

pieces of protection (#1 Friend and #8 stopper) below the bashie pulled out. About two meters below the bashie, Brochu struck a small ledge with his ankle, then fell further down a smooth face. The total distance of the fall was approximately ten meters. He was caught by a piton he had laced.

Ewing lowered Brochu down to the level of his belay stance, pulled him over to the stance with the haul rope, then lowered him to the ground with the haul rope. Because a fracture was suspected, the decision to request a helicopter was made.

When asked to perform the rescue, the park's contract helicopter pilot was reluctant to perform an operation in the gully area, due to increasing gusty winds. The pilot decided to fly a recon flight to test the area, prior to making a final decision. As the pilot was reconning the area, a ground team of 14 climbing rescuers was preparing for an overnight ground evacuation.

At 1730, the pilot and Rescue Technician John Dill decided that a short-haul operation would be feasible. Brochu was then connected to a suspended rope from a hovering helicopter, and flown to the nearby El Capitan Meadow to waiting rangers. A medical diagnosis showed that Brochu did in fact have a fractured left tibia. (Source: Michael Murray, SAR Officer, Yosemite National Park)

FALL ON ROCK, SLACK IN ROPE—FAILURE TO FOLLOW DIRECTIONS, FATIGUE, PROTECTION PULLED OUT

California, Yosemite Valley

On June 21, 1986, about 2030, Austin Colley (43) and Joe Kristy (40) were climbing the Yosemite Point Buttress. Kristy had just led the 12th pitch and was belaying Colley when Colley apparently fell. The fall pulled Kristy off the belay as two of the three belay anchors failed. Kristy injured his hip as he was pulled off. Colley never answered Kristy's calls to him. Kristy tied off the belay rope and spent the night on a ledge. The next morning, Chris Vandiver, a friend, realized they had not returned from the climb and hiked to Yosemite Point to look for them. He discovered Kristy roughly 30 meters below the top. He rappelled down, threw him a rope and helped Kristy to the top. Kristy told Vandiver of the lack of response from Colley. Vandiver then quickly hiked to the Valley and reported the accident at the rescue cache. Rescuers were flown to the top of Yosemite Falls and Kristy was subsequently carried by litter to a helispot on the west side of Yosemite Creek and flown to Yosemite Valley by the park helicopter. More rescuers were flown to the top of the Buttress making a total of ten team members. At 1830 two rescuers reached Colley's location. EMT-1 Bill Russell gave the Yosemite Medical Clinic an assessment of Colley's condition and the clinic staff pronounced him dead. Colley's body was then raised to the rim at 2030. Because it was too dark to fly that night, Colley was flown to Yosemite Valley at 0805 the next morning. (Source: Daniel Hower, SAR Ranger, Yosemite National Park)

Analysis

Based on the statements about the accident from Colley's climbing partner, Joe Kristy, the documentation of the evidence at the scene by photographs and observations by Bill Russell and the Final Autopsy report, I believe the events resulting in the death of Austin Colley were as follows:

On the morning of June 21, 1986, Colley and Kristy started their approach to the base of the Yosemite Point Buttress by hiking up Indian Canyon. They eventually got

disoriented and according to Kristy lost an hour of time finding their way to the base of the climb. The only food or liquid they took with them on the climb was "several Cokes" which they drank at 0730 and 0800 in the morning, and Colley possibly had a candy bar and a pint of water he carried up the climb. These factors contributed to their tired state at the time of the accident that evening.

According to Kristy's statements, Colley's tired state was causing him to take shortcuts in his climbing techniques. On the pitches before the accident, Kristy said Colley was putting one Jumar on the belay rope to use as a handhold to help himself climb past the difficult sections. As he did this he was sliding the Jumar up the rope until he reached a stance, then the belayer would pull the slack up as Colley held the cam of the Jumar open. This resulted in a loop of slack accumulating below Colley that would cause the belay system to be shock loaded if Colley fell. Kristy stated he was aware of this on the pitches just before the accident and warned Colley to clip in to the Jumar with a sling to his harness—standard Jumaring technique. Colley apparently disregarded this suggestion.

Neither climber wore a helmet on this climb, and no helmets were found in the gear they had left behind in their car. Experienced climbers in Yosemite frequently do not use helmets, citing the stability of the rock and the fact that helmets are uncomfortably hot. However, Colley's friend, Valerie Willis, told me he usually wore a helmet while climbing. In this instance, there is some chance Colley may not have been killed if he had been wearing a helmet.

The area where Kristy was belaying from at the top of pitch 12 was very rotten and dirty rock. He had been unable to find any good protection placements for approximately the last ten meters before setting up the belay. He was at the end of the rope and needed to find a belay anchor so he tied off the two rock knobs and the natural chock stone. In this situation this was the best he could do for anchors.

Colley was out of Kristy's sight at the time. Kristy says Colley was still using the Jumar on the belay rope as he climbed the 5.9 diagonal, up-sloping jam crack to his right. Kristy feels that Colley tried to clean the stopper that was found unclipped, but had trouble getting it out. Kristy said Colley's cleaning tool was made of wire and was not very effective. Kristy feels that Colley decided to leave the stopper in place and continue climbing due to his tired state and the lateness of the day. There was probably a Friend placed above the stopper. This is indicated by the fact that when we got to Colley, there was a Friend clipped to a quick-draw runner, and two more quick-draws still on the belay rope above the Jumar which had not been racked.

Apparently Colley fell between the unclipped stopper and the lowest clipped in Friend left in the crack. The fall either pulled the Friend that was found on top of the Jumar, or Colley had already cleaned it or was in the process of cleaning it when he fell.

When Kristy attempted to catch Colley's fall, the force of the fall was much increased by the shock loading effect caused by the approximately 1.5 meters of slack that Colley had developed by sliding the Jumar up the rope while being clipped to it. The force of the fall pulled Kristy off the belay stance and then pulled the two knobs Kristy had anchored to out of the wall. Kristy fell two or three meters, being caught by the sling around the natural chock stone, injuring his hip. He was easily able, he states, to hold the fall with his Sticht plate belay hanging there.

Based on the fact that Colley fell only about 1.5 meters and then was slowly lowered, that the only major injuries were to the top of Colley's head as described in the autopsy report, and the fact that Kristy is sure a falling rock did not hit Colley before the fall, I believe a piece of the rock knob belay anchor hit Colley directly on top of the head. The

belay was not directly in the fall line, but was roughly ten meters to the right of the location Colley was when he was hit. However, there are several ledges and corners which were between Kristy and Colley which could have caused the rock to bounce out of the fall line. According to the autopsy, Colley must have died instantly. (Source: Daniel Hower, SAR Ranger, Yosemite National Park)

FALL ON SNOW, FAILED TO FOLLOW INSTRUCTIONS, INADEQUATE EQUIPMENT

California, Mount Gilbert

On June 22, 1986, a group of climbers was descending the snowy west side of the crest ridge in order to ascend a snow chute to the summit of Mount Gilbert. The leader observed a climber traversing toward some rocks. He was told emphatically not to enter the rocks and to follow the group down the snow. Climber restated his desire and leader again refused the request.

Climber disobeyed instructions, entered a steep tongue of hard snow in the rocky area and slipped. His arrest attempt failed and he impacted the rocks resulting in arm and hand lacerations and a sprained ankle. He was wearing soft topped work boots. (Source: Bob Hicks, Chairman, Safety Committee of the Angeles Chapter of the Sierra Club)

Analysis

Climber had little experience and had no basis to override the leader judgment. Improper foot gear may have contributed to the fall and the ankle sprain. Climber should not have been permitted to climb without proper foot gear. (Source: Bob Hicks, Chairman, Safety Committee of the Angeles Chapter, Sierra Club)

FALL ON ROCK, INADEQUATE PROTECTION, NO HARD HAT

California, Yosemite Valley

On the morning of June 28, 1986, Erik Goukas (23) and Douglas McDonald hiked to the base of Higher Cathedral Rock to attempt the first continuous free ascent of the Pratt/Kelsey Route. They began climbing at 0820.

Between 0915 and 0930, Goukas was leading the third pitch. He was about 30 meters above, and out of sight of belayer McDonald, when he experienced a leader fall of approximately 20 meters. McDonald stated that as he belayed Goukas during the fall, he looked up and observed Goukas come to a stop in an upright position, perhaps ten meters above him. Goukas had not spoken during the fall, and did not respond to McDonald after the fall. McDonald tied off the rope, and ascended it to Goukas. He was nonresponsive. McDonald lowered him to the belay ledge and then rappelled and hiked to the valley floor where he contacted Ranger Grady Bryant on Southside Drive at 1012.

By 1030 a hasty team led by Ranger/Park Medic Mike Murray was enroute to Goukas, the Park's helicopter was being dispatched, and a Huey helicopter with winch capabilities from Lemoore Naval Air Station had been requested.

Ranger Murray's team arrived at Goukas about 1115. Murray reported Goukas as breathing but unconscious, suffering apparent head injuries. With Yosemite Medical Clinic's approval, Goukas was administered oxygen, spinal precautions were taken, MAST trousers were placed but not inflated, and an IV of Ringer's Lactate was initiated. During this period, a second ground team arrived on-scene with additional equipment, the Park's helicopter was preparing for a "short haul" (suspension of the