In March 1999, near the summit of Argentina's Mt. Llullaillaco, in one of the most electrifying discoveries of his life, Johan Reinhard and his colleagues discovered this mummy, an Inca girl, and those of two other Inca children. "At a personal level, a wish I'd had for years was fulfilled – I had looked into the face of an Inca," he later said.

HIGH-ALTITUDE ANTHROPOLOGIST

Johan Reinhard's 1995 discovery of the 500-year-old Inca "Ice Maiden" (above) could easily have been the apex of his life. One of the best-preserved bodies from pre-Columbian times thrilled millions worldwide, unleashing a wealth of knowledge. Yet the high-altitude cultural anthropologist and archaeologist was not satisfied with this achievement. He was convinced that better-preserved mummies were yet to be found on remote Andean mountain-tops. And, as the looting of ancient sites became a global business, he was determined to rescue and preserve the patrimony of the Andean people.

Everything about Johan Reinhard's discovery of "Juanita, the Ice Maiden" in September 1995 was remarkable. A unique set of circumstances converged, placing the 1987 Rolex Laureate on top of Peru's Mt. Ampato at the best possible moment.

After a successful summer spent searching out sacred Inca ruins on Andean peaks, Reinhard decided at the last moment to photograph an erupting volcano near Mt. Ampato. He had a "wish list" of peaks he planned to excavate, but Ampato was low on his list. Permanently swathed in ice and snow, it seemed to Reinhard the least likely place where the Incas might have built ceremonial structures for human sacrifice. His interest was in taking photos, and he planned a fast ascent.

His newly released book, "The Ice Maiden", recounts the riveting moment when Reinhard and his assistant stumbled upon the young sacrificial victim lying exposed near the 6,310-metre-high peak. Fresh volcanic ash had melted portions of an ice field, and part of the summit ridge where she was buried had collapsed. Bundled in alpaca wool, the Ice Maiden had tumbled out, tearing open the cloth, exposing her face to the sun and leaving it desiccated. For Reinhard, it was a harrowing race to get her safely off the mountain before looters, volcanic ash or snowfall destroyed her. Within days, both the Ice Maiden and Reinhard were launched into the international spotlight and the annals of scientific history.

"The Ice Maiden was discovered by chance, it had its own kind of drama," Reinhard remembers. "It was an incredible adventure and I knew it was going to be an important discovery right at the time of finding it."

Christened "Juanita" by the team of specialists who first examined her, the young girl's body was naturally mummified, or preserved. Experts define mummies as any "ancient cadaver" whose soft tissue has resisted decay. The rapid freezing of body tissues and organs with little decomposition, common to Andean mummies, made the Ice Maiden one of the world's best-preserved mummies and the first frozen female mummy found in the Andes. The mummy promised scientists an abundance of human biological information, including the rare opportunity to undertake complex DNA and pathological studies.

In the ten years since, with ongoing research, much has been learned about the 13- to 15-year-old girl who died from a blow to the head. Carbon dating showed she lived about 530 years ago;

This Inca boy (above) was found by Reinhard's team on Mt. Llullaillaco in 1999, along with plates, drinking vessels, statues and food, such as maize and peanuts. Ancient Andean worship still lives on (left). Here a dancer and villagers honour Mt. Ausangate in Peru. Legend has it that when the snows recede from the mountain, the world will end.

pollen from 17 plants was found embedded in her clothing. When a more complete database of DNA from the Andes is in place, there is a very real possibility that her closest living relatives will be traced.

Twists of fate are not unusual in Johan Reinhard's life, but to chalk up his discovery to mere chance would be a disservice to the decades he has spent toiling under gruelling conditions with limited funds. Early on, he became interested in sacred geography – physical landscapes worshipped by the mountain people of the Himalayas and the Andes, and sacred mountains in particular. He also embraced the riskier approach of broadening his research to cover different places in different continents, instead of tightly focusing on just one archaeological site.

For Reinhard, there was nowhere to go but up. "The Incas built houses and structures at high altitude. You don't find that anywhere else in the world," he points out. He believed that high-altitude sites held the greatest promise of finding well-preserved artefacts, textiles, and mummies. He wanted to answer the lingering question of why the Incas scaled heights that no one else could reach.

Many of their sites were above 6,000m. That was fine with Reinhard. He had once spent a month at 6,700m in the Himalayas, and felt that with climbing experience, fitness and acclimatisation, proper scientific excavations could be carried out at high altitude on a short-term basis.

He was one of the few scientists interested in working at extreme alti-

tudes. Besides contending with fierce weather conditions and lightning strikes, it also meant trying to excavate objects from rock-hard, frozen earth. Shortness of breath, fatigue, headaches and nausea were hazards of the job. A veteran mountaineer who had participated in a 1976 Mt. Everest expedition, Reinhard nonetheless saw high-altitude work as the perfect melding of his two greatest passions: climbing and archaeology.

His strategic focus on high-altitude Inca sites and his use of science, theory and technique played a major role in the advancement of high-altitude archaeology, making him one of its most expert practitioners.

Before finding the Ice Maiden, Reinhard had spent 15 years in the Andes, scaling over 100 peaks in search of sacred Inca sites. Today he has surpassed that, with 200 ascents over 5,000m and the discovery of 50 high-altitude, ritual sites.

Although Juanita's discovery was a stunning archaeological feat, it still left Reinhard with one unfulfilled wish: to find a completely frozen mummy in perfect condition. Juanita's desiccated face had been a disappointment.

More than that, he wanted to find sites that were as intact as possible. Artefacts and human sacrifices could then be excavated in their original context, providing an accurate picture surrounding ritual acts. For example, statues recovered in the past were unclothed. But at undisturbed sites, Reinhard found them clothed.

From 1995 to 1999, the rugged archaeologist set an astonishing pace, tackling peaks that seemed to yield one extraordinary find after another. Reinhard and his co-expeditioners found 14 human sacrifices on five mountains. Within weeks of Juanita's recovery, Reinhard and an 18-member expedition funded by the National Geographic Society were back on Ampato, discovering two more mummies below the summit. They unearthed an exquisite multi-coloured, feather head-dress, richly hued textiles, pottery, and delicate gold and silver figurines.

The Incas worshipped the mountains as gods and believed that the mountains controlled the weather. They made human sacrifices during periods of natural disasters, such as events that affected the fertility of crops and animals that sustained the people. They ascended the mountains with their most precious offerings: children, chosen because of their purity. Boys and girls were sometimes sacrificed in pairs, part of a symbolic marriage. They were often strangled or smothered before they were entombed near the high-altitude ceremonial sites.

Mountains and rivers key to Andean beliefs

The reasons why the Incas climbed so high to make their sacrifices are complex. But, as Reinhard has written in an article in the journal *Mountain Research and Development:* "The mountain deities were seen as essential for the fertility of the livestock and fields, and it was primarily in their position as controllers of meteorological phenomena that they gained such an important position in Andean religion. Such beliefs clearly predate the Incas and have been found throughout the Andes. Indeed, they are based on basic

ecological facts: rain, clouds, and lightning often originate in mountains, and rivers lead down from them."

A 1996 expedition to Peru's 5,669m Pichu Pichu uncovered two more mummies and one of the biggest silver Inca statues Reinhard had ever seen. A short time later, on 5,505m Sara Sara, Reinhard and his team of Peruvian archaeologists uncovered silver shawl pins that fastened the tunics of sacrificial victims, seven Inca statues, rare artefacts and a skeletal female mummy. A return trip to Ampato yielded another mummy, the fourth found on the mountain.

"I kept coming across mummies [many of them buried on mountain summits] that were hit by lightning or decomposed," he explains. "I knew how important it would be for science and for the Peruvian people to find better preserved mummies."

All along, Reinhard was pioneering another approach that was, until then, little used in Andean exploration. The sacred aspects of a physical landscape were often ignored. He made it a priority to study the surrounding terrain before he focused on the actual ruins. He also came armed with as much historical and ethnographic information as he could find.

"What aspects of landscapes could have been considered sacred based on the orientations of ceremonial structures and the locations of the complexes? You begin to see patterns arise," he says.

In March 1999, he stood near the summit of Argentina's Mt. Llullaillaco, a vast, powerful place that prompted him to call it his "mountain of dreams". At 6,739m, Reinhard, Argentinian archaeologist Constanza Ceruti (expedition deputy director) and their team were excavating what Reinhard describes as the world's highest archaeological site. Ragged coughing fits due to asthma left him in extreme pain. It was one of the toughest and most challenging expeditions he had ever mounted, but, in the end, the most rewarding. As they worked, his assistants called out their finds: rare Spondylus shells, dozens of gold and silver statues, vessels, clothing, beautiful textiles. Then, the electrifying moment when they realised they had found three young children, two girls and a boy. Frozen solid only hours after their burial, they were the most perfectly preserved mummies ever found, in far better condition than the Ice Maiden.

Discoveries bring pride to local communities

Today, full scientific analysis of the Llullaillaco mummies continues. The cause of their death is still unclear; experts studying the mummies speculate they may have been drugged or buried alive. Their internal organs – including the brain, especially fragile and perishable – survived intact. Researchers were astonished to find liquid blood in their bodies – an "explosive find", as Reinhard puts it in "The Ice Maiden". Through DNA, they linked one of the mummies to people living in a southern Peruvian village, once part of the vast Inca Empire.

These mummies will continue to provide valuable scientific knowledge for years to come. In the meantime, they have brought pride to the Andean people and have helped to revitalise cultural indigenous traditions. They

have been celebrated through tours, plays and ceremonial re-enactments.

Until recently, funding for high-altitude archaeology was almost non-existent and Reinhard faced a struggle over the years to garner even small grants to fund his research. Few sponsors were willing to commit money to projects that offered little guarantee of actually finding anything. According to Reinhard, Rolex was the first one that did so.

Saving ancient sites from looters

His 1987 Rolex Award allowed him to pursue another three years of exploration and research. The Award money covered underwater archaeological research at Lake Titicaca and a portion of the Award paid for an expedition to Pichu Pichu in 1989. The funding enabled him to continue his Andean research, paving the way for his startling discovery of the Ice Maiden.

On one general obstacle faced by many archaeologists – criticism that they are "desecrating" people's graves – Reinhard is tough-minded and blunt, pointing out that such criticism is usually made by people who have little understanding of his work or actual field conditions. Too many times he has discovered scattered bones and shards of ancient textiles from raided tombs atop mountains. Some sites are picked clean. Two weeks before ascending Mt. Llullaillaco in early 1999, Reinhard and Ceruti's team carefully excavated the remains of a mummy whose head had been blown off by dynamite on the slopes of Argentina's Quehuar Mountain.

To choose not to protect or to excavate archaeological heritage sites virtually guarantees the eventual destruction or loss of priceless Andean history. "Anybody who has any experience in the Andes knows that archaeological sites are being looted like crazy," he says.

It would surprise many to learn that despite his expert knowledge in Inca mummies, he is not a mummy specialist. Nor are the mummies his property, as some wrongly believe. They belong to the national government, therefore to the people of the country where the mummy is found. Reinhard says his role is to try to do "scientific excavations" and to make sure the materials are properly conserved, an issue that is of paramount importance to him. "It's never about my personal interests or about advancing my career. The number one thing is: what's best for the mummies and the artefacts?"

On another delicate issue – the deaths of the children who were sacrificed – Reinhard points out that the sacrifices took place within a socially approved context – only the emperor could approve them – and with the understanding that the children would be entering into the realm of the gods to live on for eternity. "In essence they became deified and some were even believed to speak with their living relatives through the mouths of priests," he explains.

Three museums – the Museo Santuarios Andinos (Andean Sanctuaries Museum) in Arequipa, Peru, and the Museo de Arqueología del Alta Montaña (Museum of High Altitude Archaeology), in Salta, Argentina, along with one at Lake Titicaca – have been built specifically to feature the mummies, artefacts

Among the many precious finds on Mt. Llullaillaco in 1999 were llama figurines and two male figures made from Spondylus shell and gold and silver, all placed in a row – a symbolic caravan.

and restored textiles from expeditions where Reinhard has acted as director or co-director.

Currently an Explorer-in-Residence at the National Geographic Society, Reinhard is also a Senior Research Fellow at the Mountain Institute in West Virginia, United States. As a Visiting Professor at the Catholic University in Salta, Argentina, and an Honorary Professor at the Catholic University at Arequipa, Peru, he remains actively involved with research on the mummies. He also served on the Rolex Awards Selection Committee in 1998.

Early in his career, he spent several years in Nepal and Tibet, researching what role sacred mountains played in different religions, particularly Hinduism and Tibetan Buddhism. He intends to return to the Himalayas soon to pick up where he left off in the 1990s.

As a boy, Reinhard dreamed of becoming a scientific explorer, an ambitious goal that led him to a stellar career in anthropology. "I'd like to be seen as an explorer who has made contributions in discoveries of both types: of materials and of theory. I've always thought that it was important to be in the field to have a better understanding of mysteries, whether they concern people or archaeological sites. There is never an end to it."

He has a deep admiration for the "audacious" feats of the Incas, from their superior mountaineering skills to their creation of a vast, great empire with a rich culture. Following in their footsteps, Johan Reinhard has carved out his own audacious path.

Text: Lynne Schuyler
Photos: Archives, Johan Reinhard

Johan Reinhard's latest book, "The Ice Maiden: Inca Mummies, Mountain Gods, and Sacred Sites in the Andes", was published by the National Geographic Society in June, 2005.