

steep forest. After we reached the Fisher Creek trail, I hiked ahead to Colonial Campground, 13 miles away. Tired, hurting, and walking slowly, Silas spent that night on the trail. But he was moving steadily under his own power when two rangers and I found him early the next morning.

Back in Seattle the doctors reported a broken wrist, bruises, and a cut on his shin that should heal without stitches. Silas and I both gained more respect for the dangers of moraines. I've had a chance to ponder the problems of self sufficiency and accident response in remote wilderness areas. (Source: Lowell Skoog)

AVALANCHE, POOR POSITION

Wyoming, Grand Teton National Park, Mount Owen

On the evening of April 22, Ranger Renny Jackson received a phone call from Jackson resident Christian Beckwith. According to Beckwith, his friend Stephen Koch (29) had not returned from a solo snowboard descent on Mount Owen. Koch had planned to depart the Taggart Trailhead early on April 22, bicycle to south Jenny Lake, ski up Cascade Canyon, then climb Mount Owen via the north face. He would then attempt the first snowboard descent via the Northeast Snowfields and return that same day. As Koch is a very experienced mountaineer and snowboarder, Beckwith's level of concern was significant.

On the morning of April 23, rangers confirmed that Koch's vehicle was still parked in the Taggart parking lot. At 0915, a helicopter search was initiated for Koch with myself (Mark Magnuson) and Renny Jackson on board. Tracks were followed up Cascade Canyon and into the Owen Cirque below the north face. A pair of cached skis were seen midway up the lower snowfield, with a boot track traversing back and forth across the slope above, leading up to the face. At 0950, pilot Ken Johnson spotted Koch in the main snowfield below the north face, sitting at the base of a large boulder. Koch was waving. Johnson performed a toe-in landing/hover several hundred feet above Koch, and Jackson exited the aircraft. He went directly to Koch to assess injuries. Johnson and I then flew back over Cascade Canyon to make radio contact with ranger Rick Perch, the Incident Commander. After updating Perch on the status of Koch and resource needs, Johnson returned to the scene, and I departed the aircraft with our gear.

Koch was found in a sitting position, with his climbing harness beneath his buttocks. He was wearing light gear (neck gaiter around the head, goggles, medium-weight long-sleeve North Face capilene shirt, medium-weight long underwear, guide pants, gloves, and double plastic boots). He had no additional equipment with him as his pack had been lost in the slide. Koch was dehydrated and hypothermic, but conscious, alert, and conversant. He had extensive wounds visible to his face and head, was spitting up small amounts of blood, and was complaining primarily of pain in both knees, neck, and back. He stated that both knees were "blown."

We began efforts to warm Koch by providing additional clothing, then continued to further assess his injuries. Additional equipment was delivered to the scene via long line/sling load. A cervical collar was placed on his neck, and

high flow oxygen was administered.

Rangers Andy Byerly, Scott Guenther, Dan Burgette, and Chris Harder were flown into the scene, along with additional equipment. Rewarming of Koch continued with heat bags placed under the arms, in the groin, and on the abdomen. With concurrence from medical control (Dr. Rick McKay), Koch was secured on a scoop stretcher in full cervical-spinal immobilization. A splint was placed on his right leg and he was moved into an evac-bag inside the litter. With orders from Dr. McKay, I started an IV of warmed Normal Saline at 1000 cc/hour and administered 25 grams of D-50 (dextrose).

A landing platform was shoveled into the snow approximately 200 feet above and Koch was raised via z-rig to that location. Johnson returned with the helicopter, landed, and Koch was placed inside the aircraft. I flew with Koch to St. John's Hospital, arriving at 1237. Johnson returned to the scene, and by 1530 all personnel and equipment had been flown from the mountain.

Koch's injuries included a fracture-dislocation of the right knee with associated tears of all supporting ligaments, ACL and MCL tears in the left knee, fractures of two lower thoracic vertebrae, pulmonary contusions, chipped tooth with possible misalignment of the mandible, and multiple abrasions, contusions, and lacerations over the body.

Analysis

The following interview with Stephen Koch took place in the St. John's Hospital emergency room on April 23, with additional follow-up questions the next day after he had been admitted.

According to Koch, he departed the Taggart Trailhead area at 0250 on April 22, then bicycled to south Jenny Lake. He stashed his bike at the Teton Boating cabins then skied around the edge of Jenny Lake and up lower Cascade Canyon. He crossed Cascade Creek below the Owen Cirque and began the steep ascent toward the base of the north face. Along the way he cached his skis and began kicking steps up the snow. About the 9,000 foot level, he stopped and left a stuff sack containing a headband, goggles, two high energy food bars, and camera on the downhill side of a large boulder. Koch continued kicking steps up the slope and, due to the late morning hour and avalanche activity that was starting, changed his line of ascent by moving left on the face. He was now using two ice tools and, having aborted use of crampons due to snow balling up on the bottoms, continued kicking steps. He said as the slopes above continued to warm, debris began coming down from the Northeast Snowfields. He again adjusted his plan, with thoughts of waiting at the Koven Col to reassess conditions.

About 1050, an avalanche passed by to his right, followed by a second, larger slide. Koch thought this would miss him as well. However, after taking two steps to his left, he was swept off his feet. Koch said he was thrown down the face in a very violent fall, tumbling over at least two rock cliffbands of about 15 feet in height. After sustaining significant multiple injuries in a 2,000 foot fall, he came to rest at the bottom of the face. Snow had packed his mouth and throat, requiring a struggle to clear his airway and breathe. One ice tool in his pack and attached snowboard were lost in the fall.

Realizing that he now lay in the middle of the primary avalanche track below the north face, Koch hobbled several hundred feet down and across the slope to a safer location, then collapsed. Unable to continue, he drifted in and out of consciousness for the next three to four hours, until the sun moved behind the peak. With temperatures dropping, he began glissading down the slope on his left hip and then his back. He continued a very slow descent until he reached his gear cache at the boulder. It was here that he spent the night, sitting on his climbing harness.

Koch planned to sit out the night, feeling relatively confident that he would be reported overdue and that the Jenny Lake Rangers would be responding the following day. He said he had planned to wait until about 1130 for rescue, at which time he would continue his attempt to descend. In hindsight, Koch said he would have benefited from wearing a helmet and, while he thought he had picked a safe line up the face, realized that he was behind schedule and subject to the hazards of changing conditions. He did not anticipate that debris from above would affect him on his adjusted line of ascent. He noted that he was still climbing in the shade, but sun had already been warming the upper slopes. Koch expressed extreme gratitude for having survived the accident and for the rescue effort that ensued. (Source: Mark Magnuson, SAR Coordinator)

(Editor's Note: In the "Jackson Hole News," April 29, 1998, Koch is quoted as saying that he survived, he believes, because of his will to live. Also, he said, "Too much to do. Babies to have. It's a sign. I've got more work to do on this earth—helping others, especially since I've been helped so much." His recovery has gone well.)

FALL ON ICY ROCK—BLOWN OVER BY WIND

Wyoming, Grand Teton National Park, Grand Teton

On June 25, James McDonald, Larry Susanka and Dan Sola (38) were attempting to climb the Exum Ridge of the Grand Teton in icy conditions with a storm in progress. Around 1430 Sola fell about ten feet while leading the Friction Pitch. Sola was wearing crampons on the iced rock, but was caught by a strong gust of wind and blown over backwards. He had protection below him, but still hit the belay ledge, dislocating his right shoulder and injuring his ankle. Susanka used a cell phone to call 911 and was connected to Ranger Tom Kimbrough at the Jenny Lake Ranger Station. Susanka asked for route information, but stated that the party would try to descend without help. Park Medical Control, Lanny Johnson, PA, was contacted and called Susanka to talk them through the reduction of the dislocated shoulder. When Johnson reached them by cell phone, the reduction had already been accomplished. The group rappelled and down-climbed the Exum Ridge, occasionally calling for route information. They reached Wall Street, the end of the most technical part of the descent, at 1840. Continuing down, they arrived at the Lower Saddle at 2130.

When this group left the Lower Saddle to climb the Grand Teton at 0445, a fourth member of the party, Jack Hicks, elected not to climb. He remained at the Saddle, and when tents began to be blown down by strong winds, he broke the window of the Ranger Hut to gain access to better shelter. He also con-