

anchor point was used for two rappelling ropes. The ropes were looped over and partly around a large, three meter in diameter rock outcropping, with one rope being placed over the top of the other. The top of the rock had a large groove cut across it in which the ropes rested. From this point to the ground was a distance of about ten to 12 meters.

Kelly Hernandez, an instructor, set up the rope system and stayed at the top of the site to check/assist the safety of those descending.

About three hours had gone by when Mike Hughes and Mike Tumminia (14) began to rappel down the rock face. Tumminia's rope (at the anchor point around the rock) was on top of Hughes' rope. They descended about ten meters, Hughes on the left and Tumminia on the right. Tumminia pushed away from the rock face in an attempt to do a short, free rappel. When he did this, the looped part of his rope being used as the anchor slipped/flipped off.

Mike fell approximately five meters to the ground, landed on his feet, and fell backwards. He was stabilized and transported by his father to the Hi-Desert Medical Center in the town of Joshua Tree, where he was diagnosed as having a fractured pelvis and compression fractures of two vertebrae. (Source: From a report by Mike Brinkmeyer, Ranger, Joshua Tree National Monument)

#### **Analysis**

Anchors need to be checked continually, both by guides/leaders and clients, during training sessions or at rappel points where a number of climbers/clients are gathered. It also seems that no belay was being used in this situation. Belaying rappellers is common practice, especially in training sessions like this. (Source: J. Williamson)

### **FALL ON ROCK, INADEQUATE PROTECTION— CARABINER GATE CAME OPEN**

#### **Colorado, Eldorado Springs**

On April 3, 1988, a male climber (27) fell while attempting a difficult move and tried to grab a sling on the last protection piece while falling. Last protection piece was a bolt, and the carabiner sat snugly against the rock causing it to stay somewhat horizontal. When falling, the leader grabbed the sling; it was resting on the gate which was oriented up and the sling opened the gate. The leader fell five to ten meters, striking his head on the way down. The victim had no significant blood loss or internal head injury. Lacerations received no sutures. (Source: Eldorado Canyon State Park)

#### **Analysis**

Use of two carabiners when clipping into a "cramped" bolt and not placing fixed bolts in such a way that the carabiner won't hang free would be a solution for this situation. (Source: Eldorado State Park)

### **FALL ON ROCK, PROTECTION PULLED OUT**

#### **Colorado, Rocky Mountain National Park**

On June 1, 1988, about 1400, during a technical climbing patrol, two climbing rangers were attempting a new route on Checkerboard Rock, a small crag on Lumpy