

V.21 (8,9)



THE CASCADE CAVER

International Journal of
Vulcanospeleology

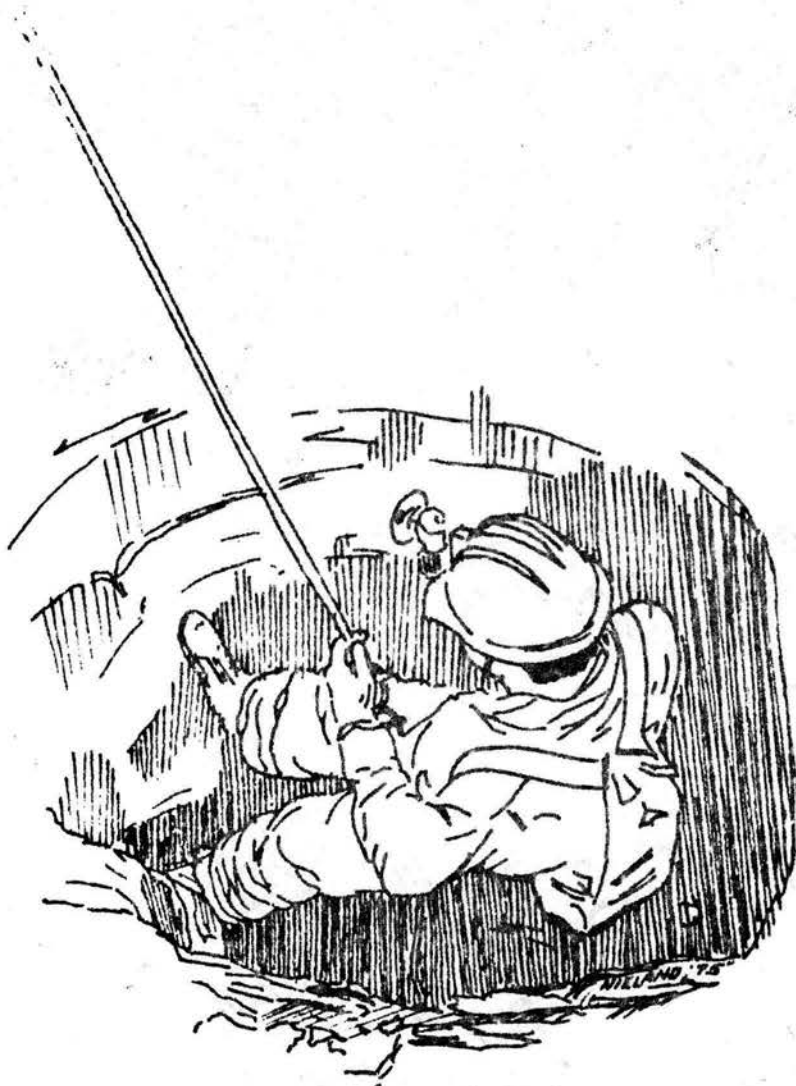


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Editor: Mark Sherman

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I SURE HOPE HE DOESN'T
UPSET THE ECOLOGY!

John Van Druden 1979

COMING EVENTS

- OCT. 16 Clyde Senger and Jim Harp will be leading a small group of 6th graders to Senger's Talus Cave. If you are interested call Jim at 745-1010.
- OCT. 19 Grotto Meeting 8:00, 1117 36th Ave. East, Seattle
- OCT. 29-31 Trip to Cody's Cave and others. Stay at Phil Whitfield's
- NOV. 16 Grotto Meeting 8:00, 1117 36th Ave. East, Seattle
- NOV. 20-28 Thanksgiving Trip to Nevada. See details on page 42.
- Early DEC. Grotto party at Dr. Halliday's
- FEB. 19-24 Ski touring trip to Yellowstone. See details on page 42.

For information on any of these trips contact:
Bob Brown at 569-2724 or Chris Burdge at 775-6724

GROTTO NOTES

We are looking for ideas on how to improve our grotto meetings, so that we have a larger turnout. Some of the ideas are to order programs from the NSS and have coffee and goodies. Larry McTigue is the new program chairman, so he will be in charge of getting the programs together. If you have any suggestions please let us know.

There will be a party in early December at Dr. Halliday's house. It will be a potluck and everyone will supply their own drinks. The date and time have yet to be determined.

I would like to thank Rod Crawford, Steve Sprague, Ben Tompkins, and Chris Wood (who's only stake in this is knowing that once the Caver is mailed, there will be some place to sit) for helping me get these last four issues out. There is a lot of work involved and I appreciate the help.

Details of the Thanksgiving Cave Trip

Transportation cost -- \$80 per person (4 people Datsun 4 x 4)

Nov. 19	Leave Seattle for Boise
Nov. 20	Stay in Boise
Nov. 21	Goshute Cave, stay in Ely
Nov. 22	Whipple and Cave Creek Caves, stay in Ely
Nov. 23	(Leave Ely) Lehman Cave - maybe Snake Creek Cave, stay in Lehman campground or Eastern Utah
Nov. 24	Capital Reef, stay at Capital Reef
Nov. 25	Canyonlands, stay at Canyonlands
Nov. 26	Canyonlands - Arches, stay in Northern Utah
Nov. 27	Pot of Gold Cave, stay in Bliss

Details of the Yellowstone Ski Trip

Reservations must be made early, by Oct. 15. A cash deposit of \$85 per person will be required when the reservations are confirmed (late October). The deposit is to cover the cost of the snow coach to Old Faithful from West Yellowstone and three nights lodging at the Old Faithful Snow Lodge. The total cost including transportation, lodging, snow coach and food will be \$230. Skis and snowshoes can be rented at Old Faithful.

Feb. 18	Leave Seattle for West Yellowstone
Feb. 19	Arrive in West Yellowstone, stay the night
Feb. 20	Take the snow coach from W. Yellowstone to Old Faithful
Feb. 20-22	Stay at the Old Faithful Snow Lodge (ski touring)
Feb. 23	Take the snow coach back to W. Yellowstone
Feb. 24	Back to Seattle

In this issue the cover drawing was done by Jim Nieland and the cartoon was drawn by Jerry Thornton.

THE NORTHWEST REGIONAL

By Marianne Wilke and Paul Lindgren

It was a gray day when the cavers began to descend upon Bill Bourdillon's Estate to participate in the 1982 Northwest Caving Association Caving Field Meet. Bill's property is about 10 miles south of the town of Campbell River on Vancouver Island B.C. and was centrally located for all of the caves we were to explore.

My co-pilot (Paul Lindgren) and I arrived mid-afternoon, Friday Sept. 3, to find Terry Boorman (VICEG) and his wife working frantically with Bill to get the camping area ready before more cavers, or the rain arrived. After setting up camp and making our evening munchies, we listened in on the proceedings of the board for the Rennie/Clark Memorial Fund and watched numerous slides and the Nakamu movie.

Saturday morning, we had our choice of two caves to get grubby in, either Cascade or River Bend. We chose to join an excursion through Cascade Cave. We were told it had everything a real caver would want...tight crawlways, pits, mud, and formations. Cascade Cave is near Port Alberni, near the center of the Island. After an hour and a half in the back of Phil Whitfield's 4 X 4 on teeth shattering "short cut" back roads, we were wondering if we would make it there in one piece. We figured that Phil was just trying to show us the scenic route.

The entrance to the cave is a gated 25 foot entrance pit. For this trip, the entrance was dropped with a cable ladder. After descending the ladder, Paul, Brad Vogler (VICEG), Mike Bragg (VICEG) and I headed down the dry entrance crawlway to a moderately sloping slot in the floor which opened up into a moderately sized stream passage. This passage lead us to a pool. After bridging the pool, we followed the walking passage to a flowstone ledge. A careful descent of this 15 foot ledge lead us to a duckwalk tube. A few wild turns with ups and downs lead us to a fairly large room known as the Theater. After sliding our way up a muddy flowstone-covered breakdown slope, we found ourselves in the first real room with major formations. This room is known as the Jericho Room. The Jericho Room is a breakdown room about 12 feet high with large stalagmites and stalactites and a few soda straws. Leaving our camera gear behind in the Jericho Room, we made our way through the breakdown to a small room directly behind it, only to find to our horror what lay ahead. About 4 feet off the ground, we encountered a 2 foot diameter flowstone covered tube with a 4 foot deep by 1 foot wide crack to it's immediate right. Plunging head first into this tube, you had to keep your body from sliding into the slot by pushing your back against the far wall and holding on to any and all hand holds you could find. At the far end of this tube, you found yourself falling head first towards the floor which was about 4 feet below you. It was easy to see why this section was called the Discouragement Crawl. Continuing on, we travelled through a narrow fissure and a small pit that opened up into a small room known as the Mars Room. More zig-zag passage lie ahead. In this passage, there were some good examples of false floors. After crawling around a large breakdown block maze, we faced the Bastard crawl. This crawl is a seasonally dry stream passage that was a steeply sloping slot, which lead to a short "S"-shaped crawlway. At the end of this crawl, we found ourselves looking over a large pit. We came prepared with a cable ladder to make this descent but

finding the usual waterfall dry, we climbed it with a hand-line. This was known as the first drop of "Double Trouble". After the whole party had reached the bottom, we decided that some of us were too tired to continue on down the second drop of Double Trouble and so we started to return to the entrance.

Tired, muddy and hungry, we were glad to see the entrance after being underground for the last 5-6 hours. Having only been in lava tubes and a few assorted commercial limestone caves, I was quite astounded at the beauty of this cave (not to mention how much fun it was to go through).

After a short 15 minute gravel road drive (compared to the hour and a half in), we found ourselves on the freeway home. Welcome showers and dinner awaited us at camp. I was totally exhausted and thus didn't last too long. Night-night!

Sunday morning came all too soon. It brought many sore muscles and bruises. Thankfully the caves we were to explore this day were walk through caves.

Phil Whitfield left early in the morning to meet the Nanimo ferry that carried 12 members of the British army who were on a caving spree throughout Canada on adventure training. Meanwhile, we went with Bill Bourdillon to a cave on the north end of the Island. Bill Bourdillon is the sole caretaker of this cave and he only takes a few people a year through this cave inspite of the many applications he recieves to see it. The cave...Candlestick.

We followed Bill to the site of this cave. On the road to Candlestick, Bill stopped at a cave called Chicken Two to make sure we were accustomed to caving. The cave had a walking passage that resembled a lave tube. A little ways in, the ceiling rapidly dropped and the walking passage became a wet crawlway.

Not far down the road was the main attraction. Because of many delicate formations, Bill, by his own rule, only takes people down two at a time. There were four of us to see the cave, Paul and I and two members of the Oregon Grotto. Cindy and Chris went first. When it was our turn, we grabbed our camera gear and followed Bill through the forest. Upon reaching the entrance Bill issued us lights and special rubber gloves since we weren't allowed to use our own gear.

After going through an entrance crawl and gate, we emerged in a large vaulted room that had a dirt floor. We descended a breakdown slope to a narrow stream slot that was cut in the grey limestone. The walls surrounding us were covered in fine grain, dull white calcite. We continued down the small stream through about four small riffles that were worn by the water. At the lower end of this large entrance room, we climbed a 3 meter ladder up to a small passage with a large breakdown slab and several joint-aligned stalactites, draperies and stalagmites. We carefully descended a short flowstone slope into a short walking passage which led to the chamber of candles. This is the farthest point Bill takes his tours into the cave. The chamber of candles is densely covered with soda straws, stalactites, stalagmites, and fish tail, heliform and microhelctites. The north wall of this room appears as if it was a displaced portion of Caverns of Sonora. Having captured a camera full of these delicate danglies on film, we carefully photographed our return to the entrance making our total trip about two hours. Returning to our cars, we proceeded to Stump Cave.

Stump Cave is a small duck-walking passage about 100 feet long. Deposits of white moon milk covered the walls in large sections and several large cave crickets were also noted. Exiting Stump Cave, Bill, Chris and Paul spent the remaining hours of daylight checking out the various sinks in the area. With the sun setting fast, we left a promising blowing hole for Bill to dig out later.

Upon arriving back at camp, we were startled to see a dozen orange tents that had sprouted up, but then we remembered the British Army had landed here. Showers, din-din and a couple of beers put us to bed.

It was early Monday morning and there were chores to do. A four cord mountain of fire wood needed to be moved to the back of the house. An international log toss was devised and several truckloads were tossed through the garage hand to hand by a centipede of swinging arms and flying logs.

Having completed our chores, ten of us packed into Phil's van and with a British Army lorry driver at the helm, we skittered off to Sump and Pat Anders Caves. The group split into two parties and our team walked the "grueling" 30 feet to the entrance. Inside the entrance, we soon found the first crawl too tight for all but two of us. After 20 minutes of digging out sand and mud, Paul and Terry roared off down the sandy crawl and soon disappeared with Jamie and Keith close behind. Seeing how the guys were so kind as to leave me in their dust (mud?), I quickly tried to catch up with them. Upon reaching a Y in the passage, I took the upper passage. Suddenly, I slipped off a small ledge and found my boot hopelessly wedged in the rock. With visions of Floyd Collins dancing in my head, I yelled in vain for help. After a half an hour of anxious waiting, Terry, Jamie and Paul scuttled to my rescue. So much for my trip to Pat Anders!!

Back on the surface, we headed over to Sump Cave. Sump Cave was very similar to what Pat Anders was supposed to be like. Both are narrow, sinuous stream slots. Sump Cave has some unusual calcified tree roots and one small pocket of dog tooth spar near the entrance.

Completing Sump Cave, we returned to the van to de-grub while 2 gung-ho Brits took off to dive a nearby sump. The 2 soaked Brits returned shortly to report that this previously virgin sump had turned out to be less than hoped for. After passing through the 3 inch airspace at the entrance and entering a small chamber the cave immediately sumped again.

Cold, wet and muddy, we took off power sliding down the gravel road back to camp.

This was truly a great weekend of caving on Vancouver Island. But what happened to the rest of you? Sorry folks, you missed out!!

JORDAN CRATERS

Southeastern Oregon

July 4-6 1982

Caving Time: 3.25 hours

By Rod Crawford

Sunday morning, July 4, a small Toyota packed with Ellen and Ben Benedict, John Holsinger, myself, and our gear pulled into Rome, Oregon, (a small town 32 miles NE of Basque, Oregon) to meet with Bob Kindschy, biologist for the Vale District BLM. After driving some distance in caravan, we left the Toyota in the yard of a ranch and drove off in the four wheel drive BLM truck over some of the worst, muddiest, bumpiest dirt roads imaginable. I am prepared to swear that we were up to our hubs in mud for a mile at a time. Late that afternoon, we arrived at the Jordan Craters cabin, located 20 miles from nowhere (let alone Rome) at the very least and providing "outstanding solitude" in abundant measure. We unslung the mattresses, hung from the ceiling so deer mice won't use them for nests, and set off across an enormous, almost unvegetated flow of ropy pahoehoe lava.

Our first stop was Lava Cenote #1. A small hole in the flow surface opens on a bubble-like chamber half full of water. The drop to the water surface is about 7 feet, overhanging all around. Not what one would want to stumble into in the dark. After I sampled the plankton (as it turns out there was none), John suspended a shrimp-baited trap for amphipods. Lava Cenote #2 (more open-sided) was likewise baited. Results: nil. We proceeded to investigate numerous small cavities and depressions in the lower end of the Jordan Craters flow, many of which extend below the water table and contain ponds. Ellen remarked that from the air, the area looks just like a limestone karst.

The next day, Bob drove us over more miles of poor excuses for roads to Coffee Pot Crater at the upper end of the flow. This area is certainly the most fantastic part of the Jordan Craters Research Natural Area. Coffee Pot Crater itself is a very impressive lava-floored cavity with cinder sides. Extending up the flow along the source fissure of the lava is a beautiful line of spatter cones, some with enterable vertical conduits. In the same neighborhood are two huge pit craters, Crystal Pit and Moss Pit. A third, Fern Dome, is not far away but difficult to find. Crystal and Moss Pits were impressive indeed, and appear to have truncated lava tube remnants at the bottoms. The roof of the main lava tube of the flow, easily distinguished from the surrounding lava by its smoother texture, can be seen extending southward from the crater. No entrance to this tube system is known, but I feel the potential for finding one is high. However, there are several small lava tube caves near the crater, three of which we entered. The longest, Ghost Rock Cave, was paced off at 300 feet. It was discovered by the Kindschy family in the early 1960's. The upper end branches; the lower end descends via a prickly crawlway to a low terminal room. Two other caves, about 100 feet long each, are of uncertain history. Both are low and complex; they were named on this visit. Burgundy Pit Cave contains a 10 foot drop into a terminal room with oddly maroon-colored walls.

Wedge Cave contained the only signs of life in the three caves: bats and pack rats, both identified by smell.

The Coffee Pot Crater area, in short, was an ideal follow-up to the Vulcano-speleology Symposium at the convention, containing, as it did, in miniature nearly everything the speakers from all over the world had talked about. It is truly an outstanding volcanic area.

At night we luxuriated in the cabin over home-cooked meals from the wood stove and our two cooks, Bob and Ben. Some of us stepped out to watch a lunar eclipse in the perfect clear sky. The mosquitoes weren't nearly as bad as the scare stories we had heard. I spent my free daytime hours collecting (for a friend) the fantastic variety of beautiful dragonflies and damselflies that breed in the many ponds on the lava, as well as watching the other biota around the cabin, such as the bumblebees nesting in the mortar of the walls (fortunately from the outside only). Ah, it was indeed an idyllic existence!

On Tuesday, after some more scouting, we reluctantly left Jordan Craters for Malheur Cave. One problem was what to do with John's shrimp bait, which by this time was distinctly on the high side. I believe it was finally dumped somewhere.

Retracing our route, we reached the ranch yard where we had left the brand-new, freshly-painted, white, rented Toyota. Much to our surprise, numerous rough scratches had appeared in the paint on the hood and trunk. We brought this to the rancher's attention, and he told us "it must have been the horses". It seems that horses just love the taste of fresh automotive paint and will scrape it off a car with their teeth! After six months or so, a car is safe. Sure enough, there were hoof prints all around the car. I wonder how John explained that one to the rental agency!

BAT CONSERVATION INTERNATIONAL

WITHOUT YOUR HELP MANY SPECIES OF BATS WILL SOON BECOME EXTINCT.

Bats, because they are nocturnal and secretive, are more misunderstood than any other group of mammals. The vast majority of the world's nearly 1000 species are highly beneficial, but their populations are declining at alarming rates, mostly due to needless persecution by man. Extinction can be avoided in many cases, but only through immediate education of misinformed people.

If you are interested in contributing to Bat Conservation International and would like more information call 414-278-2775.

MOUNT ST. HELENS CAVES, JULY 24, 1982

By William R. Halliday, M.D.

On July 24, Fred Dickey and I provided an introduction to the Mount St. Helens cave area to about a dozen members of the Mount St. Helens Protective Association, which primarily is familiar with the north and west part of the Mount St. Helens region. Several had been in the cave area previously, but the group wanted an interpretive tour and expressed appreciation afterwards. Among those present were Noel McRae and Susan Saul, co-chairmen of the group. Along the way, we kept seeing various members of the Oregon Grotto, which had a work party on the trail between main entrances of Ape Cave, plus their usual summer weekend manned register at the lower entrance.

In general we covered the same area included in the Pre-Convention field trip, but considerably less extensively. First was the Hopeless Cave Mudflow, followed by the Big Room and the lower segment of Ape Cave, then the tree casts and the north end grotto of Lake Cave. Then we all drove to a good vista point several miles farther along the Ape Cave road, where we had a look at the forest, west of the lava flow, which is one of the areas of contention in Congress at the moment.

Subsequently we proceeded to the upper caves area and hiked from the usual parking area to Sand Cave where the group was quite impressed at the effects of invasion by the post-eruption mudflow. Here we also had a look at the entrance of Mud Pond Cave, which Clyde Senger thinks may be a resurgence instead of a swallet -- I couldn't find any evidence for this.

Road repairs have made Road 81 passable at least to Gremlin Cave logging road (we didn't go that far), messing up the beautiful geological record in the area, but the culverts are so small that the gullies are likely to grow again soon. Also of note in the area is a Red Zone sign on the north side of Road 81 about 1/4 mile southeast of the Gremlin Cave logging road; according to the latest Gifford Pinchot National Forest map of the Red Zone, this sign is at least 1/4 mile too far south and needs to be clarified at once.

It was quite hot, and part of the group was weakening, but most went with us to see how the Road 81 gully and floodplain mudflow fingers are threatening Little Red River Cave. They seemed quite impressed. And two of the group (including the president of the Longview area Audubon Society) went on with Fred and me, scouting a new route from Road 83 to the upper entrance of Ole's Cave. We found it, too, with considerable less difficulty than I had expected: only a 15 minute hike west, then southwest from spur road 070. We went only a short distance beyond the upper three entrances. The cave was unusually warm, and no sign of any bats (or recent habitation thereby) was noted. Some local spelunkers had placed a treetrunk in the upper entrance, and the cave needs a new register in this area.

On the way home on Sunday, I checked out the new Toutle River road and observation point recently opened to visitors: plenty were on hand. The observation point gives an excellent view of the Corps of Engineers debris dam

close below, and upper end of the big debris flow can be seen in the distance, maybe two miles farther east. The road continues past the Red Zone signs and C of E dam, to, onto, and past the toe of the debris flow -- hunting for piping caves in at least part of the debris flow should be easy. The mountain itself is not seen as well from this point as from the south side; only a little of the crater is visible. But plenty of devastation can be seen. I wonder how many visitors realize that maybe 95% of the devastation they see, however, is the work of Weyerhaeuser and the Corps of Engineers, not the volcano?

MOUNT ST. HELENS - AUGUST 1982

By William R. Halliday M.D.

Following the Land Use Planning and Cave Management Workshop at Yale, on August 14 Jim and Libby Nieland and Margaret Thatcher joined Patricia and me in scouting in the Barney's Cave area. Jim had recently remapped Barney's Cave, but I had not been there before and needed to see if it had been impacted by the 1980 - 82 events (it hadn't). It is an interesting little cave with a rudimentary network of surface tubes at head-height along its corridor of perhaps 175 feet. It is only about 200 yards west and a little south of the big crater-like blow-out on the new 070 route to Ole's Cave, and about an equal distance from what looks like the NE corner of the Green Mountain Kipuka and we reached it with surprising ease. We found a small cave about halfway between Barney's Cave and the upper-most entrance of Ole's Cave: Huckleberry Cave, we named it for a nearby bush that was really loaded. It obviously served as the drain for a small lava pond but while it was about 4 feet high at the entrance, it soon squeezed down into crawlways, one with a nice insurgence tongue.

There are fine tree casts in this area also. Jim found a cast of a whole log jam, including a horizontal cave 35 or 40 feet long with two entrances on one end and one on the other: like looking through a gigantic double-barrelled shotgun. I thought Shotgun Cave was the obvious name, but Libby says that tree casts just aren't caves and wants it called just The Shotgun. It is easily found by hiking west to the edge of the kipuka and then south a short distance.

The area could use a lot more cave hunting. Especially since it was a dog that discovered Barney's Cave (Margaret Thatcher tried valiantly to do as well on this trip but none of the holes "went" that she checked out.)

In this trip report Dr. Halliday mentioned the Land Use Planning and Cave Management Workshop that was held at Yale on August 14th. The final draft from that meeting, which has been delivered to the Forest Service, is shown on the next three pages.

PROPOSED CAVE MANAGEMENT DIRECTION
GIFFORD PINCHOT NATIONAL FOREST

CAVES

GENERAL DIRECTION

Caves are a resource having unique scientific, recreational, educational, cultural, and scenic values. These values can be endangered by resource management activities or in some instances by uncontrolled visitation. When caves are encountered in project areas, they will be preserved in as nearly as possible an undisturbed condition until an inventory of their values is completed and a plan for their management written. The inventory and plan should be written by a person or persons knowledgeable in speleology.

A management plan should address the goal of preserving and protecting the cave and its environment while permitting compatible uses.

The following elements will be considered when an inventory is conducted.

1. Resource inventory of a cave should commence with inquiries to local caving organizations and cave scientists, and a search for any relevant information in published literature.
2. Inventory takers should consider all possible values of a cave, whether scientific (including geology, biology, archaeology, etc.), recreational, or other.
3. Some aspects of a cave's value may be seasonal in nature (e.g., ice speleothems or seasonal fauna such as bats); therefore, where possible, inventory should include visits at more than one time of year.
4. Biological inventory must recognize that small and inconspicuous invertebrate animals contribute a large part of a cave's biological importance, and should also consider the often unusual plant communities in cave entrances.
5. Inventory must consider a cave's interaction with its surface and subsurface surroundings.

TIMBER

Cave roofs can be thin and present a hazard to equipment and operators. This may restrict the logging methods and techniques used over caves and the methods of slash disposal.

Cave entrances should not be used as disposal sites for slash, refuse, spoils, etc.

Alterations to cave entrances will be avoided as a part of timber harvest activities.

Cave sedimentation and nutrient flow into cave ecosystems can be affected by surface modifications to lands above cave passages or near cave entrances, including timber harvest and slash disposal. Generally, slash should not be burnt or the ground surface significantly disturbed within the runoff area draining into cave entrances.

Slash burning that has the potential of sterilizing thin soils above cave passages should carefully be considered before the project is undertaken to determine its effects.

In some instances, it may be necessary to leave vegetative buffer areas around cave entrances to protect their microenvironments, and/or over cave passages to protect the cave's biota.

In cases where it is permissible to cut timber adjacent to or within entrance areas, the timber should be directionally felled away from the entrances and slash disposed of by hand methods.

ROADS

Generally, roads should be routed away from cave entrances and avoid crossing over the caves course. No alterations to cave entrances will be made.

- 1) Road construction will not interfere with the natural hydrology. Surface drainage shall not be diverted into caves.
- 2) Cave roofs can be structurally unstable and may in some cases be unable to support roads.
- 3) By locating roads away from cave entrances increased visitation and resulting adverse impacts can be reduced.

WILDLIFE

Some caves within the Gifford Pinchot National Forest contain unique and fragile biologic communities which need to be protected. The following considerations will help preserve these values.

- 1) maintain the integrity of the caves and their surroundings,
- 2) preserve vegetation at entrances and over the course of the cave where needed,
- 3) protect water quality,
- 4) sensitive wildlife (e.g. bats) should be protected by minimizing human visitation as needed,
- 5) the use of pesticides, herbicides, fertilizers, and chemicals could cause adverse impacts to cave life and should be avoided in the hydrologic setting,
- 6) human impacts can be minimized through public education in appropriate behavior and use of caves.

RECREATION

Caves can provide many aspects of recreation but not all caves are suitable for recreational uses. Caves generally are not overly hazardous but exceptions do exist for ill prepared individuals. In some instances hazards do exist in the form of unstable breakdown or pits.

Certain caves, cave entrances, or vicinities may be suitable for more than one type of recreation or recreation development. When conflicts arise, consideration should be given to the highest form of recreation and to the protection of cave values.

The following caves may not be appropriate for unrestricted or directed recreational use:

- 1) Caves under scientific study where recreational use could be detrimental to the project.
- 2) Caves which contain sensitive or endangered species.
- 3) Caves containing delicate geologic features which can easily be damaged.
- 4) Caves requiring specialized technical equipment or skills.

Would-be cave explorers should be educated in cave safety and conservation and, where possible, directed to appropriate caving organizations for the training.

DEVELOPED SITES

Caves should be developed for public use only when they can be properly interpreted and protected and should be utilized as an educational resource. Development should be considered when such development would be beneficial to protecting the resource.

When development takes place, care should be taken to minimize impact on the cave. Cave development will be carried out using established cave management techniques. Some of the impacts to be considered include the following:

- 1) Parking lot and road construction and location
- 2) sewage disposal
- 3) visual quality
- 4) trail placement and design
- 5) lighting design
- 6) protection of delicate features
- 7) carrying capacity
- 8) control of the public
- 9) design of interpretive programs
- 10) litter clean up and control.

DISPERSED RECREATION

The thrill of discovering and exploring wild caves is a vital recreational experience. The following will help maintain this value:

- 1) limit the publication of cave locations on maps and brochures to developed sites,
- 2) references to wild caves and wild cave locations should generally be omitted from publications prepared for widespread public distribution,
- 3) trail and road signs should not direct public attention to wild caves,
- 4) by locating trails away from cave entrances, increased visitation and its impacts can be reduced.

MINING

Mining is inappropriate in or around caves when a cave's values will be affected. Removal of speleothems, rock slabs, sand, or other geological features shall not be permitted. Development of borrow pits, quarries, or other excavations shall be done in such a manner as to prevent runoff or sediment from entering caves.

Adopted by NSS - Forest Service Liaison Committee
14 August 1982

As subsequently amended

MT. ST. HELENS CAVES

By Frank Vlcek

Reprinted from the Cleve-O-Grotto News

On a recent trip to Washington and Oregon, Don Kingsland and I visited the Mt. St. Helens area. The mountain itself is unbelievable. Looking at the gaping hole in its northern side, one can picture how the summit used to look and how much of it was blown off by the initial eruption. We took a drive down a recently opened road along the Toutle River where the destruction can only be described as a vast wasteland. You would have to see it to believe it.

The southern side of the mountain is in complete contrast. Except for the sides of the mountain itself, where mudslides covered everything, the forest is as green and beautiful as ever. It, in fact, appears to be a rain forest, with moss hanging off everything and where six foot diameter trees are common. In the midst of this area are the entrances of several lava tubes.

The most celebrated of these is Ape Cave. The entrance is marked by a forest service sign and has a metal staircase dropping down into it. A forest service employee rents gas lanterns and flashlights in the parking area. The cave was something totally different to me. I've been in big passage before but never one that seemed to go on forever with a flat floor. Actually there were a few piles of breakdown to negotiate but absolutely no crawling. The features were also totally foreign. Formations are made from lava cooling during cave formation or dripping through cracks of the already-formed cave. Walls are of various textures with gas pockets in some places and huge bulges in others. We did a little more than half of Ape's two plus miles to another entrance where I fell trying to climb out on the moss-covered walls so we retreated back the way we came in.

A local told us of Lava Cast Cave which was nearby Ape Cave. Like Ape Cave, one could go in two directions from the entrance. One way split in two with one interesting crawlway with brilliant orange walls and troughs which apparently had lava flowing in them. The other split had an immediate drop. We fortunately didn't need our ropes as someone provided a crude wooden ladder (with several rungs missing). The passage opened up and proved to be much bigger than Ape Cave. After a second drop and about a quarter of a mile of passage, we regretfully decided to leave to make a deadline we had elsewhere. From what we saw, the passage continued sloping downward and still in huge proportions.

Another local described another nearby cave (Lake Cave) as being a lava tube filled partly with water. We didn't have the time or necessary raft for this one though.

All in all, we decided that these were some of the best caves we had been in simply because they were different.

Editor's note -- according to Dr. Halliday they were in Lake Cave and not Lava Cast Cave.

VULCANOSPELEOLOGICAL ABSTRACTS
By Rod Crawford

Hatheway, Allen W., and Alike K. Herring, 1970. Vandera lava tubes of New Mexico, and lunar implications. Communications of the Lunar and Planetary Laboratory, University of Arizona, 8 (4): 297-327

This paper is mainly a study of the Bandera lava tubes; very little space is devoted to lunar implications. The authors apparently did little field work and depended primarily on aerial photographs.

In addition to some smaller systems, the authors identify about five major lava tube systems, extending from as many distinct craters, ranging from late Tertiary to Holocene in age. The Bandera Crater tube was traced for 28.5 km through three apparent flows units. The longest of numerous short intact caves in this system appears to be about 300 m long.

The Macdonald-Wentworth theory of tube formation is dismissed as having been observed only in "small distributory tubes" and applying "only to tubes of a few hundred m in length" without giving any evidence for this; indeed it partially contradicts statements of Wentworth and Macdonald. Ollier and Brown's internal conduit/layered lava system is accepted. The photograph of "layered lava" looks very much like thin flow units; a typical lava tube is said to be circular in cross-section, which, as we know, is not the case. Judging from the photographs only, I would say that the Bandera lava tubes formed by roofing-over.

There is some mathematical discussion of the internal pressure required for lava from an internal conduit to breach the flow front. It is argued that there is no direct analogy between sinuous bends in lava tubes and stream meanders because the latter apply only to open channel systems (!). It is stated clearly that the course of a lava tube is not the result of the approach to an equilibrium state, contrary to the more recent conclusions of Wood.

There is considerable discussion of different modes of lava tube collapse, contrasting straight-sided collapse pits of the familiar type with plastic subsidence collapse. They believe that some of the lava tubes may have experienced open-channel flow after the collapse of internal conduits during the eruption.

An important paper making many interesting points, despite the controversial nature of the theoretical basis involved.

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