



# THE CASCADE CAVER

International Journal of  
Vulcanospeleology

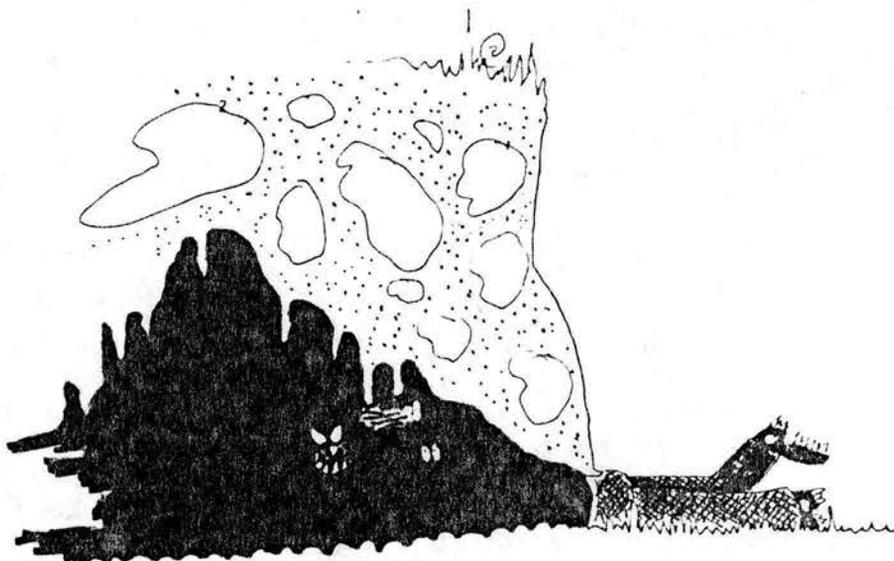
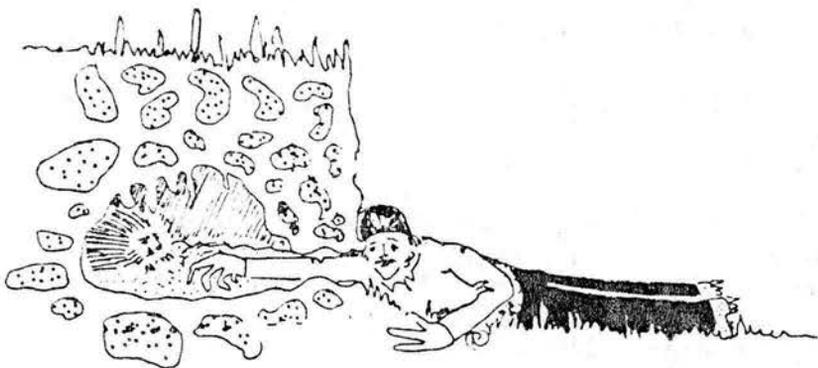


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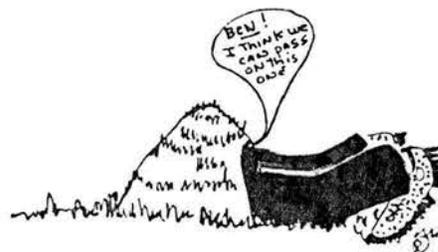


## CAVES IN THE METALLINE FALLS AREA

By Ben Tompkins

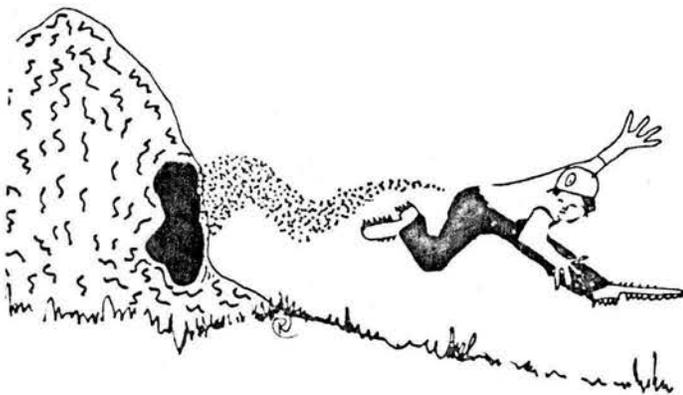
Late in 1982 the Cascade Grotto received a letter from the Colville National Forest headquarters containing a map of reported caves and sinks in their area that they would like to know more about.

On Thursday night, June 23rd, I picked up Tad Riste and Tony Ross in Roslyn and we arrived at the forest headquarters in Colville soon after it opened Friday morning. The staff there referred us to Jay Rohrer in the Sullivan Lake Ranger District. Jay was out in the field when we got there so we spent the time looking at aerial photographs of the sites marked on our map. When Jay arrived, he added seven caves to our map and offered to take us to these himself.



We drove across the river to see Gardener Cave while waiting for Jay to get off work. Tony and I had never been there before and were disappointed to find the entire Crawford State Park closed and locked up. We parked at the gate and hiked in to the entrance of Gardener Cave which was double locked as well. Little or no work has been done on the park facilities this season so we suspect that the park and cave are not going to be open at all this year.

Mike Rohrer and Rusty Volquadsen joined us at Jay's house and we headed north on Highway 31 to the Z Canyon area. An unmarked trail from the end of an unmarked spur road lead to a limestone bluff containing two phreatic tube caves. The northern-most cave went into the hill about 20 feet then shifted to a side pocket which went another 10 feet or so then turned to the right and ended in sandy fill. The cave was well populated with spiders, webs, mosquitoes, and even a two-inch shrew near the entrance.



The second cave is just to the south of the first one, is at the same level in the cliff, and penetrates about the same distance. This cave, however, goes straight back without a side pocket and turns to the left at the end in the direction of the first cave.

We searched the bluff from end to end for more caves. Tony found one south of the second cave but higher in the cliff just out of sight over the rim of the lower layer of limestone. It penetrates about 20 feet to where a smaller passage starts off to the left but this lead was choked off by the silty fill. Mike and Rusty reported a week later that they lost no time excavating this cave. They came back several times and dug out about seven feet of passage

until they reached a nicely decorated complex. The total passage length so far is estimated at 100 feet and operations were halted only by Mike and Rusty leaving for the Air Force.

The fourth cave is several miles south on Highway 31 where we turned off and descended towards the river again towards the Lucky Strike Mine. We stopped at a point where the road was blocked by a tree and headed north-northwest into the woods. The forest floor was swampy in places but rose up in limestone cliffs, small hills, and hogbacks parallel to the road. At the base of the south face of one of these limestone formations is a bear-sized hole. The first chamber is about 5 feet in diameter and 4 feet high. Beside the entrance hole in this room are the markings "E.B. D.B. 1928". The cave continues to the north into the outcrop before pinching off.

We camped near there for the night and went back to check the drainage system around cave #4 again. Local talk mentioned a stream disappearing into the ground near there. Nothing was found but we didn't cover a fraction of the area.

Richard Walter joined us the next morning at Jay's house. Richard saw my trip note in the Caver and came down from Creston, British Columbia. Seven of us now headed for Jay's next cave which turned out to be very near three of the sites indicated with question marks on our map. All three sites could be reports of the same cave by different people or there could still be caves at those points.



Jay has been calling this one Gypo Cave because of the nearby Gypo creek. We certainly would never have found it if he hadn't led us directly to it. He took us up a logging spur, down an over-grown trail, and suddenly, 15 yards south. The entrance is surrounded by a red fence which keeps things from falling into the two-by-three foot entrance hole and the 50 foot drop below it. Mike and Rusty had never used vertical gear before. They were thrilled and apprehensive at the same time, but did a great job. The main passage runs north and south at the bottom of the wall and slopes steeply. There is about 10 feet of passage up slope to the north of where we landed and about 75 feet of passage going down slope to the south. The west wall is vertical but the opposite wall slants to the east so the passage is about three feet wide at the floor and wider at the top. At the bottom of the passage there is a hole at floor level leading to a 12 foot long chamber at right angles to the main passage.

The cave material looks like a brown sedimentary rock with smoothly rounded rocks of limestone embedded in it. In many places, especially in the perpendicular passage, the walls look like parts of larger rocks that have been sliced open to show bubbles inside. These sawed-open bubbles sometimes contain boxwork-like designs. The Gypo Cave might be of interest to

paleontologists if the entrance hole and 50-foot drop have been piling up layers of animals and debris on the floor since the last ice age.

Gypsy cave is a hole that Jay noticed while hunting above Gypsy Meadows. He didn't explore it at the time so Tony, Jay, and Richard went to check it out. It is directly in the apex of a ridge at about the 5200 foot contour. The floor is deep humus sloping downward at 30 degrees ending in large conglomerate boulders about 30 feet from the entrance.

That exhausted Jay's collection of known caves but there are still unchecked sites on our original map. There is lots of exposed limestone that we saw but haven't yet checked and there are lots of people that we haven't yet talked to. The drawings shown here for Z-Canyon and Lucky Strike caves are from sketches by Jay Rohrer. Gypo Cave is drawn from sketches by Tad Riste and Gypsy Cave from sketches by Tony Ross.

ed. note -- Tad Riste drew the cartoons on the cover and in this article, except for the one on page 41, which was drawn by Ben Tompkins.

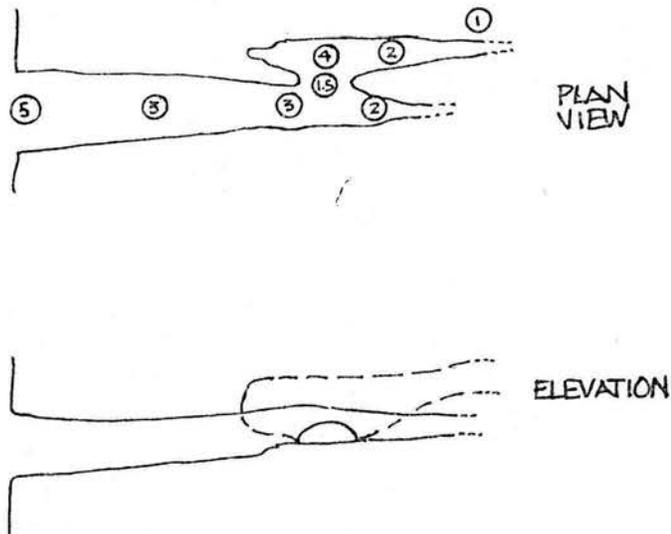


FIGURE 1  
Z CANYON CAVE # 1

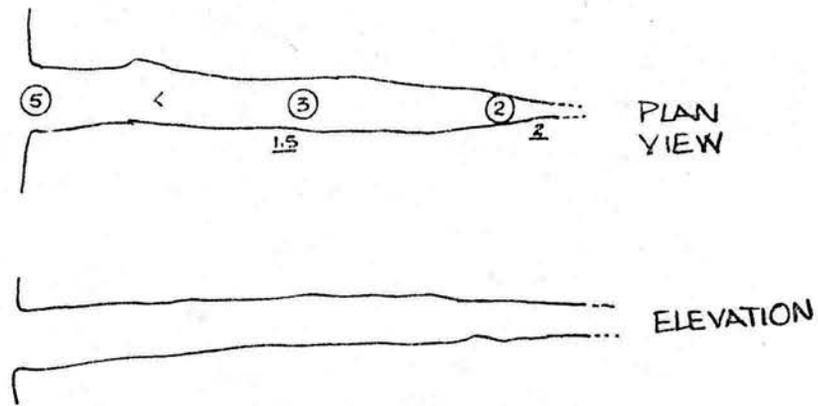


FIGURE 2  
Z CANYON CAVE #2

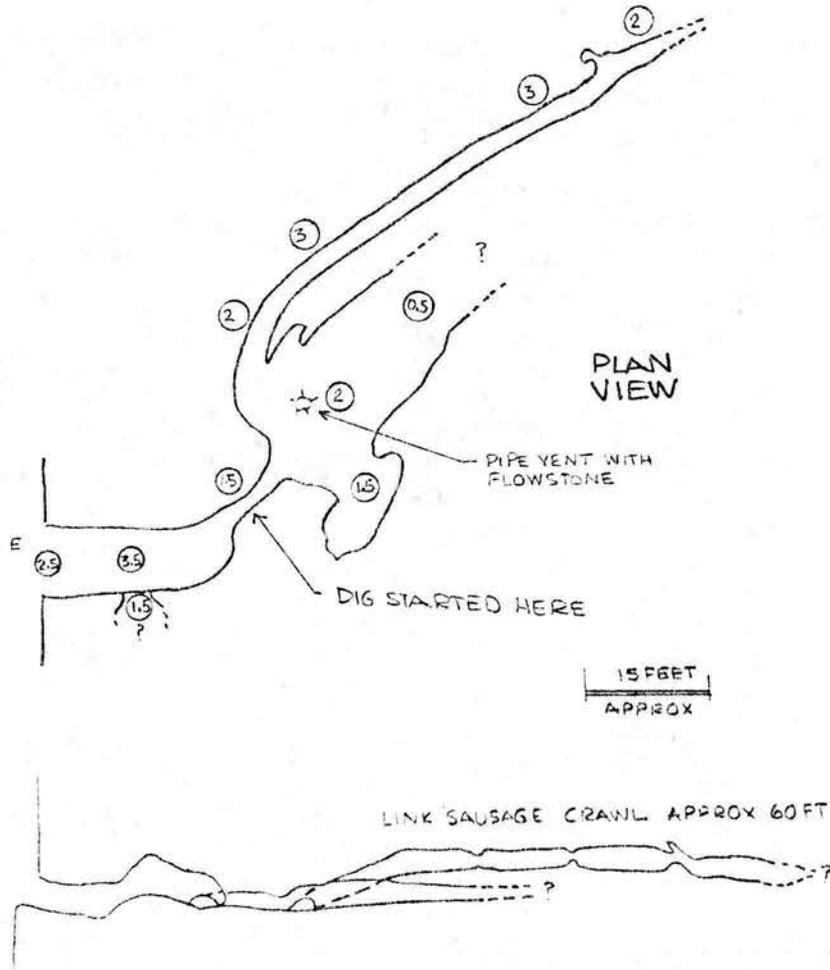


FIGURE 3  
Z CANYON CAVE #3

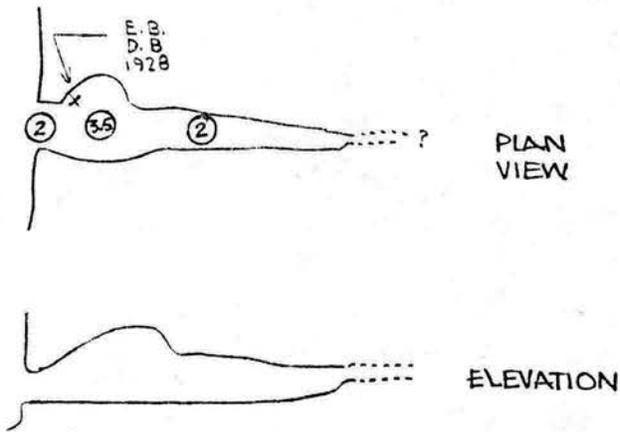


FIGURE 4  
LUCKY STRIKE CAVE

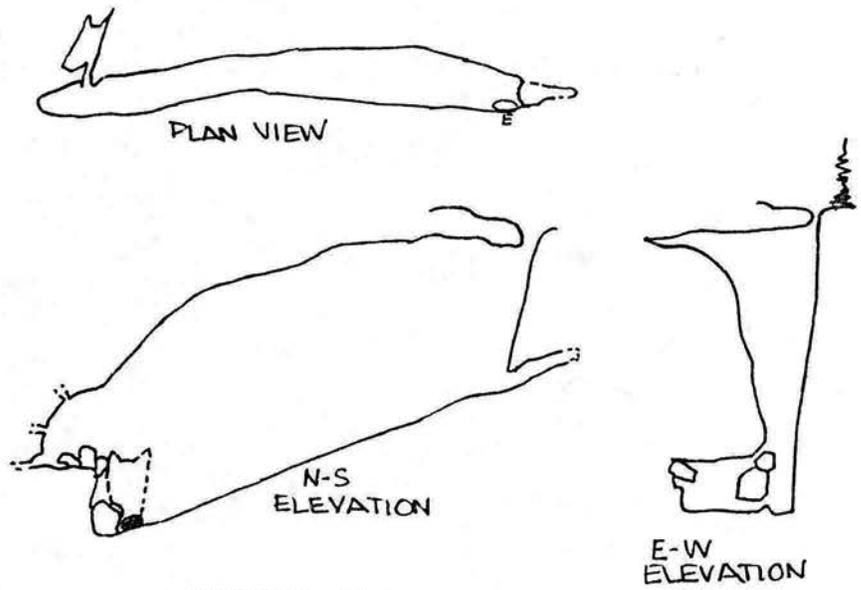


FIGURE 5  
GYRO CAVE

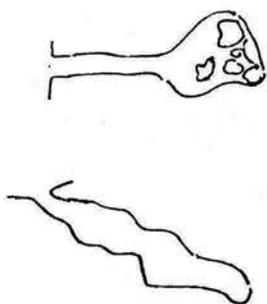


FIGURE 6  
GYPSY CREEK CAVE

## FURTHER OBSERVATIONS ON THE SPIRIT LAKE PSEUDOKARST

By William R. Halliday

Recently I was able to obtain some of the new Corps of Engineers topographic maps covering the Spirit Lake Pseudokarst in the May 18, 1980 debris - pyroclastic flow. They show that the area is much larger and more complex than was apparent on the short WSS reconnaissance in October 1982. Large and small sinks, shallow and deep, simple and complex - all are present. In some cases, extensive centripetal drainage has developed and as previously reported, extensive piping was apparent in October 1982 even though no cave-size openings were found.

All these sinks are several hundred feet south of the position of the old outlet stream of Spirit Lake and are west of the new southwestern arm of the lake. Mostly they follow a broad curve at right angles to the downslope delivery axis of this lobe of the May 18 flows. The north and east segments of the chain of sinks forms a sinuous path for overflow should the level of Spirit Lake rise a few dozen more meters. The shallow northernmost sink is at or within the zone of the Corps of Engineers pipeline. It was not visited by the WSS party, and impact of the pipeline is not known at this time.

During the October 1982 reconnaissance, the presence of active swallets about 1000 feet northeast of the northeasternmost large sink led to the suspicion that the active piping observed on the floor of sinks marked with datum points 3458 and 3446 on the enclosed map was result of deep phreatic flow along the course of the old outlet stream. This no longer appears to be the case, although a few small sinks north of the chain of large sinks still may be due to such a phenomenon. Unfortunately no observations were made by the WSS party along the SW arm of the lake, to determine if similar swallets were present there, close to the chain of large sinks, and this will be a high priority for study when the 1983 season begins.

This pseudokarst is evolving rapidly, through a variety of mechanisms. Review of early 1980 photos suggests that at least some of them began to develop as a result of phreatic explosions, comparable in some ways to maar formation. The source of the heat causing these explosions is clear enough (steam still was issuing from fissures farther up the flow in October 1982) but the source of the superheated water is less clear. The water of Spirit Lake has been implicated, but this lobe of the May 18 flows did not invade the lake; in fact it was on the west side of a small drainage divide from the lake itself, now obliterated by the May 18 accumulation. Small quantities of surface and ground water (including snow) were present on May 18 in the area of the present sinks, but the pattern of distribution of the large sinks suggests that local factors in the May 18 flow itself were responsible for their presence. Preliminary study of pre-eruption and post-eruption topographic maps suggests that this lobe largely followed a pre-eruption stream gully that received most of the drainage from the large, multilobate ice mass located on the north side of the mountain between Goat Rocks and the Sugar Bowl, which avalanched in mass just

before the May 18 eruption. Thus the working hypothesis here continues to be that ablation and/or melting of glacier ice, with or without phreatic explosions, initiated the development of the pseudokarst, with subsequent modification by piping and other geomorphic processes.

Much more extensive field work is planned here and farther down the 1980 flows when weather permits. Speleologists wishing to serve as field assistants should contact me as soon as possible so that Red Zone permit requirements can be expedited. This also is true for those wishing to participate in glaciospeleological studies high on the south side of the volcano.

#### COMING EVENTS

JULY 19	Grotto Meeting 8:00, 1117 36th Ave. East, Seattle
AUG. 6	Barbecue with the Oregon Grotto at Mt. St. Helens Contact Bob Brown for details at (206) 569-2724 .
AUG. 16	Grotto Meeting 8:00, 1117 36th Ave. East, Seattle
SEPT. 3-5	Regional, The Lehman Cave area, Nevada
SEPT. 20	Grotto Meeting 8:00, 1117 36th Ave. East, Seattle

Cascade Caver  
207 HUB (FK-30) BOX 98  
University of Washington  
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GROTTO MEETING JULY 19 at 8:00