

*Alaska, Mt. McKinley.* On 4 July while approaching the summit Richard Springgate's foot was frostbitten due to (1) cold temperature ( $-16^{\circ}\text{F}$ ), (2) boot lacings tied too tightly, and (3) inadequate insulation in boot. Rewarming performed at 16,800 feet Camp and within the next 30 hours, Springgate was able to walk down to 7,000 feet pick-up site before blisters formed.

*Source:* Gerard Roach.

*Analysis:* Boots used were new U.S. Royal insulated. They had very thin insulation and were quite inadequate. He should have used "True" insulated Boots.

*Alaska, Mt. McKinley.* On 16 June Jim Lathrop was lead man on a rope of three while descending the steep West Buttress wall. Much snow had accumulated during a bad storm. Travel was extremely slow in the hip deep and sometimes chest deep snow. He was not able to get his feet out of the snow for several hours. The steepness of the slope which caused his toes to be jammed forward on every step, played an important part in this accident. Major causes were (1) the steepness of the slope, (2) too many socks which cut circulations, (3) crampon straps may have been too tight, and (4) foot-level conditions were much more severe than air temperatures indicated.

*Source:* Jim Lathrop.

*Analysis:* (1) One thing I feel should be required of all McKinley and other expedition climbers is a thorough study and understanding of Mills' and Washburn's article in the AAC journal 1962 edition on *Frostbite*. No finer work has been written on the subject with such research and clarity. (2) One should have free movement of the toes within the boot at all times for better circulation. (3) Once one has frostbite he should keep off his feet as much as possible. (4) In event of an accident of this nature immediate evacuation should be enforced even in questionable cases of frostbite.

*Alaska, Mt. McKinley.* It was at our 17,200-foot camp that we had trouble with the camp stove (optimus). On this day it was  $16^{\circ}\text{F}$  below zero inside the snow cave, I removed my silk snow gloves to try to fix the stove. This operation took approximately half an hour and of course by that time my fingers were quite white and numb, slightly frostbitten. I was extra careful on the summit attempt the following day and so the frostbite did not increase. However, on the descent we ran into a snow storm at Windy Corner on 21 June. Several hundred feet below, we dug a snow cave again, as a tent could not possibly be put up in the 80 mph wind. In the process of shovelling it out my Korean mitts and my inner woolen mitts got wet. This would not have been too bad but the snow drifted in the entrance of the cave steadily and every two hours I had to shovel the entrance free with my mittens wet. Each time getting them more wet and my fingers more cold. Finally the mittens froze and my icy fingers started to blister at the tips.

*Source:* Karl Winter.