Johnson was quoted to have said, "Old English is courage in a can." (Source: Thomas Wilson, Ranger, Yosemite National Park)

## FALL ON ROCK, CLIMBING UNROPED, INADEQUATE FOOTWEAR California, Yosemite Valley

On July 18, Amy Khoo (19), Matthew Enu (24) and a newly met climbing partner, Joey Chiarucci (26) were using technical climbing equipment to climb the lower Yosemite Falls waterfall route, just to the east of lower Yosemite Falls. They completed this climb safely, and then secured their climbing gear in their backpacks. They remained

at the top of the lower falls for a few hours, swimming in the pool there.

They then attempted to descend from the area by first climbing to the top of a granite bench by which they then were going to walk off from the climb, going to the east across Sunnyside bench. At this point they were not wearing their climbing boots. In fact, Amy Khoo was wearing Birkenstock sandals. As Khoo attempted to climb to the top of the bench, she lost her footing and fell about eight meters down a moderate angle slope. She was injured, knocking out several teeth, possibly fracturing her left femur, and sustaining multiple areas of significant abrasions to her arms and legs. Matthew rappelled down to her, determined that she needed medical attention and a technical evacuation, and sent Joey Chiarucci down to the NPS Maintenance Yard where he contacted Ranger Cameron Jacobi at 1910. I organized an immediate response, sending a blitz team headed by John Dill up Sunnyside Bench with initial medical and technical gear. A follow-up team, headed by Jacobi then geared up and followed Dill a half hour later. Due to darkness, Khoo was not evacuated by helicopter. Litter evacuation was completed by 0100 on July 19. (Source: James Tucker, Ranger, Yosemite National Park.)

## FALL ON ICE, PLACED NO PROTECTION California, Mount Shasta

In July, a party of four climbers attempted the Hotlum Glacier route on Mount Shasta. Parts of this route are covered in hard ice on which self-arrest is difficult. The climbers traveled in two two-man roped teams, and used ice axes and crampons. While traveling over a section of hard ice, one member of rope team #1 fell and took his rope-mate with him. Both suffered injuries to the lower legs from crampon points. Later, one member of rope team #2 fell and slid, pulling his rope-mate after him. During their 300 meter slide, one of the victims hooked a crampon point on the ice, injuring his ankle and causing him to tumble. The pair stopped around 3200 meters by dragging their knees and elbows against the ice. The injured victim was unable to travel and spent the night alone on the glacier, suffering frostbite to the injured foot. He was evacuated by Siskiyou County SAR the following morning. (Source: Tom Grossman, Bay Area Mountain Rescue Unit)

**Analysis** 

The ice on the Hotlum Glacier is often hard enough to make self-arrest extremely difficult; this means that simultaneous roped travel does not significantly increase (and in fact may decrease) the safety of the climbing party. In each of these two incidents, the