

SACRED ICE MELTING AWAY: LESSONS FROM THE IMPACT OF CLIMATE CHANGE ON ANDEAN CULTURAL HERITAGE¹

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Abstract: The high Andean Incan mummies represent an astounding feat of cultural preservation that reveals much about the peoples who left them, and their discovery is a tribute to the valor of the modern-day high-altitude archaeologists who have recovered, studied and preserved them. The intricate and delicate interconnectedness of the mummies, the modern cultural practices that descend from their original cultures, and the effect of climate change on the status of high altitude ice bring broad-scale lessons to those interested in the environmental and cultural landscapes of sustainability.

Keywords: Andes; mummies; South America; cultural practice; Quechua; climate change; Incans; pilgrims; ritual; archaeology

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Constanza Ceruti is an Argentinean anthropologist, who has become the only female specialist in the field of high altitude archaeology, studying Inca ceremonial centers on the summits of Andean mountains. She is Scientific Investigator of the National Council for the Scientific Research (CONICET) in Argentina and a Professor of Inca Archaeology at Catholic University of Salta. Dr. Ceruti has climbed over 100 mountains above 16,500 feet, within the context of systematic archaeological research, which has resulted in more than fifty publications, including six books. She has been twice on top of Aconcagua, the highest mountain in America, and on the summit of Pissis, the highest volcano in the world, as well as on several other peaks in Ecuador, Bolivia, Peru, Chile and Argentina. As project co-director in Johan Reinhard's expedition to the highest archaeological site in the world, she and Reinhard discovered three of the best preserved ice mummies, together with several gold and silver statues and sumptuary objects of typical Inca style. Her academic achievements have been recognized by the University of Buenos Aires with the Gold Medal. Her mountaineering achievements have been recognized with the Gold Condor, the most important award given by the National Army of Argentina. In 2005 she became an Emerging Explorer of the National Geographic Society. In 2007 she received the Courage Award from the Wings Worldquest. Her interest in mountains and anthropology goes beyond the vast Andes: she has been to the Nepal Himalayas, India, Egypt, Turkey, Greece, Greenland, Australia, Polinesia, United States, Italy, France and Mexico.

For many centuries, the role of mountains as custodians of the sacred ice and givers of life-sustaining water has been ritually acknowledged throughout the Andes. The religious belief in the sacredness of the Andean snowcapped peaks has led to some of the most remarkable climbing achievements in the history of humankind. These great and sacred mountains, the fascinating cultures of their inhabitants and the intrepid archaeologists and anthropologists who have explored them, hold a vast potential for educating about humans respond to long-term cultural and climactic change.

The Incas were the first humans to surpass altitudes above 20,000 feet in order to perform ceremonies involving offerings and sacrifices. The mountaintop shrines that they built on the summits of the highest volcanoes in the southern Andes are among the most interesting and less studied material evidences of their extraordinary empire (cf. Ceruti 1999, 2008). High altitude archaeology is a privileged way to combine our scientific interest in mountains and ancient civilizations in an effort to better understand the worldview of the Incas (and their descendants), while contributing to preserve their superb, but fragile summit shrines, for the generations to come.

The highest ceremonial site in the world is located over 22,000 feet, on the summit of an Andean volcano in northern Argentina. Five hundred years ago, three Inca children were sacrificed and buried on this lofty summit, to become messengers to the realms of the mountain spirits. They would intercede for the good health of the Inca Emperor and for a plentiful supply of water, to ensure the fertility of the llama herds and the abundance of the crops (Ceruti 2004; Reinhard and Ceruti 2010).

In Quechua, the language of the Incas, the name of this mountain, Llullaillaco, means “that lies about water, or hides away the water”. As a matter of fact, Llullaillaco is the only mountain in the area to have a permanent ice field on its high slopes, almost like a small hanging glacier. But the volcano gives origin to no streams or rivers that might quench the thirst of the Atacama desert at its feet. The water that melts from the icy heights is held in a hidden lagoon, above 18,000 feet (cf. Ceruti 2003; Reinhard and Ceruti 2000).

In March 1999 I was project co-director in an archaeological expedition to mount Llullaillaco, led by Johan Reinhard and funded by the National Geographic Society. The frozen bodies of the three Inca children that we eventually discovered after almost one month of archaeological fieldwork, enduring the cold and the extreme altitude of the peak, turned out to be the best preserved ice mummies in the world (cf. Ceruti 2010a; Figure 1). The sense of wonder would only grow stronger when we studied the fifteen year old Inca maiden, the seven year old boy and the six year old girl in the laboratories at Catholic University of Salta. The CT scans would reveal that all their organs, including the brains, were in a nearly perfect state of preservation after a time span of half a millennium (Previgliano et al. 2003). Isotopic analysis on hair showed significant changes in their diet during the months prior to their death (Wilson et. al 2007). The associated offerings, which included more than one hundred objects of typical Inca style, were also carefully studied (cf. Ceruti 2003; Bray et. al 2005).



Figure 1. Constanza Ceruti discovering Inca mummy on the summit of Llullaillaco (copyright Constanza Ceruti)

Thirteen years have gone by since our discovery of the Llullaillaco ice mummies, and their presence among the living has clearly contributed to raise awareness about the urgency of preserving the cultural heritage of the Andes. Looting and plundering are among the major threats to the archaeological sites in South America, and the Inca mountaintop shrines are no exception: on a previous expedition to the 20,000 feet summit of nearby mount Quehuar, we had rescued a partly destroyed mummy bundle that had been dynamited by treasure hunters (Reinhard and Ceruti 2005).

Global warming is a somewhat more silent destroyer of the heritage of the Andes. Residents in Salta have concluded that the discovery of the Inca mummies from Llullaillaco happened just in time, before the frozen bodies of the three children might start to be affected by the progressively higher temperatures in the summertime. Not only are the archaeological evidences endangered by the impact of climate change: the cultural practices of the descendants of the Incas are also threatened. The retreating glaciers have a significant impact in the religious life of the Andes, which became clear in the field, as I was documenting a massive ceremony on the slopes of the Vilcanota Range, in the Andes of Southern Peru.

The festivity of the Star of Snow is one of the most important mountain pilgrimages in the Andean world. About 70,000 people gather at the glacier basin of Sinacara every year during the month of June (Figures 2). As a result of the syncretism with Catholicism, the festivity is nominally dedicated to the worship of an image of Christ depicted on a sacred rock, in the place where Jesus is said to have miraculously appeared to a young indigenous peasant in the eighteenth century. However, one of the main reasons why the place is recognized as sacred is that it is perceived to be under the sphere of influence of nearby Ausangate, a mountain most sacred to the ancient Incas and to the modern Quechua ritual experts, invoked during their initiation ceremonies and divination rituals.



Figure 2. The glacier basin of Sinacara in the Vilcanota Range of Peru (copyright Constanza Ceruti)

The vast majority of devotees who visit the glacier basin during the festivity of the Lord of the Star of Snow come from the Peruvian Sierras and the Bolivian highlands, although a few of them arrive from places as distant as northern Argentina and Chile (the former territorial extension of the Inca Empire). Although some of the participants come as lay pilgrims, or even merchants, thousands of them gather as religious dancers. The dancers wear costumes that represent different ethnic groups in the Andes. The *qhapaq chunchos*, adorned with feathered headdresses, incarnate the indomitable Amazonian tribes of the lower slopes of the eastern Andes; whereas the *qhapaq collas* impersonate the wealthy

Aymara herders from the Bolivian highlands. During the five days of the festivity, at an altitude of near 17,000 feet, they dance for hours, at daytime and at night. Their impressive demonstration of physical endurance is meant to be in itself an offering to the nearby mountain spirits or *Apus*, especially to *Apu Ausangate* (cf. Ceruti 2007a and 2007b).

The place of gathering is located at the foot of a snowcapped peak called *Qolque Punku*, the Silver Gate. The Quechua name of the pilgrimage, *Taytacha Qoyllur Ritti* (Father of the Star of Snow), recognizes the crucial role of the mountain ice. As a matter of fact, the glaciers that come down from mount Qolque Punku are ritually climbed during the climax of the festivity, in search for sacred ice that is revered for its healing properties. The mission is entrusted to the young “bear-men” known as *ukukus*, who are perceived as mediators between the pilgrims and the mountain spirits. The *ukukus* are expected to climb up to the glaciers at night, braving the freezing temperatures, the crevasses, and the fear of the ghosts of the condemned souls, in order to retrieve the sacred ice that will bring health and fertility to their households (Figure 3).



Figure 3. The *ukukus* about to climb the glacier during *Qoyllur Ritti* (copyright Constanza Ceruti)

Traditionally, the bear-men would extract large chunks of ice - as big as they could carry on their backs - , and return to their home communities, where the ice would be distributed among the villagers, as a powerful material symbol of the blessings from the *Apu* mountain spirits. However, things have started to change in the last few years, and global warming is to be blamed.

I remember seeing dozens of bear men descending the glaciers of Qolque Punku, but to my surprise, many of them were coming down the mountain empty-handed. At one time, I was delighted to notice a bear man rushing down the hill with a heavy chunk of ice on his back. Innocently, I thought that he was trying to get to his village before the ice melted on his back, until someone explained that he was running fast to avoid being stopped by the “mountain police”. That is how I learnt that extracting the sacred ice is no longer permitted: pilgrims are only allowed to collect melted ice in small water bottles that they can take home as substitute relics.

The man who was explaining the situation to me was himself an *ukuku*. He carried a doll, representing a miniature bear-man, on whose back he had placed a handful of ice, in the hope that he would be able to “smuggle” the sacred cargo down the mountain, without catching the attention of the policemen (Figure 4). If caught, however, he could always put the blame on the doll, as he said with a picaresque smile. With a saddened heart, I could not help but admire his firm determination to faithfully honor the ancestral traditions, in spite of adversity. But I also admire those who to carry only the water instead of the ice, in order to assist in the preservation of the glaciers.



Figure 4. Doll with ice at Qoyllur Ritti (copyright Constanza Ceruti)

Pilgrims, including very young children, traditionally climb up the lower sections of the glaciers in daylight, to light candles on the ice (cf. Ceruti 2010b). Bare footed, kneeling on the snow, they may pass hours watching the candles burn. Their silent prayer is combined with a careful contemplation of the flame, intended to provide them with answers to their most intimate concerns. Surely they would have preferred to use larger candles, of the kind that the Lord of the Star of Snow is said to like best. But in recent times, they are only allowed to light small candles. Sometimes they cannot complete their traditional rituals a policeman is likely to ask them to put the candles away, in a desperate attempt to stop the glaciers from retreating.

The ice of the snowcapped peaks has always been a precious source of water that makes life possible in the Andes. That simple truth has been sacred to the hearts of the Andean people, who look upon the mountains as deities. For five centuries, the highest volcanoes have been the custodians of ancient treasures offered by Inca pilgrims, including the frozen bodies of the children selected to be messengers to the mountain spirits. Today, the preservation of Andean mummies is endangered, not only by looting, but also by global warming (Reinhard y Ceruti 2006).

The descendants of the Incas still go on pilgrimage to pay homage to the mountain spirits. The sacredness of the ice is enhanced with the healing and fertilizing qualities attributed by the reverent footsteps of the brave native bear- men. However, the ancestral rituals are changing due to the retreating glaciers caused by global warming, and Quechua people are in fear that once the ice is gone, the Lord of the Star of Snow will no longer listen to their prayers.

As sad as it must be to see Andean peoples forced to change their ritual worship of their mountains, it is also remarkable to discover how understanding and accommodating they have proven to be. By avoiding the extraction of larger pieces of ice and the use of large candles in order to preserve the snow cover on the mountain, they are setting an example of selflessness and mindfulness that should be acknowledged and followed beyond the Andes.



Figure 5. Constanza Ceruti and condor-dancers representing the mountain spirits at Qoyllur Ritti (copyright Constanza Ceruti)

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