

arated from his five companions on Mt. Juneau and, descending alone, apparently slipped. He perished on the upper snow slopes. The search and rescue operation occupied 75 men for ten days.

Sources of information: local reports, and U. S. Forest Service.

Analysis. So little is known that only the obvious general comments can be made: inexperienced—ill-equipped—alone.

Purcell Range, British Columbia: Bugaboo Spire. On 4 August 1948 a party of four climbers, Rudolph Pundt, Robert Becker, Ann Strong and Ian MacKinlay, reached the summit of Bugaboo Spire. They were members of a large group of Sierra Club and Stanford Alpine Club climbers who had joined forces for an informal two-week trip. On the descent they were struck by a severe thunderstorm. Only a few hundred feet below the summit, they sought shelter in a small cave below the crest of the ridge, and unroped. Shortly afterwards, a bolt of lightning struck near them, and all lost consciousness. MacKinlay, the first to revive, saw Pundt writhing at the edge of the ledge. Before MacKinlay could reach him, Pundt slipped over the edge and fell approximately 1000 feet. Miss Strong soon regained consciousness, and Becker partially regained it. He was paralyzed from the waist down, but the other two, though severely burned and shaken, were able to move. Since in their condition it was impossible for MacKinlay and Miss Strong to bring Becker down unaided, they tied him to the rock, left extra clothing and their entire food supply, and descended to the valley, where they reported the accident to the rest of the group. They were themselves taken out to the hospital at Cranbrook.

Strong rescue parties were driven back by the continuing bad weather, with snow; and it was not until the 7th that a party was able to reach Becker. He was dead, in exactly the position in which he had been left, with the food and supplies untouched. On being released from the rope, the body slipped over the edge. It was therefore impossible to ascertain the precise cause of death. Doubtless it was a combination of initial burns and secondary shock. Both Miss Strong and MacKinlay recovered, but only after several weeks' hospitalization. Treatment of their second- and third-degree burns included skin-grafting.

Sources of information: Report of the Mountaineering Committee, Sierra Club, and newspaper accounts.

Analysis. This accident seems to have fallen within the limits of risk normally accepted in mountaineering. (Two children were killed by lightning on the same day in Oklahoma, in an open field.) Most climbers have developed a healthy respect for lightning; but the history of lightning accidents, even on high peaks, has been such that shelter below the crest of a ridge has generally been considered adequate protection. The tragedy suggests the need for fuller investigation of the lightning hazard to climbers, especially in regions where electrical storms are frequent and severe.*

Northern Cascades, Washington: (1) Mt. Shuksan. On 7 August 1948 R. Koenig (18), K. Barr and a companion, returning from a climb of Mt. Shuksan, were at the bottom of Fisher's Chimney. They were standing on a small snow field, planning a climb of Mt. Baker for the next week end. Without thinking, Koenig stepped backwards and broke through the snow where it had thawed too thin from the underside—an area of danger previously recognized. He fell about six feet, and fractured both bones of one leg.

* We are indebted to Philip C. Bettler, who was a member of the party, for supplementary observations: "This was an accident which could not have been foreseen or avoided by the climbers . . . The first-aid equipment carried on the trip was very complete, and certainly indispensable. Besides the usual items to be found in such a kit, we had morphine tablets, Nembutol tablets, sulphadiazine and penicillin. Both Cricket [Miss Strong] and Ian had second- and third-degree burns, so painful that the sedatives were required to enable them to rest. The sulphadiazine was used to help prevent infection of the open wounds. The doctor at Cranbrook commended John Thune [in charge of first aid] on his care of the patients. [The injured were able to travel down to the roadhead on August 7th; they reached Spillimacheen by truck early on the 9th.]

"The storm struck with a sudden fury that could not be anticipated. The climbers sought refuge as far down the ridge as they could get in the time allotted them. It seems almost certain that they were not struck by a direct bolt, but rather intercepted ground currents resulting from a stroke higher up. The burns were confined to backs, hips and legs, and paths between. These were the places where they were probably touching the rock or each other. From an analysis of ground current effects, one may conclude that it is best to get away from vertical faces where one might be touching the rock with the upper part of the body as well as the lower, and to crouch in such a way as to maintain only one point of contact with the rock. For a more complete discussion of this problem, see J. Wilson and R. Hansen, 'Lightning and the Mountain,' *Sierra Club Bulletin* (1949)."

Cf. R. Hansen, "They Climbed to Their Death," *Saturday Evening Post*, 14 May 1949, pp. 38-9, 142, 144-6, 148.—Ed.