinė bokštų paskirtis galėjo būti suderinta su šamaniškais ritualais, panaudojant laiptus, platformas ir eitynių tarp huakų vietas.

Vertė Vyktintas Vaitkevičius