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UNDER THE
DISCOVERY ENTRANCE, CATWALK CAVE

VOL. 9
NO. 1

The SAG RAG is published bi-monthly by the Shasta Area Grotto of the National Speleological Society. Editors: Jim and Liz Wolff, PO Box 865, McCloud, Ca. 96057. Printing: Ray Miller. Grotto meetings are held the second Friday of the month at 7:30 pm. Meeting places are announced in the newsletter. Membership dues (including newsletter) are \$6, due January 1, and prorated by quarter.

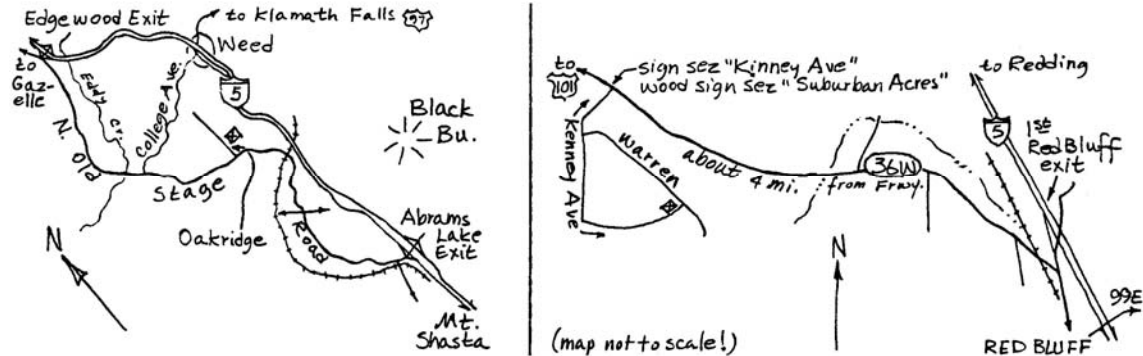
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CAVER'S CALENDAR

March 9 grotto meeting: George & Dorothy Reel's, 7908 Oakridge, Weed. 938-4078.

April 13 grotto meeting: Al & Phylis Henderson's, 14500 Kenney Ave., Red Bluff. 527-7513. We will try to visit the Ishi Caves on Saturday.

R.S.V.P. to Hendersons, please !



Coming Events: May 24-29 caving trip to Eastern Nevada led by Neils Smith.
July 9-13, 1990, NSS convention in Yreka California.

January 12 grotto meeting minutes:

Present: Wayne Smith, George & Dorothy Reel, Jim & Bea Kottinger, Neils Smith, Jim & Liz Wolff, guests Peri Frantz and Michelle Richardson. Chairman Neils called the meeting to order at 7:50 pm at Wolffs' house. The minutes were accepted as read. Treasurer's report showed a net gain of \$100.89 and a balance of \$345.34. Many dues were paid.

Old Business:

- Election results: chair - Neils; vice - Jim K; secretary - Liz; Treasurer - Ray. There was one write in vote for chairman.
- Jim Wolff sent a reply to Ernie Coffman about the letters from the kids in Yreka.

New Business:

- Ray received a letter from Dixie Pierson asking about Jane Olson of the Klamath NF on bats. She has gotten no reply from her.
- Ray received a call from a church youth group to take them caving on Sunday Jan. 21, in Sand Cave. George & Jim K volunteered to lead them.
- George moved that the SAG chairman dues be paid by the grotto. Died without second.

Meeting adjourned 8:15 pm.

February 9 grotto meeting minutes:

Present: Jim & Bea Kottinger, George & Dorothy Reel, Wayne Smith, Ray Miller, Jim & Liz Wolff, Bill Broeckel of Yreka.

Jim K called the meeting to order. Minutes were approved as read. Treasurer's report showed a gain of \$66 and a balance of \$411.34.

Old Business: Bill Broeckel and the Yreka Pathfinders cleaned up Sand and Barnum Caves, turning lots of aluminum into cash. They saw bats in Barnum. Jim W gave Bill a letter for Melanie Jackson.

- Convention: Ray sent a ream of tour maps for noncaving trips planning and publication. Jim W asked if the Ft Jones museum has a phone for information. Jim W announced that Tom Hesseldenz will lead a trip to Tombstone Mtn July 6-8.

New Business: Bill Broeckels membership application was accepted.

- Ray reports a bat inventory is needed in the Pluto's Cave area.
- Ray gave an article on plague at Lava Beds.
- Jim W reports that there may be a maternity colony of bats in Snake Pit Cave.
- Ray gave slide shows to the museum and Elderhostel groups.
- Next 2 meetings: Reels and Hendersons.
- Wayne reported talking to a man who put a cache of stuff in a cave SE of Medicine Lake.

Meeting adjourned 8:43 pm.

Convention Update: At the January grotto meeting the program was provided by Michelle Richardson and Peri Frantz, chairman and secretary/treasurer for the NSS convention. They spoke about the convention site, caves, activities, contests, and the role that the grotto can play in it. They showed slides of the Yreka area, and due to a mix up, the rejected slides from the official convention slide show. They answered questions and listened to suggestions, thanking the suggestors. Jim Wolff talked about the pre- and post-convention trips.

NEWS!! The Oregon High Desert Grotto is now a chartered grotto of the NSS! They came to the November '90 SAG meeting held at Oregon Caves.

ADDRESS CHANGE: Don and Audra Quinton, P.O.B. 1255, Barstow, CA 92312-1255
They live at: 1121 Teton Dr., Barstow, CA 92311 Phone # (619) 252-8615

CLEANER TODAY... by George Reel

Jim Kottinger and George Reel went caving Sunday (1/21/90) afternoon. They meet with a group of young people from Yreka. It was (pre-arranged) to take them into Sand and Barnum Caves. In last talking to the leader in making arrangements for the trip, there were to be 8-10 on the trip. As Jim and George approached, all that could be seen were heads; many, many heads bobbing around outside waiting for us. All were covered with some sort of headgear. They were warned that this was a pre-requisite of going into the caves. But our 10 had turned into 20, including many adults. All had two sources of light. Very good so far. While Jim was placing the ladder in Sand Cave entrance, George was giving a safety and cave preservation speech to the group. Wish I could remember what I said, for as we came from Sand Cave we filled a 33 gallon garbage bag with trash that the group picked up and carried out of the cave. They also filled a large cardboard box with trash from Barnum Cave. We had also talked about bats and that they did hibernate in the caves. We told about the bats that were removed from the caves last year by some boys who turned them loose in Gil's Market in Weed, and that all the bats had to die because of that prank. We were not sure if we would see any bats or if the colony had been destroyed. I'm glad to report that there were bats hibernating! Unable to say just how many, for we did not obtain a count, but I would guess there were 25-30. From our talk, bats became interesting and nothing to fear. All the bats were treated with the utmost respect and great care taken by all not to disturb them.

Both Jim and I enjoyed the trip, glad to have gone with this group and would be willing to take them on another trip to another cave. Because of this group our cave system is a little cleaner. No! A lot cleaner for them having been there!

A Tour of Pluto Cave, "the Hard Way?"... by J. Wolff

It all started out as a personal favor for the biologist at work. She said that her local Audubon Society chapter wanted a cave trip for their members. So, I thought, what the heck, it's for a conservation oriented organization isn't it? So what's to hurt...? Little did I know that the trip was advertised in the Supersaver Advertiser, a county-wide free newspaper! And it didn't even mention that it was an Audubon-sponsored trip, which it was. Anyway, I accepted the burden when I found that I couldn't back out of it..., so I just showed up, ready for the hoards that would certainly show.

The day was super foggy and COLD! And only four people turned out! They were nice folks an' all interested in caves to a degree. We had a nice trip through the cave. I told them about caving and what brings people to go caving. Each had very good questions for me, and all showed an incredible amount of pluck to thread their way through the maze of breakdown that makes up a greater part of the length the cave.

So, at the end of the day they all gave me their many thanks; some offering me money, a tea party (all of which I politely refused). One offered a free massage and acupuncture (which I gladly accepted! There's a limit to my pride, you know!)

The Earth Shook, the Sky Burned, And all the Bunny Rabbits Ran Away; Part 14; Shovel (Arch Sink), Mike's Sink, and Catwalk Caves, the Core of the Gaping Holes System.

by Bruce Rogers, Regular Fellow

In this installment of bunny harassment, we shall look at one of the larger caves in the Medicine Lake Highlands, the Gaping Holes System. The main flow we are concerned with here has been extensively studied by geologists from the USGS for nigh on ten years. Most of the technical data here are from their ongoing studies. In addition, a large number of cavers from several NSS groups have played a major part in the mapping and understanding of the plumbing of these flows. We will mosey down the tube, taking an abbreviated look at some of the more salient features of the caves. We shall start with the 1,266 foot long Shovel Cave, then quickly drop 141-foot-long Mike's Sink before sauntering down 7938-foot-long Catwalk Cave.

Beginning the onslaught of the reader's retina we enter the Arch Sink Entrance to Shovel Cave. We know virtually nothing of the system's early human-oriented history. Scatters of obsidian, presumably from the Lost Iron Wells quarry site, and worked artifacts of basalt have been found near adjacent caves. Nothing of such presumed antiquity has been found in any of the caves described herein, but, then again, few with the proper training have really looked either.

An old rusty square-tipped shovel was found in the entrance of the cave, thus prompting the name. We can safely assume that a logger or other worker during the 1880's logging activities that took place here pitched the thing into the cave. More than likely he made a colorful comment on how "they don't make them like they used to" after accidentally breaking off the handle. The first 150' of the cave is bordered by a pair of benches and many thin linings. Passing a large collapse depression, one can find a nearly 100 foot-long tube-in-tube on the east wall. Just over a hundred feet further along the roomy passage is a very large hole in the floor. Careful examination of this window reveals the floor is more than a quick step belowww ... about 40 feet lower to be somewhat more to the point. A further 150 feet down tube is another window to the basement of equal depth. Hurrying on yet another 150 feet, the explorer comes to a steep loose cinder slope to a depth of 56 feet below the entrance. Here one can back track one's steps and look up into the overlying passage previously traversed... and speculate just how thin the floor really is. Just inside the lower passage is a large packet of exposed reddish and buff-colored volcanic ash. We shall meet this rupicolous resident several times again before completing our transit of the tube. Passing through this lower passage, we find its walls and ceiling raveled and occupying the floor. The tube lacks any spectacular features save an occasional preserved segment of wall lining, and is collapsed shut some 175 feet back upstream.

It quickly becomes evident that the cave has formed on two levels, one approximately 40 feet below the other. Continuing along the passage into the cave, one can either enter the lower passage or climb to the overlying passage. The lower tube ends approximately 100 feet further in a large pile of breakdown. If, however, one climbs out of the collapse depression, one can pass for nearly 150 feet over the underlying tube, then steadily drop into another collapse. Just before this rubble slope (the very same that blocks the lower passage), a pair of tube-in-tubes are evident in the east wall. The upper tube has had its wall broken open. The lower tube, attained after launching oneself up into its low jagged entrance over a 15 foot scarp, is traversable for 80 feet of clinker crawl. This fun dispensed with, we continue past another ash horizon and enter the lowest portion of the cave. As we drop into the abyss below, several dark gray and ochre-colored stalactites can be found along the west wall. These are comprised of amorphous silica, manganese oxides of various parentages, and humic acids derived from the soils. The ropy-lava floored passage below continues for 150 feet to a 120-foot-long backflow of basalt which has bubbled up from some god-forsaken point downstream, effectively blocking the tube. A short tube-in-tube and low benches pave the floor which is 91 feet below the rusty shovel back at the entrance. On the west bench is what appears to be a scattered carbide dump. Upon close examination however, one notices that the material is subtly colored and too fluffy to be dead carbide. After a siege in the lab it was found to be an intimate mixture of calcite (calcium carbonate), gypsum (calcium sulfate), and barite (barium sulfate), or moonmilk. The chemical kinetics of such an assemblage crystallizing in one place has the effect of too much anchovy and peanut butter pizza on the mineralogist.

Returning to the sunlight, one can travel cross-country to another short segment of the Gaping Holes System. A short two-stage chimney brings one to the floor of Mike's Sink. This ropy pahoehoe-floored cave has a relatively intact ceiling and walls – with some lava decorations, thus it allows us to see what most of the rest of both Shovel and Catwalk Caves looked like during their precollapse days. Returning to the daylight and walking a few tens of feet south, we are presented with the opportunity to immediately fall into the northern Climb-out Entrance to Catwalk Cave.

Continued on next page

Only a tight cauliflower pahoehoe crawlway extends a few feet further up flow from this entrance. One can safely bypass this fascinating portion of the cave. Ducking under the entrance arch, one enters a roomy tube floored with a thick mantle of breakdown. This breakdown carpets most of the tube, is very loose, and exercises one's ankles to the max. Stepping smartly over the low debris pile just inside the entrance, one notices that the debris nearly masks a 6 foot-in-diameter lava boil. The section of passage then continues for nearly 200 feet to yet another boil. Traversing a further 200 feet, one comes upon a partially collapsed tube-in-tube. The head of this 170 foot-long feature is plugged with at least two very short, albeit very colorful lava flows. Just beyond this area is the Twin Skylights entrance. Unless one possesses suction-cupped gecko feet, ropework is required to descend.

Approximately 600 feet further is the main Walk-in Entrance. Several sections of ropy pahoehoe floor and excellent benches (for which the cave is named) are preserved along this section of the cave. The walls and ceiling have collapsed at mid-passage allowing us to look into the "wall rock" of the enclosing lava flow. The resulting exposed wall stratigraphy shows many 2 to 14 inch thick horizontal flow units. The ceiling, perverse little bummer that it is, has nearly vertical layers of lava exposed. What this infers is that later flows in the tube thickly accreted in the upper portion of the tube. This produced an A-frame cross section which momentarily plugged the tube. Subsequent partial ceiling collapse has revealed only the bottom of this lava "teepee". Although we have dropped as much as 25 feet in elevation near the Twin Skylights, we have risen to the occasion and are now only 10 feet below the floor of the Climbout Entrance.

The next 450 feet of passage are uniform in cross section and thickly mantled with shifting breakdown. Several sections of high benches are preserved along the walls. Continuing down tube, we pass under first the Discovery Entrance and then the Triple Skylight. The Discovery Entrance is a duo of a large and small opening. This was apparently the first place organized cavers peered into the tube. The close by Triple Skylight is a trio of very small roof holes admitting light to the tube below. Algae, mosses, lichens, and other plants have carpeted the floor under these openings with a subdued rain forest.

A 300 foot amble further down tube brings one to the start of a near 400 foot-long section of tube-in-tube. The tube-in-tube is intact for only the first 80 feet, the balance having partially collapsed. From the downstream end of this tube-in-tube, the cave continues for almost 1,000 feet to the Double Level Entrance. Along this portion of tube the passage changes from flattened oval to A-frame in cross-section. The two most interesting features along this lengthy section however, are located approximately a third of the way along the tube. A set of natural bridges is present in the now 98 foot-deep tube. Opening from the surface, and inaccessible from within the cave itself, is Flushing Bush Sink. Its 180 foot length is underlain by another low passage 260 feet long. Apparently the tube was stacked four levels deep, with the upper level collapsing into a sink.

At the Double Level Entrance, a short upper segment of tube is preserved. Its 220 foot length interrupts the 60 drop from the ground surface to the lowest passage. Considerable daylight filters down into the tube from the mountain mahogany covered tumuli containing the upper level. In this luxuriant mini-rain forest of highly-colored algae, lichens, mosses, ferns, and other plants, the sharp-eyed caver may be startled to see a yellow eye staring back at them. The owner, *Bufo boreas* (the Western Toad), generally regards these intrusions with a baleful eye for a short time, then hops off into the jungle. Several hundred feet further down cave, the tube rises and the roof lowers to within 2 feet of the ropy floor. Abundant water drips and a thin veneer of silt make The Crawlway one of the least appreciated portions of the cave. After nearly 300 feet of this nonsense the tube again opens up to high-ceilinged passage with rubble floors. For 1,200 feet the passage gently meanders, occasionally lowering to a Groucho passage in height. The cross section varies quite markedly along the cave with breakdown and ropy lava floors, low and high benches, and bottomless ceiling channels represented.

At a point approximately 170 feet below the entrance the character of the cave abruptly changes. The walls darken and, as the ceiling soars up nearly out of sight, one stumbles over the continuing carpet of loose rubble as one attempts to gauge the ceiling height. It is here in collapse alcoves we see more indications of Life In The Fast Zone several thousand years ago. In several of the higher alcoves, old deposits of volcanic ash are present. Later accumulations of lava covered these ashes up, leaving a record of not only the lava flows, but also what was raining out of the skies at the time and making life miserable for everything in the area. Throughout this 600-foot-long section the ceilings are lofty, frozen stone cascades festoon the marginal benches, and ropy pahoehoe with scattered lava stalagmites covers most of the floor. Approximately 200 feet beyond this area the tube necks down, then opens into a large passage.

The last 600 feet of tube in the cave is large diameter and has undergone considerable unraveling. Indeed, the roof has failed at two places, forming the double Moss Carpet Entrance. The floor of this window to Purgatory is thickly covered with algae, lichens, mosses, ferns, and a multitude of other plants. Toads hop merrily through the understory and cavers trip over still more of those accursed loose rocks. Oftentimes ice and snow lingers under the eaves of the entrance well into the late summer. The very bottom of this portion of the cave is nearly 206 feet below the Arch Sink Entrance – 176 feet below the Climbout Entrance – and is sealed with a lava plug. Scattered stubby lava stalagmites stud the floor like so many sea lion noses poking up through a jet ocean, thus the name Lava Seal Rookery. Yessir, quite a cave.

The Giant Crater flow containing the Gaping Holes System is located on the southwest corner of the ancient Medicine Mountain volcano. Perhaps 11,000 years ago the quiet of a sunny afternoon was rudely broken when Madam Pele sneezed and 4,126 tiny cracks popped their collective corks. The forest pitched and swayed, dust rose toward the sun, and Shastine Crater burbled its way to the surface, frying stray morel mushrooms on its way. Shortly thereafter, Cousin Crater and several nearby vents opened up and joined in the festivities. When the paving of several square miles was just about completed, the mountain jumped and swayed and yet another vent opened just to the southwest... Double Hole Crater. This whole process happened very rapidly, perhaps a few tens of years at most. After approximately 400 years of cinders, Madam Pele sneezed (probably from all the sulfurous gasses) and the object of cavers' keen interest popped to the surface. Giant Crater had made its appearance.

Located at an elevation of approximately 5713 feet, Giant Crater's 140-foot-high cone pumped out nearly 8/10 of a cubic mile of lava during its short history of eruption. The flow extended generally south for nearly 28 miles, engulfing forest, older flows, and stray bunny rabbits. Lava flowed several miles to the southwest, then banked off the lower slopes of Grasshopper Flats and Doe Peak. It then proceeded dead south down the Hambone graben, pausing to jog to the east just past Hambone Butte. The lava coursed down the shallow drainages, overwhelming the open cedar and ponderosa forest in its way. At several places the Ponderosa Pines withstood the advancing lava long enough to chill the molten rock, then burst into flames. These tree casts are a prime source of both wood and charcoal to carbon 14 date the flow units and pulses.

The lava first built a shallow trench along the valley, then got serious and began to erode its bed. Buttresses of stretched and deformed basalt in several nearby caves attest to the power incandescent lava has, as if anyone really needs to be apprised of such ability. The tubes then began to build their walls higher and extend their toes down through the forest. Eventually the channels developed a cooling scum and became real live lava tubes. This continued for some time. Later flows partially filled the narrow, deep tubes, creating multiple levels such as those present in Shovel Cave and the section of Catwalk Cave from beneath Flushing Bush Sink to the Moss Carpet Entrance. The eruption began to wane as the supply of lava to the caves finally failed. Peace and quiet again returned to the area and things had just begun to settle back to normal when the whole furschlugginer mess started all over again.

Another pulse of lava burbled up from Giant Crater. This lava was different from the Gaping Holes material, having differing amounts of silica and other compounds present. Although it is hard to differentiate some of these units in the field, black boxes in the lab tell of profound changes which had taken place in the bottom of the magma chamber. These later lavas erupted into the channel leading from Giant Crater and quickly coursed down the pre-existing tubes. Delivered to the farthest reaches of the flow hot and ready to go, they were able to extend the flow many more miles to the south. Occasionally there would either be a blockage in the lower tube or simply too much lava to pass through the tube. When this occurred, the molten river would back up and break a hole in its roof. The escaped material then oozed up into the existing cave, forming backflows and roses. These can be seen in the bottom of Shovel and the upstream section of Catwalk Caves, respectively. The colorful short flows near the Twin Skylights Entrance may also have their origin in a boil-up of lava from a lower, now-filled passage, the only difference being that an opening to the surface was close. The presence of free oxygen generally missing in active lava tubes, oxidized these two toes bright orange red and amber yellow.

Again the supply of lava from Pele's Plumbing Service began to fail and the throat of the volcano became choked with hardening magma. The slug of lava still present in the tube system had inertia on its side and continued to barrel down the cave. Eventually even this slug-o'-rock lost its perkiness. The lava apparently cooled from the upper portion of the flow down the length of the tube. This allowed the lowest levels of the tube to partially drain while the upper portions remained filled with lava. Upon cooling, this lava solidly plugged the lower section of the upstream tubes. Thus we have the deepest passages and majority of multiple overlying passages in the lower segments of the cave system while the up-flow portions of the system are relatively shallow tubes.

Continued on next page

As a final frosting on the cake, ground water began to seep into the cave and deposit a fine tracery of decorations on the walls and ceilings. Most of the white filigrees are extremely pure calcite: but, as we have seen, moonmilk of calcite, gypsum and barite (a rarity in caves, by the way) was also formed. Scattered throughout the caves are dead white silhydrite (hydrous silica) stalactites. Less common are ochre-colored amorphous silica draperies with their faintly pearly luster. Dull orange goothite stalactites have also been seen hiding in the alcoves. Finally, tucked away in corners on the floor, are velvety black crusts of the manganese minerals pyrolucite and romanehite, as well as Indian red-colored hematite.

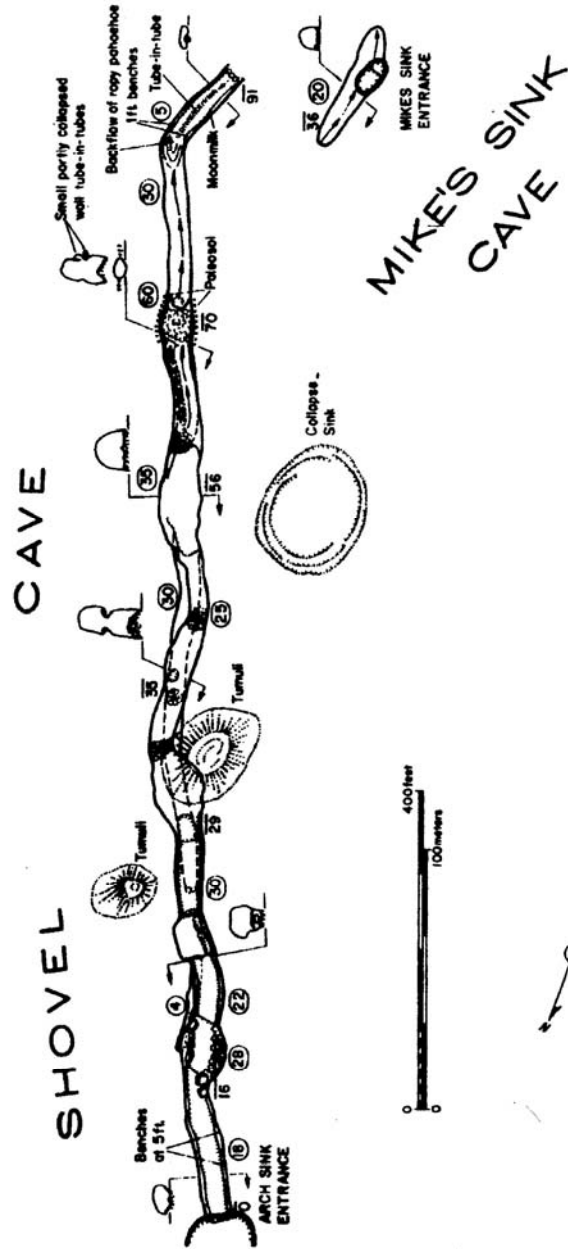
The long-suffering rabbits of Medicine Lake volcano now have little recourse to their fate. As it happened in the not-so-dim past, the countryside has blown its stack and chased the bunnies off the slopes. We are sorry to say that the probability of such happening again is actually quite good. Such is the life of a bunny in the Land Of (not so) Burnt Out Fires.

[The printed version of the SAG RAG included a folded cave map, 11 ½ X 60", showing Shovel, Mike's Sink and Catwalk Caves. The map is reproduced in overlapping sections on the pages that follow. Catwalk Cave (3) on page 11 includes the legends and descriptors for all the sections. The sections on other pages show scale and compass bearing only. – pdf ed.]

The SAG RAG
c/o Jim and Liz Wolff
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McCloud, CA 96057

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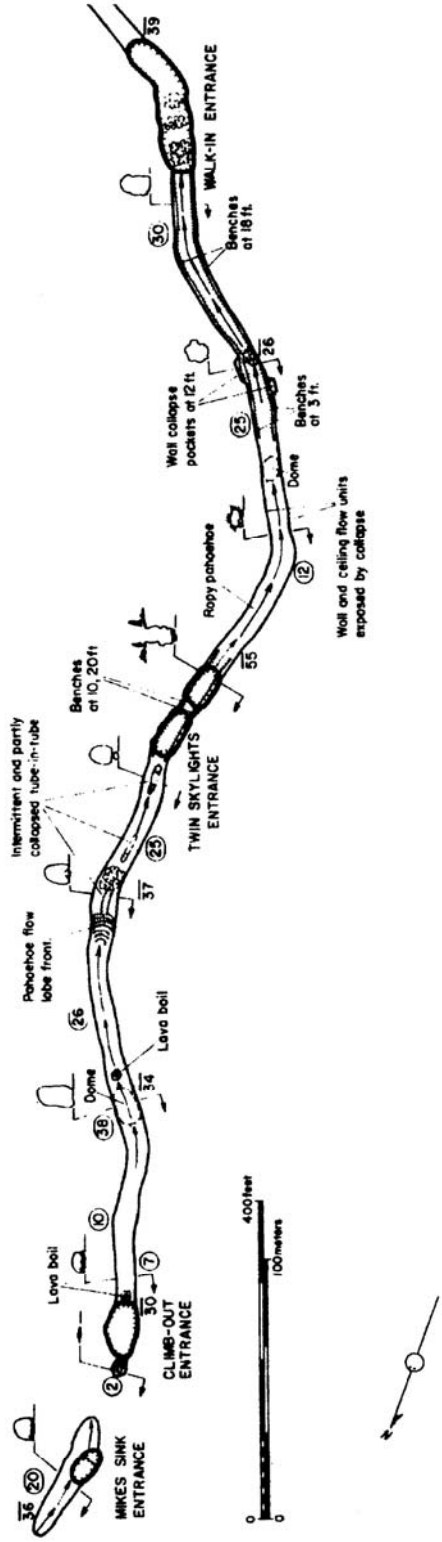


Map: Shovel Cave, Mike's Sink Cave

Note: Except for areas of pahoehoe indicated on map the entire floor of the tube is lightly to heavily mantled with collapse debris from the passage roof and walls

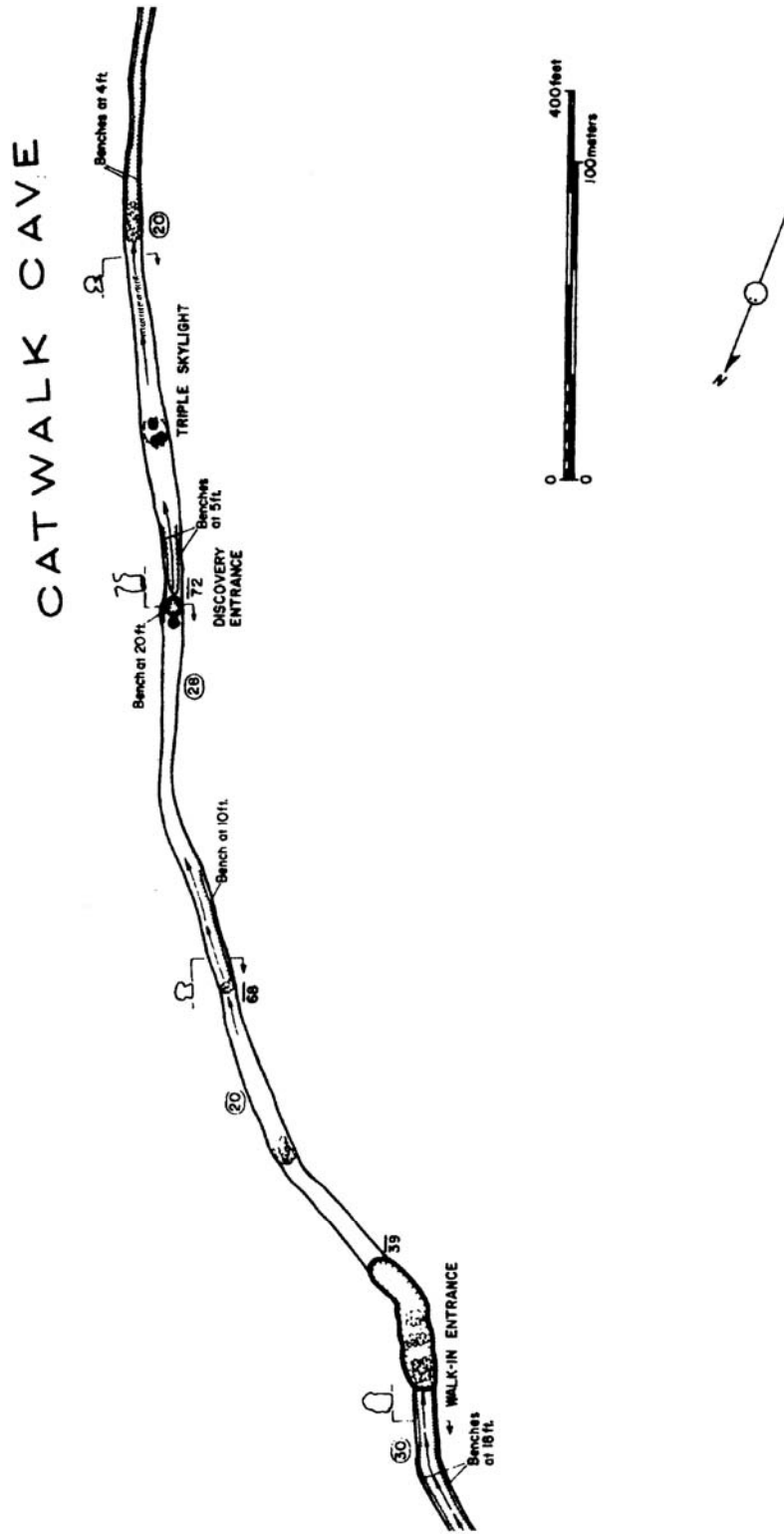
CATWALK CAVE

MIKE'S SINK CAVE

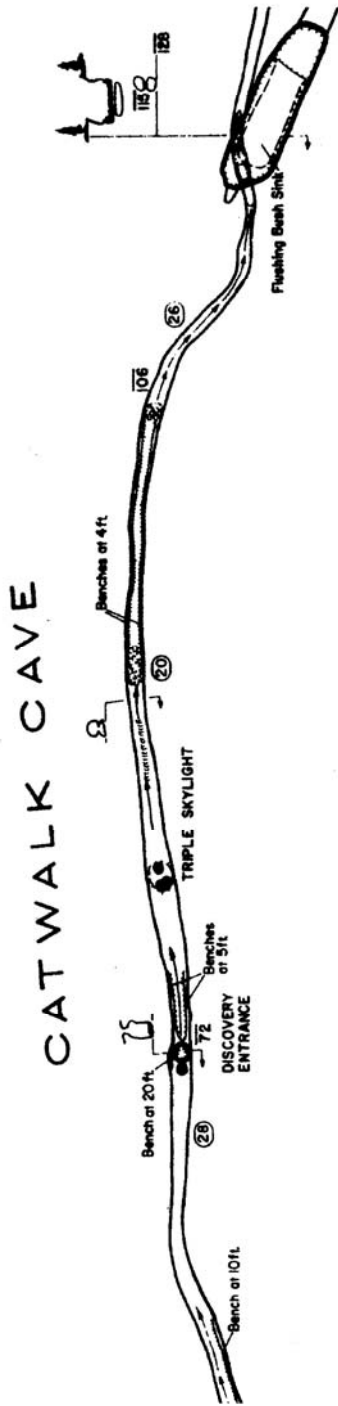


Elevation - 430 ft (134 m) Depth - 206 ft (63 m)
Length - 9088 ft, 1.7 mi (2.8 km)

Map: Mike's Sink Cave, Catwalk Cave (1)



Map: Catwalk Cave (2)



GAPING HOLES LAVA TUBE SYSTEM

Siskiyou Co., California
1978



EXPLANATION

- Cave passage
- Underlying passage
- Depth below entrance
- Abrupt drop
- Pit
- Dome
- Popstone floor—arrows point down floor
- Tube in tube
- Lava flow
- Pulsed
- Lava stalagmite



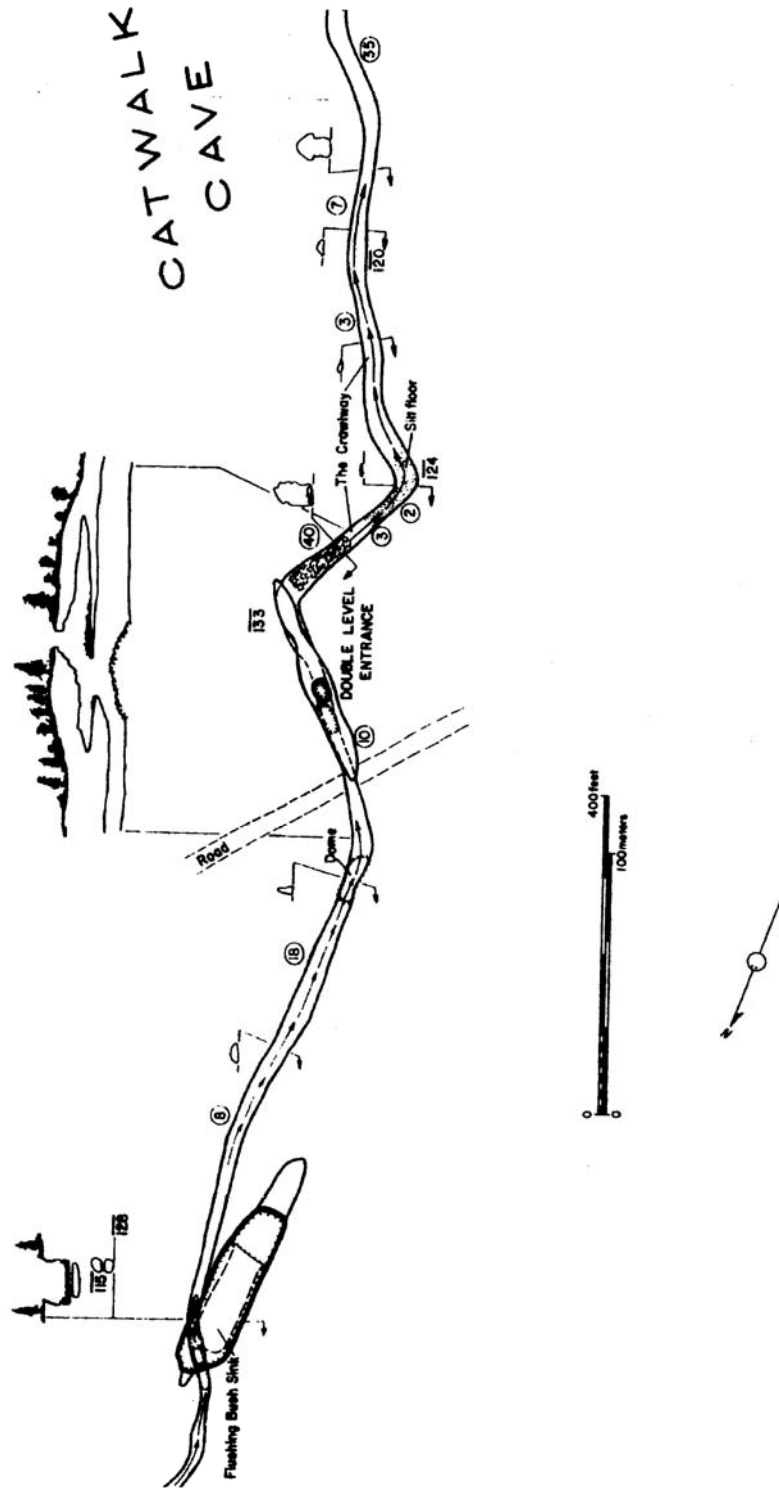
Elevation - 4330 ft. (1314 m) Depth - 206 ft. (63 m)
Length - 9088 ft.; 1.7 mi. (2.8 km)

Cartography by Bruce Rogers

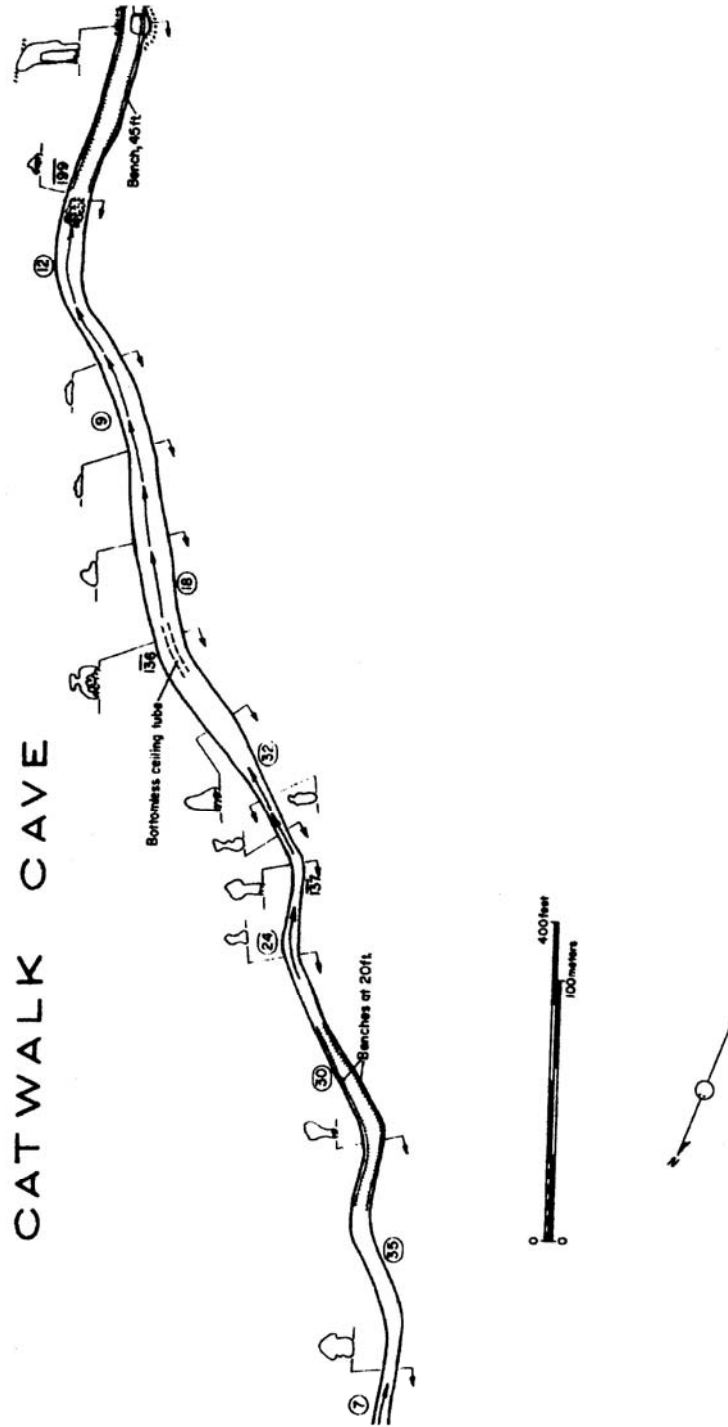
Survey participants:

- Bob Bastasz
- Bill Chalney
- Jon Chalney
- Ken Chalney
- Dave Deckerle
- Shirley Deslauris
- Bill Frazitt
- Peri Frazitt
- Tom Leitner
- Dia McClurg
- Dave McClurg
- Janet McClurg
- Molly McClurg
- Jim Nieland
- Libby Meland
- Laffee Parker
- Ross Parker
- Bruce Rogers
- Craig Rohren
- John Tinsley
- Marilyn Tinsley
- Kathi Tennessee
- Kathy Williams

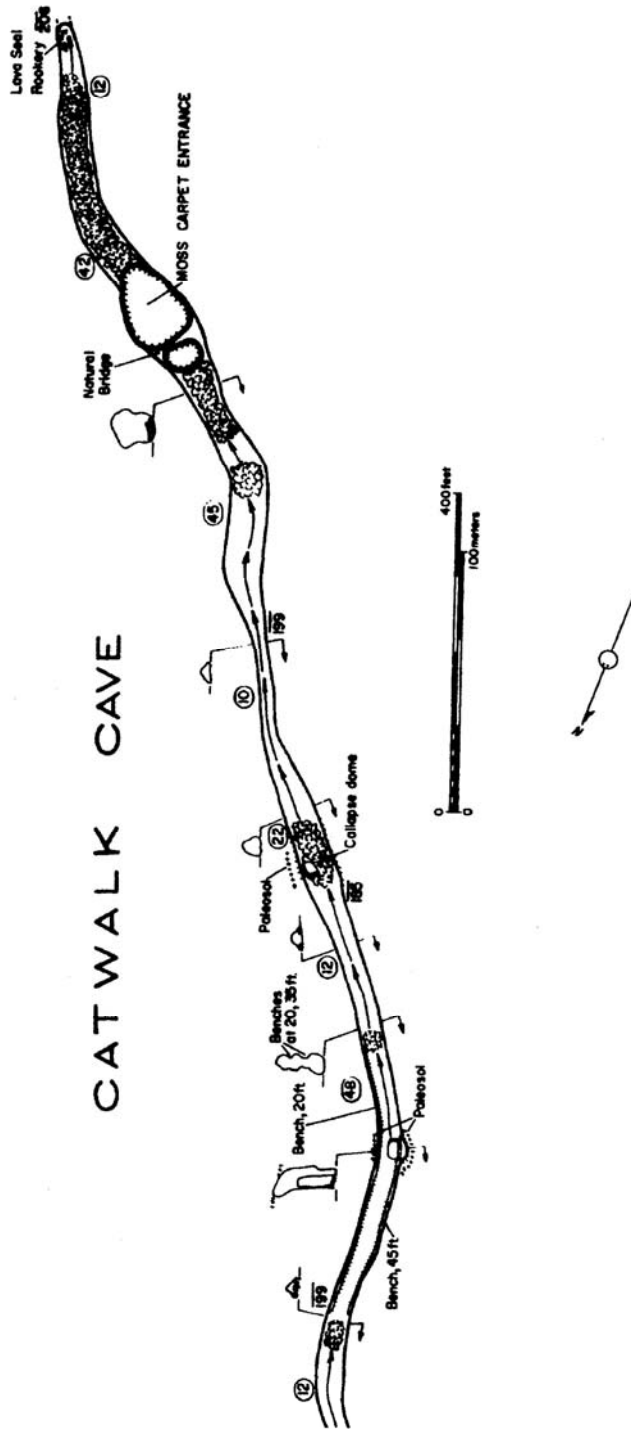
Map: Catwalk Cave (3)



Map: Catwalk Cave (4)



Map: Catwalk Cave (5)



Map: Catwalk Cave (6)