

Cascade Caver

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Cascade Caver

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THE CASCADE CAVER

The *Cascade Caver* is published approximately 10 times a year by the Cascade Grotto, a local chapter of the National Speleological Society. All material to be published, subscription requests, renewals, address changes, and exchange publications should be sent to the Grotto address shown above.

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GROTTO MEMBERSHIP

Membership in the Cascade Grotto is \$7.50 per year. Subscription to the *Cascade Caver* is free to regular members. Membership for each additional family member is \$1.50 per year. Subscription to the *Cascade Caver* is \$7.50 per year. Send subscription requests and renewals to Treasurer, at the address shown above.

MEETINGS

Regular grotto meetings are held monthly at 7:00 pm on the third Friday of each month at the University of Washington, Room 6, in the basement of Johnson Hall. Business meetings are held in odd-numbered months immediately following the regular grotto meeting for the month.

GROTTO OFFICERS

Chairman: Jim Harp,
206 745-1010
Vice Chairman: John Benson,
206 877-5751
Sec/Treasurer: Ben Tompkins,
206 546-8025

OTHER POSITIONS

Trip coordinator: Jim Harp
Programs Larry McTigue
Topo maps Rod Crawford
Book library Mark Sherman
Cave registers Mike Wagner

OTHER AREA GROTTO

Gem State Grotto, P.O. Box 1334, Boise, ID. 83701. **Glacier Grotto**, c/o Dr. Julius Rockwell, 2944 Emory Street, Anchorage, AK. 99508-4466. **Oregon Grotto**, c/o Mr. Roger Silver, 912 N.W. 50th Street, Vancouver, WA. 98663. **Salt Lake Grotto**, c/o Mr. Dale Green, 4230 Sovereign Way, Salt Lake City, UT. 84124. **VICEG**, c/o Mr. and Mrs. Graham Heslop, 1734 Albert Avenue, Victoria, B.C., V8R 1Z1, Canada. **Willamette Valley Grotto**, c/o Mr. Jim Mosser, 6002 N.E. Bryant Street, Portland, OR. 97218. **Jefferson State Grotto**, c/o Marc Sorensen, 3424 South Pacific Highway, Medford OR 97501. **Magic Valley Grotto**, c/o Mr. David Johns, 585 East 4th, Wendell ID 83355.

UPCOMING EVENTS

Call the Jim Harp, grotto trip coordinator, or the listed trip leader to find out more about these planned or proposed trips. Other trip ideas are also welcome. Contact Jim at (206) 745-1010.

Dec 8 - Grotto Christmas Party at Howard Hoyt's house, see map and other information elsewhere in this issue.

Dec 21 - NO Grotto meeting. We should have seen you at the Christmas party!

Dec 31 - All ballots for grotto officers are due.

Dec 31 - Oregon Grotto party in Vancouver WA, see information elsewhere in this issue.

Jan 25 - Grotto meeting. Business meeting after general meeting

Feb 15 - Grotto meeting

Mar 15 - Grotto meeting. Business meeting after general meeting

Apr 19 - Grotto meeting

May 25 - Northwest Regional Meet (NCA), Trout Lake, WA, Memorial Day weekend (May). Hosted by the Cascade Grotto.

June 30 - NSS Convention in Cobleskill, NY

Aug 5-11 - 6th International Symposium on Vulcanospeleology, Hilo, Hawaii. Contact W. R. Halliday, 6530 Cornwall Court; Nashville, TN 37205.

1992 - NCA Regional in Idaho

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Grotto Christmas Party

The Cascade Grotto will be having a potluck Christmas party on December 8 instead of a December grotto meeting. The party will be at Howard Hoyt's home. See the map printed on the back of the grotto ballot. (Since you ARE coming to the Christmas party AND turning in your ballot at the same time, RIGHT?)

Jim Harp will be roasting a turkey. Bring your own silverware and plates. Call Jim at 745-1010 to coordinate potluck dishes.

New Year's Party

The Cascade Grotto members are invited to the Oregon Grotto New Year's Party at the home of Roger and Patty Silver, 912 NW 50th Street, Vancouver WA 98663. Patty says there is plenty of room to spend the night if you bring a sleeping bag. For more information call Patty at (206) 693-3600.

COVER

Gene Smith (Oregon) taking notes in Jewel Cave, South Dakota, during an NCRI project. Drawing by Linda Heslop (VICEG) from a photo by Scott Fee (Indiana).

The Pursuit of DARKNESS

For years it has been believed that electric bulbs emitted light. However, recent information has proven otherwise. Electric headlight bulbs don't emit light; they suck dark. Thus, we will call these bulbs *Dark Suckers*.

The Dark Sucker Theory proves the existence of dark, that dark has mass heavier than that of light, and that dark is faster than light.

The basis of the Dark Sucker theory is that electric bulbs suck dark. Take for example the Dark Suckers in the headlights of the cavers around you. There is less dark right next to them than there is elsewhere. The larger the dark sucker, the greater its capacity to suck dark. The Dark Suckers on poles over a parking lot have a much greater capacity than the ones on your helmets. As with all things, Dark

Suckers don't last forever. Once they are full of dark, they can no longer suck. This is proven by looking at well-used headlamp bulbs. The blackest ones are the full Dark Suckers.

The candle some of us carry is a primitive Dark Sucker. A new candle has a white wick. You will notice that after first use, the wick turns black, representing all the dark which has been sucked into it. If you hold a pencil next to the wick of an operating candle, the tip will turn black, because it got in the way of the dark flowing into the candle. Unfortunately, these primitive Dark Suckers have a very limited range.

Caving headlamps are classified as portable Dark Suckers. The bulbs in these can't handle all of the dark by themselves, and must be aided by dark storage unit(s) on the belt or on the back

of the helmet. When the dark storage unit is full, it must be either emptied or replaced before the portable Dark Sucker can operate again.

A carbide lamp is another form of portable Dark Sucker and operates on the same general principle. Carbide lamps have been popular for so long because carbide is a very powerful dark attractor, sucking dark in through the small hole in the lamp tip so that the resulting light zone is concentrated at the focal point of the reflector. Then as the chamber fills with darkness the carbide breaks down into a powder which has a much greater surface area for attracting and binding darkness.

Dark has mass: When dark goes into a Dark Sucker, friction from this mass generates heat. Thus, it is not wise to touch an operating Dark Sucker, especially quartz-halogen suckers. Candles also present a problem as the dark must travel into the solid wick, instead of through glass. This generates a great amount of heat. Thus, it can be very dangerous to touch an operating candle. This is also why carbide lamps require a reservoir of cooling water.

Dark is also heavier than light: This is common knowledge, every one knows that darkness falls, but lets look for a verifying example. If you go cave diving, just below the surface of a sump you will see lots of light from the Dark Suckers of your companions above. As you swim deeper and deeper, you notice it gets darker and darker until before long you are in total darkness. This is because the heavier dark sinks to the bottom and the lighter dark floats to the top.

Finally, it must be shown that dark is faster than light. If you were to stand pointing your headlamp at your closed cave pack then slowly open it, you would see the light slowly enter the pack; but since the dark is so fast, you would not be able to see the dark leaving the pack.

In conclusion, I would like to say that Dark Suckers are what make caving possible but lets not take them for granted. The next time you have a chance to pause deep in a cave, turn off your headlamp and think about the device on your helmet. Look around. Be thankful that it is indeed a Dark Sucker.

(Original source untraceable. Adapted to caving by Ben Tompkins)

Hawaii in April

by William R. Halliday, MD

Working on the symposium and symposium field excursions, I spent 8 days in Hawaii overlapping April and May this year. In Honolulu I again used the Outrigger Waikiki Surf Main Hotel as a base which, despite its name, is a long way from the distractions of the beach. I never got near the water.

Shortly after arrival I had a dinner meeting with Dr. Robert Shapiro who has been in what we have been calling Lower Kazumura Cave, called Pele's Cave by others. He is part of an informal Hilo-based caving group. We planned joint field work on the Big Island the following weekend as well as talking about the National Speleological Society. The next morning I was well received by the Director and others at the Bishop Museum; things look good for pre-symposium events there. Its library is open to the public from 10 to 3 Tuesday through Friday and 9 to 1 on Saturdays. Between meetings I did a lot of work there on the forthcoming bibliography of Hawaii speleology.

That night was a dinner meeting with Darrel Tanaka who is proposing a cave biological preserve on Kauai.

On the 26th I had further meetings with the museum staff as well as a chance for a long talk with Frank Howarth that seemed to resolve a lot of misunderstandings. Among other things, Frank no longer wants N.S.S. members to contact him or Fred Stone before coming to Hawaii; the load has gotten too great and it looks like the Hawaii Speleological Survey can handle it better now.

Then I flew on to Hilo and had a dinner meeting with Spike Werner for more planning. Friday was used running around rather madly in Hilo, with a meeting with Fred Stone, with bank contacts, and other preliminaries of the symposium.

Saturday morning I began field work repeating photography in Garry McGowan's Cave with Darrel Tanaka. Last time the cave ate my flashes. Then Spike, Darrel, and I had a look at the Tessemer-Zamrzla entrance of Olaa Cave and the Lava Bubble on Wright Road in Volcano (0.4 mile north of Highway 11). Next we drove back down "the hill" to meet Rob Shapiro and his crew in Keeau. In mapping Upper Uilani Cave they proved to be darned good tread-softly cavers despite previous lack of

contact with proper equipment, N.S.S. philosophy, and the like. The group included Jim Scanlon, David Harris, and others.

While taking Darrel to the airport, Spike and I met Stewart Waterhouse, a hard-charging non-N.S.S. caver recently come from the mainland and already finding caves all over southeastern Hawaii. We included him along with most of Saturday's crew plus Max Ngai in the remapping of the lower section of semi-developed Kaumana Cave the next morning.

Kaumana turned out to be a lot more complicated than indicated on the old Van Steggern map and had some remarkable lava soda straws still present despite all the locals who start caving there with no guidance. Stewart then took Darrel and me to three cave systems he had found high on the north side of Mauna Loa Volcano. One of these is entered right at the edge of the Observatory road and had been reported previously by Jack Lockwood and Stephan Kempe as Skylight Cave. We had time for only the upper section but from Kempe's descriptions it seems likely that this will turn out to be several caves, not just one.

Next was a new find of Waterhouse's which we called the Cinder Cone Cave System because it is reached via the Cinder Cone Road off of the Observatory road. It has notable red and purple lava speleothems and extensive deposits of powdery white material we guessed was gypsum. (there was some in Skylight Cave, too.) The third is an amazing sequence of short but very large caves along a single tube line. The line is marked by huge overflow shafts surrounded by stranded lava balls and congealed reflux, with collapse entrances revealing BIG passage and THIN roofs. The pits appeared 30 to 50 feet deep, maybe more. Stewart says the cavernous segments get longer *makai* (down flow). By then it was getting dark. Stewart also wanted to take us to Hot Tub Cave, his specialty, but I was out of steam and Darrel had to get back to Honolulu again.

Monday, April 30, saw more running around Hilo plus work in the U.H.-Hilo library, a pleasant lunch with Dr. Paul Dahlquist of the Lyman Museum, and a dinner meeting with Jim Martin (NSS 2886), Chief Ranger at Hawaii Volcanoes National Park. Squeezed in between was a helicopter look at the current Puu Oo flows which were almost to the sea in Kalapana. To my surprise the lava lake ("Kupaianaha") was lava-free and had a central open shaft, far down which red lava could be seen and

photographed. Only one small window could be seen farther down the flows.

On Tuesday I had a planning meeting with Tom Wright, Director of the Hawaii Volcano Observatory plus further bibliographic work in its library.

Wednesday saw a 100-minute meeting with Dan Taylor, Larry Katahira, and Andy Kikuta of the Hawaii Volcanoes National Park, in which much progress was made toward an acceptable Cave Management Plan for the park. After the long coast "down the hill" to the Hilo airport I departed to the mainland not a bit tanner than when I arrived. Shades of things to come at the 1991 symposium.

International Vulcanospeleology Symposium

by William R. Halliday, MD

The 6th International Symposium on Vulcanospeleology will be held in Hilo, Hawaii August 5-11, 1991. Co-sponsors of the symposium to date are the National Speleological Society, the Western Speleological Survey, the University of Hawaii - Hilo Branch, and the Lyman Museum; other organizations are expected to join this list.

Sessions on August 5 and 6, 1991 will include the vulcanospeleology of Hawaii, of the mainland U.S.A., and of the world in general, theoretical vulcanospeleology, and the biology and conservation of lava tube caves. Field excursions to lava tube caves and other notable features of eastern Kilauea and southeastern Mauna Loa volcanoes will be August 7-11.

In part depending on participant's desires, a pre-symposium field excursion to pre-Quaternary lava tube caves of Oahu may be scheduled on Saturday August 3, 1991, and possibly other events in Honolulu August 2-4.

Special events in Hilo are expected to include a tour of the Lyman Museum narrated in English and in Japanese, a welcoming reception, and a swimming pool party.

National Speleological Society vice-president Tom Rea has volunteered to edit the proceedings of the symposium. In absentia papers will be

accepted, read, discussed, and published as time and space permit. Personal attendance is strongly urged.

Arrangements will be low-budget. Special hotel and car rental rates are being negotiated. Helicopter and fixed wing volcano flights can be arranged at moderate cost.

So that we can obtain an approximate count of persons likely to attend, please send a non-binding statement of interest or likely attendance to the address below, as soon as possible. To those responding at this time, further information will be supplied as it becomes available. My (temporary) address is: William R. Halliday, Chairman; 6530 Cornwall Court; Nashville, TN USA 37205

Kauai Reconnaissance

by William R. Halliday, MD

On August 5 and 6, 1990, Sis and I broke away from the H.S.S. field work on the Big Island for a quick look at caves of Kauai: not exactly the most speleoliferous of the Hawaiian islands but the location of some exceptionally important fauna of caves and interstitial spaces.

Bypassing the touristy Fern Grotto, we picked up transplanted Virginia caver Julie McCombs as a guide and proceeded north to the end of the road at Haena. First was Maninoholo (Menehune) Dry Cave. The yawning entrance of the well-known and much-visited cave is alongside highway 56 about 1 km from its end near Haena. It is mentioned, or described in innumerable guidebooks and a few scientific reports. In one Hawaiian legend it is said to have been dug by a menehune (Hawaiian leprechaun) who had the power to change his form into that of a rat. In another, it is said to have been the successful lair of a fugitive king. It has been mapped most recently by Bunnell and others in 1987 and by Stephan Kempe in July, 1990.

This cave is about 130 meters long and as much as 40 meters wide. Most of it is wide walking passage in the twilight zone. It is said to have been much larger before the transport of beach sand by the 1957 tsunami but unpublished 1924 notes of Harold S. Palmer describe it as being 250 feet long with an

extension to the left of perhaps 150 feet, approximately the same as today.

The floor is mostly beach sand. Two low rock walls of undeterminate age are present near the rear, probably as windbreaks for sleeping. The ceiling is a dense basalt of the Napali volcanics 5 to 7 million years old. Beneath it is a less massive bed which would be subject to greater littoral erosion. Whether or not this was a speleogenetic factor is uncertain. Writing in 1908, Charles W. Baldwin considered the cave a lava tube modified by erosion. More recently, Harold S. Palmer, Harold T. Stearns, and other geologists have concluded that it is entirely littoral. I have found no reference to the possibility that it may have been a lava tube filled with late Napali volcanics, which were excavated by recent littoral erosion.

Next was Waikanaloe Wet Cave, another roadside cave near the end of highway 56. Its name is said to mean "Water by the Road". It has a spectacular gothic entrance which appears to show a remnant lava tube lining. According to 1987 and 1990 surveys this cave is more than 80 meters long and has ceiling heights as much as 13 meters. At the entrance it is more than 20 meters wide. After a short entrance slope of clay and talus, the floor is occupied by a deep freshwater lake which is somewhat murky. The cave narrows and gradually lowers. Then, at a bend to the left, the ceiling rises to about 9 meters, forming a second room. No reports of successful dives have come to my attention but the cave may continue under water. The biological literature indicates the presence of terrestrial isopods and watertreaders in this cave despite innumerable visitors.

To the amusement of a group of observers, Julie and I tried snorkeling to the second room but the water was much colder than the ocean. We soon decided to come again with wet suits.

Waikapalae (Waimoo) Wet Cave is located between Maninoholo Dry Cave and Waikanaloe Wet Cave and about 50 meters higher. This cave, too, was mapped in 1987 and 1990. It consists mostly of a single chamber about 60 meters high and wide and its high ceiling soon slopes down to water level. The entrance is almost 50 meters wide and the muddy breakdown slope is steeper and larger than the one at Waikanaloe Wet Cave. There are also some impressive dikes located near the entrance. At the rear is a small, low room with two side grottos. Divers have reported that the cave continues under water to a depth of about 12 meters. In past years, local children are said to

have enjoyed hiding in the grottos at the rear and making spooky noises which spawned ghost stories and perhaps the story of the gigantic dragon (Moo) said to guard the cave. One translation of its name is "Water of Terror".

In a famous Hawaiian legend, Hiiaka (sister of Pele) is said to have brought Lohiau, Pele's choice as a husband, back to life in one of these Haena wet caves.

On the morning of the 6th, Darrel Tanaka flew in to join me in mapping the Limestone Quarry Caves and hunting for the McBryde Caves near Koloa. Frank Howarth calls these the Koloa Caves #1 and #2 but the McBryde names are much older and seem to be established locally.

The Koloa area contains the Limestone Quarry Caves plus all the caves of Kauai universally acknowledged to be lava tube caves. These are in a single flow of the Koloa lavas which are about 0.6 to 1.5 million years old. They were reported at least as early as 1868 by William T. Brigham, later Director of the Bishop Museum. The cave and interstitial fauna of this area is exceptionally significant because it includes highly subsurface-adapted forms such as the no-eyed big-eyed hunting spider. This fauna includes terrestrial amphipods and isopods, spiders, collembola, watertreaders, and more. It is gravely endangered by current and planned urbanization. All visitors should make every effort to protect the caves, the fauna, and especially the exposed roots in the caves which are the main source of energy for this fauna.

The Limestone Quarry Caves are well known locally and are frequently visited. They and an intermediate cenote occupy much of the eastern end of a surprisingly large Aeolian calcarenite hill about 2 miles east of Poipu, overlying the Koloa lavas. Originally the hill was about 40 meters high but most of its higher western part has been quarried away. A small stream resurges alongside this hill a short distance upstream from the main cave entrance in the east side of the hill.

In 1976 Bousfield and Howarth categorized this cave complex as a large elevated sea cave. Apparently they entered through the cenote and missed the commonly used entrance and north cave. This entrance is veiled by a thick curtain of vines which markedly restricts the entry of daylight from the cenote into this part of the system. They did the entrance grotto of the south cave and a lower level stream passage which "cuts through the talus at the back of the

room and the low solution passage continues approximately 40 meters to a sump."

In fact, this is a complex solutional system of the type commonly seen in Bermuda and some Caribbean islands. It consists of a sinuous cave system about 150 meters long interrupted by a large, partially overhanging central cenote. The cenote is about 15 meters deep at the uphill side and about half that on the downhill side. The north cave is much shorter than the south, being only about 25 meters long. In this section between the cenote and the main east entrance is a small chamber and a larger grotto which opens into the cenote. Much of this part of the cave is twilight but the chambers are sufficiently irregular in shape that some total darkness is present.

The central cenote is very picturesque, with large trees growing from its floor and along the steep walls. It is about 35 meters long and about as wide. Few roots were observed in the cave aside from here on the walls and floor of the cenote. The dip of the calcarenite, about 20°, can be seen in its walls and the south cave appears to parallel the strike.

On the south side of the cenote a large cavernous grotto about 45 meters long leads to a series of crawlways and small breakdown chambers partially blocked by flood debris. In August 1990 (the dry season) we observed a small freshwater resurgence near the entrance of this part of the system. Its small stream ran into a shallow stream channel proceeding south into breakdown where it was joined by a larger stream. About 65 meters from the cenote the stream reappeared near the sump in a low pocket of the terminal room. It should be noted that its direction of flow is almost directly away from the resurgence on the northeast side of the hill. A strong fecal odor was detected rising from this stream and strands of a nearly colorless substance were observed waving in its current. A minnow was observed in the stream and cockroaches of two different sizes were nearby.

Published reports indicate the presence of terrestrial amphipods, isopods, spiders, watertreaders, and collembola in this cave.

Before travelling to Koloa, we had consulted published maps in Lihue and found two McBryde caves shown about 2 miles south of Koloa. The larger of these probably is the unnamed cave shown on the U.S. Geological Survey Koloa quadrangle and called Koloa Cave #1 by Howarth. Its large skylight entrance is well hidden in brush at an altitude of 37 meters.

A walking passage is said to extend down slope from the entrance about 150 meters to a terminal crawlway. Up slope is a low crawlway about 100 meters long. It is not clear whether these two passages constitute a single cave according to the criteria of the International Union of Speleology as we did not visit it. The cave is particularly important biologically.

After correctly deciding we had been following the wrong directions, we quickly located the other McBryde cave, also at an altitude of 37 meters. Temporarily we called it the McBryde Boundary Road Cave. It has a small duck-under entrance in a shallow, inconspicuous sink identifiable by an old Civil Defense marker pole.

Detente takes a spelunk in the dark

CHICAGO - In a true test of international diplomacy, a team of Soviets and Americans will try to break a world record by spending 20 days in the dark without showering while wearing rubber suits.

It's not for "Ripley's Believe It Or Not." The 10-man international team is headed to the Caucasus Mountains in the Soviet Republic of Georgia to best the world's caving depth record, currently just under a mile.

"It is our little way of international peace through caving," said John Shelten, president of the National Speleological Society. Speleology is the scientific study and examination of caves.

The group, based in Huntsville, Ala., sent four of its members from Illinois, Tennessee, and Alabama to the southwestern tip of the Soviet Union on Friday for the expedition, which they hope to begin by the end of this week.

The Americans and six Soviets want to descend one mile - 5,280 feet. That would beat the record set at a cave near Grenoble, France, where explorers descended 5,250 feet.

To beat the depth record, the team will have to climb. A 10-mile hike up the mountains in the republic of Georgia will bring them to the entrance of Sneznaya Cave, 7,500 feet above sea level.

A separate 10-man team will be stationed at the mouth of the cave while the cavers spend nearly three weeks surrounded by rock walls. Another crew made an advance descent into the cave to set up provisions at two campsites.

After reaching the top of the glacier-like mountain, the cave dwellers will don dry suits, special rubber clothes to protect against wetness. Then the descent begins. The team will follow the river, floating in it if necessary, to a depth of at least one mile below the surface.

The trip is the second the caving society has made to the Soviet Union in two years.

- Associated Press (From The Herald, Everett, Sept 3 1990)

Mount St. Helens Report

by William R. Halliday, MD

Report of the Mount St. Helens Caves Conservation Task Force of the National Speleological Society.

The 1990 annual field excursions of the NSS Mount St. Helens Caves Conservation Task Force were conducted June 29-30 and July 1, 1990. Roger Silver, John Slabic, and I visited the newly-discovered Pillars of Hercules Cave on June 29 plus another nearby cave in the southwest angle of the Cave Basalt Lava Flow.

Pillars of Hercules Cave is slightly braided and a few hundred feet long. It is of special interest because of juxtaposition of tall thin lava drip stalagmites up to 2.5 feet high and extrusion spires up to one foot high. It contains other patches of lava speleothems and a few patches of secondary minerals including one silicon dioxide ribbon. Some of the curlicue stalactites are impressive. We noted two spiders, one salamander, and an unidentified "hopper" on roots exposed in the cave, but no

bats. The monument staff has placed ribbons warning visitors away from fragile areas in the cave. Otherwise it is pristine and is currently well managed by supervised neglect.

The annual reconnaissance of the central part of the Cave Basalt Lava Flow was on June 30. Here we found a new trench diverting potential fill away from the lower entrance of Gremlin Cave. In the lower entrance section of this cave, seasonal stream flow was removing recent fill at least to a point beyond the small room beyond the Formation Room. The crawlway at this point is passable beyond the post-eruption tephra plug but no attempt was made to go farther at this time.

At Flow Cave a new growth of moss was notated on the thin tongue of waterborne tephra which entered the cave in 1980. Similar moss was noted on the nearby mud resurgence.

Erosion of recent inwash in Little Peoples Cave now allows standing room at the post-eruption fill duck-under. The cave was not checked past this point.

During the July 1 reconnaissance of the Spirit Lake Pseudokarst, "Little Brownwater Lake" near the southwest corner of the study area was noted to have grown since 1989 and had become green. Several new pumice rings were observed and a few plants were seen underwater. The nearby group of pits in the pyroclastic deposit were estimated to be 95% gone, leaving only gullies where most of them had been. The large conical depressions in shattered transported volcanics nearby were much less altered since 1989, but showed some falling of large blocks. Ice Sink has continued to enlarge and now contains a shallow pond. The slope overlying the ice body was moist.

On the flat between the Ice Sink and Greenwater Lake were several shallow brown-colored ponds. Some small new local subsidence areas were noted in this area, especially in the slopes west of the west end of Greenwater Lake. This lake was at a higher level than in 1989 and a few plants were visible below the surface of the water. Its bottom appeared perceptibly more yellow than ever before and the quicksand at its west end was decreased. Contrary to 1989 predictions, the lower rim of the "crater" west of its west end was unbreached.

At Brownwater Lake, relief had decreased perceptibly since 1989. The number of pits in the pyroclastic deposit near the lake was substantially less. Those in the west flat had decreased almost to zero. Those remaining were larger in diameter. The old trefoil-shaped sink

farther south was no longer recognizable as an individual feature amid dendritic gullies. The roofed gully section at the southeast corner of the study area had retreated several meters and the gully to the west had enlarged perceptibly.

No change in management appears necessary at this time but the Mount St. Helens Caves Conservation Task Force should continue annual field reviews of the area.

Grotto Notes

October Meeting

Chairman Jim Harp started the meeting with introductions and then invited reports on recent trips.

Karl Steinke reported on a Cave Ridge trip with Jim Harp and Jerry Thompson. Larry McTigue related his trip to several Concrete-area caves then Steve Sprague described a recent gathering at Trout Lake with cavers from Leavenworth and Eugene, OR.

Since there were a number of new people attending, Steve also outlined the upcoming NCRI Pryor Mountains project. Chuck Crandell followed with a description of the year ahead at Lechuguilla, New Mexico, and encouraged anyone interested to get an application in early.

Jim and Chuck passed sign-up sheets for their respective vertical practices, one for beginners and one for experienced vertical cavers. Mark Wilson passed another sheet around for the Mt. St. Helens trip on November 9-11.

Tom Strong presented a very nice slide show including pictures from many parts of the U.S., Mexico, and New Guinea.

November Meeting

Jim Harp opened the November meeting in the distracting presence of refreshments provided mostly by Joe and Laura Roeder. Great Idea! Could this be habit forming?

After introductions Jim described his latest trip to Mt. St. Helens with the Bensons and Alan Coakley. Joe and Laura described the condition of JaR Cave in the Trout Lake area as of their most recent visit.

The remainder of the meeting was devoted to a discussion of the *Cascade Caver*, grotto projects for 1991, and nominations for 1991 officers.

Ben Tompkins described how the newsletter is currently published and the changes that will have to be made for next year. Volunteers were requested to form a new *Caver* staff and ideas for new features were discussed. Interested members gathered after the meeting to set a January date for a planning meeting. Contact Ben Tompkins for details.

A list of current grotto projects and possible future projects were discussed next. Current projects include the 1991 NCA regional meet, the cave register program, and Tiger Mountain caves signs. Future project suggestions that sparked interest included getting the grotto library back together, training programs in vertical technique, cave surveying, first aid, and others. There was interest in compiling a Washington cave list to include the status of maps and registers but not necessarily locations.

The last item on the agenda was the election of officers. The results of much nominating, declining, negotiating, renominating, and occasionally hiding under desks are as follows:
 Chairman: Sandra Major and Tyco Knutson
 Vice-Chair: Laura Roeder, Tyco Knutson, Howard Hoyt, and Mike Wagner
 Sec/Treas: Rod Crawford, Larry McTigue, and Jim Harp.

Material received

Cleve O Grotto News (Cleveland Ohio Grotto, Sept 1990)
SFBC Newsletter (San Francisco Bay Chapter, Oct 1990)
Windy City Speleoneews (Windy City Grotto, Oct 1990)
The Explorer (Southern California Grotto, Nov 1990)

Treasurer's report

This is the October not-the-end-of-the-year-but-lets-see-if-he's-still-awake-so-we-can-reelect-him treasury report required by the bylaws.

Beginning balance 1/90		867.39
Income		
Dues	298.50	
Savings interest	21.55	320.05
Expenses		
Cascade Caver	153.00	
Checking acct fees	17.00	
Programs	54.21	
Library	0.00	
Post office box	40.00	264.21
Ending Balance 10/90		1023.23
Outstanding income		
Unpaid dues	150.00	150.00
Outstanding obligations		
Cascade Caver to 1/91	0.00	
Library materials	50.00	50.00
Net Position		1123.23

Dues notices

Members and subscribers please note the date on your mailing label that indicates when your dues expire.

OVERDUE: Boyd E. Benson, Kevin Bagley, Walter Bjornstedt, Rod Crawford, Fredrick Dickey

DUE: Steve Moon, Curtis Rideout

COMING UP: John Benson, Alan Cookley, Roger Cole, Steve Sprague, Monte Curry, Andrew Dayton, Phillip Erickson, Roger Garratt, Dr. W. R. Halliday, Shaun Larson, Ben Tompkins, Molly McBride, Karl Steinke

Take nothing but pictures, leave nothing but footprints, kill nothing but time.

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*And darn few
footprints
at that.*