

Mount Pelée, Martinique 1902-2002

Christina Reed

Nuée Ardente

One hundred years ago, government officials in Martinique made the mistake of assuming that, despite signs to the contrary, Mount Pelée would behave in 1902 as it had in 1851 — when a rain of ash from what they considered a benign volcano surprised, but did not harm those living under its shadow. Not since Mount Vesuvius in A.D. 79 had anyone ever seen the kind of pyroclastic surge of hot gases that would rush over the port city of St. Pierre on May 8, at speeds between 130 to 150 meters per second, about 500 kilometers an hour, with scorching temperatures of 200 to 500 degrees Celsius. This sort of incandescent cloud became

known as a nuée ardente, now considered the signature characteristic of a Peléean-type eruption.



The politicians had an election coming up on May 11, 1902, and the threat of an actual eruption was a secondary concern for the heads of the predominately white conservative ruling party. Elected senator in 1899, socialist Amédeé Knight, a black man educated in Paris, gave voice to Martinique's racial majority of blacks and mixed-race French citizens. To the minister

of colonies in Paris, the possible socialist party gains in the 1902 election posed a greater threat than Pelée.

Mount Pelée rises over the harbor city of St. Pierre in Northwestern Martinique. Today's modern buildings rest on the charred remains of the earlier foundation. Ruins serve as the city's prime tourist attractions. Photo by Christina Reed

The majority of the conservative voters lived 6 kilometers south of the volcano in St. Pierre. The modern French scholar Solange Contour wrote in 1989 that the minister of colonies in Paris ordered Governor Louis Mouttet to keep the citizens of St. Pierre in the city until after the election.

But for many weeks prior to the election, the volcano warned of its choked-up nature, and a few hundred prescient residents who could afford to travel left anyway. Pelée had gurgled to life earlier in the year, spitting a rain of ash and burping sulfuric gases over its neighboring towns to the point where horses were reported collapsing in the streets from asphyxiation. On April 23, the Étang-Sec, or dry pond crater, exploded. An investigation party climbed the volcano on April 27 and saw water again pooled in the crater and the emergence of a growing ash cone. The governor set up a commission of inquiry to study the volcano's activity.

On May 5, water heated from fumarolic activity burst through the rim of the crater wall. The escaping lahar pummeled its way down the valley of the Blanche River, killing 23 workers in a rum distillery. Despite this activity, the commission deemed Pelée did not warrant a departure from St. Pierre. The editor of the local paper *Les Colonies* supported this decision, touting the city as safe. Indeed thousands of people from neighboring ash-deluged towns

sought refuge at St. Pierre, exploding the population to about 28,000. To reassure the populace, the governor and his wife returned to St. Pierre from Fort-de-France on May 7. On the morning of Thursday, May 8, 1902, the bells of the cathedral in St. Pierre rang out. Rum ships as usual waited in the harbor. But this being Ascension Day, many of the Roman Catholic merchants — instead of trading their usual fares of liquor, sugar cane, fish and spices — were in the cathedral praying for deliverance from the volcano. Indeed, because of the ash, general sickness and despair pervaded the city, and most of the shops had been closed for days.

Shortly before 8 a.m. on May 8, witnesses such as Roger Arnoux, a member of the Astronomical Society of France who was located safely out of reach of the volcano, reported hearing a tremendous explosion from Pelée and seeing a dark cloud traveling swiftly up and out from the crater, hugging the ground on a path toward St. Pierre.

The nuée ardente overwhelmed St. Pierre, melting the master cathedral bell into a crumpled mass and setting fire to the ships in the harbor. Only two men walked away from the scorched city, their skin burned but their clothes intact — the hot cloud of ash had passed too quickly for the fabric to ignite. Historical accounts report that the cobbler Leon Compère-Léandre, 28, was sitting outside on his doorstep when the peripheral of the nuée ardente passed through the neighborhood. He ran inside to seek shelter, his legs and arms burning. Others who had been walking along the street quickly followed him. While Compère-Léandre escaped suffocating on the ash, those people only a few feet away from him when the cloud hit did not.



On May 8, 1902, Pelée erupted with a catastrophic nuée ardente, or glowing avalanche, scorching the city of St. Pierre, 6 kilometers southwest of the volcano. On May 20, another eruption again covered the city. Isreal Cook Russell took this photo facing northeast, looking over the devastated St. Pierre from the slope of Morne d'Orange on May 22, 1902. Archival Photo #904, courtesy of the USGS.

The second survivor, 25 year-old Auguste Ciparis, had been imprisoned in a small stone jail. While the cloud passed over the prison, cooking the interior like a kelm, the poor ventilation protected Ciparis from breathing the searing ash. After the eruption he sustained himself on a small bowl of water for three days until visitors searching the grounds heard his cries. Subsequently pardoned, “the prisoner of St. Pierre” spent the rest of his life displaying his scars in the Barnum and Bailey Circus.

Keeping an eye on Pelée

For the last 70 years, Mount Pelée has rested dormant in the Lesser Antilles of the Caribbean — providing an excellent opportunity for volcanologists and tourists to clamber up its slopes and hike the trail to the summit. This month an expected 100 scientists will visit the island for a symposium commemorating the centennial since the volcano’s May 8, 1902, eruption, which claims infamy as the deadliest eruption of the 20th century. It killed an estimated 28,000 people in the city of St. Pierre.

While the signs of impending danger were obvious, authorities at the time gave false assurances that were echoed in the local newspaper. The resulting death and devastation was the impetus for establishing volcano observatories. In 1847, Italian scientists initiated the

trend with their monitoring station for Vesuvius. Following the disaster of 1902, Alfred Lacroix built the world's second observatory on Martinique. But after a few years, the volcano became quiet and the observatory was decommissioned in 1925 — just shy of Mount Pelée's 1929-1932 eruption events. During this later activity, geologist Frank Perret monitored the volcano and re-established a permanent observatory. After visiting St. Vincent and Martinique in 1902, Thomas Jaggar of the Massachusetts Institute of Technology began lobbying for an American volcano observatory. After searching worldwide for a suitable location, he pitched the idea of building the site in Hawaii. In 1912, construction on the north rim of the Kilauea caldera began for what would become the Hawaiian Volcano Observatory run by the U.S. Geological Survey. Its first monitoring device was a single seismograph.



Today Jean-Pierre Viode and his team at the Observatoire Volcanologique de la Montagne Pelée monitor the volcano from 8 kilometers away. “Building an observatory at the top of a volcano is not such a good idea,” remarks electronic engineer Patrick Tuchais. Radio waves connect the scientists to the instruments on Pelée's summit and flanks. They use a variety of seismic sensors, tiltmeters measuring ground deformation and magnetic field sensors, and keep both paper and computer records of the information they gather. Only a few volcanic earthquakes shake the island each year, but should Pelée awaken, “the Volcanic Observatory can see new activity months before an eruption,” Viode says. He finds life on the island “very exciting, for a volcanologist.”

Jean-Pierre Viode, above, at the Observatoire Volcanologique de la Montagne Pelée. Viode works with a team of researchers monitoring Pelée's activity. Should the volcano awaken again, the observatory staff will be ready to warn neighboring towns and cities. Besides St. Pierre, Pelée also destroyed the town of Morne Rouge, killing close to 1,500 people in August 1902. The later efforts of scientists Alfred Lacroix and Frank Perret in monitoring Pelée helped in preventing further death tolls during the more recent eruptions of 1929 to 1932. Photo by Christina Reed
