

Machu Picchu

Special Inca Residence





Machu Picchu is the most extraordinary ruined vice-capital worldwide. Over one million tourists visit it each year. Nevertheless, many details about this unique Inca site are still unknown. Not to mention the many not so true stories about this mystic place. We know when and by whom Machu Picchu was erected. But we do not really know for what reason and why was it left deserted before the Spanish conquistadores arrived in 1532? All this and some more mysteries we are trying to solve with this article.

Extreme Mountain Location

The ruined hideout is situated in a U turn of Rio Urubamba on a narrow ledge with steep slopes on both sides between the mountains of Huayna Picchu and Machu Picchu in an altitude of 2,500 meters. It lies about 80 kilometers northwest of the ancient Inca capital Cuzco. In 1983 it has been declared UNESCO world heritage site.

The average humidity is between 60 to 70%. Day temperatures rise to a maximum of 25°C and at night to minimum nil. The average rainfall differs from 20 to 240 mm in some months or 1,500 mm per annum. The climatic change resulted in more heavy rains and landslides often blocking the train tracks along the river.

Train Best Option

Today you can reach Machu Picchu in three hours by train from Cuzco to Agua Calientes. This connection has been built especially for this purpose. From the stop in between the houses in the narrow valley a bus takes you eight kilometers up a serpentine road to the main entrance. If you are fit enough steps with a length of 1,600 meters take you up with an altitude difference of 400 meters.

Ancient Inca Trail

Still today certain visitors choose the most scenic walking tour on the ancient cobbled Inca trail to Machu Picchu lasting four days. On the way you will see further astonishing Inca ruins. The arrival has a tremendous wow effect. Passing the flanks of mount Machu Picchu you will get a breathtaking first glimpse of the amazing ruins lying below you on the mountain ridge. This is how the Inca ruler saw it before passing through sun gate Intipunku. Archeologists found out that this gate usually was closed.

Only Hotel on Site

Opposite the main entrance a hotel has been built and today the five star location is managed by the Orient Express Group. If you stay there, you have the privilege to enter

the ruins before the 4,000 day visitors arrive. UNESCO would like to limit the number to 800 to better protect the site on the long term. Remember in the past 1,4 million tourists visited Machu Picchu per annum.

Machu Picchu History

There are only few reports, because at the time of the Incas 500 years ago there existed no written script in South America. The Inca managed their extremely well organized state administration with a specific recording system called quipu. Numerous strings with various different and colored knots were the basis of their refined numbering system. Recent research discovered that certain knots even represented words. With this system they recorded number of inhabitants, harvest results and other important information necessary to administer successfully the vast Inca empire. Unfortunately, there is no mention of the name the Incas used for Machu Picchu. Let's assume it was not the same name they used for the mountain given the site today.

Old Name?

Some experts believe the old name was Llapapata. If you follow the Inca trail for 15 kilometers southeast you will arrive at an ancient Inca site called Llapapata. Possibly this is only an interpretation error. With the arrival of the Spanish first short reports about Machu Picchu appear. Therefore, we know that it was erected by Inca ruler Pachacutec Yupanqui and that it was only used by him and his son, but not by his successors. Yupanqui was his birthname and it is interesting that Inca rulers took on a royal name like in the ancient cultures of the Near East.

Bingham Rediscovery

When the American archeologist claimed 1911 to have discovered a forgotten Inca fortress in the mountains, this was not really true. Machu Picchu was well known in the region and property records show changing ownership before Bingham arrived. And if he would have done a bit of research, he would have found half a dozen reports from the time of Spanish conquistadores until shortly before his discovery. So, it was not really a discovery of a lost place as he claimed. Machu Picchu gained world fame via a full report in the April 1913 edition in the National





Geographic Society magazine, in which he was celebrated as its discoverer. And in colonial style as usual at the time all found and excavated artefacts including lots of gold items were taken to the vaults of Yale University. Only a few years ago these were given back to Peru and can be seen in a new museum in Cuzco.

Introduction

Machu Picchu has been built as a summer residence for Pachacutec, possibly to escape Cuzco's heat. Perhaps it was also a retreat for spiritual refection and prayers for divine support. This might explain the many temples. If we look at the layout, we see Machu Picchu was not a normal Inca city, it was erected as an elite center. Nevertheless, it had a complete urban structure and was fully self sufficient with all necessary services. Despite its mountain ridge position various springs supplied the city with water for its inhabitants and the numerous agricultural terraces, which still function today.

The ridge measures only 500 by 200 meters, but adding the terraced slopes the full extent of the city becomes clear. Permanently between 300 to 1,000 people lived in over 200 buildings here. The varying number might be explained by the changing presence of the Inca ruler with his royal court. Some experts often speak of Machu Picchu as citadel, which is not correct, as no proof of any military structures and presence has been found.

Permanent Occupation

Machu Picchu was occupied and maintained

for the Inca ruler all year round, until it was given up. The lack of water was certainly not the reason for leaving it, an earthquake can be counted out either as there are any traces of tremors. The reason for its demise still is not known. And the story that the Inca ruler might escape to Machu Picchu with the arrival of Spanish conquistadores is neither true. As god like ruler with a large army he felt un-touchable.

Small Spanish Army

What could 180 Spaniards really achieve against him? All other cultures and their rulers have subjected themselves peacefully to the Inca based on the beneficial rule and share principle the Inca used. But the Spanish conquistadores had horses and rifles, both were not known in South America until then. And they used a trick to take the surprised Inca prisoner and release him against a ransom of a room filled up with gold. Well, you imagine right, they did not follow their promise to release him thereafter. And without the Inca ruler the population lost their balance.

Machu Picchu Plan

Like Cusco Machu Picchu was divided into districts. We will describe the special buildings and complexes later on. Next to the approximately 200 buildings of which some had two floors the Inca city on the ridge had numerous agricultural terraces, plazas, small parcs, multiple temples, various huge sacrifice stones, even ritual caves, observatories, graves, fountains, aqueducts and obviously many long stairs to connect the different areas as well as a quarry. The latter proves that



Machu Picchu has been further extended until it was left deserted. And we are certain that most of the building material originated from the flattened ridge, which became the central open meeting place. Based on the building complexes archeologists divided the city into districts and further subdivisions into sections. They speak of a holy, royal, urban and agricultural district. Some experts only divide Machu Picchu into two parts agricultural terraces and urban area with living quarters.

Agricultural Terraces

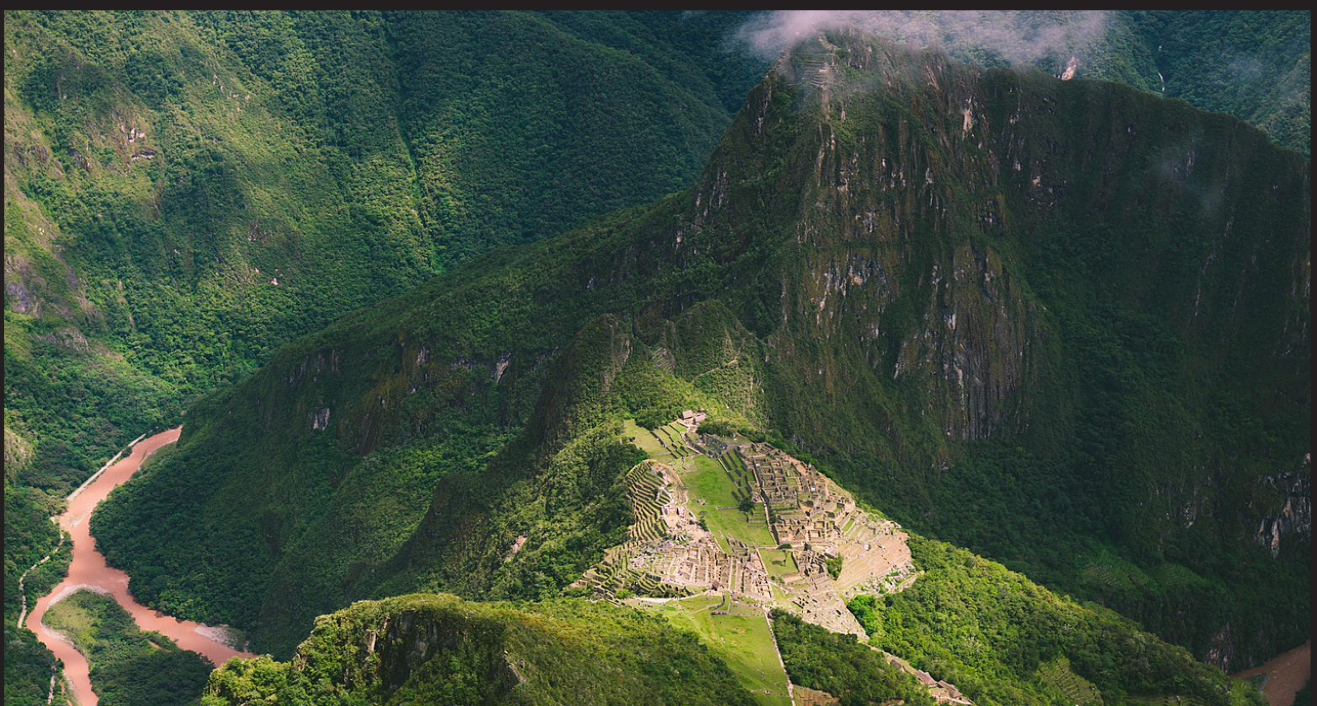
This area consists of one rather large and various smaller terraced field sections. The larger area is situated on the slope towards the town of Aqua Calientes right hand side from the Inca trail when you enter the ruin site via the sun gate Intipunku. The urban district is separated from the agricultural by a stone wall 400 meters long with parallel run-

ning stairs and a water canal. The agricultural area consists of 40 higher plus 80 lower lying terraces. On average the retaining walls of these terraces reach four meters in heights. These terraces have been erected in a specific way with a clever drainage system. They were filled with various layers of different size cobbles and sand topped by earth from the river. Therefore, they could retain sufficient water and survived earthquakes.

Interestingly, the agricultural area was protected by a guard house. Close to it a cemetery with 50 graves and about 250 skeletons as well as a sacrifice stone were found. We know that animal sacrifice was practiced in Machu Picchu, but no human sacrifices. These were a common ritual for Incas, but normally executed on high mountain tops.

Urban District

This by far is the largest part of Machu Pic-





chu. It had its own guard house, from which the entire town could be overlooked. Also close to it a sacrifice stone was discovered. Archeologists have divided this district into three sections. One contains many small houses built very close to each other in rows including some store rooms. This was the area where servants, artisans and workers might have lived.

Inca Residence

This section erected for the ruler consists of a complex with larger rooms for the Inca family and elite. Larger store rooms and two ritual or reception rooms belong to it as well. This area can only be entered by a single

entrance. The walls were built with finer hewn stone blocks and even a toilette with running water and sewage was discovered. This complex had its own well with permanent water supply. Interesting is the private terrasse protected from public views by a wall. In addition, there was a llama coral and most surprisingly a jail. The reason for the latter is unknown. The llamas might have served ritual purposes.

Ritual Area & Sun Temple

The sun temple as well as the so-called three window temple are situated in the holy section. The walls were erected without mortar and were wider at the bottom. This gave them more stability. The entrance of the sun temple



had a double door frame and its door could be locked with a special mechanism. On the inside walls many niches are visible, the head wall had seven and the side walls each five. The niches were erected in a slight trapezoid form, which seemed to have a religious significance.

Recurring Trapezoid Form

This form has already been used by the Mollo culture near Lake Titicaca a predecessor culture of the Inca. In a different article on this website, we reported already about the mysterious ruined town of Iskanwaya, which the Kallawayas erected 500 years earlier than Machu Picchu. Surprisingly it is five times larger than Machu Picchu. The trapezoid form has certainly more a ritual importance than architectural. The meaning and reason of it is not really known.

Burnt Down Sun Temple?

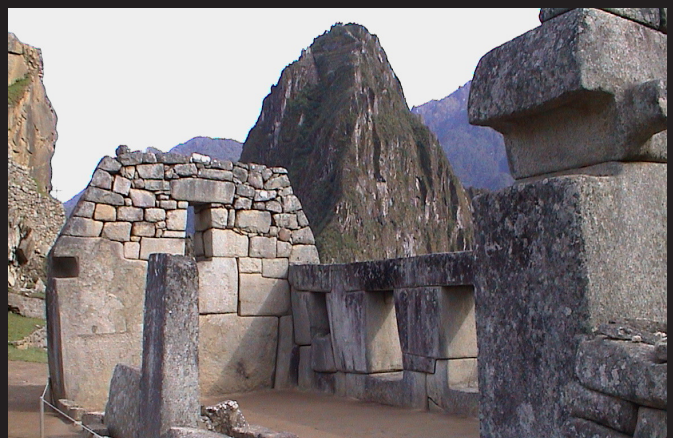
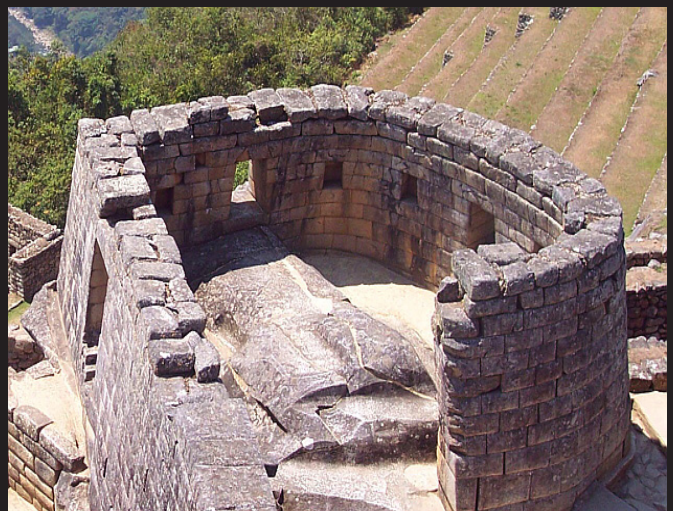
The Inca sun temple was used for solstice rituals. Why have the ornaments in the temple been removed by force? Archeologists also found proof of a fire at the temple. Again, no real reason for that could be established. We know that Machu Picchu has not been attacked. So, was it an accidental fire? Underneath the rock in the center of the temple a small cave has been discovered, which natural surfaces were covered with neat stone walls including niches. These niches seemed to have served as funeral places. Some experts assume that the builder of Machu Picchu Pachacutec was buried here.

Three Window Temple

The three windows of this temple are also trapezoid. It has been erected with different size stones in an asymmetrical manner similar to the large ruined site Saqsaywaman near Cuzco. This temple is also situated near the central plaza of Machu Picchu.

Main Temple

Interestingly this temple has only three walls. In Inca architecture buildings with only three walls are a common feature, but still were erected in limited numbers. The temple has been built as typical Inca structure with larger hewn blocks at the bottom of the walls and smaller masoned stones above. It might be that this temple never had a roof and was used for sun rituals or star observations. Behind is



a room which some call the ornament room and others the priest room. It also could have been a small chapel for sacrifices with an altar. Or was the suggested altar just a stone bench on which the high priest slept?

Large Ritual Plaza

It lies at the highest point of the artificially flattened ridge and has been used for various ceremonies. It is the biggest meeting place of Machu Picchu too. Today it is an open space but during Inca times it might have been a small parc as well with more trees. Around it, various sacred building has been erected. Interesting is a closed complex with refined walls and a single entrance.

There are various theories of its purpose. The single entrance might give the answer. Was it a complex for women or priestesses of the ruler? Archeologists found various altars and ritual rooms including an extraordinary feature on the ground. Two small round basins with a very low perimeter are thought to have served as water mirrors possibly for star observation or just as mirrors for females? But again, the true reason is not known.

Intihuatana Stone

It is situated on the corner of the main plaza on a natural rocky elevation. This has been converted with surrounding terrasses to a pyramid like structure with two stairs leading to a small platform. Intihuatana is the most studied monument in Machu Picchu. Nevertheless, its purpose has not yet been established. It could have served as a sacrifice stone or used for observational practices. The platform allows the best views over the ruined site and into all directions.

Round Tower Temple

Another sun temple lies on the slope towards the town of Aqua Calientes below the main plaza in the urban area. It surprises by its half round structure. The head wall is straight and has a door. The circular wall is half open towards the plaza. In its middle a huge flat rock can be seen. Was this also a sacrifice or ritual stone? Does this explain the llama coral? We know that llama blood was used for sacrifices and sometimes killing the animal as well. This temple has an unusual structure for the Inca culture. And then mortar was used for this temple, which is also unusual for Inca



architecture. Fully round tower like buildings we have seen in Inca settlements. Next to the temple there is also a fountain and small grave cavern. Experts believe that this temple also could have been an observatory.

Condor Temple?

It is called a temple, but might just have been an open air sacrifice or adornment site with a stone resembling a condor with some fantasy. In its vicinity there is a mausoleum in which animal sacrifices took place as well. This artificial vaulted cave was created out of a huge natural rock.

Huayna Picchu & Moon Temple

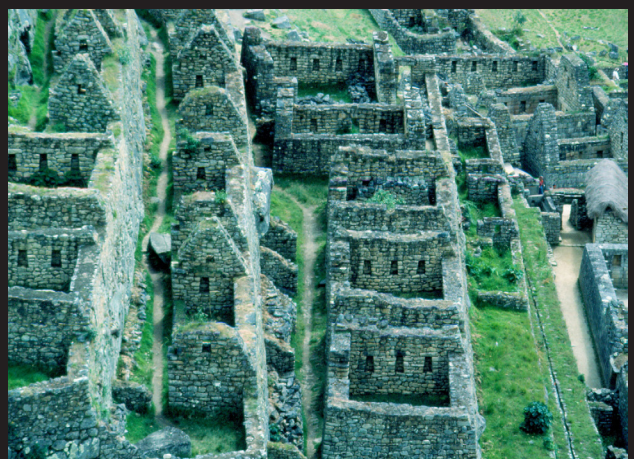
Looking like a sugar cone it rises 400 meters above Machu Picchu. If you first see it, you can not imagine that a steep and dangerous trail leads up to it. At a closer look you recognize even terrasses and stone buildings. And on its back side the fit can visit a huge cave which experts have identified as a moon temple. Was this the final escape room? We don't think so as Machu Picchu was not a hide out but a religious place for spiritual reflection and praying. And in its entire history the Inca have never been attacked.

First Social State

The Inca really created the first social state in history, which was focused on producing enough food to supply its population. They also transported food quickly on their extensive road network into areas with bad harvests. Think about the Inca invented trial marriage. A young couple which married received free of charge a house with fields and the needed equipment including cloth, tools and seeds. If the marriage did not work out within two years, they returned everything and went back to their parents or remarried. Next to the work on their own fields they also had to work free of charge for communal projects like road and water works. This was done by both husband and wife. We hope to write in future a further article with astonishing findings about the Inca social state.

Machu Picchu Construction

Only in Cuzco existed a wide spread division of labor with many specialist artisans. Actually, the best artisans across the entire empire were resettled here. In the country side the population were more generalists for agriculture, house, road, terrasse and



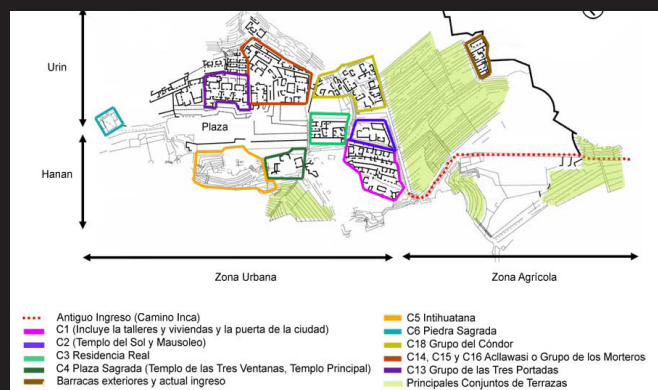
aqueduct constructions. Experts established that 5,000 workers erected the impressive Inca residence city on the ridge. One has to remember that the hard granite used here was difficult to work into blocks. Archeologists are certain all building material originates from the artificially flattened ridge. The granite here consists to 60% feldspar, 30% quartzite and 10% mica. It has a hardness of six to seven on the Mohs scale. The following new research result might surprise you. Many of the buildings were plastered and painted in red or yellow. Because none of the roofs survived the plaster and paint was quickly washed off. But the finer wall structures of the Inca ruler and elite buildings were not plastered.

Solid Inca Architecture

The Inca were known to build solid walls with asymmetrical precisely hewn stone blocks perfectly put together without mortar. Their stone masons perfected the art to make blocks fit so well together that not even a knife's tip could be entered in between. Iron tools were not known in South America yet, despite being used for more than 2,000 years in Europe. But stone masons had bronze tools and the flat surfaces were created with sand rubbing. But how could these buildings survive in an earthquake prone and heavy rainfall zone? The secret of their long survival are the clever drainage systems the Inca built in. Machu Picchu has over 130 canals with many steps built in to reduce the destruction power of fast downhill flowing water. These water ways supply water from mountain springs as well as lead off rain falls. The terrasses served as interim seepage spaces with enormous capacities.

Earthquake Proof

The walls were at their base wider and narrower at the top and therefore less top heavy. This increased stability. Not using mortar helped losing movement energy during earthquakes. The buildings were erected on rocky ground so the swinging frequency of the ground and building was the same and did not produce the dangerous difference which is so fatal. The trapezoid form of doors and windows including the lighter roofs erected with wood and leaves helped also coping with tremors. Why the Incas also erected buildings with just three walls is not clear as they are more prone to destruction by tremors. The main temple is one of them.



Important Stone Stairs

Machu Picchu is connected with over 100 long stairs built up with mono blocks. This might be the reason why most are still intact after 600 years and needed little repair. The aqueducts and zigzag as well as stepped canals were equally fitted together to minimize water loss and more importantly reduce the running speed. After cleaning up the water ways they are still functioning because the mountain springs supply a steady flow even today.

Summary

Machu Picchu is really a must see on any trip to Peru and really stuns everybody. Besides what we described in this article there is so much more to see and explore. Machu Picchu can give you the true impression to be its discoverer. Was this why Bingham claimed to be its discoverer? A day is simply too short if you want to get to grips with this impressive site amazing views and mystical feelings the place does exhale. If you are fit enough you must climb Huayna Picchu it presents the most spectacular view and wonderful adrenalin feeling.

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We thank the museums, institutions and photographers for making available some of their pictures and graphs.

