

As globe warms, melting glaciers revealing more than bare earth

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As a result of warming temperatures, Mexico's tallest volcano, Pico de Orizaba, is performing an all-natural striptease, the ice patches near its summit melting away to bare rock.

The same process is taking place in the permafrost of Russia, the ice fields of the Yukon and the glaciers of New Zealand. And as the once-frozen world emerges from slumber, it's yielding relics, debris - and corpses - that have laid hidden for decades, even millennia.

The thaw has unnerved archaeologists, given hope to relatives of lost mountain climbers and solved the mysteries of old plane crashes.

What emerges is not always apparent - or even pleasant. That pungent smell? It's a massive deposit of caribou dung in the Yukon that had been frozen for thousands of years, and now is decomposing in the air, its sharp odor unlocked.

Pico de Orizaba towers above all other mountains in Mexico at 18,491 feet. It is the highest peak in North America after Mount McKinley in Alaska and Mount Logan in Canada's Yukon Territory. A challenging dormant volcano, Orizaba is a training ground for those interested in high-altitude climbing.

For a handful of climbers, it has been their last peak. They've been buried by avalanches or swallowed by crevasses. Now, the mountain is spitting back their bodies.

Late in February, a climbing party circled the jagged crater atop Orizaba.

"One of them slipped, and they later said he skidded down and came to a stop. When he got up, he saw a head poking out of the snow," said Hilario Aguilar Aguilar, a veteran climber

It was a mummified climber, a member of a Mexican expedition hit by an avalanche on Nov. 2, 1959. Some climbers fell near the Chimicheco Ridge, their bodies frozen in an icy time machine, only to re-emerge 56 years later.

Hearing of the macabre discovery, prosecutors dispatched Aguilar and other climbers March 4 to document the scene of death.

"Upon clearing away some snow so that I could take some photographs, I saw another hand. Suddenly, there were one, two, three hands. It didn't seem possible. Digging a little more, we discovered that there was another body," Aguilar said.

The natural fiber rope connecting the two bodies had disintegrated to little more than a stain in the ice, he added. Aguilar said one of the mummified climbers appeared to be wearing remnants of a red sweater.

"I tried to bring a piece as a sample, for evidence, but it turned to dust when I touched it," he said, adding that the mummified bodies are unlikely to be retrieved from the mountain until weather clears, perhaps in November.

Then word came of another body, this one at an oxygen-deprived elevation of about 16,900 feet on another side of the crater. Aguilar and his crew went up June 4 and brought the body down on a metal gurney, dragging it down a steep scree slope.

Wearing a suit inappropriate for a freezing clime, the victim may have been thrown from a small plane that crashed on Orizaba in 1999, although his identity is not yet known.

Elsewhere around the world, explorers and scientists are stumbling upon mountainside plane wrecks, finding mummified Incan children, and discovering a frozen graveyard of ancient marine reptiles once hidden under a Chilean glacier.

Archaeologists are turning into unlikely beneficiaries of a warmer Earth, and several have started a new publication: the Journal of Glacial Archaeology.

Its editor, E. James Dixon, an anthropologist at the University of New Mexico, frets about the phenomenon of ancient ice melting after thousands of years.

"For every discovery that is made, there are thousands coming out of the ice and are decomposing very rapidly," Dixon said. "In the ice, some of the most delicate artifacts are preserved. We've found baskets, arrow shafts with the feathers intact and arrowheads and lashings perfectly preserved."

Once the ice melts and the artifacts are exposed, they decay quickly.

Norwegian archaeologist Lars Holger Pilo said that about 3,500 artifacts have been found near melted ice patches and glaciers around the globe, with more than half in his country.

In Norway's Oppland County, only short distances separate valleys from mountains, where caribou once gathered on ice patches to flee swarming insects. The ice patches, which are immobile and distinct from moving glaciers, became hunting grounds for ancient people.

Starting with a warm summer and autumn in 2006, Pilo said ice patches have melted significantly, revealing weapons, tunics, shoes and other implements, including a complete arrow shaft dating from 5,900 years ago.

"They look exactly as they did when they were lost. It's like they were in a time machine. Once they are out, the clock starts to tick. They deteriorate rapidly," he said. "We used to get Iron Age implements. Now, we're starting to get the really old Stone Age arrows."

The most notable discovery of a mummified body coughed up by a melting glacier occurred in 1991 in the Italian Alps, where two German tourists found a 5,300-year-old mummy, dubbed Otzi the Iceman, presumably a high-altitude shepherd.

In 1999, high-altitude archaeologists found three mummified Incan children near the summit of towering Llullaillaco mountain in the Argentine Andes, the highest Incan burial ever discovered. The Incans performed such sacrifices to propitiate mountain spirits and serve as messengers to the other world.

Ill-fated modern mountaineers are also melting out of glaciers.

Hikers in Canada's Columbia Icefields in 2010 came across the body of an American, William Holland, 38, who fell off a precipice and was subsequently buried by an avalanche in 1989. His body was so well-preserved that his spiked boots were still on his feet and his climbing rope was still coiled around his body.

Last month, the body of a New Zealand teenage climber, David Erik Moen, was returned to his family 42 years after an avalanche near Mount Cook in the Southern Alps buried him.

Another glacier and icefall in the area, Hochstetter, spit out human remains in March. News reports say police are still working to provide an identity.

In Canada's Yukon Territory, melting has sparked new interest in finding the wreckage of lost aircraft.

"I'm actually investigating a cold case," said Gerald Holdsworth, a glaciologist and member of the Arctic Institute of North America at the University of Calgary. The crash involves a Norseman single-engine bush plane that went down in 1951.

"We think that the plane hit a mountain, Mount Eaton, at no more than 6,000 feet," Holdsworth said.

Aircraft wreckage and relics alike, he said, are "being uncovered by melt down and melt back of glaciers worldwide."

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