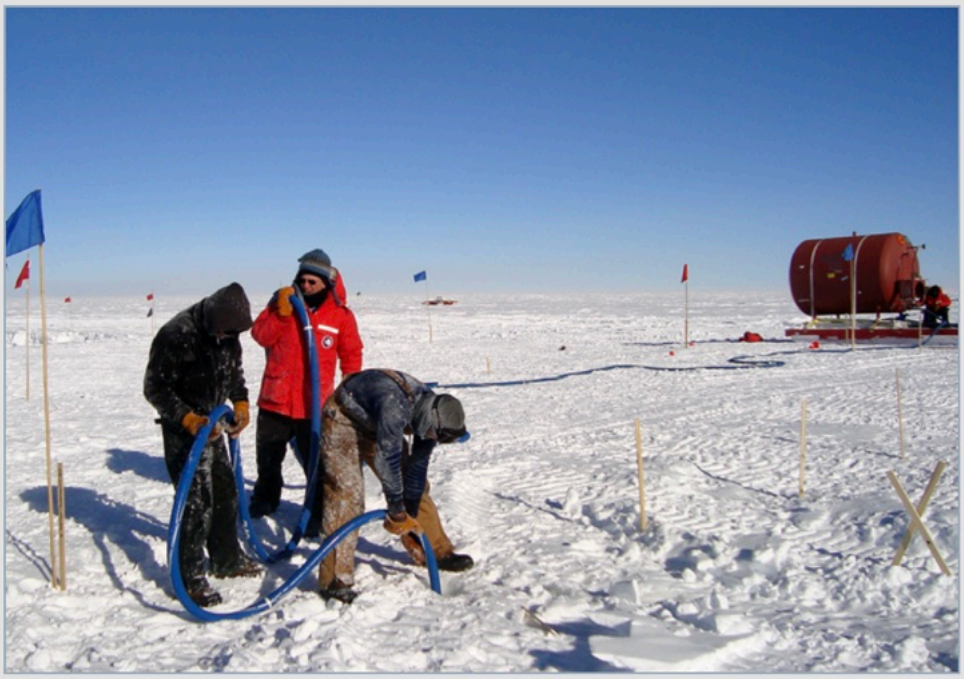

Photo Credit: Andy Martinez

Keith Frazer, assistant explosive handler, John Rand, consultant engineer for CRREL and Jason Dietz, general assistant, from left, use a hotwater drill system to make a hole in the snow above Old Pole so explosives can be lowered down. The area above the first South Pole Station had become unstable.

Blast to the past

Demolition of 'Old Pole' under the ice removes safety hazard

BY PETER REJCEK, ***ANTARCTIC SUN*** EDITOR
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"Good. Let's get the hell out of here."

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— Adm. George Dufek to his men as they started to succumb to frostbite soon after arriving at the South Pole and planting the American flag on Oct. 31, 1956.

And then there was one.

The United States has built three research stations at the South Pole since Adm. George Dufek's hasty retreat nearly 55 years ago. Now only the latest generation — a gleaming facility built on stilts — remains.

Last year, the U.S. Antarctic Program disassembled the iconic Dome Station after it had far outlived its shelf life. [See previous article: Deconstruction of the Dome.] This austral summer, the original station, built in little more than a month by a handful of U.S. Navy Seabees for the International Geophysical Year (IGY) of 1957-58, was demolished for safety reasons.

"It took a lot of effort and a lot of people. But we got it done in a timely fashion," said Andres Martinez, South Pole Technical Support manager, from the comfortable confines of his office in what most Polies still refer to as the new station several years after its official dedication in January 2008.

[See previous article: A new era.]

Martinez led the effort to finish a job that Mother Nature had begun not long after members of the Seabee construction battalion departed in January 1957, as drifting snow and ice quickly buried the buildings. The station was intended to last only a couple of years, but the scientific campaign was so successful that the United States and many of the other nations involved in the IGY continued to use many of their research bases.

In the case of the first South Pole Station , it would be occupied for nearly 20 years. Over the course of those two decades, the station required constant vigilance to brace it against the ever-crushing weight of the ice above. For example, the original system of tunnels that connected the buildings were covered by chicken wire and burlap. Those would later be rebuilt using heavy timbers, then steel beams and planking.

Dick Wolak, the civilian South Pole Station manager for the transition from Old Pole to the new Dome Station in 1974-75, summed up the state of the IGY base in an article he wrote for the Fall-Winter 2002 edition of *The Polar Times*, a publication of the American Polar Society:

"The old station, no longer the object of structural or mechanical improvements, gamely carried on. It showed its years in the distortion of buildings, metal arches, and shoring timbers. Its generators were a constant problem, and often irregular in their output. The patchwork of devices used to heat buildings and provide water was notably inefficient in its use of costly diesel fuel."

During that season, everyone eventually moved from Old Pole into the buildings under the geodesic dome, an unheated structure that offered protection from the wind and blowing snow.

Photo Credit: Robert Schwarz

One of the three explosions that demolished Old Pole under the ice.

Photo Credit: Andy Martinez

A crater made by one of the blasts.

Photo Credit: Andy Martinez

People watch the demolition from a safe distance at the Dark Sector Lab.

Wolak was the last one to leave Old Pole, literally turning off the lights as he moved his personal belongings to the Dome Station about a mile away.

"But that didn't happen for several days," he wrote, "as we were moving massive quantities of equipment and supplies from Old Pole, and the heat and power were great benefits. The lights finally did go out on Feb. 3."

Today, the entire facility is entombed under about 30 feet or more of snow, having moved away from the geographic pole with the slow drift of the ice sheet.

But the surface above is unstable. In the last couple of years, several heavy machines have fallen through the snow. One Caterpillar Challenger broke through several stories into one of the IGY station buildings last season. The driver was unhurt.

The National Science Foundation , which manages the U.S. Antarctic Program, decided enough was enough. The decision was made to implode most of the major buildings, prefabricated T-5 structures.

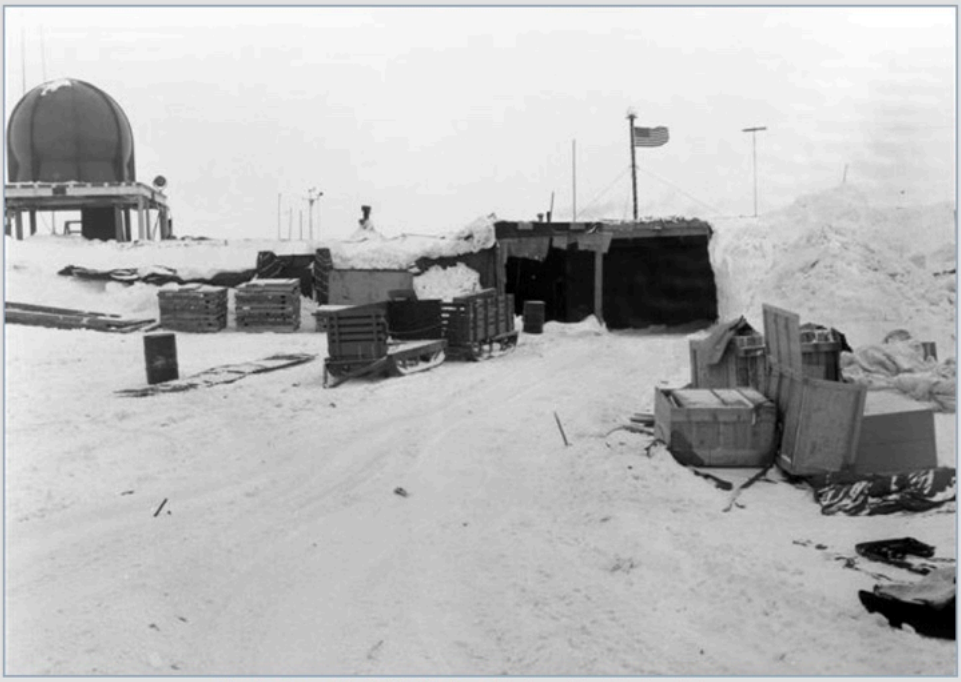

Photo Credit: Cliff Dickey/Antarctic Photo Library

The South Pole Station in 1957. The station was intended to last only a couple of years, it would be occupied for nearly 20 years before the Dome was built in the 1970s. The third-generation South Pole Station, built on stilts, was dedicated in January 2008.

Veteran Seabees never expected Old Pole to survive so long

The T-5 structures were 10-foot-high by two-foot-wide panels, held together with steel wedges clips on both the interior and exterior walls. The roofs were flat. Eight-foot-high plywood structures, called Top Hats, were added to the top of the buildings to help displace the snow loads on the roofs and provide access as the snow piled up.

Most of these buildings ended up with two layers of Top Hats. The Challenger had busted through two Top Hats and into the old communications T-5 building.

The project to demolish Old Pole began in November with a ground-penetrating radar scan of the whole area. The Cold Regions Research & Engineering Laboratory (CRREL) conducted the survey.

All the building corners were flagged on the snow surface, and all the dangerous areas were identified. The entire area was approximately 100 feet by 300 feet. Workers wore climbing harnesses, tethered to teammates who belayed them, for additional safety as three explosives experts set charges, led by John Horgan.

The blasters borrowed a hotwater drill from the IceCube Neutrino Observatory project to drill holes through the 30 to 40 feet of compacted snow to the structures below. Each hole was loaded with dynamite laced with 50-grain detonation cord to within one foot of the top of the Top Hats. The holes were backfilled with snow and tamped with loading poles.

The blasting, using more than 7,600 pounds of dynamite, occurred on three separate days to minimize impacts to ongoing science experiments: Dec. 1, 4 and 7. The snow surface above the buildings collapsed, creating 10- to 15-foot craters. All the Top Hats were dropped, and it is believed that at least three of the nine buildings also collapsed.

"We felt really comfortable with the results," Martinez said, adding that drifting snow will eventually fill the craters. "It was quite a bit of dynamite to do the entire thing."

Patrick "Rediron" McCormick was one of the U.S. Navy Seabees who flew to the South Pole on Nov. 21, 1956, to help with the construction of the IGY station. He was sanguine about its recent destruction.

"The demolition of the old station was a bit of bad news, but it became dangerous and I feel it was necessarily prudent to do something," he said. "I was surprised that once it started to collapse that it didn't completely collapse."

McCormick, 76, has kept abreast of events at the South Pole since re-connecting with many of his old comrades at a 30-year reunion.

"The thing that I marvel at most — I see the pictures coming back of the midwinter celebrations and the Christmas celebrations — the food is absolutely amazing," he added by phone from Rhode Island. "We had Navy commissary cooks. We didn't have that kind of food. That amazes me."

One of the first 18 men to winter-over at the South Pole in 1957, Cliff Dickey also said he was surprised Old Pole was used as long as it was, although he always suspected the United States would maintain a presence at the geographic pole.

"When we heard [the Russian satellite] Sputnik [launch] on our radio, I knew we were going to be there a long time, but I had no idea what its replacements would look like," Dickey said.

Photo Credit: Forest Banks

A crane removes the crown from the dome in December 2009.

Photo Credit: Peter Rejcek

The latest South Pole Station.

Photo Credit: Peter Rejcek

Another view of the new South Pole Station, with arched buildings at the right.

For Martinez, a veteran Polie who has more than 65 months on the Ice including two winters, Old Pole and the Dome may now just be ghosts, but the elevated station still requires some seasoning before it will feel like home.

"It still feels like the new station," he said. "We still call it the new station. I guess eventually we'll just call it South Pole Station."

John E. Horgan contributed to this report, with excerpts from a story he wrote for PS News*, a publication of* Raytheon Polar Services *. He works for RPSC as the McMurdo Operations senior facility operations associate, but most people know him as the lead explosive handler. Bill Spindler's Web site,* www.southpolestation.com *, was an invaluable resource for this article.*