so decided to jump. Steve Heim (24) went first, jumping about 4-5 feet horizontally and dropping 3-4 feet vertically. Snow at point of impact was much harder than it appeared or than anticipated—lighting was very flat. Steve was wearing crampons which were used higher up on slope. As he landed, the weight of his body and pack shifted him forward, but right foot was dug into slope by crampon. His leg broke above inner boot causing a spiral fracture of tibia. Upon x-ray at hospital, it was also learned the fibula was broken below the knee.

Four party members were several minutes behind so while awaiting them, a hot brew was made for Steve and he was given 100 mg Demerol (meperidine) by Alice Culbert (nurse). Also a small platform was leveled for him and a temporary tarp-shelter to protect him from wet snow. When the others arrived, it was decided Alice would stay with Steve while some members went on to re-establish advance base at 9,300 feet and the others would return with skis cached below headwall to transport Steve down. A message was later sent up to Steve and Alice that all ski equipment had been hopelessly lost under the mounds of debris and all six were going on to advance base.

Meanwhile, anticipating a long wait, and not liking their location under an avalanche chute, Alice built a trail to a less undesirable spot and assisted Steve in moving. It took about one hour to move about 100 yards over uneven ground.

At 0500 (just after another injection of 100 mg Demerol), three men arrived to take Steve down. A sled was constructed by lashing a Kelty pack-frame to the three-foot handle of a large aluminum snow shovel. Steve's legs were properly splinted together then he and an ensolite pad were put into his sleeping bag, another pad was folded onto the shovel scoop, then Steve was belted onto the "shov-fram," legs extending up the handle. He wore a chest harness from which slings were attached to the pack-frame to assist him in sitting upright. On either side of the frame, one fellow walked to control the speed. They were attached to the frame by a short sling, adjustable with Jumar. The third man acted as anchor.

Descent was about 700 feet down and one-quarter mile all through massive debris; then another one and a half miles clear to camp.

When party was almost at camp, a jet ranger helicopter flew in and evacuated Steve, about 0930.

Source: Alice Culbert

Analysis: 1. Could have taken time to follow crevasse to north and skirt it some distance along. (This idea was rejected due to uneasiness of being on avalanche slope.) 2. Could have removed crampons before jumping, probably throwing pack across first.

Yukon Territory, Mt. St. Elias. The accident happened on the 37th day of the expedition, when the party consisted of Stan Adamson (28), Lucille Adamson (28), Susan Deery (24), John Hall (27), and Toby Wheeler (22). On 5 July the expedition was landed at about 12,000 feet in the King Trench. Four days later, 9 July, one member of the party contracted pulmonary edema and had to be moved to a lower elevation. He was subsequently evacuated by a helicopter to the AINA (Arctic

Institute of North America Camp at Kluane Lake. The five remaining members of the expedition continued up, reaching the AINA Logan high camp on 13 July. At this point the party merged with California Logan Expedition (B. Lilley, R. Gnagg and others). Two members of the Hall party, John Hall and Toby Wheeler reached the summit of Mt. Logan on 17 July. The remaining three members of the Hall party followed the footsteps up two days later.Three of the other summits of Logan were also climbed. The descent was down the "Schoening" Ridge (climbed 1952) (S. from King Col.) to the Seward Glacier. Crossing the Seward, they reached their cache (made during the flight in on 5 July) on 1 August. The cache was located at the base of Mt. Newton. The decision was then made to proceed up and over Jeanette Col, down to the Newton Glacier and follow the Duke of Abruzzi's route up to Russel Col and the Summit, rather than to go up over Mt. Nelson to Russel Col (Japanese route of 1969, Reichart of 1968). The decision was made democratically by vote. The major reasons for the choice being that it was technically easier and would be faster.

On 11 August at approximately 1600 the two ropes were about 300 vertical feet above the Newton Glacier on the 2,500 foot slope that goes up to Russel Col. The elevation was about 10,000 feet. The weather was warm (30-35°F) and the sun was out, although the NE face of St. Elias was in the shade. There had been quite a bit of avalanche activity all day off the S. sides of Newton and Jeannette, but they had seen none coming off St. Elias or Russel Col itself. There was evidence of older avalanches (tracks, debris cones). A loud crack told them what was coming—something had broken off the NE face of St. Elias about 2,000 feet above and it swept out across the slope leading up to Russel Col. After digging in, five or six seconds elapsed before the entire party was engulfed and swept away. When everything had stabilized, Wheeler and about 30 feet of rope and one stuff bag were all there was on top (approximately 80 feet had separated Stan Adamson and Wheeler on the lead rope. Initially in some kind of shock, Wheeler pulled on the rope, dug with his hands, and searched the area, but was unable to accomplsh anything. Fifteen minutes later he headed back down the route, packless and without ice axe or snowshoes. He collected food and what little equipment he could find in the various caches on the Newton Glacier (theirs and those left over from the B.C. and Italian parties). He spent one night on the Newton Glacier before reaching their Seward cache late in the evening of August 12, when he notified Kluane Lake by means of a radio loaned by AINA.

Source: Toby Wheeler.

Analysis: (Wheeler). The avalanche danger at this particular spot should have been recognized. It was a warm day and there was old avalanche debris at the base of the Russel Col slope. This, combined with the fact that there were numerous avalanches coming off Mt. Newton, should have been enough to warn us of the danger and take alternative action, which in this case probably would have been to sit still, wait for better conditions and watch. But we had seen nothing going on all day in the vicinity of our ascent route. This combined with the fact that

"this was the route" (we were following old B.C. tracks and, after all, the Duke had done it with his iron bed-posts in 1897) led us to do what we did.

UNITED STATES

Massachusetts, Crow Hill (Leominster State Forest) Leominster. On 13 March Robin Wales (16) and a group of six boys and three girls with little or no previous climbing experience spent the day learning basic climbing techniques on practice climbs.

In the afternoon, Wales and three other members of the party climbed to the top via a trail in order to set up a 100-foot free rappel. Upon reaching the top they tied two 11 mm perlon ropes together and anchored them around a tree making sure that both ropes reached the bottom.

After checking the rope for any rock interference, one member of the party clipped in with a rappel sling and brake bar assembly and proceeded to make a free rappel to the ground.

Next the victim (Wales) donned a nylon webbing rappel sling and brake bar assembly, put on leather gloves, and proceeded to lean back to start his rappel. At this moment his sling came apart—the knot having come undone. Fortunately, he was able to grab the rope and to slide 100 feet to the ground with his hands and legs wrapped around the rope. He suffered no injuries and walked away.

Source: Robin Wales.

Analysis: (Wales and G. Sargent Janes) Had Wales tied the knot in his rappel sling properly and checked it as was suggested by another member of the party, he probably would not have fallen. Wales believed he tied a water knot in his rappel sling; however, this cannot be checked. This knot has been known to "fail" before and should always be set up tightly, particularly when used with nylon webbing. Most rappel accidents are fatal and many are due to errors in setting up the system. This incident clearly points up the need for the use of belays or at least a prussik sling attached to a swami belt. This may not always be feasible on a big mountain, but on practice climbs where beginners are involved, it is clearly essential.

New Hampshire, Mt. Jefferson. On 11 August at 1300 a sudden and violent thunder storm struck Mt. Jefferson and the surrounding area. Numerous hikers were in the area at the time; some thirty sought refuge at the Edmonds Col Emergency Shelter. The lightning and rain lasted for about one hour and forty-five minutes but strong winds estimated at between forty and fifty-five miles an hour continued with a rapidly dropping temperature. Most of the hikers at this point sought shelter below the tree-line or at one of the AMC huts. A group of ten from Camp Killooleet, Hancock, Vermont, was just preparing to go down when another camp group straggled into the emergency shelter. This group of nine campers and two counselors was wearing only T-shirts and