



Machu Picchu

Machu Picchu^[a] is a 15th-century Inca citadel located in the Eastern Cordillera of southern Peru on a mountain ridge at 2,430 meters (7,970 ft).^[9] Often referred to as the "Lost City of the Incas",^[10] it is the most familiar icon of the Inca Empire. It is located in the Machupicchu District within the Urubamba Province^[11] above the Sacred Valley, which is 80 kilometers (50 mi) northwest of the city of Cusco. The Urubamba River flows past it, cutting through the Cordillera and creating a canyon with a subtropical mountain climate.^[12]

The Inca civilization had no written language and following the first encounter by the Spanish soldier Baltasar Ocampo, no Europeans are recorded to have visited the site from the late 16th century until the 19th century. As far as historical knowledge extends, there are no existing written records detailing the site during its period of active use. The leading theory is that Machu Picchu was a private city for Incan royalty. The names of the buildings, their supposed uses, and their inhabitants, are the product of modern archaeologists based on physical evidence, including tombs at the site. Machu Picchu was built in the classical Inca style, with polished dry-stone walls. Its three primary structures are the *Temple of the Sun*, the *Temple of the Three Windows*, and the *Intihuatana*. From 1929 to 1971, Machu Picchu underwent extensive restoration and conservation work, including structural stabilization and artifact excavation, driven by government initiatives and research expeditions.^[13] Most recent archaeologists believe that Machu Picchu was constructed as an estate for the Inca emperor Pachacuti (1438–1472). The Inca built the estate around 1450 but abandoned it a century later, at the time of the Spanish conquest. According to the new AMS radiocarbon dating, it was occupied from c. 1420–1532.^[14] Historical research published in 2022 claims that the site was probably called Huayna Picchu by the Inca people themselves, as it exists on the smaller peak of the same name.^{[15][16]}

Machu Picchu was declared a Peruvian Historic Sanctuary in 1982 and a UNESCO World Heritage Site in 1983.^[9] In 2007, Machu Picchu was voted one of the New Seven Wonders of the World in a worldwide internet poll.^[17]

Etymology

The site is on a narrow saddle between two mountain peaks, Machu Picchu and Huayna Picchu. In the Quechua language, *machu* means "old" or "old person" and *wayna* (spelled *huayna* in standard Spanish orthography) means "young", while *pikchu* refers to a "summit," "peak," or "pyramid."^{[18][b]} Thus, the name of the site is often translated as "old mountain" or "old peak".^[19]

Although the original name given to the settlement by its builders is not definitively known, a 2021 study in *Ñawpa Pacha: Journal of the Institute of Andean Studies* suggests that the site was likely called "Huayna Picchu," after the smaller peak nearby, or simply

Machu Picchu

Machu Pikchu



Machu Picchu in 2023



Shown within Peru



Machu Picchu (South America)

"Picchu."^{[15][20]} According to the research, the association of the name Machu Picchu with the ruins likely began with American explorer Hiram Bingham's 1911 publications, a conclusion supported by Bingham's field notes, early maps, and historical documents.^[15]

History

Machu Picchu was previously believed (by Richard L. Burger, professor of anthropology at Yale University) to have been built in the 1450s.^[1] However, a 2021 study led by Burger used radiocarbon dating (specifically, AMS) to reveal that Machu Picchu may have been occupied from around 1420 to 1530 AD.^{[21][22]} Construction appears to date from two great Inca rulers, Pachacutec Inca Yupanqui (1438–1471) and Túpac Inca Yupanqui (1472–1493).^{[23][24]:xxxvi}

A consensus among archaeologists is that Pachacutec ordered the construction of the royal estate for his use as a retreat, most likely after a successful military campaign. Although Machu Picchu is considered to be a "royal" estate, it would not have been passed down in the line of succession. Rather it was used for 80 years before being abandoned, seemingly because of the Spanish conquests in other parts of the Inca Empire.^[1] It is possible that most of its inhabitants died from smallpox introduced by travelers before the Spanish conquistadors even arrived in the area.^[25]

Ancient life

Daily life in Machu Picchu

During its use as an estate, it is estimated that about 750 people lived there, with most serving as support staff (yanaconas, *yana*)^{[26][27]} who lived there permanently. Though the estate belonged to Pachacutec, religious specialists and temporary specialized workers (*mayocs*) lived there as well, most likely for the ruler's well-being and enjoyment. During winter, which was usually the harsher season, staffing was reduced to a few hundred servants and a few religious specialists focused on maintenance alone.^[28]

Studies show that, according to their skeletal remains, most people who lived there were immigrants from diverse backgrounds. They lacked the chemical markers and osteological markers they would have if they had been living there their entire lives. Instead, research into skeletal remains has found bone damage from various species of water parasites indigenous to different areas of Peru. There were also varying osteological stressors and varying chemical densities suggesting varying long-term diets characteristic of specific regions that were spaced apart.^[29] These diets are composed of varying levels of maize, potatoes, grains, legumes, and fish, but the last-known short-term diet for these people was overall composed of less fish and more corn. This suggests that several of the immigrants were from more coastal areas and moved to Machu Picchu, where corn was a larger portion of food intake.^[27] Most skeletal remains found at the site had lower levels of arthritis and bone fractures than those found in most sites of the Inca Empire. Incan individuals who had arthritis and bone fractures were typically those who performed heavy physical labor (such as the Mit'a) or served in the Inca military.^[30]



Click on the map for a fullscreen view

Alternative name Machupicchu	
Location	Urubamba, Cusco, Peru
Region	Cusco Department
Coordinates	13°09′48″S 72°32′44″W﻿ / ﻿13.16333°S 72.54556°W﻿ / -13.16333; -72.54556
Altitude	2,430 m (7,972 ft)
Type	Settlement
History	
Founded	c. 1450 – c. 1470 ^[1]
Abandoned	c. 1532 – c. 1565 ^{[2][3]}
Cultures	Inca civilization
Site notes	
Discovered	<u>Agustín Lizárraga</u> (1902) <u>Hiram Bingham</u> (1911)
Condition	Preserved
Ownership	Peruvian Government
Management	Peruvian Ministry of Culture
Public access	Yes
Website	<u>machupicchu.gob.pe</u> (<u>http s://www.machupicchu.gob.p e/?lang=en</u>)

UNESCO World Heritage Site	
Official name	Historic Sanctuary of Machu Picchu
Location	Latin America and the Caribbean
Criteria	Mixed: i, iii, vii, ix
Reference	274 (<u>https://whc.unesco.org/en/list/274</u>)
Inscription	1983 (7th Session)
Area	38,160.87 ha

Animals are also suspected to have been brought to Machu Picchu, as there were several bones found that were not native to the area. Most animal bones found were from llamas and alpacas. These animals naturally live at altitudes of 4,000 meters (13,000 ft) rather than the 2,400 meters (7,900 ft) elevation of Machu Picchu. Most likely, these animals were brought in from the Puna region^[31] for meat consumption and for their pelts. Guinea pigs were also found at the site in special tomb caves, suggesting that they were at least used for funerary rituals,^[32] as it was common throughout the Inca Empire to use them for sacrifices and meat.^[33] Six dogs were also recovered from the site. Due to their placements among the human remains, it is believed that they served as companions of the dead.^[32]



One of the first pictures of Machu Picchu, taken by Hiram Bingham III in 1912 after major clearing and before reconstruction work began

Agricultural activity

Much of the farming done at Machu Picchu was done on its hundreds of andenes (man-made terraces). These terraces were a work of considerable engineering, built to ensure good drainage and soil fertility while also protecting the mountain itself from erosion and landslides. However, the terraces were not perfect, as studies of the land show that there were landslides that happened during the construction of Machu Picchu. Still visible are places where the terraces were shifted by landslides and then stabilized by the Inca as they continued to build around the area.^[34] The terraces also enabled irrigation, increasing crop yields, with maize likely being the main crop due to its ceremonial importance, alongside possible cultivation of potatoes.^[35]



View of the ancient houses

However, terrace farming area makes up only about 4.9 ha (12 acres) of land, and a study of the soil around the terraces showed that what was grown there was mostly corn and potatoes, which was not enough to support the 750+ people living at Machu Picchu. This explains why studies done on the food that the Inca ate at Machu Picchu suggest it was imported from the surrounding valleys and farther afield.^[29]



Andenes (terraces) used for farming at Machu Picchu

It is estimated that the area around the site has received more than 1,800 mm (71 in) of rain per year since AD 1450, which was more than that needed to support crop growth. Because of the ample rainfall at Machu Picchu, it was found that irrigation was not usually needed for the terraces. The terraces received so much rain that they were built by Incan engineers specifically to allow for drainage of excess water. Excavation and soil analyses done by Kenneth Wright^{[36][34]} in the 1990s showed that the terraces were built in layers, with a bottom layer of larger stones covered by loose gravel.^[34] On top of the gravel was a layer of mixed sand and gravel packed together, with rich topsoil covering it. Research showed that the topsoil was probably moved from the valley floor to the terraces because it was much better than the soil higher up the mountain.^[37]

Human sacrifice and mysticism

Little information exists surrounding human sacrifices at Machu Picchu, though it is known that many sacrifices were never given a proper burial, and their skeletal remains succumbed to the elements.^[38] However, there is evidence that retainers were sacrificed to accompany a deceased noble in the afterlife.^{[38]:107,119} Animal, liquid and dirt sacrifices to the gods were more common and were made at the Altar of the Condor. The tradition is upheld by members of the New Age Andean religion.^{[39]:263}

Encounters with Westerners

Spanish conquest

In the late 16th century, Spaniards who had recently gained control of the area documented that indigenous individuals mentioned returning to "Huayna Picchu", the name that is believed to be originally given to the site by locals.^[15] The Spanish conquistador Baltasar de Ocampo had notes of a visit during the end of the 16th century to a mountain fortress

called *Pitcos* with sumptuous and majestic buildings, erected with great skill and art, all the lintels of the doors, as well the principal as the ordinary ones, being of marble and elaborately carved.^[40]

Over the centuries, the surrounding jungle overgrew the site, and few outside the immediate area knew of its existence. The site may have been re-discovered and plundered in 1867 by a German businessman, Augusto Berns.^[41] Some evidence indicates that the German engineer J. M. von Hassel arrived earlier. Maps show references to Machu Picchu as early as 1874.^[42] A 1904 atlas designated the site as Huayna Picchu.^[15]



Panoramic view of Machu Picchu and the Urubamba Canyon

Search for the Neo-Inca capital

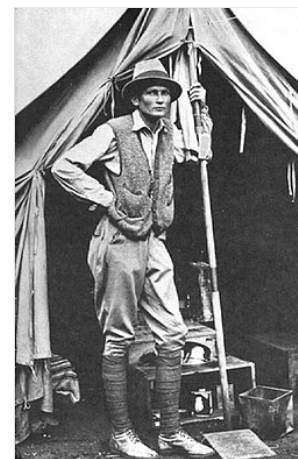


In 1911 American historian and explorer Hiram Bingham traveled the region looking for the lost capital of the Neo-Inca state (later established to be Vilcabamba), established by Manco Inca after the Spanish conquest, and was led to Machu Picchu by a villager, Melchor Arteaga. Bingham found the name of the Peruvian explorer Agustín Lizárraga and the date 1902 written in charcoal on one of the walls of the Temple of the Three Windows. Initially disappointed, he documented in his pocket field journal: "Agustín Lizárraga is discoverer of Machu Picchu and lives at San Miguel Bridge just before passing."^{[43][44]} However, while Bingham initially acknowledged Lizárraga as the discoverer in his early writings and speeches, including *Inca Land* (1922), he gradually downplayed Lizárraga's role until, in his final version of the story, *Lost City of the Incas* (1952), Bingham claimed to have found the site himself.^[45]

Though Bingham was not the first to visit the ruins, he was considered the scientific discoverer who brought Machu Picchu to international attention. Bingham organized another expedition in 1912 to undertake major clearing and excavation.^{[24]:xxx-xxxi[46]}

First American expedition

Bingham was a lecturer at Yale University, although not a trained archaeologist. In 1909, returning from the Pan-American Scientific Congress in Santiago, he travelled through Peru and was invited to explore the Inca ruins at Choquequirau in the Apurímac Valley. He organized the 1911 Yale Peruvian Expedition in part to search for the Inca capital, which was thought to be the city of Vitcos, reportedly located near the town of Torontoy.^[47] He consulted Carlos Romero, one of the chief historians in Lima who showed him helpful references and Father Antonio de la Calancha's Chronicle of the Augustinians. In particular, Ramos thought Vitcos was "near a great white rock over a spring of fresh water." Back in Cusco again, Bingham asked planters about the places mentioned by Calancha, particularly along the Urubamba River. According to Bingham, "one old prospector said there were interesting ruins at Machu Picchu," though his statements "were given no importance by the leading citizens." Only later did Bingham learn that Charles Wiener had also heard of the ruins at Huayna Picchu and Machu Picchu, but was unable to reach them.^{[24][48]}



Hiram Bingham III at his tent door near Machu Picchu in 1912

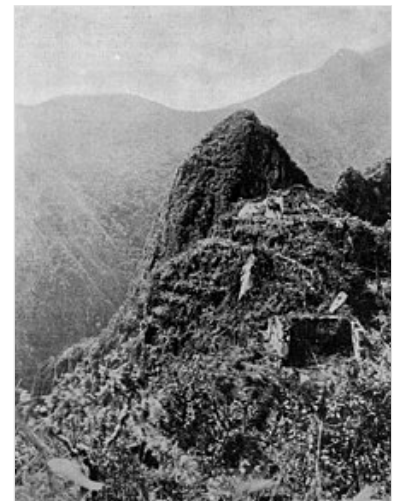
Armed with this information, Bingham's expedition went down the Urubamba River. En route, Bingham asked local people to show them Inca ruins, especially any place described as having a white rock over a spring.^{[24]:137[49]}

At Mandor Pampa, Bingham asked farmer and innkeeper Melchor Arteaga if he knew of any nearby ruins. Arteaga said he knew of excellent ruins on the top of Huayna Picchu.^[50] The next day, 24 July, Arteaga led Bingham and Sergeant Carrasco across the river on a log bridge and up the Machu Picchu site. At the top of the mountain, they came across a small hut occupied by a couple of Quechua people, Richard and Alvarez, who were farming some of the original Machu Picchu agricultural terraces that they had cleared four years earlier. Alvarez's 11-year-old son, Pablito, led Bingham along the ridge to the main ruins.^[51]



Melchor Arteaga crossing the Urubamba River on 24 July 1911

The ruins were mostly covered with vegetation except for the cleared agricultural terraces and clearings used by the farmers as vegetable gardens. Because of the vegetation, Bingham was not able to observe the full extent of the site. He took preliminary notes, measurements, and photographs, noting the fine quality of Inca stonework of several principal buildings. Bingham was unsure about the original purpose of the ruins, but concluded there was no indication that it matched the description of Vitcos.^{[24]:141,186–187[49]}



Partial view of Machu Picchu on 24 July 1911, with much of the site covered by dense vegetation.

The expedition continued down the Urubamba and up the Vilcabamba Rivers examining all the ruins they could find. Guided by locals, Bingham rediscovered and correctly identified the site of the old Inca capital, Vitcos (then called Rosaspata), and the nearby temple of Chuquipalta. He then crossed a pass and into the Pampaconas Valley where he found more ruins heavily buried in the jungle undergrowth at Espíritu Pampa, which he named "Trombone Pampa".^[52] As was the case with Machu Picchu, the site was so heavily overgrown that Bingham could only note a few of the buildings. In 1964, Gene Savoy further explored the ruins at Espíritu Pampa and revealed the full extent of the site, identifying it as Vilcabamba Viejo, where the Incas fled after the Spanish drove them from Vitcos.^{[53][24]:xxxv[54]}

Bingham returned to Machu Picchu in 1912 under the sponsorship of Yale University and National Geographic and with the full support of Peruvian President Augusto Leguía. The expedition undertook a four-month clearing of the site with local labor, which was expedited with the support of the Prefect of Cusco. Excavation started in 1912 with further excavation undertaken in 1914 and 1915. Bingham focused on Machu Picchu because of its fine Inca stonework and well-preserved nature, which had lain undisturbed since the site was abandoned. None of Bingham's several hypotheses explaining the site have since held up. During his studies, he carried various artifacts back to Yale. One prominent artifact was a set of 15th-century, ceremonial Incan knives made from bismuth bronze; they are the earliest known artifact containing this alloy.^{[55][56]}



Route map of the Peruvian Expedition of 1912

Although local institutions initially welcomed the exploration, they soon accused Bingham of legal and cultural malpractice.^[57] Rumors arose that the team was stealing artifacts and smuggling them out of Peru through Bolivia. In fact, Bingham removed many artifacts, but openly and legally; they were deposited in the Yale University Museum. Bingham was abiding by the 1852 Civil Code of Peru; the code stated that "archaeological finds generally belonged to the discoverer, except when they had been discovered on private land" (Batievsky 100).^[58] Local press perpetuated the accusations, claiming that the excavation harmed the site and deprived local archaeologists of knowledge about their own history.^[57] Landowners began to demand rent from the excavators.^[57] By the time Bingham and his team left Machu Picchu, locals had formed coalitions to defend their ownership of Machu Picchu and its cultural remains, while Bingham claimed the artifacts ought to be studied by experts in American institutions.^[57]



The Sacred Plaza, the Main Temple, and the Temple of the Three Windows after the 1912 clearing work. Above these structures is the Sacred Hill, which features the Intihuatana.

Current state

Preservation

In 1981, Peru declared an area of 325.92 square kilometers (125.84 sq mi) surrounding Machu Picchu a "historic sanctuary".^[59] In addition to the ruins, the sanctuary includes a large portion of the adjoining region, rich with the flora and fauna of the Peruvian Yungas and Central Andean wet puna ecoregions.^[60]

Beyond its historical significance, Machu Picchu houses a diverse range of species. Among them are the Andean fox, puma, vizcacha, spectacled bear, and white-tailed deer. The sanctuary is also habitat for more than 420 bird species, notably the cock-of-the-rock and the Andean condor. The surrounding environment features a variety of tree species such as alder, white cedar, husk, and laurel.^[61]

In 1983, UNESCO designated Machu Picchu a World Heritage Site, describing it as "a masterpiece of art, urbanism, architecture and engineering" and "a unique testimony" of the Inca Civilization.^[9]

The modern town of Machu Picchu



Main Square of Aguas Calientes

Along the Urubamba river, below the ruins, surrounding the train line "street", is the town of Machu Picchu, also known as Aguas Calientes (hot springs), with a post office, a train station, hotels, and other services for the many tourists. The station, called Puente Ruinas (the bridge to the ruins) is the end of the line for the *tren de turismo*, the tourist train, which arrives every morning from Cusco and returns every afternoon. There is also a luxury hotel on the mountain, near the ruins.^[62]

Machu Picchu is officially twinned with Haworth, West Yorkshire in the United Kingdom,^[63] as well as Fukushima^[64] and Ōtama, Japan,^[65] Petra, Jordan,^[66] Medley, United States,^[67] and Tinum, Mexico.^[68]

Tourist activity

Machu Picchu is both a cultural and natural UNESCO World Heritage Site. Since Hiram Bingham's expedition, growing numbers of tourists have visited the site each year, with numbers exceeding 1.5 million in 2019.^[69] As Peru's most visited tourist attraction, and a major revenue generator, it is continually exposed to economic and commercial forces. In the late 1990s, the Peruvian government granted concessions to allow the construction of a cable car and a luxury hotel, including a tourist complex with boutiques and restaurants and a bridge to the site.^[70] These plans faced widespread protests, with critics arguing that the government had failed to conduct a proper environmental impact survey, as requested by the National Institute of Natural Resources, which warned of potential harm to the ecosystem.^[71] In 2018, plans were restarted to again construct a cable car to encourage Peruvians to visit Machu Picchu and boost domestic tourism.^{[72][73]} A no-fly zone exists above the area.^[74] UNESCO considered including Machu Picchu on its List of World Heritage in Danger in 2017, but ultimately decided against it.^{[75][76]}

Efforts to manage the impact of tourism have included various measures over the years. In the 1980s, a rock from Machu Picchu's central plaza was moved to create a helicopter landing zone, a practice which was later stopped. In 2006, the company Helicusco sought approval for tourist flights over the site, but the license was soon rescinded.^[74] In January 2010, severe flooding caused by El Niño trapped over 4,000 people and disrupted access to Machu Picchu, leading to its temporary closure.^[77] The site reopened on April 1, 2010.^[78] To further address tourism's impact, stricter entrance regulations were introduced in July 2011, limiting the number of daily visitors to 2,500 per day to the citadel and 400 to Huayna Picchu.^[79] In 2018, a third entrance phase was added to better manage tourism and reduce site degradation.^[80] In 2024, the daily visitor limit was officially increased to 4,500, with up to 5,600 permitted during peak season.^{[81][82]}



Tourists at the main entrance to the Machu Picchu citadel

In May 2012, UNESCO urged additional protection measures for the site's buffer zone, especially due to the rapid growth in the nearby town of Aguas Calientes.^[83] Tourist deaths at Machu Picchu from altitude sickness, floods, and accidents have led to criticism of UNESCO for allowing visits despite the site's high safety risks.^{[84][85][86][87]} The trend of nude tourism in 2014 also led to increased surveillance by Peru's Ministry of Culture to end the practice.^[88]

In recognition of efforts to manage and protect the site, Fernando Astete, who served as Chief of the National Archaeological Park of Machu Picchu from 1994 to 2019, was honored with the "Personalidad Meritoria de la Cultura" award by the Ministry of Culture of Peru in January 2020. This award acknowledged his extensive contributions to the preservation, management, and study of Machu Picchu.^{[89][90]}

During the 2022–2023 Peruvian protests, routes to Machu Picchu were blocked, trapping thousands of tourists and leading to a government airlift of the stranded visitors.^{[91][92]} Due to these disruptions, the Ministry of Culture closed the site indefinitely on January 22, 2023, and it was reopened on February 15, 2023.^{[91][93][94]}

Geography



Panoramic view of Machu Picchu from Machu Picchu mountain surrounded by the Urubamba River

Machu Picchu lies in the Southern Hemisphere, 13.111 degrees south of the equator.^[95] It is 80 kilometers (50 miles) northwest of Cusco, on the crest of the mountain Machu Picchu, located about 2,430 meters (7,970 feet) above mean sea level, over 1,000 meters (3,300 ft) lower than Cusco, which has an elevation of 3,400 meters (11,200 ft).^[95] As such, it had a milder climate than the Inca capital. It is one of the most important archaeological sites in South America, one of the most visited tourist attractions in Latin America and the most visited in Peru.^[96]

Machu Picchu is situated above a bow of the Urubamba River, which surrounds the site on three sides, where cliffs drop vertically for 450 meters (1,480 ft) to the river at their base. The area is subject to morning mists rising from the river.^[51] When inhabited by the Incas, the location of the city was a military secret, and its deep precipices and steep mountains provided natural defenses. The Inca Bridge, an Inca grass rope bridge, across the Urubamba River in the Pongo de Mainique, provided a secret entrance for the Inca army. Another Inca bridge was built to the west of Machu Picchu, the tree-trunk bridge, at a location where a gap occurs in the cliff that measures 6 meters (20 ft).

The city sits in a saddle between the two mountains Machu Picchu and Huayna Picchu, with a view down two valleys and a nearly impassable mountain at its back.^[51] The agricultural terraces, covering about 4.9 hectares (12 acres), complemented the site's architecture and protected against runoff and erosion. Constructed with stone retaining walls and well-drained topsoil, the terraces were built using deeper strata and stone chips to enhance drainage and ensure stability.^[97] Two high-altitude routes from Machu Picchu cross the mountains back to Cusco, one through the Sun Gate, and the other across the Inca bridge. Both could have been blocked easily, should invaders have approached along them.



Machu Picchu as seen from Wayna Picchu

Machu Picchu and other sites in the area are built over earthquake faults. According to research conducted in 2019, this may not be a coincidence: "[o]ne simple answer, researchers now suggest, is that that's [earthquake faults] where building materials for the site—large amounts of already fractured rock—were readily available."^[98]

Climate

Between the valley floor and the altitudinal zone of the Inca citadel, ranging from 2,200 metres (7,200 ft) to 2,500 metres (8,200 ft) meters above sea level, the climate is warm and humid, with an average annual precipitation of 2,010 millimetres (79 in) and an annual mean temperature of approximately 18 °C (64 °F). The site is characterized by steep slopes, dense vegetation, and significant rainfall, contributing to high humidity levels of 80–90%. The area is also frequently enveloped in cloud cover, typical of a cloud forest environment.^[99]

Climate data for Machu Picchu (elevation 2,399 m (7,871 ft), 1991–2020 normals)													
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Mean daily maximum °C (°F)	20.6 (69.1)	20.6 (69.1)	21.0 (69.8)	21.5 (70.7)	21.9 (71.4)	22.0 (71.6)	22.1 (71.8)	23.1 (73.6)	23.4 (74.1)	22.8 (73.0)	22.8 (73.0)	21.2 (70.2)	21.9 (71.5)
Mean daily minimum °C (°F)	11.8 (53.2)	11.9 (53.4)	11.9 (53.4)	11.7 (53.1)	10.8 (51.4)	10.0 (50.0)	9.4 (48.9)	10.0 (50.0)	11.1 (52.0)	11.5 (52.7)	12.0 (53.6)	12.0 (53.6)	11.2 (52.1)
Average precipitation mm (inches)	340.7 (13.41)	324.5 (12.78)	340.6 (13.41)	184.1 (7.25)	73.4 (2.89)	50.8 (2.00)	54.2 (2.13)	60.6 (2.39)	76.2 (3.00)	163.0 (6.42)	172.5 (6.79)	275.4 (10.84)	2,116 (83.31)
Source: National Meteorology and Hydrology Service of Peru ^[100]													

Site

Layout

The site is roughly divided into an urban sector and an agricultural sector, with the former divided between an upper town and a lower town. The temples are in the upper town, the warehouses in the lower.^[101]

The architecture is adapted to the mountains. Approximately 200 buildings are arranged on wide parallel terraces around an east–west central square. The various compounds, called *kanchas*, are long and narrow in order to exploit the terrain. Sophisticated channeling systems provided irrigation for the fields. Stone stairways set in the walls allowed access to the different levels across the site. The eastern section of the city was probably residential. The western, separated by the square, was for religious and ceremonial purposes. This section contains the *Torreón*, the massive tower which may have been used as an observatory.^[102]

Located in the urban sector are the primary archaeological treasures and tourist attractions: the *Intihuatana*, the *Temple of the Sun* and the *Temple of the Three Windows*.^[103]

The Popular District, or Residential District, is the place where the lower-class people lived. It includes storage buildings and simple houses.^[104]

The royalty area, a sector for the nobility, is a group of houses located in rows over a slope; the residence of the *amautas* (wise people) was characterized by its reddish walls, and the zone of the *ñustas* (princesses) had trapezoid-shaped rooms. The Monumental Mausoleum is a carved statue with a vaulted interior and carved drawings. It was used for rites or sacrifices.

The Guardhouse is a three-sided building, with one of its long sides opening onto the Terrace of the Ceremonial Rock. The three-sided style of Inca architecture is known as the *wayrona* style.^[105]

In 2005 and 2009, the University of Arkansas made detailed laser scans of the entire site and of the ruins at the top of the adjacent Huayna Picchu mountain. The scan data is available online for research purposes.^[106]



Map of Machu Picchu



Temple of the Three Windows

Sites of interest

Temple of the Sun or Torreón

This semicircular temple is built on the same rock overlying Bingham's "Royal Mausoleum", and is similar to the Temple of the Sun found in Cusco and the one found in Pisac, in having what Bingham described as a "parabolic enclosure wall". The stonework is of ashlar quality. Within the temple is a 1.2 m by 2.7 m rock platform, smooth on top except for a small platform on its southwest quadrant. A "Serpent's Door" faces 340°, or just west of north, opening onto a series of 16 pools, and affording a view of Huayna Picchu. The temple also has two trapezoidal windows, one facing 65°, called the "Solstice Window", and the other facing 132°, called the "Qullqa Window". The northwest edge of the rock platform points out the Solstice Window to within 2' of the 15th century June solstice rising Sun. For comparison, the angular diameter of the Sun is 32'. The Inca constellation Qullca, storehouse, can be viewed out the Qullqa Window at sunset during the 15th-century June Solstice, hence the window's name. At the same time, the Pleades are at the opposite end of the sky. Also seen through this window on this night are the constellations Llamacnawin, Llama, Unallamacha, Machacuay, and the star Pachapacariq Chaska (Canopus).^{[48][107]}



Temple of the Sun or Torreón

Intihuatana stone

The *Intihuatana* stone is a ritual stone which was used by the Incas. The stone is designed to point directly at the Sun during the winter solstice.^[109] The name of the stone (perhaps coined by Bingham) derives from Quechua language: *inti* means "sun", and *wata-*, "to tie, hitch (up)". The suffix *-na* derives nouns for tools or places. Hence *Intihuatana* is literally an instrument or place to "tie up the sun", often expressed in English as "The Hitching Post of the Sun". The Inca believed the stone held the Sun in its place along its annual path in the sky.^[110] The stone is situated at 13°9'48" S. At midday on 11 November and 30 January, the Sun is situated almost exactly above the pillar, casting no shadow. On 21 June, the stone casts the longest shadow on its southern side, and on 21 December a much shorter shadow on its northern side.^[111]



Intihuatana is believed to have been designed as an astronomic clock or calendar by the Incas

Inti Mach'ay and the Royal Feast of the Sun

Inti Mach'ay is a special cave used to observe the Royal Feast of the Sun. This festival was celebrated during the Incan month of *Qhapaq Raymi*. It began earlier in the month and concluded on the December solstice. On this day, noble boys were initiated into manhood by an ear-piercing ritual as they stood inside the cave and watched the sunrise.^[112]

Architecturally, Inti Mach'ay is often considered to be the most significant structure at Machu Picchu. Its entrances, walls, steps, and windows are some of the finest masonry in the Incan Empire. The cave also includes a tunnel-like window unique among Incan structures, which was constructed to allow sunlight into the cave only during several days around the December solstice. For this reason, the cave was inaccessible for much of the year.^[113] Inti Mach'ay is located on the eastern side of Machu Picchu, just north of the "Condor Stone." Many of the caves surrounding this area were prehistorically used as tombs, yet there is no evidence that Mach'ay was a burial ground.^[114]



The sculpture projecting from the rock bottom of the Sun temple is interpreted as "Water mirrors for observing the sky".^[108]

Dispute over cultural artifacts

In 1912, 1914 and 1915, Bingham removed thousands of artifacts from Machu Picchu—ceramic vessels, silver statues, jewelry, and human bones—and took them to Yale University for further study, supposedly for 18 months. Yale instead kept the artifacts until 2012, arguing that Peru lacked the infrastructure and systems to care for them. Eliane Karp, an anthropologist and wife of former Peruvian President Alejandro Toledo, accused Yale of profiting from Peru's cultural heritage. Many of the articles were exhibited at Yale's Peabody Museum.^[115]



Artifact collected on Bingham's 1912 expedition, on display at the Museo Machu Picchu

In 2006, Yale returned some pieces but retained more than 250 "museum-quality" pieces, claiming this was supported by federal case law of Peruvian antiquities.^[116] In 2007, the Peruvian government and Yale had agreed on a joint traveling exhibition and construction of a new museum and research center in Cusco advised by Yale. Yale acknowledged Peru's title to all the objects, but would share rights with Peru in the research collection, part of which would remain at Yale for continuing study.^[117] In November 2010, Yale agreed to return the disputed artifacts.^[118] The third and final batch of artifacts was delivered in November 2012.^[119] The artifacts are permanently exhibited at the Museo Machu Picchu, La Casa Concha ("The Shell House"), close to Cusco's colonial center. Owned by the National University of San Antonio Abad del Cusco, La Casa Concha also features a study area for local and foreign students.^[120]



Aryballos and bowls returned by Yale University in 2011

Construction

The central buildings in the Machu Picchu citadel use the classical Inca architectural style of polished dry-stone walls of regular shape. The Incas were masters of this technique, called ashlar, in which blocks of stone are cut to fit together tightly without mortar.

The site may have been intentionally built on fault lines to provide natural drainage and a source of fractured stone for construction. According to geologist Rualdo Menegat, Machu Picchu "shows us that the Incan civilization was an empire of fractured rocks."^[121]



View of the residential section of Machu Picchu

The section of the mountain where Machu Picchu was built provided various challenges that the Incas solved with local materials. One issue was the seismic activity due to two fault lines which made mortar and similar building methods nearly useless. Instead, the Inca mined stones from some quarries at the site,^[122] including one recently discovered using remote sensing techniques, which was probably located in the catchment area between the Hurin and Hanan before it was covered over to create the current Plaza Principal.^[123] Once mined, the Inca lined the granite stones up and shaped them to fit together perfectly, stabilizing the structures. Inca walls have many stabilizing features: doors and windows are trapezoidal, narrowing from bottom to top; corners usually are rounded; inside corners often incline slightly into the rooms, and outside corners were often tied together by L-shaped blocks; walls are offset slightly from row to row rather than rising straight from bottom to top.^[124]



Funerary Stone in upper cemetery

Heavy rainfall required terraces to drain rain water and prevent mudslides, landslides, erosion, and flooding. Terraces were layered with stone chips, sand, dirt, and topsoil, to absorb water and prevent it from running down the mountain. Similar layering protected the large city center from flooding.^[125] Multiple canals and reserves throughout the city provided water that could be supplied to the terraces for irrigation and to prevent erosion and flooding.^[126]

The approach to moving and placing the enormous stones remains uncertain, probably involving hundreds of men to push the stones up inclines. A few stones have knobs that could have been used to lever them into position; the knobs were generally sanded away, with a few overlooked.^[127] For larger stones, the Incas likely employed ramps with gentle inclines,

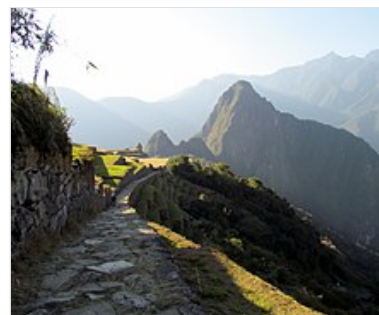
along with wooden rollers, levers, and ropes made from maguey fibers. Most stones were moved from higher to lower elevations, but some, like those at Ollantaytambo, were transported over long distances.^[127]

Transportation

The Inca road system included a route to the Machu Picchu region. The people of Machu Picchu were connected to long-distance trade, as shown by non-local artifacts found at the site. For example, Bingham found unmodified obsidian nodules at the entrance gateway. In the 1970s, Burger and Asaro determined that these obsidian samples were from the *Titicaca* or Chivay obsidian source, and that the samples from Machu Picchu showed long-distance transport of this obsidian type in pre-Hispanic Peru.^[128]

Today, visitors can reach Machu Picchu via three main routes. The most popular option is the train journey from Cusco or Ollantaytambo. Operated by PeruRail and Inca Rail, this scenic route takes visitors to the town of Aguas Calientes, from where they can take a bus ride of 8.6 kilometres (5.3 mi) or walk to the Machu Picchu entrance.^{[99]:94}

Another widely chosen route is the Inca Trail, a historic path built by the Incas considered "the most famous hike in South America" by Lonely Planet,^[129] attracting thousands of tourists each year.^[130] The trail, which starts at Piscacucho (also known as Km 82 on the railway to Aguas Calientes) or Km 104, depending on the length of the trek, spans approximately 42 kilometres (26 mi) and reaches an altitude of 4,200 metres (13,800 ft).^{[131][129]} It passes through the Andes and various archaeological sites before reaching the Sun Gate (Intipunku) at Machu Picchu. Due to limited permits, advance booking through a tourism agency is required.^[131]



View of Machu Picchu arriving from the Inca Trail

Alternatively, travelers can take a less conventional route that involves traveling by road to a point near the Hydroelectric station. From there, they can either walk or take a short train ride to Aguas Calientes.^{[99]:86} This option is generally more affordable and does not require advance booking, but it is less recommended during the rainy season due to potential landslide risks.^[132]

As of November 2024, the construction of a new paved roadway right to the doorstep of the historic site is in progress and due for completion in 2025. The path, otherwise known as Santa María-Santa Teresa-Machu Picchu Hydroelectric Bridge highway, involves 28.41 kilometers (22 miles) of asphalt-paved roads that would generally reduce access time to the heritage site from 4 or 5 hours, to 2 hours.^[133]

In media

Motion pictures

The Paramount Pictures film *Secret of the Incas* (1954), with Charlton Heston and Yma Sumac, was filmed on location at Cusco and Machu Picchu, the first time that a major Hollywood studio filmed on site. Five hundred indigenous people were hired as extras in the film.^[134]

The opening sequence of the film *Aguirre, the Wrath of God* (1972) was shot in the Machu Picchu area and on the stone stairway of Huayna Picchu.^[135]

Machu Picchu was featured prominently in the film *The Motorcycle Diaries* (2004), a biopic based on the 1952 youthful travel memoir of Marxist revolutionary Che Guevara.^[136]

The NOVA television documentary "Ghosts of Machu Picchu" presents an elaborate documentary on the mysteries of Machu Picchu.^[137]

Multimedia artist Kimsooja used footage shot near Machu Picchu in the first episode of her film series *Thread Routes*, shot in 2010.^[138]

On their 7th release, "[Transformers: Rise of the Beasts](#)" (2023) brought the Autobots to Machu Picchu and more of Cusco's famous sites.^{[139][140]}

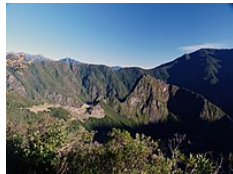
Music

The song "[Kilimanjaro](#)", from the Indian Tamil-language film *Enthiran* (2010), was filmed in Machu Picchu with some 100 Brazilian extras. The shoot was choreographed by [Raju Sundaram](#) and supervised by Fernando Astete, chief of the National Archaeological Park of Machu Picchu.^{[141][142]}

Gallery



General view.



Sunrise from Inti Punku, in the final stretch of the Inca Trail.



Detail of a trapezoidal window.



Colcas on the agricultural sector.



The Temple of the Condor.



Terraces.



Detail of the wall's masonry.



Llamas at Machu Picchu.



Residential area.

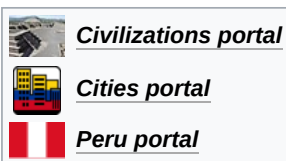


Cliff.



Discovery plaques

See also



- [Iperú](#), tourist information and assistance
- [Lares trek](#), an alternative route to that of the Inca Trail
- [List of archaeological sites in Peru](#)
- [List of archaeoastronomical sites by country](#)
- [Paleohydrology](#)
- [Putucusi](#), neighboring mountain
- [Religion in the Inca Empire](#)
- [Salcantay Trek](#) – alternative trek to Machu Picchu
- [The Chilean Inca Trail](#)
- [Tourism in Peru](#)

References

1. Burger & Salazar 2004, p. 27.
2. Burger & Salazar 2004, p. 209.
3. Lumbreras 2020a, pp. 193–232.
4. "Machu Picchu" (https://web.archive.org/web/20210128211416/https://www.lexico.com/definition/machu_picchu). *Lexico UK English Dictionary*. Oxford University Press. Archived from the original (http://www.lexico.com/definition/Machu_Picchu) on 28 January 2021.
5. "Machu Picchu" (<https://www.merriam-webster.com/dictionary/Machu%20Picchu>). *Merriam-Webster.com Dictionary*. Merriam-Webster.
6. "How to say: Machu Picchu" (https://www.bbc.co.uk/blogs/theeditors/2006/09/how_to_say_machu_picchu.html). *BBC Blogs*. BBC. 8 September 2006. Retrieved 12 August 2024.
7. "Machu Picchu se escribe con doble «c» en «Picchu»" (<https://www.fundeu.es/recomendacion/machu-picchu-se-escribe-con-doble-c-en-picchu-999/>). *FundéuRAE*. August 2022. Retrieved 17 August 2024.
8. Nonato Rufino Chuquimamani Valer; Carmen Gladis Alosilla Morales; Victoria Choque Valer (2014). "Qullaw Qichwapa Simi Qullqan" (<https://web.archive.org/web/20141129155515/http://www.digeibir.gob.pe/sites/default/files/documentos/DICCIONARIO%20QUECHUA%20COLLAO%20BAJA.pdf>) (PDF) (in Quechua). Ministry of Education of Peru. p. 70. Archived from the original (<http://www.digeibir.gob.pe/sites/default/files/documentos/diccionario%20quechua%20collao%20baja.pdf>) (PDF) on 29 November 2014. Retrieved 12 August 2024.
9. "Historic Sanctuary of Machu Picchu" (<https://whc.unesco.org/en/list/274/>). *UNESCO World Heritage Centre*. UNESCO. Retrieved 12 August 2024.
10. Hearn, Kelly; Golomb, Jason (21 January 2017). "Machu Picchu" (<https://www.nationalgeographic.com/history/article/machu-picchu-mystery>). *National Geographic*. Retrieved 12 August 2024.
11. "Historic Sanctuary of Machupicchu" (<https://visitaareasnaturales.sernanp.gob.pe/en/anps/historic-sanctuary-of-machupicchu/>). *National Service of Natural Protected Areas by the State (SERNANP)*. 21 January 2022. Retrieved 12 August 2024.
12. Spizzichino, Daniele; Masini, Nicola; Lasaponara, Rosa; Margottini, Claudio (2022). "Machu Picchu Physiographic and Environmental Settings" (https://link.springer.com/chapter/10.1007/978-3-030-92766-0_1). In Ziolkowski, Mariusz; Masini, Nicola; Bastante, José M. (eds.). *Machu Picchu in Context*. Cham: Springer. pp. 3–20. doi:10.1007/978-3-030-92766-0_1 (https://doi.org/10.1007/978-3-030-92766-0_1). ISBN 978-3-030-92765-3.
13. Bastante et al. 2020a, pp. 167–170.
14. Burger, R. L.; Salazar, L. C.; Nesbitt, J.; Washburn, E.; Fehren-Schmitz, L. (August 2021). "New AMS dates for Machu Picchu: results and implications" (<https://doi.org/10.15184/aqy.2021.99>). *Antiquity*. **2021** (383): 1265–1279. doi:10.15184/aqy.2021.99 (<https://doi.org/10.15184/aqy.2021.99>). ISSN 0003-598X (<https://search.worldcat.org/issn/0003-598X>). S2CID 238220619 (<https://api.semanticscholar.org/CorpusID:238220619>).
15. Amado Gonzales, Donato; Bauer, Brian S. (13 August 2021). "The Ancient Inca Town Named Huayna Picchu" (<https://www.tandfonline.com/doi/full/10.1080/00776297.2021.1949833>). *Ñawpa Pacha*. **42** (1): 17–31. doi:10.1080/00776297.2021.1949833 (<https://doi.org/10.1080/00776297.2021.1949833>). S2CID 238644890 (<https://api.semanticscholar.org/CorpusID:238644890>). Retrieved 24 March 2022.
16. Romo, Vanessa (27 March 2022). "We've been calling Machu Picchu by the wrong name" (<https://www.npr.org/2022/03/27/1089088061/machu-picchu-huayna-wrong-name>). *NPR*. National Public Radio. Retrieved 12 August 2024.
17. "Creating Global Memory" (<https://world.new7wonders.com/>). *New7Wonders of the World*. Retrieved 25 October 2017.
18. Calvo Pérez, Julio (2022). *Nuevo diccionario español-quechua, quechua-español* (https://apl.org.pe/wp-content/uploads/2022/07/DICCIONARIO-Quechua-espanol-VOL_2.pdf) (PDF). Vol. 2 (2nd ed.). Lima: University of San Martín de Porres - Fondo Editorial. pp. 527, 739, 1271. ISBN 978-612-4460-45-6. Retrieved 18 August 2024. {{cite book}}: |website= ignored (help)
19. Luciano, Pellegrino A. (2011). "Where are the Edges of a Protected Area? Political Dispossession in Machu Picchu, Peru" (<https://doi.org/10.4103/0972-4923.79186>). *Conservation and Society*. **9** (1): 35–41. doi:10.4103/0972-4923.79186 (<https://doi.org/10.4103/0972-4923.79186>). hdl:10535/7402 (<https://hdl.handle.net/10535/7402>). JSTOR 26393123 (<https://www.jstor.org/stable/26393123>).
20. Collins, Dan (23 March 2022). "Machu Picchu: Inca site 'has gone by wrong name for over 100 years'" (<https://www.theguardian.com/travel/2022/mar/23/machu-picchu-inca-site-wrong-name>). *The Guardian*. Retrieved 24 March 2022.

21. Cummings, Mike (4 August 2021). "Machu Picchu older than expected, study reveals" (<https://news.yale.edu/2021/08/04/machu-picchu-older-expected-study-reveals>). *Yale News*. Retrieved 21 August 2024.
22. Jack Guy (4 August 2021). "Machu Picchu in Peru is older than previously thought" (<https://edition.cnn.com/travel/article/machu-picchu-peru-study-scli-intl-scn/index.html>). *CNN*. Retrieved 12 August 2024.
23. Bastante & Fernández 2020a, pp. 269–288.
24. Bingham, Hiram (1952). *Lost City of the Incas* (<https://archive.org/details/lostcityofincass00bing/page/112>). Weidenfeld & Nicolson. pp. 112–135 (<https://archive.org/details/lostcityofincass00bing/page/112>). ISBN 978-1-84212-585-4.
25. McNeill, William (2010). *Plagues and Peoples* (<https://books.google.com/books?id=KQR6iXMT11EC>). Knopf Doubleday Publishing Group. p. 216. ISBN 978-0-307-77366-1.
26. Burger & Salazar 2004, p. 24.
27. Turner, Bethany L. (2010). "Variation in Dietary Histories Among the Immigrants of Machu Picchu: Carbon and Nitrogen Isotope Evidence" (<https://doi.org/10.4067/2Fs0717-73562010000200012>). *Chungara, Revista de Antropología Chilena*. **42** (2): 515–534. doi:10.4067/s0717-73562010000200012 (<https://doi.org/10.4067/2Fs0717-73562010000200012>).
28. Burger & Salazar 2004, p. 86.
29. Turner, Bethany L.; Armelagos, George J. (1 September 2012). "Diet, residential origin, and pathology at Machu Picchu, Peru". *American Journal of Physical Anthropology*. **149** (1): 71–83. doi:10.1002/ajpa.22096 (<https://doi.org/10.1002/ajpa.22096>). ISSN 1096-8644 (<https://search.worldcat.org/issn/1096-8644>). PMID 22639369 (<https://pubmed.ncbi.nlm.nih.gov/22639369>).
30. Burger & Salazar 2004, p. 88.
31. Morales, M.; Barberena, R.; Belardi, J.B.; Borrero, L.; Cortegoso, V.; Durán, V.; Guerci, A.; Goñi, R.; Gil, A.; Neme, G.; Yacobaccio, H.; Zárate, M. (2009). "Reviewing human-environment interactions in arid regions of southern South America during the past 3000 years". *Palaeogeography, Palaeoclimatology, Palaeoecology*. **281** (3–4): 283–295. Bibcode:2009PPP...281..283M (<https://ui.adsabs.harvard.edu/abs/2009PPP...281..283M>). doi:10.1016/j.palaeo.2008.09.019 (<https://doi.org/10.1016/2Fj.palaeo.2008.09.019>).
32. Burger & Salazar 2004, p. 94.
33. Malpass, Michael A. (2009). *Daily Life in the Inca Empire* (<https://books.google.com/books?id=XGtFCQAAQB> AJ&q=guinea&pg=PA38) (2nd ed.). Bloomsbury Publishing. p. 38. ISBN 978-0-313-35549-3.
34. Brown, Jeff L. (January 2001). "Rediscovering the lost city". *Civil Engineering; New York*. **71**: 32–39. ProQuest 228471133 (<https://www.proquest.com/docview/228471133>).
35. Reinhard 2020a, p. 303.
36. Weingardt, Richard G. (19 April 2008). "Kenneth Robert Wright" (<https://doi.org/10.1061/2F%28ASCE%291532-6748%282008%298%3A2%2887%29>). *Leadership and Management in Engineering*. **8** (2): 87–92. doi:10.1061/(ASCE)1532-6748(2008)8:2(87) (<https://doi.org/10.1061/2F%28ASCE%291532-6748%282008%298%3A2%2887%29>).
37. Burger & Salazar 2004, p. 101.
38. Gaither, Catherine; Jonathan Kent; Victor Sanchez; Teresa Tham (June 2008). "Mortuary Practices and Human Sacrifice in the Middle Chao Valley of Peru: Their Interpretation in the Context of Andean Mortuary Patterning". *Latin American Antiquity*. **19** (2): 107, 115, 119. doi:10.1017/S1045663500007744 (<https://doi.org/10.1017/2FS1045663500007744>). S2CID 162727279 (<https://api.semanticscholar.org/CorpusID:162727279>).
39. Hill, Michael (2010). "Myth, Globalization, and Mestizaje in New Age Andean Religion: The Intic Churincuna (Children of the Sun) of Urubamba, Peru". *Ethnohistory*. **57** (2): 263, 273–2m75. doi:10.1215/00141801-2009-063 (<https://doi.org/10.1215/2F00141801-2009-063>).
40. De Ocampo, Baltasar. *An Account of the Province of Vilcapampa and a Narrative of the Execution of the Inca Tupac Amaru (1610)* (https://www.yorku.ca/inpar/ocampo_markham.pdf) (PDF). Translated by Markham, Sir Clements. Cambridge: York University. p. 11.
41. Dan Collyns (6 June 2008). "Machu Picchu ruin 'found earlier' " (<http://news.bbc.co.uk/1/hi/world/americas/7439397.stm>). *BBC News*.
42. Romero, Simon (7 December 2008). "Debate Rages in Peru: Was a Lost City Ever Lost?" (<https://www.nytimes.com/2008/12/08/world/americas/08peru.html>). *The New York Times*.
43. Heaney, Christopher (2011). *Cradle of gold: the story of Hiram Bingham, a real-life Indiana Jones and the search for Machu Picchu* (<https://us.macmillan.com/books/9780230112049/cradleofgold>). New York: MacMillan. ISBN 978-0-230-11204-9. Retrieved 8 August 2023.
44. Bingham (1875–1956), Hiram (1 January 2004). "Inca Land: Explorations in the Highlands of Peru" (<https://www.gutenberg.org/files/10772/10772-h/10772-h.htm>). Project Gutenberg. Retrieved 7 August 2023.

45. Hall, Amy Cox (22 November 2017). *Framing a Lost City: Science, Photography, and the Making of Machu Picchu* (<https://books.google.com/books?id=VZk5DwAAQBAJ>). University of Texas Press. ISBN 978-1-4773-1368-8.
46. Wiener, Aaron (1 May 2008). "Hiram Bingham's Expedition and the Peruvian Response: A Connecticut Yanqui in the Land of the Incas" (https://elischolar.library.yale.edu/mssa_collections/1). *Kaplan Senior Essay Prize for Use of Library Special Collections*. Retrieved 9 August 2023.
47. Bingham, Hiram (1912). "Vitcos: The Last Inca Capital" (<https://www.americanantiquarian.org/proceedings/45647892.pdf>) (PDF). *American Antiquarian Society*. p. 174.
48. Dearborn, D.S.P.; White, R.E. (1983). "The "Torreon" of Machu Picchu as an Observatory" (<https://journals.sagepub.com/doi/abs/10.1177/002182868301400502>). *Journal for the History of Astronomy*. **14** (5): S37 – S49. Bibcode:1983JHAS...14...37D (<https://ui.adsabs.harvard.edu/abs/1983JHAS...14...37D>). doi:10.1177/002182868301400502 (<https://doi.org/10.1177%2F002182868301400502>).
49. MacQuarrie, Kim (2012). *The Last Days Of The Incas* (<https://books.google.com/books?id=k1w7KARSwgYC>). Little, Brown Book Group. p. 255. ISBN 978-1-4055-2607-4. Retrieved 21 August 2024.
50. Bingham 2010.
51. Wright & Valencia Zegarra 2004, p. 1.
52. Geographical Society of Philadelphia (1912). "Yale Expedition to Peru" (<https://books.google.com/books?id=DHBIAAAAYAAJ&pg=PA134>). *Bulletin of the Geographical Society of Philadelphia*. Vol. 10. pp. 134–136.
53. Rodriguez-Camilloni, Humberto (2009). "Reviewed Work: Machu Picchu: Unveiling the Mystery of the Incas by Richard L Burger, Lucy C. Salazar". *Journal of Latin American Geography*. **8** (2): 230–232. doi:10.1353/lag.0.0051 (<https://doi.org/10.1353%2F0051>). JSTOR 25765271 (<https://www.jstor.org/stable/25765271>). S2CID 144758591 (<https://api.semanticscholar.org/CorpusID:144758591>).
54. Thomson, Hugh (2010). *The White Rock: An Exploration of the Inca Heartland* (<https://books.google.com/books?id=0ZJVDy63SmAC>). Hachette UK. ISBN 9780297866169.
55. Gordon, Robert B.; Rutledge, John W. (1984). "Bismuth Bronze from Machu Picchu, Peru". *Science*. **223** (4636). American Association for the Advancement of Science: 585–586. Bibcode:1984Sci...223..585G (<https://ui.adsabs.harvard.edu/abs/1984Sci...223..585G>). doi:10.1126/science.223.4636.585 (<https://doi.org/10.1126%2Fscience.223.4636.585>). PMID 17749940 (<https://pubmed.ncbi.nlm.nih.gov/17749940/>).
56. Fellman, Bruce (December 2002). "Rediscovering Machu Picchu" (https://web.archive.org/web/20160506171545/http://archives.yalealumnimagazine.com/issues/02_12/machupicchu.html). *Yale Alumni Magazine*. Archived from the original (http://archives.yalealumnimagazine.com/issues/02_12/machupicchu.html) on 6 May 2016. Retrieved 7 April 2016.
57. Salvatore, Ricardo Donato (2003). "Local versus Imperial Knowledge: Reflections on Hiram Bingham and the Yale Peruvian Expedition" (<http://muse.jhu.edu/article/40208>). *Nepantla: Views from South*. **4** (1): 67–80.
58. Hoffman, Barbara T. (2006). *Art and Cultural Heritage: Law, Policy and Practice* (<https://books.google.com/books?id=yvXTcGC5CwQC&q=Peru%E2%80%99s+Civil+Code+of+1852&pg=PA100>). Cambridge University Press. p. 100. ISBN 978-0-521-85764-2.
59. "Santuario Histórico de Machupicchu" (<https://www.gob.pe/institucion/sernanp/informes-publicaciones/1793255-santuario-historico-de-machupicchu>). *Peruvian State Digital Platform*. SERNANP. Retrieved 12 August 2024.
60. Olson, David M.; Dinerstein, Eric; Wikramanayake, Eric D.; Burgess, Neil D.; Powell, George V. N.; Underwood, Emma C.; d'Amico, Jennifer A.; Itoua, Illanga; et al. (2001). "Terrestrial Ecoregions of the World: A New Map of Life on Earth" (<https://doi.org/10.1641%2F0006-3568%282001%29051%5B0933%3ATEOTWA%5D2.0.CO%3B2>). *BioScience*. **51** (11): 933–938. doi:10.1641/0006-3568(2001)051[0933:TEOTWA]2.0.CO;2 (<https://doi.org/10.1641%2F0006-3568%282001%29051%5B0933%3ATEOTWA%5D2.0.CO%3B2>).
61. Peru Travel: Official Tourism Website of Peru (8 August 2023). "Machu Picchu: World natural and cultural heritage site" (<https://www.peru.travel/en/attractions/machu-picchu>). Retrieved 8 August 2023.
62. Eisenberg, Daniel [in Spanish] (1989). "Machu Picchu and Cusco" (<https://web.archive.org/web/20160313050543/http://users.ipfw.edu/jehle/deisenbe/JHPcolumn/MACHUPIC.htm>). *Journal of Hispanic Philology*. **13**: 97–101. Archived from the original (<http://users.ipfw.edu/jehle/deisenbe/JHPcolumn/MACHUPIC.htm>) on 13 March 2016.
63. Wainwright, Martin (18 October 2005). "Brontë village to twin with Machu Picchu" (<https://www.theguardian.com/uk/2005/oct/18/britishidentity.martinwainwright>). *The Guardian*. Retrieved 21 August 2024.
64. "Machu Picchu inks friendship pact with Fukushima village of Otama" (<https://web.archive.org/web/20231129231439/https://www.japantimes.co.jp/news/2015/10/28/national/machu-picchu-inks-friendship-pact-fukushima-village-otama/>). The Japan Times. 28 October 2015. Archived from the original (<https://www.japantimes.co.jp/news/2015/10/28/national/machu-picchu-inks-friendship-pact-fukushima-village-otama/>) on 29 November 2023. Retrieved 26 September 2022.

65. "Suscripción de Convenio de Hermanamiento entre las localidades de Otama y Machu Picchu Pueblo" (<http://web.archive.org/web/20231129231344/https://www.pe.emb-japan.go.jp/esp/SuscripcionMachuPicchu.html>). Embajada del Japón en el Perú. 26 October 2015. Archived from the original (<https://www.pe.emb-japan.go.jp/esp/SuscripcionMachuPicchu.html>) on 29 November 2023. Retrieved 26 September 2022.
66. "Gobiernos de Perú y Jordania firman acuerdo para promover intercambio cultural" (<https://www.gob.pe/institucion/cultura/noticias/5142-gobiernos-de-peru-y-jordania-firman-acuerdo-para-promover-intercambio-cultural>). *Ministry of Culture* (in Spanish). 11 March 2018. Retrieved 20 August 2024.
67. "Oficio N° 001-2019-2020/LLR/DCR" ([https://www2.congreso.gob.pe/Sicr/MesaDirectiva/sipfr2011.nsf/308151CB8F663085052584540079BA2C/\\$FILE/LeonRomero_MAY2019.15.pdf](https://www2.congreso.gob.pe/Sicr/MesaDirectiva/sipfr2011.nsf/308151CB8F663085052584540079BA2C/$FILE/LeonRomero_MAY2019.15.pdf)) (PDF). *Congress of the Republic of Peru*. 15 May 2019. Retrieved 15 December 2022.
68. "Maravillas del mundo moderno Machu Picchu y Chichén Itzá se hermanan" (<https://andina.pe/ingles/noticia-maravillas-del-mundo-moderno-machu-picchu-y-chichen-itza-se-hermanan-778303.aspx>). *Andina* (in Spanish). 13 December 2019. Retrieved 20 August 2024.
69. "Cusco: Llegada de visitantes al Santuario Histórico de Machu Picchu" (<http://datosurismo.mincetur.gob.pe/appdatosTurismo/frmReporte.aspx?id=224>). MINCETUR. December 2019. Archived (<https://web.archive.org/web/20240820234200/https://datosurismo.mincetur.gob.pe/appdatosTurismo/frmReporte.aspx?id=224>) from the original on 20 August 2024. Retrieved 20 August 2024.
70. "Bridge stirs the waters in Machu Picchu" (<http://news.bbc.co.uk/2/hi/americas/6292327.stm>). *BBC News Online*. 1 February 2007. Retrieved 7 June 2016.
71. Medrano, Adolfo (1998). "Peru: Machu Picchu's cable car saga" (<https://unesdoc.unesco.org/ark:/48223/pf0000114228.locale=en>). *UNESCO Sources*. No. 106. pp. 12–13.
72. Sachs, Andrea (2 February 2018). "Peru devises new rules to tackle the mounting crowds on Machu Picchu" (https://www.washingtonpost.com/lifestyle/travel/peru-devises-new-rules-to-tackle-the-mounting-crowds-on-machu-picchu/2018/02/02/7ac380d6-061b-11e8-8777-2a059f168dd2_story.html). *Washington Post*. Retrieved 21 August 2024.
73. "Peru: Cable car system might increase tourist arrivals in Machu Picchu" (<https://andina.pe/agencia/noticia-peru-cable-car-system-might-increase-tourist-arrivals-in-machu-picchu-724703.aspx>). *Andina* (in Spanish). 10 September 2018. Retrieved 21 August 2024.
74. Collins, Dan (8 September 2006). "Peru bans flights over Inca ruins" (<http://news.bbc.co.uk/2/hi/americas/5326042.stm>). *BBC News*. Retrieved 24 August 2010.
75. "Machu Picchu airport: UNESCO demands answers from Peru government" (<https://www.theguardian.com/travel/2019/aug/09/machu-picchu-airport-unesco-demands-answers-from-peru-government>). *The Guardian*. 9 August 2019. Retrieved 12 August 2024.
76. "UNESCO not to include Peru's Machu Picchu in World Heritage in Danger list" (<https://andina.pe/ingles/noticia-unesco-not-to-include-perus-machu-picchu-in-world-heritage-in-danger-list-673883.aspx>). *Andina*. 30 June 2021. Retrieved 12 August 2024.
77. "1400 tourists rescued amid Machu Picchu floods" (<https://www.france24.com/en/20100129-1400-tourists-rescued-amid-machu-picchu-floods>). *France 24*. 29 January 2010. Retrieved 12 August 2024.
78. "Machu Picchu reopens after 2-month closure" (<https://www.nbcnews.com/id/wbna36138915>). *NBC News*. 1 April 2010. Retrieved 21 August 2024.
79. "Machu Picchu restricted to 2,500 visitors per day" (<https://andina.pe/agencia/noticia-machu-picchu-restricted-to-2500-visitors-per-day-369998.aspx>). *Andina*. 8 April 2011. Retrieved 12 August 2024.
80. "Peru: Everything you need to know about entrance times for Machu Picchu in 2019" (<https://andina.pe/ingles/noticia-peru-everything-you-need-to-know-about-entrance-times-for-machu-picchu-in-2019-764846.aspx>). *Andina*. 7 June 2019. Retrieved 12 August 2024.
81. "Machu Picchu: Peru to dramatically increase number of tourists allowed to visit each day" (<https://news.sky.com/story/machu-picchu-peru-to-dramatically-increase-number-of-tourists-allowed-to-visit-attraction-each-day-13021637>). *Sky News*. 27 June 2024. Retrieved 29 August 2024.
82. "Peru: Greater flow of tourists to Machu Picchu expected due to increased capacity" (<https://andina.pe/ingles/noticia-peru-greater-flow-of-tourists-to-machu-picchu-expected-due-to-increased-capacity-985456.aspx>). *Andina*. 3 July 2024. Retrieved 29 August 2024.
83. "UN fears spread of Machu Picchu town" (<https://www.sbs.com.au/news/article/un-fears-spread-of-machu-picchu-town/107jwsh36>). *SBS News*. Agence France-Presse. 28 May 2012. Retrieved 22 August 2024.
84. Dixon, Hayley (21 August 2013). "Retired merchant navy captain died on trip of a lifetime" (<https://www.telegraph.co.uk/news/worldnews/southamerica/peru/10257308/Retired-merchant-navy-captain-died-on-trip-of-a-lifetime.html>). *The Telegraph*. Retrieved 20 August 2024.
85. Miller, Michael E. (1 July 2016). "German tourist falls to his death while posing for photo atop Machu Picchu" (<https://www.washingtonpost.com/news/morning-mix/wp/2016/07/01/german-tourist-falls-to-his-death-while-trying-to-take-photo-atop-machu-picchu/>). *Washington Post*. Retrieved 20 August 2024.

86. Bates, Stephen (26 January 2010). "Stranded tourists await rescue from Machu Picchu" (<https://www.theguardian.com/world/2010/jan/26/machu-picchu-flood-tourists>). *The Guardian*. Retrieved 14 February 2014.
87. Keough, Elizabeth Betsy (2011). "Heritage in Peril: A Critique of UNESCO's World Heritage Program" (https://openscholarship.wustl.edu/law_globalstudies/vol10/iss3/5). *Washington University Global Studies Law Review*. **10**: 593.
88. Liu, Evie (20 March 2014). "Peru to Tourists: 'Stop getting naked at Machu Picchu!'" (<http://www.cnn.com/2014/03/20/travel/naked-tourists-machu-picchu-peru/index.html?sr=tw032014picchunaked1030astory>). *CNN*. Retrieved 20 March 2014.
89. "Personajes distinguidos con la Personalidad Meritoria de la Cultura" (<https://elperuano.pe/noticia/88688-personajes-distinguidos-con-la-personalidad-meritoria-de-la-cultura>). *El Peruano* (in Spanish). 16 January 2020. Retrieved 23 August 2024.
90. "Resolución Ministerial N° 025-2020-MC" (https://cdn.www.gob.pe/uploads/document/file/475314/RM_025-2020-MC_ACCESIBLE.pdf) (PDF). *Ministry of Culture*. Lima. 14 January 2020. Retrieved 22 August 2024.
91. "Peru protests: Machu Picchu closed indefinitely and tourists stranded" (<https://www.bbc.com/news/world-latin-america-64360531>). *BBC News*. 21 January 2023. Retrieved 3 February 2023.
92. "Tourists stuck in Machu Picchu due to Peru protests airlifted out" (<https://www.bbc.com/news/world-latin-america-64037002>). *BBC News*. 20 December 2022. Retrieved 3 February 2023.
93. "Peru: Government shuts Machu Picchu as protests continue" (<https://www.dw.com/en/peru-government-shuts-machu-picchu-as-protests-continue/a-64477333>). *DW*. 22 January 2023. Retrieved 22 January 2023.
94. "Machu Picchu reopens to tourists after closure over civil unrest" (<https://www.reuters.com/world/americas/machu-picchu-reopens-tourists-after-closure-over-civil-unrest-2023-02-15/>). *Reuters*. 15 February 2023. Retrieved 12 August 2024.
95. Wright & Valencia Zegarra 2004, p. ix.
96. Davies 1997, p. 163.
97. Wright, Kenneth R.; Zegarra, Alfredo Valencia; Lorah, William L. (1999). "Ancient Machu Picchu Drainage Engineering". *Journal of Irrigation and Drainage Engineering*. **125** (6). American Society of Civil Engineers (ASCE): 360–369. Bibcode:1999JIDE..125..360W (<https://ui.adsabs.harvard.edu/abs/1999JIDE..125..360W>). doi:10.1061/(asce)0733-9437(1999)125:6(360) (<https://doi.org/10.1061%2F%28asce%290733-9437%281999%29125%3A6%28360%29>). ISSN 0733-9437 (<https://search.worldcat.org/issn/0733-9437>).
98. Perkins, Sid (24 September 2019). "Machu Picchu was built over major fault zones. Now, researchers think they know why" (<https://www.science.org/content/article/machu-picchu-was-built-over-major-fault-zones-now-researchers-think-they-know-why>). *Science Magazine*. American Association for the Advancement of Science (AAAS). Retrieved 12 August 2024.
99. SERNANP; Dirección Descentralizada de Cultura de Cusco (2015). "Plan maestro del Santuario Histórico de Machupicchu 2015–2019" (https://www.culturacusco.gob.pe/dmdocuments/machupicchu/DIAGNOSTICO_FINAL.pdf) [Machupicchu Historic Sanctuary Master Plan 2015-2019] (PDF). *Ministry of Environment and Ministry of Culture*. Retrieved 12 August 2024.
100. "Normales Climáticas Estándares y Medias 1991–2020" (<https://web.archive.org/web/20230821192714/http://www.senamhi.gob.pe/?p=normales-estaciones>). National Meteorology and Hydrology Service of Peru. Archived from the original (<https://www.senamhi.gob.pe/?p=normales-estaciones>) on 21 August 2023. Retrieved 22 August 2023.
101. Bordewich, Fergus (March 2003). "Winter Palace" (<https://www.smithsonianmag.com/travel/winter-palace-77490707/>). *Smithsonian Magazine*. p. 110. Retrieved 12 August 2024.
102. Longhena & Alva 2007, p. 252.
103. Millones 2020a, p. 67.
104. Astete & Bastante 2020b, p. 226.
105. Wright & Valencia Zegarra 2004, p. 8.
106. "Computer Modeling of Heritage Resources" (<https://web.archive.org/web/20100415000022/http://cast.uark.edu/home/education/field-programs/geomatics-for-archaeology-field-school.html>). *Center for Advanced Spatial Technologies*. University of Arkansas. Archived from the original (<http://cast.uark.edu/home/education/field-programs/geomatics-for-archaeology-field-school.html>) on 15 April 2010. Retrieved 12 August 2024.
107. Krupp, Edwin (1994). *Echoes of the Ancient Skies*. Mineola: Dover Publications, Inc. pp. 47–51. ISBN 978-0-486-42882-6.
108. Doig 2005.
109. Amao, Albert (2012). *The Dawning of the Golden Age of Aquarius: Redefining the Concepts of God, Man, and the Universe* (<https://books.google.com/books?id=tZkOKM5VjHcC&pg=PA78>). AuthorHouse. p. 78. ISBN 978-1-4685-3752-9. Retrieved 16 July 2012.

110. Scherrer, Deborah. "Ancient Observatories – Timeless Knowledge" (<http://solar-center.stanford.edu/AO/Ancient-Observatories.pdf>) (PDF). *Stanford University Solar Center*. Stanford University. Retrieved 12 August 2024.
111. Dolan, Marion (2021). "Art, Architecture, and Astronomy in South America". *Decoding Astronomy in Art and Architecture*. pp. 295–336. doi:10.1007/978-3-030-76511-8_17 (https://doi.org/10.1007/978-3-030-76511-8_17). ISBN 978-3-030-76511-8.
112. Dearborn, Schreiber & White 1987, p. 346.
113. Dearborn, Schreiber & White 1987, pp. 349–51.
114. Dearborn, Schreiber & White 1987, p. 349..
115. Swanson, Stephanie (2009). "Repatriating Cultural Property: The Dispute between Yale and Peru over the Treasures of Machu Picchu" (<https://digital.sandiego.edu/ilj/vol10/iss2/7>). *San Diego International Law Journal*. **10**: 469.
116. Martineau, Kim (14 March 2006). "Peru Presses Yale on Relics" (<https://www.courant.com/2006/03/14/peru-presses-yale-on-relics/>). *Hartford Courant*.
117. Mahony, Edmund H. (16 September 2007). "Yale To Return Incan Artifacts" (<https://www.courant.com/2007/09/16/yale-to-return-incan-artifacts/>). *Hartford Courant*.
118. "Peru's president: Yale agrees to return Incan artifacts" (<http://www.cnn.com/2010/WORLD/americas/11/20/peru.yale.artifacts/index.html?hpt=T2>). CNN. 20 November 2010.
119. Zorthian, Julia (13 November 2012). "Yale returns final Machu Picchu artifacts" (<http://yaledailynews.com/crosscampus/2012/11/12/yale-returns-final-machu-picchu-artifacts/>). *Yale Daily News*. Yale University. Retrieved 24 February 2013.
120. "Machupicchu Museum - Casa Concha" (<https://artsandculture.google.com/story/sAVRKt5ce2F1IQ?hl=en>). *Google Arts & Culture*. Retrieved 17 August 2024.
121. "Machu Picchu: Ancient Incan Sanctuary Intentionally Built on Faults" (<https://www.geosociety.org/GSA/News/pr/2019/19-38.aspx>). *Geological Society of America*. 22 September 2019. Retrieved 20 August 2024.
122. Tripcevich, Nicholas; Vaughn, Kevin J. (2012). *Mining and quarrying in the Ancient Andes: sociopolitical, economic, and symbolic dimension* (https://books.google.com/books?id=xShLdiUer_EC&q=machu%20picchu%20stone%20quarries%20km&pg=PA52). Springer Science & Business Media. p. 52. ISBN 978-1-4614-5200-3. "In some cases, such as Machu Picchu, rock was quarried on site."
123. Masini, Romano & Sieczkowska 2023.
124. Astete 2020a, pp. 313–326.
125. Wright & Valencia Zegarra 2000.
126. Reinhard 2020a, p. 303-304.
127. Puelles 2020a, pp. 417–418.
128. Burger & Salazar 2004, p. 97.
129. Sainsbury, Brendan; Egerton, Alex; Johanson, Mark; McCarthy, Carolyn; Tang, Phillip; Waterson, Luke (November 2021). *Lonely Planet Peru (Travel Guide)* (11th ed.). Lonely Planet. ISBN 9781788684255.
130. "Machu Picchu recibió más de 144,000 visitantes en el primer trimestre de 2022" (<https://www.swissinfo.ch/spa/machu-picchu-recibi%C3%B3-m%C3%A1s-de-144-000-visitantes-en-el-primer-trimestre-de-2022/47695596>). *Swissinfo* (in Spanish). 9 April 2022. Retrieved 12 August 2024.
131. "The Women Porters Making History on Peru's Inca Trail" (<https://www.bbc.com/travel/article/20210803-the-women-porters-making-history-on-perus-inca-trail>). *BBC Travel*. 3 August 2021. Retrieved 12 August 2024.
132. Collyns, Dan (1 February 2007). "Bridge stirs the waters in Machu Picchu" (<http://news.bbc.co.uk/2/hi/americas/6292327.stm>). *BBC News*. Retrieved 21 August 2024.
133. "Road Project to Improve Access to Peru's Machu Picchu Site | Engineering News-Record" (<https://www.enr.com/articles/58619-road-project-to-improve-access-to-perus-machu-picchu-site>). *www.enr.com*. Retrieved 19 November 2024.
134. Brownell, William H. Jr. (12 July 1953). "Hollywood Digest: On the Trail of 'Legend of the Inca' Through Peruvian Andes" (<https://www.nytimes.com/1953/07/12/archives/hollywood-digest-on-the-trail-of-legend-of-the-inca-through.html>). *The New York Times*. ProQuest 112572771 (<https://www.proquest.com/docview/112572771>).
135. Herzog & Cronin 2002.
136. Adibfar, Leili. "The Motorcycle Diaries: Book (1993) and Film (2004)" (<https://aaa.digital.uic.edu/s/ancientamericasappropriated/page/the-motorcycle-diaries-book-1993-and-film-2004>). *Ancient Americas Appropriated*. Retrieved 12 August 2024.
137. Bedar, John; Lewis, Susan K. "Ghosts of Machu Picchu: A Marvel of Inca Engineering" (<https://www.pbs.org/wgbh/nova/machupicchu/wright.html>). *PBS*. Retrieved 12 August 2024.

138. "Artist Spotlight: Kimsooja's Threads of Culture" (<https://nmwa.org/blog/nmwa-exhibitions/artist-spotlight-kimsooja-threads-of-culture-and-landscape/>). *National Museum of Women in the Arts*. 9 September 2014. Retrieved 21 August 2024.
139. Fuente, Anna Marie de la (20 May 2023). "Peru Aims for More Productions Post 'Transformers: Rise of the Beasts'" (<https://variety.com/2023/film/news/peru-transformers-rise-of-the-beasts-1235618700/>). *Variety*. Retrieved 21 August 2024.
140. "What Places in Peru Will Appear in the Film Transformers: Rise of the Beasts?" (<https://andina.pe/ingles/noticia-what-places-in-peru-will-appear-in-the-film-transformers-rise-of-the-beasts-942340.aspx>). *Andina*. 2 June 2023. Retrieved 12 August 2024.
141. Lahiri, Tripti (1 October 2010). "Machu Picchu Welcomes Rajinikanth (and India)" (<https://blogs.wsj.com/indiarealtime/2010/10/01/machu-picchu-welcomes-rajinikanth-and-india/>). *The Wall Street Journal*. Archived (<http://web.archive.org/web/20150120104833/https://blogs.wsj.com/indiarealtime/2010/10/01/machu-picchu-welcomes-rajinikanth-and-india/>) from the original on 20 January 2015. Retrieved 20 January 2015.
142. Kumar, S. R. Ashok (2 October 2010). "Your hunt stops here" (<http://www.thehindu.com/features/cinema/your-hunt-stops-here/article804495.ece>). *The Hindu*. Archived (<https://web.archive.org/web/20150120164057/http://www.thehindu.com/features/cinema/your-hunt-stops-here/article804495.ece>) from the original on 20 January 2015. Retrieved 20 January 2015.

Notes

- a. For most English or Spanish speakers, the first 'c' in *Picchu* is silent. In English, the name is pronounced /ˌmɑːtʃuː ˈpiːtʃuː/ MAH-choo PEE-choo^{[4][5]} or /ˌmætʃuː ˈpiːktʃuː/ MATCH-oo PEEK-choo,^{[5][6]} in Spanish as [ˈmatʃu ˈpitʃu] or [ˈmatʃu ˈpiytʃu],^[7] and in Quechua (*Machu Pikchu*)^[8] as [ˈmatʃə ˈpiktʃə].
- b. *Pikchu* may also refer to a "portion of coca that is chewed".

Bibliography

- Astete, Fernando; Bastante, José M., eds. (2020a). *Machupicchu. Investigaciones interdisciplinarias* (https://www.machupicchu.gob.pe/documents/2020/12_diciembre/MACHUPICCHU-INVESTIGACIONES-INTERDISCIPLINARIAS-TOMO-I.pdf) [*Macchu Picchu. Interdisciplinary research*] (PDF). Vol. 1 (1st ed.). Ministry of Culture – Dirección Desconcentrada de Cultura de Cusco. ISBN 9786124375132. Archived (https://web.archive.org/web/20240722004037/https://www.machupicchu.gob.pe/documents/2020/12_diciembre/MACHUPICCHU-INVESTIGACIONES-INTERDISCIPLINARIAS-TOMO-I.pdf) (PDF) from the original on 22 July 2024.
 - Millones, Luis. "Machu Picchu. Entre el cielo y la tierra". In Astete & Bastante (2020a), pp. 59–76.
 - Bastante, José M.; Astete, Fernando; Fernández, Alicia; Usca, Alex I. "Estado de la cuestión: historia y arqueología de la llaqta de Machupicchu". In Astete & Bastante (2020a), pp. 141–236.
 - Lumbreras, Luis G. "Machu Picchu, el mausoleo del emperador". In Astete & Bastante (2020a), pp. 193–232.
 - Bastante, José M.; Fernández, Alicia. "Avances de las investigaciones interdisciplinarias en Machupicchu". In Astete & Bastante (2020a), pp. 269–288.
 - Reinhard, Johan. "Machu Picchu: el centro sagrado". In Astete & Bastante (2020a), pp. 289–312.
 - Astete, Fernando. "Llaqta de Machupicchu: sacralidad y proceso constructivo". In Astete & Bastante (2020a), pp. 313–326.
 - Puelles, Jesús. "Ingeniería inka de Machupicchu". In Astete & Bastante (2020a), pp. 409–446.
- Astete, Fernando; Bastante, José M., eds. (2020b). *Machupicchu. Investigaciones interdisciplinarias* (https://www.machupicchu.gob.pe/documents/2020/12_diciembre/MACHUPICCHU-INVESTIGACIONES-INTERDISCIPLINARIAS-TOMO-II.pdf) [*Macchu Picchu. Interdisciplinary research*] (PDF). Vol. 2 (1st ed.). Ministry of Culture – Dirección Desconcentrada de Cultura de Cusco. ISBN 9786124375149. Archived (https://web.archive.org/web/20240722004232/https://www.machupicchu.gob.pe/documents/2020/12_diciembre/MACHUPICCHU-INVESTIGACIONES-INTERDISCIPLINARIAS-TOMO-II.pdf) (PDF) from the original on 22 July 2024.
- Bingham, Hiram (2010). *Lost City of the Incas* (<https://books.google.com/books?id=2-1lAgAAQBAJ>). Orion. ISBN 978-0-297-86533-9.
- Burger, Richard; Salazar, Lucy, eds. (2004). *Machu Picchu: Unveiling the Mystery of the Incas* (https://books.google.com/books?id=bBHRWwtr_pYC). New Haven, Connecticut: Yale University Press. ISBN 978-0-300-09763-4. OCLC 52806202 (<https://search.worldcat.org/oclc/52806202>).
- Carlotto, V.; Cardenas, J.; Fidel, L. (2009). "La geología, evolución geomorfológica y geodinámica externa de la ciudad inca de Machupicchu, Cusco-Perú" (<https://hdl.handle.net/20.500.12544/679>). *Revista de la Asociación Geológica Argentina*. **65** (4): 725–747. hdl:20.500.12544/679 (<https://hdl.handle.net/20.500.12544/679>).

- Davies, Nigel (1997). *The Ancient Kingdoms of Peru* (<https://books.google.com/books?id=DXgaAAAAYAAJ>). London and New York: Penguin Books. ISBN 978-0-14-023381-0. OCLC 37552622 (<https://search.worldcat.org/oclc/37552622>).
- Dearborn, David S. P.; Schreiber, Katharina J.; White, Raymond E. (1 January 1987). "Intimachay: A December Solstice Observatory at Machu Picchu, Peru". *American Antiquity*. **52** (2): 346–352. doi:10.2307/281786 (<https://doi.org/10.2307%2F281786>). JSTOR 281786 (<https://www.jstor.org/stable/281786>). S2CID 164181573 (<https://api.semanticscholar.org/CorpusID:164181573>).
- Doig, Federico Kauffmann (2005). *Machu Picchu: tesoro inca* (<https://books.google.com/books?id=TYUTAQAIAAJ>). ICPNA, Instituto Cultural Peruano Norteamericano.
- Herzog, Werner; Cronin, Paul (2002). *Herzog on Herzog* (https://books.google.com/books?id=ydN_2oj8M0wC). London: MacMillan. ISBN 978-0-571-20708-4.
- Longhena, Maria; Alva, Walter (2007). *The Incas and Other Ancient Andean Civilizations* (<https://books.google.com/books?id=K1qSNAAACAAJ>). Barnes & Noble Books. ISBN 978-1-4351-0003-9.
- Wright, Kenneth R.; Valencia Zegarra, Alfredo (2000). *Machu Picchu: A Civil Engineering Marvel* (<https://books.google.com/books?id=3ip5d8F5K4MC>). Reston, Virginia: ASCE Press (American Society of Civil Engineers). ISBN 978-0-7844-7052-7. OCLC 43526790 (<https://search.worldcat.org/oclc/43526790>).
- Wright, Ruth; Valencia Zegarra, Alfredo (2004) [First published 2001]. *The Machu Picchu Guidebook: A self-guided tour* (<https://books.google.com/books?id=xef8JWgrDIsC>). Big Earth Publishing. ISBN 978-1-55566-327-8. OCLC 53330849 (<https://search.worldcat.org/oclc/53330849>).

Further reading

- Christopher Heaney (2011). *Cradle of Gold: The Story of Hiram Bingham, a Real-life Indiana Jones and the Search for Machu Picchu* (<https://books.google.com/books?id=yupKeoiBOLcC>). St. Martin's Press. ISBN 978-0-230-11204-9. Retrieved 8 August 2023.
- Bingham, Hiram (1911). *Bingham's Journal 1911 Expedition* (https://archives.yale.edu/repositories/12/archival_objects/1283060). Collection MS 664. Series III, Box 18, Folder 1 y 2. Yale University Library.
- Bingham, Hiram (1922). *Inca Land: Explorations in the Highlands of Peru* (<https://www.gutenberg.org/files/10772/10772-h/10772-h.htm>) (2nd ed.). Boston: Houghton Mifflin.
- Bingham, Alfred M. (1989). *Portrait of an Explorer: Hiram Bingham, Discoverer of Machu Picchu* (<https://books.google.com/books?id=uF8aAAAAYAAJ>). Ames: Iowa State University Press. ISBN 978-0-8138-0136-0.
- Cosío, José Gabriel (1912). "An Excursion to Machupicchu, Ancient City" (<http://cbiblioteca.unsaac.edu.pe/revista/REVISTA02.pdf>) (PDF). *Revista Universitaria de la Unsaac*. **1** (2). Cusco: Universidad Nacional San Antonio Abad del Cusco: 2–22.
- Frost, Peter; Blanco, Daniel; Rodríguez, Abel & Walker, Barry (1995). *Machu Picchu Historical Sanctuary*. Lima: Nuevas Imágenes. OCLC 253680819 (<https://search.worldcat.org/oclc/253680819>).
- Kops, Deborah (2008). *Machu Picchu* (<https://books.google.com/books?id=57mqdKhFIF8C>). Twenty-First Century Books. ISBN 978-0-8225-7584-9.
- MacQuarrie, Kim (2007). *The Last Days of the Incas* (<https://archive.org/details/lastdaysofincas00macq>). New York: Simon & Schuster. ISBN 978-0-7432-6049-7. OCLC 77767591 (<https://search.worldcat.org/oclc/77767591>).
- Magli, Giulio (2009). "At the other end of the sun's path: A new interpretation of Machu Picchu". *Nexus Network Journal – Architecture and Mathematics*. **12** (2010): 321–341. arXiv:0904.4882 (<https://arxiv.org/abs/0904.4882>). Bibcode:2009arXiv0904.4882M (<https://ui.adsabs.harvard.edu/abs/2009arXiv0904.4882M>). doi:10.1007/s00004-010-0028-2 (<https://doi.org/10.1007%2Fs00004-010-0028-2>). S2CID 118625418 (<https://api.semanticscholar.org/CorpusID:118625418>).
- Masini, Nicola; Romano, Gerardo; Sieczkowska, Dominika (2023). "Non invasive subsurface imaging to investigate the site evolution of Machu Picchu" (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10519973>). *Scientific Reports*. **13** (1): 16035. Bibcode:2023NatSR..1316035M (<https://ui.adsabs.harvard.edu/abs/2023NatSR..1316035M>). doi:10.1038/s41598-023-43361-x (<https://doi.org/10.1038%2Fs41598-023-43361-x>). PMC 10519973 (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10519973>). PMID 37749316 (<https://pubmed.ncbi.nlm.nih.gov/37749316>).
- Reinhard, Johan (2007). *Machu Picchu: Exploring an Ancient Sacred Center*. Los Angeles: Cotsen Institute of Archaeology, UCLA. ISBN 978-1-931745-44-4. OCLC 141852845 (<https://search.worldcat.org/oclc/141852845>).
- Rice, Mark (2018). *Making Machu Picchu: The Politics of Tourism in Twentieth-Century Peru*. Chapel Hill: The University of North Carolina Press. ISBN 978-1-4696-4353-3.
- Richardson, Don (1981). *Eternity in their Hearts*. Ventura, CA: Regal Books. pp. 34–35. ISBN 978-0-8307-0925-0. OCLC 491826338 (<https://search.worldcat.org/oclc/491826338>).

- Weatherford, J. McIver (1988). *Indian givers: how the Indians of the Americas transformed the world* (<https://archive.org/details/indiangivershow000weat>). New York: Fawcett Columbine. ISBN 978-0-449-90496-1. OCLC 474116190 (<https://search.worldcat.org/oclc/474116190>).
- Eisenberg, Daniel [in Spanish] (1989). "Machu Picchu and Cusco" (<https://web.archive.org/web/20160313050543/http://users.ipfw.edu/jehle/deisenbe/JHPcolumn/MACHUPIC.htm>). *Journal of Hispanic Philology*. **13**: 97–101. Archived from the original (<http://users.ipfw.edu/jehle/deisenbe/JHPcolumn/MACHUPIC.htm>) on 13 March 2016.
- Wright, Kenneth R.; Valencia Zagarra, Alfredo & Crowley, Christopher M. (May 2000a). "Completion Report to Instituto Nacional de Cultura on Archaeological Exploration of the Inca Trail on the East Flank of Machu Picchu and on Palynology of Terraces Part 1" (<http://www.wrightpaleo.com/pdf/MP%20East%20Flank%20Report%20Pt%201%20Cover.pdf>) (PDF). Retrieved 14 January 2010.
- Wright, Kenneth R.; Valencia Zagarra, Alfredo & Crowley, Christopher M. (May 2000c). "Completion Report to Instituto Nacional de Cultura on Archaeological Exploration of the Inca Trail on the East Flank of Machu Picchu and on Palynology of Terraces Part 3" (<http://www.wrightpaleo.com/pdf/MP%20East%20Flank%20Report%20Pt%203%20Drawings.pdf>) (PDF). Retrieved 14 January 2010.
- Ziolkowski, Mariusz; Masini, Nicola; Bastante, Jose (2022). *Machu Picchu in Context. Interdisciplinary Approaches to the Study of Human Past* (<https://link.springer.com/book/10.1007/978-3-030-92766-0>). Springer Cham. doi:10.1007/978-3-030-92766-0 (<https://doi.org/10.1007%2F978-3-030-92766-0>). ISBN 978-3-030-92765-3. S2CID 253504097 (<https://api.semanticscholar.org/CorpusID:253504097>).

External links

- Official website of the Ministry of Culture of Peru (<https://www.machupicchu.gob.pe/?lang=en>)
- UNESCO – Machu Picchu (World Heritage) (https://whc.unesco.org/pg.cfm?cid=31&id_site=274)
- Stories on Machu Picchu by Fernando Astete, former Chief of National Archaeological Park of Machupicchu (<https://www.machupicc.hu/>)
- Plants and animals in Machu Picchu (<https://www.responsiblepeople.org/en/blog/machu-picchu-animals>) Archived (<https://web.archive.org/web/20231104173159/https://www.responsiblepeople.org/en/blog/machu-picchu-animals>) 4 November 2023 at the Wayback Machine

Images

- First photographs of Hiram Bingham in Machu Picchu (<https://historycollection.com/21-striking-photographs-machu-picchu-discovery/>)
- Archive of Fernando Astete, former Chief of the National Archaeological Park of Machupicchu (<https://iconoteca.arc.usi.ch/en/collection/1824>)

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