pitch by climbing the rope with mechanical ascenders. The route did not present any unusual problems for them; in fact, they were delayed by slower parties above. On the night before the accident they bivouacked at Camp Four, two pitches below the Great Roof.

When rescuers reached Schrattner, they found both of his feet out of the footloops (which could have happened easily in the fall) and both ascenders detached from the rope and hanging by their safety slings. The left ascender was locked open, as though it had been deliberately removed from the rope, and the right ascender was closed. Both ascenders worked perfectly, and I found no indication that either ascender had been forced off the rope; that is, there were no rope fibers caught in the cam teeth and no parts appeared to be distorted. Thus it is unlikely that either ascender was on the rope as he fell. I was unable to examine the rope since it had been left on the cliff after the rescue, nor was I able to examine the pitons on the traverse.

I simulated the traverse by driving pitons into a horizontal seam in a cement wall. A porch roof three inches above the seam played the role of the Great Roof. Then I put on Schrattner's gear and climbed a rope that was attached to the pitons approximately the way Schrattner's was on the cliff.

In summary I can state with certainty only the following:

1. The ascender did not fail, and it worked properly after the accident. Once the safety latch is locked it is difficult to imagine the ascender coming off the rope, especially under the relatively light forces involved in a traverse. It is not difficult to correctly latch the safety, as I mentioned above, and all climbers should develop the habit of checking the lock every time the ascender is placed on the rope.

2. Although the cause of the fall is unconfirmed, the cause of injury is clear: by being so far up the pitch and tied only to the end of the rope, Schrattner was open to a long fall. Had he tied in short to his rope while on the traverse, he would have fallen only a few feet and likely received no injuries at all. Both Schall and other friends of Schattner whom I interviewed were unaware of the need to tie in short. In addition, at least four previous ascender-related fatalities in Yosemite, regardless of their initial causes, were preventable by tying in short.

3. Schrattner's inexperience with ascenders was obviously a strong contributing factor. Although a good climber, he had done no work with ascenders until this trip. He and Schall had practiced once in a tree in the campground, primarily with the rope hanging straight down. The techniques for safely ascending a vertical rope are easy to learn, but safely negotiating a traverse is more complicated. Despite his experiences on the Salathé Wall and on The Nose to that point, the Great Roof was Schrattner's first traverse. (Source: John Dill, Ranger, Yosemite National Park)

Editor's Note: The above analysis is condensed from Dill's five-page report. Thanks to his continuing thoroughness, we learn more and do not jump to conclusions about causes.

FALL ON ICE, CLIMBING UNROPEP, PARTY SEPARATED
California, Mount Shasta
On Saturday, October 10, 1987, Mike Zamzow (22), Steve Jenevein (18), and I (30) set out to climb Mount Shasta via the Hotlum-Bolam Glacier route. We got a late start, not actually getting onto the mountain until nearly 1100. By the time we were
halfway up we began to separate with Zamzow taking the lead, me in the middle, and Jenevein in the rear. We tried to stay within voice range of one another but shortly both distance and wind noise made that impossible. We continued up and by the time I had reached 3900 meters, Zamzow was probably 150 meters in vertical distance above me and Jenevein probably a comparable distance below me. At this point I knew I did not have the energy to continue so I rested. Zamzow was also resting at this point. Jenevein joined me shortly and also indicated that he could not continue. We attempted to signal this to Zamzow who seemed to acknowledge this but also indicated that he was going to continue. Zamzow began climbing again, this time using two axes due to the steepness of the wall. He reached the crest of the glacier, and shortly indicated that he was going to descend. It did not seem that Zamzow took more than several steps before he slipped or his footing gave way. Almost immediately he lost both axes and I realized he could not self-arrest. Mike began to slide and tumble down the ice wall. I moved out toward the center of the glacier in the hope of intercepting him, but he came to rest about 60 vertical meters above me. I yelled to Jenevein to grab the first-aid kit and follow me, and I quickly made my way to Zamzow. When I reached him, I discovered that he was dead. I yelled to Jenevein to stay back and told him Zamzow was dead. We descended by a different route that got us off the glacier quickly so as to get off the ice by dark. (The fall had occurred at 1545.) Once darkness came on, we got lost and came out at a different trailhead, but were found by a Siskiyou County Sheriff. Zamzow's body was retrieved by helicopter the next afternoon. (Source: John Page)

Analysis

I believe that our biggest mistake was not staying closer together. The fact that there had been a fatality on the same route earlier in the week should have made us more cautious. With the late season ice on that route we would have been wiser to rope up and protect the final section. We had all the equipment we would have needed to do so. If we had been closer we might have collectively made the decision to turn back before reaching that section. We were not wearing helmets and I do not know if wearing them would have made a difference or not. (Source: John Page)

Editor's Note: The fatality which Page refers to occurred on a moonlight hike when a hiker and his girlfriend got themselves into a climbing situation on the glacier. This mountain has a number of nonclimber accidents.