



## New Cave System - Mt Adams (continued)

And just as we had to leave, we found a third parallel tube in the system, still unchecked. So is most of the system up-tube from the prominent trench. This system is fascinatingly different from any other in Washington and in some ways reminiscent of the Labryinth complex of Lava Beds National Monument. Caving, anyone?

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## NEW CAVES IN GRANITE (?) REPORTED BY STATE GEOLOGY DEPT.

The state Division of Mines and Geology has a photograph of a very large cliffside hole and three smaller ones in a line with it, apparently in granite, about 10 miles above Early Winters Ranger Station on the North Cross-State Highway now under construction. This is east of Washington Pass in a little-known area of the Cascade Mountains.

The photograph indicates that approach to the caves may be best by a long rappel.

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## CAVE RIDGE TRIP REPORT (August 14 & 15, 1965) by Jan Roberts

Verne Freese, Bob Brown, Dave Metsky and I were met at Snoqualmie Pass early Saturday morning by Luurt Nieuwenhuis and Marcia Brown. Verne's group hiked off into the brush to show Luurt and Marcia the Red Mountain Trail to Cave Ridge. Later in the day, we all explored Newton Cave and started surveying the top of Cave Ridge.

We were busy surveying when we were hailed from the Goat Hunters camp by Ed Tupper, Charlie, his son, and a friend, Sam. We hailed back that we were camped near Hellhole Cave. Ed's group joined our group on Sunday morning.

Sunday morning, Verne, Bob and Dave decided to survey Hellhole. When Ed, Charlie, and Sam joined me at our camp we told Verne that we would be back in time to belay his group out of the cave and that we would be exploring Red Cave while they surveyed Hellhole.

Red Cave is located in the same trench as Newton and the newly found Cave Pigs Ice Cave. Red Cave got its name because of the red flowstone found in several places in the cave. We paused outside Red Cave so that Ed and I could take pictures of the sinkhole and entrance. Then Charlie and I went in first. Charlie headed for a crack and tried to get into a room a few feet beyond. Ed and Sam came in the cave and Ed went to the right and up and across into a small room. The rest of us quickly followed him. Ed was looking into a pit. This was the room Charlie saw. Ed went down first, on belay, and he tried to squeeze into the crack from the pit area. He failed, so I went down and tried my luck. I made it to a small pit in the crack but it was choked with dirt and rubble. I then had to back out of the crack; easier said than done. If I had my coveralls on, I wouldn't have made it into that crack in the first place.

## Cave Ridge Report (continued)

I then chimneyed out of the pit and hauled my gear out while Ed was climbing out. We then collected all of the gear, coiled up the rope, and proceeded out of the cave.

Arriving back at Hellhole, we learned that Dr. Halliday and two of his children had arrived. Also, that Verne and Dave have placed a log over the entrance of Hellhole for belaying and anchoring ropes.

There was a little confusion about where the cave heads. The entrance passage seems to turn people around 180° from the direction they are actually pointing.

As far as minor accidents go we had our share. I managed to get stuck one fourth of the way down the forty foot pit in Newton Cave. I was sitting on the belay rope and the rope I was sliding down on. There was enough friction to stop me. If Bob had pulled the belay rope all the way up (we were using one rope for decent and belay) that would have prevented that accident. Dr. Halliday dropped his hard hat down Hellhole and his daughter dropped her purse down there too. Sam lost one of Eds' helmets on Saturday while climbing up one of the waterfalls. Charlie and Sam, using collapsible cups, had melted some snow when Charlie was going to cool off his water at a snow bank. Just as he reached the snow bank the cup did exactly what it was named for. Ed was going to have a drink from Sams cup when it also decided to collapse.

I showed Cave Pigs Ice Cave to Charlie, Sam and Ross, and then we went to Newton Cave where Sam and I waited for Charlie.

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## BOSTON GROTTO REPORT OF THE JAMES MITCHELL ACCIDENT

(The following report is reprinted from the California Caver, Vol 18 No 2, reprinted from the Jan.-Feb. 1965 Massachusetts Caver.)

Late in the afternoon of February 13, 1965, Jim Mitchell, 23, and NSS member (#7157R) and vice-chairman of the Boston Grotto, ran into trouble on a prusik out of a pit a Schroeder's Pants Cave, Herkimer County, New York, which left him suspended beneath an icy waterfall. Despite all efforts of his two companions and subsequent rescue personnel to extricate him, all failed, and he perished from exposure, presumably, due to the effects of the waterfall.

Events leading to the accident began two weeks before when Jim found out about the cave from local people and heard that it had a pit with a passage coming off part way down which reportedly no-one had been able to reach. Jim's curiosity was aroused and he had a blacksmith make up a special grappling hook which he planned to throw into the passage and pull himself over. He then organized a trip for the assault which left Boston February 12, and consisted of Jim, the leader,

## James Mitchell Accident Report (continued)

Hedy Miller, the grotto secretary, and Charlie Bennett, a novice (and not then a grotto member, contrary to most newspaper reports). They stayed overnight near Sprakers, N.Y., had breakfast around 10:00 the next morning and proceeded to the cave. This was the only food they had before the accident - although they carried "trail snacks", these were not used. At the cave, near Dolgeville, N.Y., they obtained permission from a former lessor, Mr. Lyon, and told him they intended to be out by 5:00 PM. They entered around noon and proceeded toward the pit at the end.

The cave lay in a disk-shaped sink in thin forest. Entry was by an ice-covered slanting chute in one side of the sinkhole. The cave continued roughly 250 feet horizontally, developing as an unbranched fissure passage mostly along a SW trending joint. It had a mixture of walking and crawling passage with more crawling toward the end. The cave was tight in spots, and a large amount of time was spent by the group getting their equipment through. A small stream ran along the floor from near the entrance to the pit, down which it disappeared as a small waterfall. The water flow was estimated to be in the order of eight gallons per minute, and it was abnormally cold, presumably being melt-off from the snow; its temperature was reportedly around 38°F while that of the cave was 45°F. Toward the end of the horizontal section the passage described a "Z"-shaped meander at the end of which was a squeeze from one small room (the "Z" room or "Telephone" room) into the somewhat smaller "Pit Room" via a narrow area floored with six inches of water. The Pit Room was cramped - it was only 5' high with space to accommodate about four people. In its floor was an irregular opening approximately 1 1/2 feet by 4 feet which quickly belled out a couple of feet down into a 60 foot pit. Erected over the near half of the pit was a 3 foot square metal structure, the tripod, supported 3 feet off the floor by three legs which rested on the rock at the sides of the pit. Beneath the tripod, a number of boards had been placed to span the pit. The room was not much wider than this tripod.

Due to the narrowness of the cave and the difficulties in moving equipment, plus two sets of "rope salade" at the drop, it was not until around 5:00 PM that the pit was rigged and Jim Descended. Their main rope (7/16" Goldline) was rigged to a cross-piece of the tripod on the far side; a belay ran over the boards at the near side of the pit. Jim rigged into a single brake-bar rapped, tied on his safety rope, and started down the pit to look around, leaving the grappling hook behind. Hedy belayed from the near side of the pit, while Charlie stationed himself on the far side where he could see and hear Jim and relay the signals. How much experience Jim had had with vertical techniques is not known to the grotto, though he gave the impression of being experienced. On this trip he showed good knowledge of the mechanics of vertical work: making rappel slings, rigging into rappel, tying prusik knots, etc. Other than his inability to cope with the difficulties he encountered, the only indication that we have that he was not very experienced was his lack of knowledge of proper climbing



James Mitchell Accident Report (continued)

signals. At Hedy's suggestion he started out using standard signals, but later forgot, and would call such things as "pull up the slack".

Jim rappelled down 20 feet and after a certain amount of maneuvering gained access to a ledge and a room opening onto the ledge, probably to the South of the shaft. He freed himself of both ropes and went to explore the room for a total of 15 minutes. He reported that it was full of hibernating bats and that it led to a passage which opened into another vertical pit. He then returned to the ledge, tied into his belay, and started prusiking out. He made good progress for a while (less than 10 minutes), apparently being pretty much out of the waterfall. Then his prusik knots began to stick due to the wetness of the rope. Contrary to newspaper reports, he did not get wedged, nor did he have troubles with tangled ropes. At about this time the waterfall, a sizeable fraction of which was now hitting him, extinguished his carbide lamp so Charlie moved into a position from which he could shine his flashlight on Jim's knots. Jim acknowledged the assistance and continued to make slow progress, though his hands rapidly became numb (at some point he took off his gloves, probably so as to manipulate the knots better, though this would also have increased his numbness). When he reached a point 10 or 12 feet below the top, he called for his companions to haul him up. He was apparently obsessed with the notion of getting up, for he didn't think to return to the ledge to get out of the water but repeatedly insisted that he be hauled up throughout the remainder of the time he was conscious. This and the fact that he was seen to make repeated futile quick tugging motions at his prusiks may indicate that he was panicked.

Charlie tried to haul him up by the belay while Hedy snubbed. They could not lift him more than six inches and were unable to consolidate their gains by snubbing the belay. An attempt to haul up on the main rope was similarly unsuccessful: it was hard to reach the rope, and the weight on it was too much. Other attempts using direct pull failed as well. The awkward geometry of things prevented them as well as later rescue workers from getting a good pulling position. While they were making these attempts, and 15-20 minutes after his light went out, Jim's talking became slower and slower, and then lapsed into groaning sounds, and he no longer responded to questions. Earlier Charlie had gotten the idea of trying a mechanical advantage system and had suggested it to Jim, who did not respond. So now, using the other end of the belay rope, they lowered a rescue pulley and a carabiner on a bight of rope. By this time, however, Jim had lost consciousness and failed to react and clip into the pulley, even when it was brushed against his hand. They next tried to employ the pulley to pull up directly on the main rope by attaching it to this with a prusik knot pushed as far down it as they could reach. The prusik knot would not hold however, as it was made with 7/16" rope, so they abandoned this procedure. They did not try smaller diameter slings. The total time spent on these various efforts was about 3/4 hour.

## James Mitchell Accident Report (continued)

At this point Charlie went out of the cave, leaving Hedy with Jim. He went to a nearby farm house from which the police were summoned. Neither he nor Hedy thought to call Boston or NSS cavers, then or later. The police and fire departments responded and Charlie led them to the cave. He suggested that the cave could not hold too many people and that the first ones in should be small and should know the cave.

When two such people reached Hedy, she emphasized the need to get Jim out quickly due to the danger of exposure. Together they attempted to haul him up but were not able to raise him more than a foot or so due to the cramped quarters. The men felt they would need some mechanical aid and wanted to get Hedy out, so they left the cave. Hedy was put in an ambulance and she and Charlie were taken to a hospital where they had no further connection with the rescue operations.

Death from exposure (lowered body temperature) would have occurred at most a few hours after Jim lost consciousness, depending on the amount of water hitting him. By the time word reached NSS machinery (1 AM), it was probably already too late.

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(Much of the above was taken verbatim from a preliminary report by Charlie Bennett and Hedy Miller. The following analysis by Dan Hartline is heavily dependent on many ideas and much valuable discussion contributed by many members of the Boston Grotto.)

(Note: the primary cause of the accident - wet prusiks - should be stressed. The Grotto has received many confirmatory reports that wet prusiks do stick. This should be borne in mind by all vertical cavers.)

### JAMES MITCHELL ACCIDENT --- ANALYSIS

by Daniel Hartline

Jim had not been a grotto member long, and we did not have time to assess his qualifications. He told us that he had done vertical caving, though we don't know how much. From the one horizontal trip he went on with other grotto members, we have conflicting opinions as to how much at home he was caving. According to Hedy, he seemed to have a good knowledge of vertical techniques with the exception of not knowing standard climbing signals. We believe in hindsight, now, that he wasn't experienced enough to qualify to lead a vertical cave trip.

Hedy is a moderately experienced vertical caver, but she lacks a man's strength and had had no experience handling emergencies such as this. Charlie Bennett was a novice, having been in only one true cave before. It was not a particularly strong team for vertical work.

It is hard to argue that Jim violated some hard and fast formal safety rule, in fact from talking with him, we know that he was very safety conscious. He did violate the rule that the most experienced vertical caver should go down last, a rule which is usually meant to ensure that

## James Mitchell Accident---Analysis (continued)

descending arrangements for the others are functioning properly, but it is also so that in an emergency the most qualified will be on top, where he will have the widest range of action to persue in meeting it. The primary exception to this rule is when the situation at the bottom is uncertain; then the most experienced must see if it is safe for the rest to come. This exception probably applies in this cave.

Mainly, however, Jim violated common sense on two counts, first, going into a hazardous situation with insufficient experience to handle it himself, and second, tackling a vertical cave with a support team insufficiently experienced to handle emergencies. Combining a waterfall with vertical techniques is not especially safe, particularly when the water is so cold, but it is a fact that cavers do not generally even consider the dangers of exposure - mountain climbers die from it all the time, but not cavers. What they attempted to do was not all that unusual or different. When an emergency did occur, however, Jim reacted incorrectly in not thinking to return to the ledge to get out of the water when it became apparent that his companions could not get him out. They in turn did not think to lower him, probably due in large part to his insistence on being hauled up. In all liklihood if his companions had been two highly experienced vertical cavers, he would have been extricated from his predicament alive. That such a situation did not exist is in no way the fault of his companions. The responsibility for not having an adequately experienced party lies with the leader -- Jim.

Jim had a number of cards stacked in his favor: he had a belay rope even on a prusik, which most people consider to be overcautious; he had rescue pulleys in his pack, which few do; all three cavers had seen a demonstration of a mechanical atvantage rescue system at the grotto meeting a few weeks before, which gave Charlie the idea, though he couldn't remember the details; and Hedy was well aware of the dangers of exposure, having heard a discussion of it by an expert on the subject. Despite these, he died. The one factor which proved overwhelming was the lack on his part and that of the party of knowledge how to cope with such an emergency situation. Since the accident, a number of emergency procedures have been suggested which might have been successful. One thing has become apparent, though, namely that even experienced cavers do not think of very many of them instantaneously. In an emergency, however, the ideas are needed instantaneously. Therefore, **RESCUE PROCEDURES MUST BE DISCUSSED BEFORE HAND** on any cave trip. The following suggestions should form the basis for such a discussion.

### While Jim Was Conscious

1. Tell him to prusik back to the ledge to get out of the water. Warm clothes and assistance could have been obtained at relative leisure then.
2. Untie or cut the main rope and lower him on the belay to the ledge or the bottom.

3. Biligeri method of ascent, where two belayers hold two ropes running to two foot loops in which the climber stands. The climber raises one foot, and the belayer for that foot loop hauls in the slack and snubs it. The climber then shifts his weight to this loop and raises the other foot for the second belayer to haul in. Prusik knots may be substituted for the belayers, if need be. With nylon rope, this is only good for climbers less than 40 feet down or so, as the rope stretches considerably. A simpler way in this situation might have been for Hedy and Charlie to alternately haul up and snub the belay and main ropes while Jim stood up in his prusik slings, then rested on the belay. Or, had he the strength, he might have chinned himself on the main rope while slack in the belay was taken up.

4. Mechanical advantage derived from a pulley or carabiner hoist system would have been most effective if he had been able to attach the system to himself.

5. Direct pull - a person may be quite capable of lifting another by direct pull if he does it right. One must run the rope over one's back and pull with one's back and leg muscles rather than with one's arms. It seems possible, however, that the cramped quarters in this particular case would have hindered this.

6. Cable Ladders, had they been available, would have been ideal. They should be considered standard items of emergency equipment even for those who scorn to use them ordinarily. Even for deep drops, a single length can serve to get someone who can still climb under his own power out: The ladder is lowered attached to a rope, and a belay rope is attached to the climber's seat sling. The climber climbs to the top of the ladder length, then sits in his sling. The ladder can then be hauled up until the climber is again at its bottom, and the process repeated.

7. A loop ladder can be used if a cable ladder is unavailable. Butterfly loops or overhand loops are tied at intervals along the length of a climbing rope, making a "ladder" of sorts.

8. Food was available and had it been eaten it would have made a big difference. A person who feels exhausted on a long prusik climb can be perked up considerably if he simply sucks on hard candy while he climbs.

#### After Loss of Consciousness

Jim's loss of consciousness was rapid and unforeseen by his companions. It hampered considerably their efforts to extricate him and might have made some of the following unworkable due to the possibility of his wedging in the bottle neck at the top of the pit. When Charlie last saw him "his prusik knots were close together on the climbing rope-- he had apparently been unable to move his chest knot up before losing consciousness--and was therefore hanging diagonally with his knees and hips somewhat flexed and his head only slightly higher than his feet"... "he seemed to be holding the climbing rope tightly with both hands." Although he might have been reoriented from above, it is possible that someone would have had to go down to him on rappel or ladder to get him through.



Suggestions:

1. Lowering him, then rappelling down with dry clothes and blankets could have worked, but at a much greater risk than before he lost consciousness. His support team would have had no way of knowing wheather they were lowering him into a pool where he would drown before they could reach him. They had been led to believe, in fact, that such a pool, might exist, though actually it did not. The possibility of someone rappelling down before or durring the time he was lowered ordinarily might be considered, but here it would have been a complex and risky operation and under the circumstances better avoided.
2. Mechanical advantage system attached via prusiks made from proper diameter slings to exert pull on the main rope. 7/16" prusiks will not grip 7/16" rope - the optimal diameter for prusik sling rope is 5/16" on 7/16" main rope. Prusiks have a wide range of applicability to other aspects of rescue operations as well. In additon to the make-shift pulley or carabiner rings, there exist compact and light lever-hoists (e.g. from Sears) with mechanical advantages of 15:1 or more. They are uncomplicated in form and require a minimum of room to operate in. Purchase of such a piece of equipment should be considered by any caving group.
3. Counterbalance hoisting - If there is difficulty with the mechanical atvantage system in a pit-type rescue, for one reason or another, ~~the~~ much or all of the weight of the victim can be counter-balanced with that of one of the support team. A rope from the victim is passed through a pulley suspended over the pit and attached to another climber, who is then lowered into the pit as the victim is raised. For half the distance the counterbalance man can assist considerably by hauling up on the rope to the victim.. Friction must still be overcome. (Note: This system was discovered apparently independently by the Swarthmore Grotto and was used successfully to rescue an East Tennessee Grotto caver from Bull Cave. (Guacharo 6:2). (Rigging the counterbalance man into prusiks helps.)

The question now arises as to how to prevent such accidents from happening in the future and how to be better prepared for them when they do occur. The following action has been taken by the grotto or is being contemplated, and consideration of similar action is urged of other caving groups. Learn from our mistakes; don't make them yourselves.

1. The setting down of general requirements for safe conduct by grotto members on any cave trip: a) Safety and conservation indoctrination of beginners (applies to a leader); b) Adherence to reasonable safeth and conservation standards; c) Adequate experience for leader and party ( applies to a leader). Also set down guidelines to fulfill these requirements.
2. Caver certification system - certification of grotto members according to their capabilities and experience; for use in determining an adequately manned trip as well as providing incentive for technical advancements. (Details on 1. and 2. available on request ((Boston)) ).

## James Mitchell Accident---Analysis (continued)

3. Caver achievement cards and sheets - detailing the ability of grotto members in terms of their technical achievements - to serve as incentive for advancement.
4. Grotto rescue packege, containing emergency equipment: cable ladder, lever hoist, first aid kit and other first aid gear, emergency vertical gear, etc., tentatively for the use of any cave trip leaving from the Boston area, regardless of grotto affiliation.
5. Duplicated sheets of emergency phone numbers to be called in organizing a rescue party of Boston Cavers, plus emergency numbers for rescue teams and for other cave areas. To be effective, these sheets must be kept up to date. (Available on request ((Boston)) ).
6. Windshield cards - to be filled in and left on the car windshield to let people know where you are, when you will be out, and what to do if you are not. (Available on request ((Boston)) ).
7. Rescue practices are now being run periodically by the grotto.

Two previous accidents have claimed the livess of three NSS members. They seem to have been rapidly forgotten as far as national notice goes. This must not happen again. There are a number of things which the national society could do which are much less effective if only done locally. First, there is need of a national cave rescuenetwork which should be vigorously pushed by the NSS, and aided with money, if needed. Second, there has been evidence of interest in getting NSS radio amateurs linked into an emergency communications system. Communications are vital to any sort of cave rescue effort. This should be pushed. In this particular rescue attempt two things were missing: a knowledge of rescue techniques, and adequate communication with those who have such knowledge, or even with experienced vertical cavers. The Boston Grotto was never contacted concerning the accident. This should never have happened. Had we known, we could have contacted cavers considerably closer to the scene, though in this particular case it was probably too late by the time NSS peopleknew about it (but in any event it would have saved us a considerable amount of money from phoning around to find out what was up.) Also, the more people who had been contacted, the more likely that someone would have thought of lowering Jim. In view of these; the following suggestions are made for regional and national consideration:

### Techniques

1. A rescue manuel for cavers should be written. This has already been undertaken by the National Capitol Grotto. A Handbook of Caving will also contain much material on safety, accidents, and rescue. ( A loose-leaf handbook covering in detail all aspects of caving technique and equipment, currently being published in the Massachusetts Cave.)

2. More information on techniques should be published in the NSS News. People like Jim are avid for information on caves and caving techniques. If they don't get it through the NSS News or some such source, they are liable to experiment for themselves and a certain percentage will thereby come to grief.

3. An annual report akin to "Accidents in North American Mountaineering" would be useful.

### Communication

1. A standard national procedure for handling calls for assistance should be developed and publicized, to include:

- a. Notification of the NSS D.C. office, or one of a few central offices with 24 hour phone numbers.
- b. All local grottoes should be notified. They in turn should alert as many members and mobilize as much equipment as possible to stand by in case of need.
- c. Arrangements should be made immediately to communicate directly with other cavers involved in the accident, as they know better than anyone else what the situation is.
- d. Some means for people not at the scene to communicate with the rescue team should be arranged. Too much information is lost in going through the state police. A radio amateur network might be the answer.
- e. The NSS cave files should be alerted so information on the cave can be relayed to the rescue team.

An outline of these emergency procedures, plus emergency phone numbers, should be printed on the back of the NSS membership card.

2. Plaques with emergency instructions could be placed at the entrances of the most frequented caves in an area. This would familiarize local and other non-NSS cavers, who are more likely than NSSers to run into trouble, with a method for obtaining help. The message should be simple so it can be readily remembered:

FOR RESCUE ASSISTANCE  
CALL THE  
NATIONAL SPELEOLOGICAL SOCIETY  
IN (City), (State) (of nearest cent. Off.)  
AND THE STATE POLICE

Most lay people have trouble remembering the NSS's name. For safety's sake it should be changed to something easy to remember.

3. The NSS annual report for grottoes should have a place for emergency numbers. At least one such number should be published for each grotto and each region in the annual membership listing, and revisions should be promptly published in the NSS News. A summary of transportation and vertical experience and equipment mobilizable might be printed as well.

4. Windshield cards could be made available through the NSS as decal, patches, etc. are now.

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