

the fatal outcome in this situation. The loss of equipment is another factor that likely played a role in pushing this situation to its terrible conclusion.

Any piece of gear, particularly a sleeping bag, could be critical to survival when dealing with a situation involving prolonged cold and exposure. The loss of the radio was also tragically unfortunate, as it left no way to contact help if Nott and McNeill were capable of it. The potential fatigue and exhaustion would also be greatly exacerbated by the potentially prolonged period during which the pair was operating with minimal water and food.

As anyone reading this is all too aware, it is unfortunately impossible to know exactly what happened to Sue Nott and Karen McNeill. That will weigh heavily on their family, their friends, and members of the climbing community who wish to make some sense of this accident. The NPS has great confidence, given the amount and character of the searching conducted, that if the pair were visible within the search area, in other words not below the snow's surface either in a crevasse, debris, or a cave, they would have been found. This is certainly part of the basis for assessing the likelihood of each of the scenarios discussed above.

But of course many other factors go into each assessment, the most important being the physical evidence available and the collective knowledge and experience of the dozens of individuals involved in the search as well as the expertise contributed by many members of the climbing community. And while it could be endlessly debated exactly how each piece of information should be weighed and interpreted, ultimately it will not resolve the issue of what happened to these experienced climbers and is only useful to the extent it educates others towards the prevention of accidents in the future. (Source: Meg Purdue, Ranger)

(Editor's Note: This report is included in its entirety in order to demonstrate the level of care and hard work that is put into each search, rescue, and investigation. Special thanks to Daryl Miller, Chief Sub-district Ranger, for his oversight and years of dedication.)

FROSTBITE—INADEQUATE CLOTHING

Alaska, Mount McKinley, West Buttress

On June 2nd, guided expedition AMS-5-Wilkinson departed the 17,200-foot camp on the West Buttress of Mount McKinley for the summit at 0600. This group of six, including two guides, flew to the mountain on May 15th and had made gradual ascent to the 17,200-foot camp in the previous days. The forecasted condition for June 2nd called for cold temperatures and clear skies with moderate winds. During the group's ascent to Denali Pass, member Richard Salter (47) was unable to keep his hands warm. Upon reaching Denali Pass, Salter removed his gloves. His hands appeared pale. Salter alerted AMS guides Wilkinson and Egan to the condition of

his hands, Wilkinson and Egan immediately attempted to re-warm Salter's hands by placing them on their warm stomachs and under the armpits of group members. After the attempted re-warming, it was decided that he and Egan would descend to the 14,200-foot camp immediately for further medical attention.

At 1640 on June 2nd, Salter arrived at the 14,200-foot camp and was examined by NPS Patrol Member Richard Hubbard. Hubbard's examination revealed that all digits were cold and mobile with limited sensation, with blue from the tip to between the first and second joint on the first and second fingers and the tips of the third and fourth fingers were blue to the first joint. The right hand exhibited blue to mid-fingers on each of the first three fingers and a pale tip of the fourth finger. Salter's nose was also blue and appeared to be swollen. It was determined through consultation with Denali National Park and Preserve Physician Dr. Jennifer Dow that immediate re-warming of the frostbitten fingers was necessary to mitigate tissue damage. NPS Patrol members Craig Knoche, Paul Nelson, and Hubbard re-warmed and dressed Salter's hands and nose. After re-warming, it was determined that Salter would be unable to descend the mountain and would need to be evacuated by the NPS helicopter.

At 2200, NPS personnel and the 14,200-foot camp were contacted by Wilkinson about client Elliot Reed (22). He also appeared to be suffering from significant frostbite to all of his toes. Reed, who had just returned from a successful summit bid, realized while changing into dry socks that he had frostbitten all of his toes. He alerted Wilkinson to his condition. Wilkinson was advised that NPS Ranger John Loomis was to arrive shortly and that he would help in the examination and treatment of Reed. Ranger Loomis confirmed that Reed was suffering from significant frostbite. After consultation with Denali National Park and Preserve Physician Dr. Jennifer Dow and other NPS personnel, it was determined that the best course of action was for Ranger Loomis to try and re-warm the frozen digits at the 17,200-foot camp. Loomis performed a re-warming into the morning hours of June 3. The overall condition of Reed's feet, necessitated his evacuation from the 17,200ft camp.

On the morning of June 3rd, weather conditions allowed for the NPS contract Lama Helicopter to perform the evacuations of both Reed from the 17,200-foot camp and Salter from the 14,200-foot camp.

Analysis

Though the day in which these injuries occurred was colder than average, both of these cases of frostbite could have been prevented. Salter stated that he had cold hands prior to the start of his ascent. He believed that once he got moving, his hands would warm up. Salter also chose to wear gloves

instead of the recommended over-mitts. Reed stated that though he had cold feet earlier in the day, he was very surprised to find that he had frostbite later in the day. Reed believed that his feet had warmed up on his ascent; in fact his feet had become numb and then froze. Reed also stated that he had put on an extra pair of thick socks to prevent his feet from becoming cold while attempting the summit. It is probable that the extra socks were detrimental to the warmth of his feet, actually making them colder because of restricted blood flow to his feet. Also, there was a loss of the dead air space that acts as insulation inside of boot liners.

It is important to note that in both of these cases where the clients of a guided trip suffered significant injuries, it is very probable that something as simple as saying, "My hands and feet are cold," to either of their guides would have prevented or lessened these injuries. (Source: John Leonard, Ranger)

(Editor's Note: A few days later, there was another case of frostbitten fingers. The climber attempted to re-warm her fingers near the open flame of a cook stove, which compounded the injury. Medical personnel advocate that the best remedy is skin to skin contact or immersion in 104 degree F water until more advanced care is available.)

FUEL BOTTLE EXPLOSION IN TENT—BURNS

Alaska, Mount McKinley, West Buttress

On June 16, Steve Whitney (34) and Ben Krasnow (29), Alpine Ascents International Guides, were cooking dinner for their clients at basecamp when one of the two MSR Whisperlite stoves experienced an O-ring failure, causing the fuel bottle to explode. One of the guides bent down and attempted to slap the stove away from them when it exploded, causing a fireball estimated to be a minimum of five feet in diameter.

The two received various second-degree burns to their hands and faces. They were treated by cooling using gauze soaked with normal (I.V.) saline solution, then gel burn pads. There was concern that inhalation injuries may have occurred as well. Weather conditions prevented the helicopter from flying. They were evacuated the next day by fixed wing aircraft, having been carefully monitored all night.

Analysis

The guides stated they had had some previous problems with the same pump leaking, so had taken precautions to ensure it was on tight. It can be hypothesized that the two stoves were too close together, causing one pump to overheat and fail.

The group was very fortunate to have only two people injured and to have the accident occur at basecamp where medical treatment could be