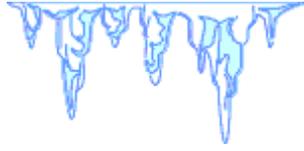


Life At Minus 80: The Men Of Snag



In early February of 1947, the bottom dropped out of the thermometer across Canada's Yukon Territories. Before the morning of 3 February dawned on Snag (Yukon), the alcohol in the thermometer had vacated the thermometer's stem and receded into the instrument's bulb, leaving the minus 80 °F (minus 62.2 °C) mark behind, the last tick on the thermometer's scale.

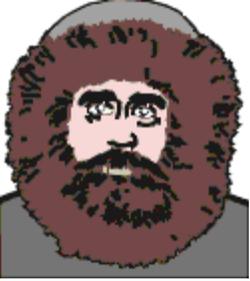
The initial estimate of that day's minimum temperature by weather officer-in-charge Gordon M. Toole was minus 83°F (minus 63.9 °C), the coldest temperature ever recorded in North America. (Only a few other sites in Siberia, Greenland and Antarctica have ever registered officially recognized colder temperatures.) The previous record had been set the preceding day at Snag when the thermometer bottomed out at minus 80 °F (minus 62.2 °C).



When news of the event reached the newspapers in the populated regions of the continent well to the south, it made headlines. The Toronto *Globe and Mail* declared **Snag snug as mercury sags to a record -82.6°**. In the story, they noted: "The only reason the men didn't celebrate was that all the alcohol at the station was in the thermometer and that was nearly frozen." The media besieged Snag's residents for impressions of life at minus 80 for several days following the event.

Although the temperature reading was later officially pegged at "only" minus 81.4 °F (minus 63 °C), it set a new standard for cold in North America which still stands today.

I have recounted the historic, geographic and scientific details of this notable cold day in my February 2002 *Weather Almanac*. In this companion piece, I retell some of the impressions of conditions from the mouths of those who



experienced the event. For the details, I am indebted to Environment Canada climatologist Dave Phillips (*Blame It on the Weather*, Key Porter Books, 1998) and reporter Greg Ralston of the *Yukon News* ("Talk about the weather" Friday, January 31, 1997) for their interviews with weather observers Gordon Toole and Wilf Blezard.

Sixteen men looked after the Snag Airport's operations: four meteorologists, several radio operators and aircraft maintenance/operations men. Toole was the duty weather officer who kept vigil on the minimum thermometer that night. As he hurried from the log barracks to the instrument shelter some thirty metres away, Toole could feel the cold invade his parka. He clearly heard dogs barking in the village of Snag, five kilometres (3 miles) away, and a tinkling as his breath, frozen instantly in the cold, fell as a white powder to the ground below as he went to check the temperature at 7:20 am (YST).

On that record-setting day, the morning weather observation reported a surface pressure at 1037 mb, calm winds and visibility of 32 km (20 miles). In some directions, visibility was reduced by patches of ice fog, most noticeably over the area where a dog-team resided. The snow on the ground measured 38 cm (15 inches) but, due to the intense dryness of the air, was decreasing at a rate of about 1.3 cm (a half an inch) per day. The record low was recorded at 720 am (YST), an hour and twenty-two minutes before sunrise. The high for the day would reach only minus 56 °F (minus 48.9 °C).

The above numbers are part of the official record, but the accounts of events recalled fifty years later by Toole and Blezard differ as to the reaction of staff to the record at the time of the event.

Toole recalls no real interest: "Staff interest was pretty limited. There was no euphoria, prolonged celebrating or serious discussion on how to commemorate the moment." But according to weather observer Wilf Blezard: "We had to put a lock on the door of the instrument screen because everyone was rushing out and looking at the thermometers -- even the slightest bit of body heat would cause the alcohol to jump."

One of the most notable traits of the day, remembered by both Toole and Blezard, was the enhanced audibility and crystal clarity of sounds due to the denser air and absence of wind. In addition, the strong surface *temperature inversion* bent the sound waves back toward the surface, thus causing sounds to hug the ground.



The freezing of one's breath produced a continuous hissing sound similar to dry blowing snow, and a tinkle when the ice crystals hit the ground. Thin ice when broken sounded exactly like breaking glass.

The contraction of ice covering the nearby river was also very apparent. "Ice in the White River about a mile east of the airport, cracked and boomed loudly, like gunfire," reported Toole.

"At 80 below, the talking of the Indians and the barking of dogs in the village could be plainly heard at the airport four miles away," recalled Blezard. "An aircraft that flew over Snag that day at 10,000 feet [3050 m] was first heard when it was over 20 miles [32 km] away. Later, when overhead, still at 10,000 feet, the engine roar was deafening. It woke everyone who was sleeping at the time, because they thought the airplane was landing at the airport."

The radio operators also heard weather-related sounds on their radio receivers when the temperature fell below minus 75 °F (minus 59.4 °C): an intense static similar to that produced by lightning in a summer thunderstorm.

In the cold, dry air, breath vapour trails, rising from personnel moving around outdoors, remained suspended in the air for 3-4 minutes before fading away. "Becoming lost was of no concern. As an observer walked along the runway, each breath remained as a tiny, motionless mist behind him at head level," said Toole. "One observer even found such a trail still marking his path when he returned along the same path 15 minutes later." In the nearly still air, the frozen breath spread out in plumes 100-500 metres long.

A patch of ice fog hovered at tree-top level over the area where Toole's dog-team was hitched. The huskies slept on top of their kennels, curled into compact balls with noses tucked under their tails to conserve body heat.



The cold provided many hardships and non-essential outdoor work had to be postponed. In a memo to Dr Tom How, officer-in-charge at the Edmonton weather office, Toole wrote:

"After seconds outdoors, nose hairs freeze rigidly and your eyes tear. Facial hair and glasses become thickly crusted with frozen breath...you had to be careful not to inhale too deeply for fear of freezing or scalding one's lungs. The only other discomfort caused by the cold were numerous cases of beginning frostbite, particularly the familiar 'ping' as the tip of one's nose froze. One only had to remain outside for 3 or 4 minutes with face exposed before cheeks, nose and ears were frozen."

He further reported:

"You can't breathe through your nostrils in air that temperature, it's almost as though they're blocked or frozen. You have to breathe through your mouth but they're shallow breaths. You cannot take deep breaths because they just catch in your throat, you're gasping."

The weather observers fortunately had to spend only a few minutes outdoors every hour. Support staff was not as lucky as they had to haul wood to keep the barracks, garage and powerhouse warm. Precautions had to be taken against skin freezing from exposure, and throat and lungs becoming injured from overexertion in the cold. Blezard recollected "It was easy to freeze your nose at minus 70 °F [minus 56.7 °C] without even knowing it was cold. At minus 30 °F [minus 34.4 °C] you could feel it coming."

A number of unique experiments were undertaken by the staff. A chunk of ice brought into a warm room was so cold that it took five full minutes before there was any trace of moisture, even when held in the hand.

Wilf Blezard remembered another interesting experiment:

"We threw a dish of water high into the air, just to see what would happen. Before it hit the ground, it made a hissing noise, froze and fell as tiny round pellets of ice the size of wheat kernels."

The cold had extreme effects on common materials. Spit froze solid before hitting the ground. Striking ice with an ax resulted in its rebounding off the rock-hard water. Metal snapped in the cold, wood became like rock, and rubber resembled cement. The leather harnesses on the dogs couldn't be bent without fear of their breaking.

Living indoors, however, was tolerable; the wood furnace gave off enough heat to keep the barracks comfortable. "Many mice also sought refuge in our warm buildings. The janitor had a large tomcat, so the poor unfortunate mice didn't fair so well! Needless to say, the cat was very happy and well fed!" Blezard reminisced.

The only uncomfortably cold room was the common room where a large hole in the ceiling, caused by a burst pipe in December and given an insufficient patchwork repair, allowed cold outside air to seep into the room.

The cold was bad enough on the spirits of the crew, but isolation caused by a cessation of supply flights from Whitehorse due to the cold aggravated cases of "cold blues" among the staff. "When the cold stayed for just a few days, it didn't bother you that much. It was something to talk about, and probably improved the state of mind for a while. But the enduring cold wore you down by sapping your energy," Blezard remembered. "All we ate was fish and bacon and eggs.... There was very little meat.... We lived mostly on beans for the last five days."

No provisions had been made to supply the barracks directly with water for drinking or washing. "This, as you can see, has made it almost impossible for personnel to wash more than once a day and has terminated showers or baths," reported Toole to the Edmonton office.

On 8 February, conditions warmed enough to permit a plane to land at the airport. The DC3 carried American military personnel and members of the media, all of whom wanted to know what it was like to live and work in such cold conditions. Although the men of Snag were treated like international celebrities, most were more interested in the plane's cargo of fresh supplies: meat, vegetables and fruit, and a few cases of beer and bottles of rye whisky.



"Our most memorable day was the day we watched the DC3 land with new supplies....We certainly played some high-stakes poker that night! We had lots of interviews and pictures taken that day. The next day we had some pretty severe hangovers," recalled Blezard.

Hearing from family and friends heartened the staff more than the fame offered by the newsmen. Toole recounted: "We were celebrities to them. And finally, they could locate Snag on the map of North America."

Since that bone-chilling time in 1947, men and women living at temperatures as cold as minus 80 has become common place although most of those experiences are gained on the Antarctic continent. The spectre of such cold seems less chilling as the media are dominated by concerns over global warming, particularly in the early winter of 2002. But somewhere in the high North, cold air still builds in isolated valleys, waiting and growing until it is pushed from the nest and sent southward.

Learn More From These Relevant Books Chosen by The Weather Doctor

- Burt, Christopher C.: [*Extreme Weather: A Guide and Record Book*](#), 2004 (pb), W. W. Norton & Company, ISBN 039333015X.
- Phillips, David: [*Blame It On The Weather: Strange Canadian Weather Facts*](#), 2002, Portable Press, ISBN 1571458689.

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