

THE RIVER INTIHUATANA: HUACA SANCTUARY ON THE URUBAMBA

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ABSTRACT

Below Machu Picchu, near the confluence of the Aobamba and Urubamba rivers, lies a large and complex shrine, initially identified by Bingham as the Intihuatana of the Urubamba River. The massive granite stone is approximately on the June solstice sunrise axis between Llactapata's Sun Temple and Machu Picchu's Sacred Plaza. The Intihuatana contains carved steps, east-west sightlines, water channels, a spring, fountains, caves, and basins, also aligned east-west. While many of these motifs are known at other sites, it is less common to find them all at the same shrine. Adjacent to the carved granite stone is a tower, which is symbolically congruent with the Torreón of Machu Picchu, as well as a possible residence and storehouse.

KEYWORDS: Machu Picchu, Intihuatana, shrine, Urubamba, Bingham, carved stone, ceque, huaca, June solstice sunrise, December solstice sunset, Sacred Plaza, Llactapata.

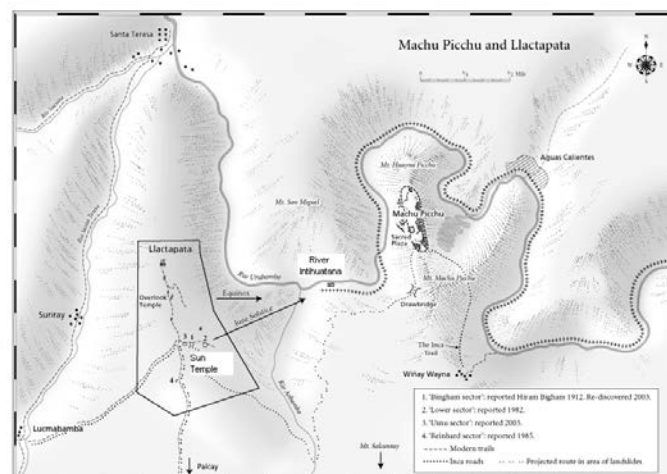


Figure 1 The River Intihuatana is located between Llactapata and Machu Picchu (modified from Malville, Thomson, and Ziegler 2006).

1. INTRODUCTION

During his exploration of the Vilcabamba in 1911, Hiram Bingham located two carved rocks that he identified as *intihuatanas*. One of these, the Intiwatana of Machu Picchu, is arguably the most famous carved rock of the Inca world. The second intiwatana is the primary feature of a huaca sanctuary in the Urubamba canyon to the west of Machu Picchu. Until recently it has rarely been visited by tourists. Now trekking parties walking to Machu Picchu over the shoulder of Salcantay or upriver from Santa Teresa are stopping to explore the site. The River Intiwatana appears to be an important element of the extended ceremonial complex that combines Machu Picchu with sites on the Llactapata ridge (Figure 1). The sanctuary is located on a hillside between PeruRail switchbacks near the Urubamba hydroelectric complex.

The principle element of the shrine is a rock carved with steps and tiers (Figure 2). The adjacent upslope section contains two basins aligned east-west and an elaborately engineered water fountain, which is situated over a small cave. Eastward of these granite carvings are the remains of several support structures and a tower attached to a large boulder with a second cave beneath. The area also has agricultural terraces presently engulfed in the cloud forest.

The significance of the River Intihuatana has become clearer since the rediscovery of the Llactapata Sun Temple in 2003 (Malville *et al.*, 2004; 2006). Our conclusion is that the site appears to be a major shrine (huaca sanctuary) connected to Machu Picchu by two intersecting sightlines or ceques from the Llactapata ridge. The multiplicity of symbolic motifs concentrated in this site (carved and un-carved rocks, caves, spring, basin, fountains, and tower) suggests a ceremonial significance beyond what would be expected for such an isolated and relatively small shrine.

2. RIVER INTIHUATANA



Figure 2 The River Intihuatana as viewed looking downslope to the north.

The River Intihuatana lies above the Urubamba River hydroelectric compound, which is situated 5 kilometers southwest of Aguas Calientes. The primary carved stone is located approximately 20 meters downslope (north) from the upper PeruRail tracks. About 30 meters below the sanctuary platform is the mid set of tracks of the switchback and then the slope continues downward to a final set of tracks and across to the hydroelectric compound and the river.

Figure 3 is a ground plan of the sanctuary's major features. The upper set of tracks runs left to right above this diagram and from it a trail descends the slope to the left of the basins until reaching the Intihuatana and platform. The walls of the support structures begin five meters to the east of the Intihuatana with Structure A possibly having served as quarters for the huaca's attendants and Structure B perhaps functioning as a storehouse. Immediately upslope from the two structures is a very large unimproved boulder. Approximately 2 meters upslope from Structure A begins a terrace with a retaining wall, which runs eastward for approximately 22 meters along the hillside.

Extending to the east and encompassing the majority of the slope between the upper and mid sets of tracks is a group of multiple *andenes*. These agricultural terraces may have been used in partial support

of the huaca's attendants, but currently are hidden by a thick expanse of trees.

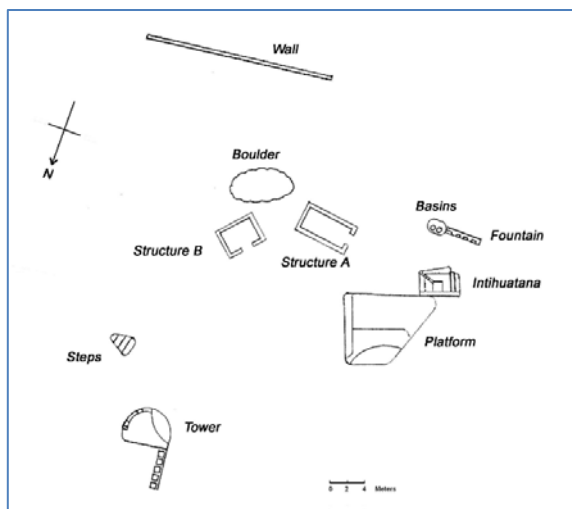


Figure 3 Map of the River Intihuatana sanctuary (drawing by Steven Gullberg).

2.1 Intihuatana

The site's primary feature is the Intihuatana stone (Figure 2), a somewhat worn, but finely carved object situated at the sanctuary's western boundary. Its dimensions overall are 427 cm along the flat northern face by 320 cm wide. The symbolism of multiple steps with differing scales is again evident while tiers get increasingly smaller as they rise and are adjoined on the southwest corner by a set of steps too small to serve any necessary function. There appears at present to be three steps, but the stone has been subject to enough erosion to make the original number uncertain. The northern face of the Intihuatana is a flat wall angled from the west toward the top. Its eastern side is also angled, but the surface is broken, thus masking its original shape. The top of the northern face is flat and includes remains of what was perhaps a gnomon. The base of the shrine is partially covered by soil and the western edge of the area encompassing the Intihuatana and the fountain drops vertically along a sheer stone face.

The lines of the River Intihuatana were rotated from the site's predominant east-west orientations to align with Machu Picchu's Intihuatana, about 44°. The line of sight is clear between the two intihuatanas,

and they may easily have been viewed from one another.

2.2 Platform

Adjacent to the northeast corner of the Intihuatana lies an expansive stone platform (Figure 4). This construct is larger than the Intihuatana with overall dimensions running 764 cm wide and 1038 cm long. An angled edge extends from the Intihuatana on a bearing of 20° for 880 cm. The platform incorporates some carved tiering and ends downslope in a descending vertical masonry wall.



Figure 4 The tiered portion of the platform adjacent to the Intihuatana.

2.3 Fountain and Basins

One of the more intriguing areas found on the site is a complex incorporating several common huaca motifs: a fountain, two basins and a cave. The fountain structure (Figure 5) is situated upslope from the Intihuatana and spans 560 cm at its extremes. The face of the fountain is oriented on a 090/270° axis and was designed to receive water from the east into a channel located on its upper surface. A ledge was carved near the base of the fountain and worn examples of seats or shelves remain sculpted to the west. The channel was engineered to distribute water to each of the four outlets on the fountain's face. Within the channel small baffles were carved to insure an even diversion of water flow through each opening. The fountain is now dry, but would have once been fed by an upslope spring.



Figure 5 Measuring the fountain's water outlets from the upper channel.

Immediately adjacent to the eastern end of the fountain is a boulder with two large carved basins (Figure 6). The basins are aligned east-west with the east basin measuring 66 cm wide by 33 cm deep. The west basin has similar dimensions.

The basins are aligned on an axis between the Overlook Temple of Llactapata and Machu Picchu Peak. This orientation allows possible use for observing reflections of the sunset at the Overlook Temple. The east-west orientation of the basins is consistent with the overall organization of the site.



Figure 6 Two water-filled basins aligned on an east-west axis.

2.4 Caves

A small cave exists within the fountain-basin complex. This orifice extends beneath the fountain (Figure 5) with its opening situated between the fountain and the boulder with the basins. The cave has ample room for an attendant or priest. Above the cave entrance and carved into the boulder

is another a set of three symbolic stairs. A second cave at the site lies beneath the base of the boulder that forms part of the River Intihuatana's tower.

2.5 Structures A and B

These buildings may have served as residences and storehouses, which would have been necessary features of a huaca visited by pilgrims.

2.6 Boulder

Immediately upslope of Structure A and Structure B is a very large, unimproved boulder. It was perhaps intentionally left uncarved. We note that the granite boulder in the plaza of the palace of Huayna Capac, Quespiwanka, in Urubamba is similarly left in an uncarved state (Gullberg and Malville, 2011).

2.7 Steps

At a distance of 14.9 meters northeast of Structure B lies an isolated stone containing a set of steps embedded in the ground. Their positioning is of little practical use, but they display the three traditional steps of Inca cosmology.

2.8 Tower

Further downslope, built into the side of the hill is a round tower (Figure 7). The stones of an eastern circular wall adjoin a large in situ boulder that was used for the tower's southwestern side. The eastern wall contains a door oriented to 90° and the northern face is presently open. Approximately equidistant in the wall between the door and the rock is an internal niche with a lintel at the same height as that of the door. A trapezoidal window is situated above the niche and slightly offset toward the door. The window is oriented to 125°.

A stone wall holds back the earth outside of the doorway's entrance on the east side of the tower and continues downslope for 8 meters. Another stone wall retains the soil on the downslope of the north side. On the tower's west side a stone staircase with five steps descends the slope on a 0° bearing toward the railroad. The top of the tower is open.



Figure 7 A curved masonry wall with a door, niche and window adjoins an in situ boulder in the River Intihuatana tower. The cave entrance is to the right of the stone.

2.9 Andenes

A system of andenes extends along the hillside to the east of the sanctuary and is oriented generally east-west. The terraces may have been used both to control erosion and also for agriculture in support of the sanctuary's attendants.

3. DISCUSSION

3.1 Motifs

An interesting aspect regarding the River Intihuatana is its comprehensiveness in incorporating most motifs found in other Inca huacas. Features such as stairs, fountains, basins, and caves are common at shrines, but it is less usual to find them all showcased together.

Ritual stairs are a recurring motif in huacas. Carved steps are frequently non-functional, such as those found on inaccessible cliff sides at Ollantaytambo and within the cave below the Torreón at Machu Picchu. Triple stairs at the River Huaca and at sites such as Chinchero and Ollantaytambo suggest shamanistic movement.

Three examples of such steps are found within the River Intihuatana sanctuary: standing alone on the grounds of the complex, situated above the cave entrance between the basins and the fountain, and designed as part of Intihuatana itself. None of these were carved in a way that suggests

any practical need and the steps above the cave are totally non-functional.

The platform at the River Intihuatana is situated such that it has a clear view of both the Llactapata Overlook Temple and the Machu Picchu Intihuatana, and it may have functioned as an ushnu from which offerings and sacrifices may have been made to the sun. Similar function is described by the Spanish chronicler Cabello de Balboa who stated [Huayna Capac] "had erected in the square a structure called usnu or chinquin-pillaca, where sacrifices might be offered to the sun and its different phases, with chichi [maize beer] poured out in its honor" (Hemming and Ranney, 1982).

There appears to be the remains of a gnomon on top of the Intihuatana. The Incas used gnomons for shadow effects, solar tracking and related calculations. Horizontal gnomons, such as those found at the Incamisana in Ollantaytambo, were carved to cast images in shadow at certain times of the year. Vertical gnomons could be used to judge time or direction, such as indicating zenith passage of the sun by the withdrawal and disappearance of the gnomon's shadow. Gnomons also aided in identifying the equinoxes when their shadows traveled straight east-west lines. This gnomon might have been instrumental in the determination of the site's predominant east-west alignments.

It seems unusual to have a tower in a location such as at the bottom of a canyon where the visual horizon is so abbreviated. Zuidema (1981) suggests that circular structures may have been *sunturhuasi*. The *sunturhuasi* in Huanan-Haucaypata in Cusco was a circular building with windows, a high roof, and a mast on top. Zuidema identifies it as a site for visual observations of the sun and perhaps a marker of the zenith sun with similar use and stature as the Coricancha or the Muyucmarca tower of Sacsahuaman. He mentions them all as belonging to the same category of "temple of the sun." The utility of the River Intihuatana's tower for solar observations would be limited by the high horizons. A

circular tower reaching to the sky while sitting atop a cave may have served to symbolize and facilitate connections between this world and those of the heavens and of the underworld.

3.2 Design Similarities

The relationship between the River Intihuatana and Machu Picchu is evident in certain similarities found in architectural style and stone carving common to both sites. The tower found near the River Intihuatana exhibits distinct similarities with the Torreon of Machu Picchu (Figure 8). Both share plans that incorporate walls of curved masonry that include straight and open sections. The masonry of each adjoins *in situ* rock used to form the remainder of the structure and both exhibit caves at their bases. They each employ windows and niches and both exhibit solar orientations, the Torreon for June solstice and the River Intihuatana tower for the equinoxes.

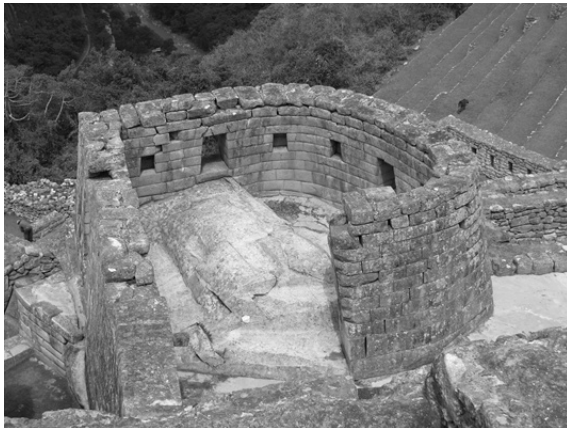


Figure 8 The curved masonry wall of Machu Picchu's Torreon incorporates an *in situ* boulder into its structure.

The carved stone of the River Intihuatana exhibits similarities with a carved stone near the "Guardhouse" in Machu Picchu's Upper Agricultural Sector. The stone is located on a terrace and is known as the "Ceremonial Rock" (Figure 9). Both it and the River Intihuatana share several distinct features. They are each carved from granite with multiple tiers or shelves. Each has an upper ceremonial platform and both have steps carved into a corner of the structure. Both carvings seem to follow

the same philosophy of design with similar craftsmanship and give further indication of the River Intihuatana's close association with Machu Picchu.

Numbers of small, elongated stones about 30 cm by 15 cm in size are seemingly arranged in upright groups around the Ceremonial Rock. The stones are andesite, limestone, and metamorphic rocks carried in from other regions. Some are rounded river shaped rocks. Ruth Wright and Alfredo Valencia suggest that "river rocks symbolically bring the sacred river to the mountain site" (Wright and Valencia, 2004). This may have been the case, but the diversity of rocks more likely indicates that they were ritual offerings/burdens carried and placed by visitors at a shrine requiring this activity upon arrival at Machu Picchu. Modern Quechua travelers carry small stones to the top of mountain passes to leave as offerings to the apus, in this case perhaps to Huayna Picchu. The Ceremonial Rock is the only huaca placed outside the walls of Machu Picchu. In a manner similar to the social differentiation that occurred at the Sanctuary of Isla del Sol (Bauer and Stanish, 2001), these offerings may have been carried in and placed there by pilgrims who were not allowed to pass through the main gate of Machu Picchu. After staying at the kallinkas above the Terrace of the Ceremonial Rock, pilgrims may have followed the trail across the drawbridge to Llactapata (Malville, 2008)



Figure 9 Carved steps and tiers in Machu Picchu's Ceremonial Rock.

The carved Ceremonial Rock, the River Intiwatana, Machu Picchu's Intihuatana and the Rumihuasi at Saihuite have similar sizes and are carved on all sides. The Intihuatana at Pisac is of an appropriate size, but is carved on top and enclosed by masonry walls. The Intihuatana of Tipon is an exception in that it consists of several unimproved boulders atop a rock platform overlooking the site's terraces and horizon. The similarity of the carving of Machu Picchu's Intiwatana, the River Intihuatana, the Ceremonial Stone, and the Rumihuasi, such as multiple sets of steps with different scales, suggests that these huacas shared common symbolic meaning and function.

If the Ceremonial Rock and the River Intihuatana were indeed meant to be complementary, perhaps there was an element of upper (*hanan*) versus lower (*hurin*) in their relative placement (D'Altroy, 2002). Pachacuti's *panaqa* was associated with upper Cusco and, like others of Hanan Cusco, dominated politics and religion, and his country estate of Machu Picchu dominated its surrounding area. The hanan Ceremonial Rock, looking down on the hurin River Intiwatana, may reflect a status difference between the huacas.

3.3 Access

Access to the River Intihuatana may have been by a trail leading down from the double-jambled doorway of Machu Picchu's Temple of the Moon. That route would have required a bridge to cross the Urubamba River from the Inca trail on the north side of the river. A trail leading downward from the southwestern terraces of Machu Picchu, however, leads directly to the Intihuatana without the need of crossing the river. The trail from the River Intihuatana to Llactapata may be similar to the modern one: proceeding downstream to the confluence with the Aobamba and then up that river for a short distance before turning and ascending the Llactapata Ridge.

3.4 Ceques, Axes, and Sight-lines

The large number of huacas in Machu Picchu is reminiscent of the concentration

of huacas near the Coricancha of Cusco, where 41 ceques originate (Zuidema, 1964). Juan Polo de Ondegardo (1965: 67 [1571]) wrote "In each village the organization was the same; the district was crosscut by ceques and lines connecting shrines or various consecrations and all the things which seem notable: wells and springs and stones, hollows and valleys and summits which they call *apachetas*." Ceques have many interpretations, one of which is that of visual alignments, and a most compelling such orientation involves the River Intihuatana. The large granite rock contains a leveled platform that provides views of the Overlook Temple on the Llactapata ridge and the Intihuatana stone of Machu Picchu. The location of the rock is critical for its viewscape; if it had been located a few meters to the south, the view of the Overlook Temple would have been blocked by canyon walls. The Machu Picchu Intihuatana is clearly visible and the base of the River Intihuatana's carved stone is oriented approximately in its direction. When filled with water, the two carved basins provide double reflections of the setting sun near the date of equinox.

The River Intihuatana lies below the intersection of two major axes (see Figure 1). The first is a solar axis formed between the horizon points of the June solstice sunrise and December solstice sunset, which includes Llactapata's Sun Temple and Machu Picchu's Sacred Plaza. The second is an equinoctial east-west axis proceeding directly from Llactapata's Overlook Temple across the River Intihuatana and on to Machu Picchu Peak. It remains possible that the River Intihuatana's location relates directly to these relationships and that the River Intihuatana may have been part of a ceque connecting Machu Picchu with Llactapata. It is also a possibility that the precise geographic location of the huaca at the junction of these axes or ceques was intentional and that this may be yet another example of the power and status of this huaca. The intersection of these two possible ceques is noteworthy in that none of the

41 ceques of the Cusco network cross one another.

The orientation of Llactapata's Sun Temple is depicted in Figure 10. A stone-lined channel leads from the primary door of the temple and is directed at Machu Picchu's Sacred Plaza. The view from the door is also oriented over Machu Picchu toward the horizon positions of the June Solstice Sunrise and the heliacal rise of the Pleiades. The channel may have been used in ceremonies to symbolically "feed" the sun with the power of water at the time of the year it was deemed to be at its "weakest."

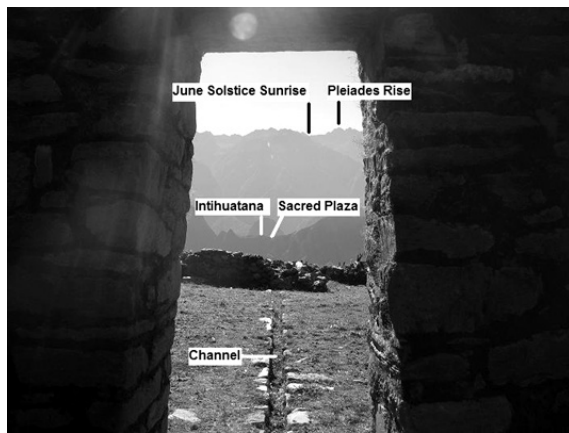


Figure 10 The view from the primary door of Llactapata's Sun Temple.

4. SUMMARY AND CONCLUSIONS

Polo de Ondegardo (1965 [1571]) reported that each Inca village had ceques connecting shrines. It appears possible that Pachacuti chose to establish a ceque system at Machu Picchu similar to the one in Cusco, although with fewer ceques and huacas. We can only speculate as to the orientations of several potential ceques, but two strong candidates are those that connect Machu Picchu and Llactapata by way of the River Intihuatana. Several others may have incorporated Phuyupatamarca, Cerro Machu Picchu, Winay Wayna, and Cerro

San Miguel. These remain topics of our continuing research.

The prominence of the River Intihuatana begins to emerge as a result of these Llactapata orientations. The Incas might have recognized that a huaca located at the junction of such solar axes would be one of great significance. Three other intihuatanas identified as such are located at Machu Picchu, Pisac and Ticon. Each is situated on high ground with solar sightlines. The River Intihuatana, however, is deep in a valley with horizons marked by high canyon walls, hardly an intuitive location to harness the sun.

The River Intihuatana may have been brought from the inanimate to life through its fountain and the process of camay (Solomon and Urioste, 1991). The huaca exhibits the symbolic steps of ascension into the world above and its gnomon indicates a relationship with the sun. The cave situated by the fountain may have served to draw upon the forces of the underworld and the set of symbolic steps located there points to transition with the world below.

It also is important to note the River Intihuatana's proximity to the Urubamba River. Upstream the Urubamba is known as the Vilcanota, the river central to the cosmological circulation of life's waters from the earth, through the Milky Way, and back. The sacred axis of the Vilcanota/Urubamba is oriented southeast to northwest, a third celestially associated alignment associated with the River Intihuatana. The River Intiwatana helps tie the structures of Machu Picchu with those on the Llactapata ridge. Its geographical position makes it a key component linking the two sites. The little noticed huaca below Machu Picchu now emerges as a significant part of the greater ceremonial center of Machu Picchu and Llactapata.

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