

With the tank picking up speed, Clements saw two stationary tanks at the bottom of the gully, directly in the runaway's path. He wrestled with the steering mechanism and narrowly missed one of the stationary tanks, but his tank plowed on, seemingly unstoppable.

Then he spotted opportunity ahead — a steep, wooded slope that ran alongside the gully. Perhaps gravity could do what the braking system couldn't. He aimed for the uphill slope, and used gravity and the surrounding trees to slow down the tank and eventually stop it.

"I was just doing my job, I suppose," Clements said. "I just did what I had to do. I didn't have time to think about being scared or whatever."

For his brave, quick-thinking actions, Corporal Shaun Clements was awarded the Star of Courage, one of Australia's highest honours.

ANYWHERE, ANYTIME

In the dead of the Antarctic winter, there were no flights in, no flights out.

In Antarctica, winter arrives in February and lasts as late as October. At the Amundsen-Scott South Pole Research Station, 50 or more scientists, engineers and technicians hunker down in the Dome, a sprawling geodesic canopy that covers a dozen structures where "Polies" live and work.

Winter means isolation. For up to six months, Polies have only each other for company. There are no flights in or out of

Antarctica, no deliveries of fresh supplies, no visitors to engage in conversation. With temperatures sinking as low as minus 100° Celsius, airplane fuel turns to jelly, hydraulics fail and landing gears seize — it’s just too dangerous to fly.

In February 2001 Ron Shemenski, the station’s newly appointed doctor, arrived on one of the last flights of the season. “We’re going to have a nice, quiet time,” he told a colleague.

Two months later Dr. Shemenski doubled over in pain. He passed a gallstone, a sign of something dangerous stirring inside his abdomen. Gallstones can clog up the pancreatic duct, allowing digestive juices to get inside the pancreas, poisoning the system. Suddenly the Dome’s quiet world turned upside down. The doctor had pancreatitis, a life-threatening condition requiring emergency surgery.



The entrance to the research station.

By this time Antarctica was in full lockdown. With Dr. Shemenski gravely ill, the situation was serious, not only for him, but for the entire mission. He was the station's only doctor. Who would look after the others if he couldn't? And with all flights cancelled, how would he get the medical help he desperately required?

An urgent call went to the headquarters of the South Pole base in Denver, Colorado. Experts pored over maps and weather charts, contemplating their options. There was really only one. A plane carrying an experienced crew would have to brave the Antarctic winter, with its unpredictable winds and blinding blizzards, to fly in another doctor and then fly Dr. Shemenski out afterward.

The US Air Force and National Guard readied three LC-130 Hercules cargo planes and 50 military personnel. The planes waited on the tarmac in Christchurch, New Zealand, for weather conditions at the South Pole to improve. Hercules aircraft cannot operate below minus 55° Celsius, and already temperatures at the research station had dipped lower. Long-range forecasts predicted even worse conditions.

Denver scrapped the Hercules plan. Even if one of the giant airplanes landed successfully, there was no guarantee it would be able to fly out later. Dr. Shemenski, his replacement and the flight crew would all be stranded until October.

Then someone remembered Kenn Borek Air, a Canadian firm stationed in Calgary, Alberta, that flew rugged bush planes into the Far North. The company's motto was *Anytime, Anywhere . . . Worldwide*. Perhaps it could help.

True to their motto, Kenn Borek accepted the challenge. Within hours, a plan was in place. Two Twin Otter airplanes stood ready in Calgary, engines primed and purring, each manned by an experienced crew of three.

Compared to the Hercules, the eight-seater, Canadian-built Twin Otter was small and compact, a prop-driven plane with a reputation for rugged durability. Rated safe for temperatures as low as minus 75° Celsius, it had been used for decades to fly people and cargo into and out of remote locations. But Antarctica in the dead of winter was something new.

Metal rods snapped from the cold; skis stuck like glue to the rough ice.

The two crews understood the challenge, the likelihood of trouble, the possibility of failure — metal rods snapping from the cold, fuel turning thick as paste, skis sticking like glue to the rough ice. Hours of flight experience had prepared them for challenging situations, but as the planes flew out of Calgary, doubts sifted through each crew member’s mind.

“You start thinking about some of the possibilities that could happen and you want to make sure you plan for all the contingencies involved,” Sean Loutitt, one of the pilots, said.

The two Twin Otters left Calgary on April 14 and leapfrogged over oceans and continents, first to Punta Arenas, Chile, then to a British research station, Rothera, on the Antarctic Peninsula. The plan was for one of the planes to make the 2080-kilometre flight from Rothera to the South Pole while the second plane waited at Rothera, backup for the first plane in case of trouble.

Loutitt was selected as the pilot of the first plane; Mark Cary as co-pilot. Both men had flown Twin Otters to far corners of the world. They knew the Twin Otter, its whims and wants, the ways to sweet talk it through rough times. To decide on

who would be their flight engineer, they tossed a coin. Norman Wong, a skilled mechanic, won the toss to round out the crew.

To make the journey, they needed thirty-six hours of clear weather — ten hours to fly to the South Pole; ten hours to recover, catch up on sleep and service the plane; another ten hours to make the flight back again. In the pitch-blackness of a polar winter, they would be flying blind, relying on radar and delicate flight instruments to see what their eyes couldn't.

While meteorologists at the Amundsen-Scott base monitored the weather for clear skies and warmer conditions, crews dug out a 2-kilometre landing strip. In bitter cold, rubber becomes brittle and even the hardiest tractor can stall. Worried that the tractor treads might snap, crews worked carefully in the dark, coaxing frozen machines to life, slowly carving a runway out of the ice.

Meanwhile, carpenters and mechanics constructed smudge pots to light the landing strip. A number of 200-litre oil drums sliced in half were filled with mixtures of wood and gasoline, and then placed alongside the runway. Set on fire with propane torches, the smudge pots would be flaming cauldrons, easily sighted in the dark.

After three days the weather in Rothera improved. A tiny window of opportunity opened, enough to send the Twin Otter crew to the station. And so began a flight like no other before it. With Dr. Betty Carlisle, the replacement physician, aboard, the Twin Otter and its crew took to the air.

Four hours into the flight, the weather soured. Winds broadsided the plane, snow pelted it and temperatures dived. The crew were not yet halfway. There was still time to change their minds. But the pilots forged ahead. They had encountered turbulence before. They had blasted through blizzards thick as cotton. They would do the same now.

Ten hours later the Twin Otter crew sighted a dozen

glowing lights — the flaming smudge pots marking the runway.

“To finally see what you’re looking for and to be able to identify it, that was an extremely special moment,” co-pilot Cary said. “It was very poetic actually to arrive at the bottom of the world, in a land that’s covered in ice and snow, to these glowing barrels of burning debris.”

Guided by the smudge pots, Loutitt and Cary landed the plane and taxied down the runway, skis clattering on the bumpy ice. Polies waiting with snowmobiles took over. After a frigid 2-kilometre ride to the Dome, the Twin Otter crew and replacement doctor arrived at the research station to warmth, food and much-needed rest.



The Twin Otter arrives at the Amundsen-Scott South Pole Station.

Temperatures hovered around minus 69° Celsius, dangerously close to the mark where even hardy Twin Otters run into trouble. While the crew rested, mechanics placed heaters around the plane. They also bundled the engine in protective covers to keep fluids thin and prevent metal from snapping. Although the mission was more than half over, the most difficult leg was still coming.

Weather ruled the timeline. While the crew snuggled inside the Dome, winds picked up and temperatures dropped.

What was to be a ten-hour recovery period stretched longer as they waited for conditions to improve. Finally, after a delay of several hours, the weather shifted again. Once more a small window of opportunity opened. Anxious to take advantage of it, the Twin Otter crew headed to the plane.

The engines growled to life, but there were problems. For one, the skis had frozen into the ice. The crew repositioned the heaters, aimed them at the skis and, armed with shovels, chipped and chopped the melting ice to set them free.

The flaps along the wings had frozen, too. Flaps control lift. With flaps locked into the fully extended position, even if the plane travelled at top speed it would not get enough lift to leave the runway.

Engineer Norman Wong walked around the wings. He was a problem-solver with years of flight experience. He knew the Twin Otter better than anyone. If there was a way, he'd find it.

With odds and ends of wire and cable, Wong figured out a way to rig the flaps so they could be raised and lowered, making them operational again.

"You get a heightened awareness," Wong said when describing the moment. "Time seems to slow down and you just focus on the problem and what you need to accomplish."

With Dr. Ron Shemenski aboard, the plane rumbled down the runway, slowly gaining speed for liftoff. As the smudge pots disappeared from view, the plane sliced through the dark and swept toward home.

In the cockpit, the pilots monitored the instrument panel. Frost covered the dials. Needles froze into fixed positions. Unable to rely on their instruments, the men hoped that they were going in the right direction, but in the dark there was no way to know for certain.

Finally a sign appeared. "All of a sudden," Mark Cary said,

“there was this faint pink line on the horizon. It was really beautiful to watch it grow. It was like a gift and a sign to say everything’s going to work out and you guys are going the right way.”

Guided by the sun, the Twin Otter aimed for Rothera. When they landed at 8:52 p.m. on April 25, 2001, Dr. Ron Shemen-ski was one step closer to getting life-saving surgery. The crew, meanwhile, entered the history books. It was the first time that a plane had landed at the South Pole and then taken off again during an Antarctic winter.

THIRTY-THREE OF US

**A new sound echoed through the mine —
the drone of drills chewing through rock.**

Deep inside Chile’s San Jose Mine, shift supervisor Luis Urzua felt the earth quiver. It was 2:00 p.m. on Tuesday, August 5, 2010. Urzua was five hours into his shift, directing miners 600 metres below the surface. Until then the day had been routine — thirty-three miners hard at work drilling through rock, seeking deposits of copper and gold in the maze of tunnels underground.

Moments after the tremor an explosion rocked the mine. A wave of compressed air blasted down the tunnel, knocking some of the men off their feet. Toxic dust shot through shafts and tunnels. Cloaked in a cloud of silt, the miners struggled just to breathe.

Urzua immediately realized the seriousness of the situation. The San Jose Mine was a honeycomb of unstable galleries and interconnected shafts. Weakened by erosion and years of drilling, one of the fragile upper corridors had collapsed, loosening