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IN THIS ISSUE:





Feature article:

## August 1981 Mount St. Helens Cave Studies

by William R. Halliday, M.D.

Field studies on the weekend of August 8-9, 1981 filled some major gaps in our knowledge of the post-eruption status of the Mt. St. Helens caves.

On August 8, the weather was extremely hot (probably over 100°F by mid-afternoon) and our plans had to be altered a bit. Initial work consisted of sequential photodocumentation in the Hopeless Cave Mudflow area. Then we made the routine measurements in the main section of Ape Cave (I have not yet tabulated the results). In the Big Room we made the unwelcome discovery that our cache of emergency clothing had been stolen. At Station L-2W the stake was lying flat on the ground and had to be replaced.

When we emerged from Ape Cave, it was too hot to hike the upper caves circuit as planned. So for a while we watched ash whirlwinds high on the volcano, then checked the Lava Cast-Lake Cave area. The mud flat ponded by road N816 at the Lava Cast turnoff was sunbaked, but no other major changes were found here.

When things were cooler, we undertook an abbreviated upper caves loop, measuring the single station remaining unengulfed in the lower segment of Sand Cave and emplacing Station U-1 in the upper segment. A tongue of gravelly tephra was noted extending down-tube along the west wall of the upper segment, overtopping some of the clay-like mud which entered this part of the cave retrograde from the lower entrance.

From Sand Cave we angled south to what was formerly road N818. There we were surprised to find a small torrent of brown glacial meltwater following the course of the road. It arose somewhere in the feeders of the Gremlin Cave Mudflow, but (unlike one year ago) all of it now followed the new drainage southeast, along the road, away from Gremlin Cave. It left the route of N818 at a small southward-directed gully almost directly south of Sand Cave. A sample of the water settled out

[cont'd P.13]

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CONTRIBUTIONS to the Caver are welcome. Send articles, trip reports, trip plans, letters, clippings, jokes, cartoons, recipes, etc. to: CASCADE CAVER, W.R. Halliday, interim editor, 1111 36th Ave. E., Seattle, WA 98112.

YOUR EDITOR resigns immediately, having lost his job with the U.S. Government. I will be seeking employment elsewhere, most likely northern New Jersey. Dr. Halliday has graciously accepted the post of interim editor. My apologies for any inconvenience to you all. It has been wonderful caving with everyone, and I most assuredly will return.

Editor: Leonard Hargiss Printer: Ed Crawford

COMING EVENTS:

Field Trip Coordinator: Geary Sanders, 763-0361

Wed., Nov. 25 - Mon., Nov. 30: Thanksgiving trip to the Horsethief/ Big Horn cave system, Montana/ Wyoming. Fifteen + miles of cave! It is hoped that the trip will include wild portions of Lewis and Clark Caverns, as well. Contact Andrew Foord, 523-6727. Seattle, or Bob Brown, 569-2724, Elbe.
Weekend, Nov. 28-29: Mt. St. Helens trip. Call Bill Halliday, 324-7474, Seattle. Participants must sign a waiver.
December 12-13 (?): Cascade Cave, Vancouver Island. Contact Andrew Foord, 523-6727, or Bob Brown, 569-2724.
February: Following Presidents' Day symposium in Boise, there will be a two-week trip through Nevada and Utah. Call Bob Brown, 569-2724.

A NEW CAVE was opened up on Cave Ridge September 12, by Andrew Foord, Carolyn Moore, Cliff Churchman and me. Removal of a 60-80 pound rock from a sinkhole 250 yards or so east of Newton Cave revealed a blowing cave with a couple of body lengths of tight passage. Digging out this passage is going to be an EXTREME challenge. Maybe the Sanders twins could push the downsloping crevice....Ed.

New members:
Mark Sherman, 8004 42 NE, Seattle, WA 98115 / 522-4893
Dennis Wiley, 36031 32 Ave. S., Auburn, WA 98002 / 927-9169
Jim Harp, 1731 S. Lake Stickney Dr., Lynnwood, WA 98036 / 745-1010
Susan Deufel, 2031 Franklin Ave. E. #104, Seattle, WA 98102 / 329-9880
Carolyn Moore, 2444 Alki Ave. SW, Seattle, WA 98116 / 938-1148

Address change:
Randy Vance, P.O. Box 15075, Salt Lake City, Utah 84115-0075 (oof!) / (801) 467-6384

approximately 22% solids: about half of the solids content of a similar sample from August 1980. This particular sample did not include any of numerous round pumice pebbles 1/4" to 1/2" in diameter we saw rolling along in the current and nesting in shallows. Drying mudflats showed that the flow had been greater earlier in the day.

At the lower entrance of Gremlin Cave the mysterious dam was intact. The equally mysterious trench diverting water past this entrance contained sandy inwash but was not full. Routine measurements were made at stations 1-5. New vegetable debris was caught on the stakes at stations 2 and 3.

Next day saw the first investigations of Bat and Prince Albert caves since the eruptions. We ascended in the power-line clearing but had trouble with the last pitch (either because of misunderstood directions or recent landslides which have left a very steep sandy slope here). So we returned via the road which ascends from the power canal just west of Dollar-and-a-Dime Cave. Even so, some members of the group were affected by the heat, and required treatment with salt tablets, lots of drinking water, and immersion in the icy waters of Dry Creek -- which provides instant heat transfer, I can assure you. Other than the expected effects of vertical airfall of tephra and a little local inwash, no effects of the eruptions were found in Bat or Prince Albert caves.

Later in the day, it was too hot to hike more than a short distance. George Milner tried to drive us close to the new caves (above the Utterstrom's Caves) via two northward-leading branches of the Utterstrom's Caves road. The first road he tried was steep and deeply gullied in the center, and sloped steeply from left to right. After a short run his 4 x 4 began to slide sideways in eroded ash toward the gully and we backed down quickly. The second road was easy going but soon ended at the easternmost of the large stream gullies in this area. It was a valiant effort, and a little road work may be worthwhile on the September trip.

Participating 8-8-81 were four Austrian members of the Cascade Grotto: Dr. and Mrs. Robert Seemann and Mr. and Mrs. Otto Schmitz, plus Kathy Block of the Oregon Grotto and me. Radio operators were Bob Neville (WA7ZHT), Don and Helen Kreh[illegible] (W7PLF and WB7TKZ) and Wade Knight (KA7HND). Base was Don Peter (WA7NFE). On the 9th, the team consisted of Steve Poulsen and Kathy Block and me. Radio operators were George Milner (WB7RDE), Mark Richardson (WA7NTU) and Scott Young (WA7SGZ). Gerald Linn Moore (KA7CTT) was base, with Ron Campbell as standby. Their assistance and friendliness is gratefully acknowledged.

The major remaining gaps in our knowledge are now Beaver Cave, Dollar-and-a-Dime Cave, Barney's Cave, and the caves found in July by Charley Anderson and George Milner. At least the latter are expected to be a major goal of the September field studies.


Note: Map has been edited for publication. Uncensored copies will be available at grotto meetings.

# GLACIER CAVES IN MEXICO

by Scott Harden

[reprinted from Texas Caver, June 1981]

Around Christmas, 1976, Robert Henry and I climbed to the crater rim on Popocatepetl (17,887'). We had been on unsuccessful attempts in past seasons, but this time we were in better shape and had spent more time acclimatizing.

The crater of Popo may be the most impressive pit in Mexico, having a width of about 200 feet and a depth of well over 1,000 feet from the highest point, but to make a descent would be insane; rocks are constantly dislodged by freeze-thaw cycles and the action of the fumaroles, or steam vents, in the crater wall. Whether the sulfur miners who used to go into the crater were insane or just desperate is a moot point. The remains of a winch platform can still be seen.

Part of our time on the mountain was spent gazing through binoculars at a huge cave entrance at the base of the main glacier. We took the easy route up so we didn't get a close look, but we could see monstrous crevasses on the glacier above the cave that probably lead down into it. Recently I spoke to Russell Hill, who has climbed Popo by the route passing near the cave (The Ventrorrillo route). While staying in the hut at the 16,000 foot level, they heard a terrific noise and saw "house-sized" blocks of ice fly out of the cave entrance and crash into the avalanche chute below. It's probably best to keep the extent and character of this cave a mystery.

During spring break of 1978, I made a successful climb of Citlaltepetl or Pico de Orizaba (I enjoy bragging about it). From the summit (18,700') we could see a huge distance out into the Gulf, over a sea of clouds far below. Popo and Ixta poked through the smog 80 miles to the west. The crater is rumored to be 3,000 feet deep, but we could not safely approach the edge, so we didn't see the bottom. We couldn't hear any impact of the rocks we tossed. It would be hard to find someone to carry a rope up there!

One glacier cave on Orizaba is much more accessible than the one on Popo. One of the climbers I was with walked over the ridge to this cave, on the eastern tongue of the Jamapa Glacier, but only went in a short distance. Lorenzo includes a photo of this entrance (the same author mentions a "cueva de hielos" on the Ayoloco Glacier of Ixtaccihuatl (17,343'). During his field studies Lorenzo camped for a time in "la Cuevo del Muerto" on the south side of Orizaba. The cave is formed in lava or pyroclastics but its extent is unknown, and the old southern (non-glaciated) route on Orizaba is seldom climbed anymore.

While around any of Mexico's volcanoes, cavers should look for lava tubes. While most of the lava on the big volcanoes is too viscous for tube formation, AMCS cavers have explored lava caves at lower elevations near the town of Orizaba. If lava caves can be found at high enough elevations, some may be glacieres (caves with permanent ice speleothems).

A note about glacier climbing; no one should try it without some training. Crevasses up to 50 meters deep occur

on all three of Mexico's highest peaks. Although many parties climb the standard routes unroped, this is definitely a bad idea. One of the climbers in our party on Orizaba fell up to his armpits in an obscure crevasse. The weather can be brutal with near-zero temperatures, nil visibility and strong winds not uncommon at the higher altitudes. The altitude is another problem. There are big physiological risks in ascending mountains over 15,000 feet high, the greatest of which are pulmonary edema and various cardio-vascular problems, not to mention the great discomfort of "altitude sickness". The dangers are accentuated in Mexico where climbers can drive to 13,000 or 14,000 feet and often spend only a couple of days acclimatizing.

One mountain easily visited, which is a good place to "warm up" for the higher peaks (and look for lava tubes), is Nevado de Toluca west of Mexico City. The peak is about 15,000 feet high and is snowcapped two thirds of the time, and you can drive up into the crater, from where the easiest of several peaks can be climbed in a couple of hours if you are acclimatized.

If there are any experienced climbers out there who would be interested in a caving - climbing trip to the volcanoes next season (around Christmas), please let me know. (Scott Harden, 8019 Riata Dr., San Antonio, Texas 78227)

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