



Cascade Caver



Newsletter of the Cascade Grotto of the National Speleological Society

ISSN 0008-7211

Volume 34, No. 3

Seattle, Washington

May-June 1995



CASCADE GROTTO

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 on an irregular basis immediately following the regular grotto meetings or at other special times and places agreed upon by the membership.

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Dues which include a subscription to the *Cascade Caver* are \$10.00 per year. Voting rights for additional members in the same house hold are \$2.00. Subscriptions only are also \$10.00. All materials to be published and other correspondence should be sent to the Editor. Subscription requests and renewals should be mailed to the Grotto Sec/Treas. Exchange newsletters should be sent to the Grotto Librarian. Address and phone number changes should be mailed to the Editor.

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THE PAST

APRIL GROTTO MEETING MINUTES

TRIP REPORTS-- Jeff Wilson told us about his journey with Pam Cox and her husband to a cave in the Grand Canyon in Arizona. Jim Harp reported on a trip he made to the Trout Lake area.

UPCOMING TRIPS (see Activity Calendar included in this issue)

NEW BUSINESS-- Jim Harp volunteered to represent the grotto at the regional business meeting at Trout Lake on Memorial Day Weekend. Louise Hose with the NSS Convention Committee wants pre-1985 info. on history of caving in the Western U.S. Someone mentioned to Ben Tompkins the existence of small caves previously unknown to the grotto near Mt. Rainier and on a peak called Mother Mtn. If anyone has info. on these or any other unreported caves in Washington, please let Ben know. PROGRAM-- Paul Ostby gave a talk and demonstration of his "cave radio."

BCSF (AGM) AND CAVE MANAGEMENT SEMINAR

On April 8-9, Dick Garnick and Larry McTigue from the Cascade Grotto got together with Canadian cavers from the British Columbia Speleological Federation (BCSF) for their Annual General Meeting (AGM). It was held in Kamloops, B.C. and most of us stayed at Phil Whitfield's house for the weekend while attending the seminar on cave management. Those who stayed at his home were fed breakfast both days by Phil's wife who cooked for the whole lot of us. There were over two dozen mouths to feed!!! Saturday nite following the seminar, we all went out for pizza then went to Phil's house and watched cave videos and slides before retiring to bed.

The reason Dick and I decided to attend was because we have been actively caving in the Chilliwack Valley of Southern B.C. for several years now. Also, this past Fall, we met some unaffiliated Canadian cavers in the Chilliwack who decided to join the BCSF at the Annual General Meeting being held on this weekend. So, we were there to see them officially join the ranks of organized cavers as well.

EDITOR'S COLUMN

CONCRETE AREA CAVES

In the last grotto activity calendar I mailed in June, I forgot to delete the report I wrote on the Concrete area cave trip that Mike Fraley and I took back in March. I meant to replace it with a more detailed account and mention some things I left out in my original brief report. But, instead of repeating all of the previous part a third time, I think I will just specify the parts not discussed in the prior newsletter.

Besides the vandalism and recent digging in Elderberry Cave, we also found numerous camel crickets crawling all over the walls in the cave which is also something I hadn't seen before there. I've never been to Elderberry at that time of year previously. So, if the crickets are most active in the caves in the winter time that may explain why we saw so many. More importantly, we discovered a single grylloblattid crawling along one wall near some of the camel crickets. Mike Wagner has reported large numbers of various types of salamanders and frogs inhabiting Ramsey Cave during the winter which is another phenomenon I have not taken the opportunity to personally witness as yet.

It should be mentioned at this point that the "No Trespassing" signs and gate across the road are still in place. The house being built up there was still not finished when we were there back in March. Since Mike had never seen the caves before, I went against my better judgement and decided to hike up to the caves and take the chance of being shot by the new land owner. Luckily, no one was there. Apparently, the contractor wasn't working on the week-end. Be advised, the house may be inhabited now and the new residents may not welcome trespassers.

In Ramsey Cave, we noted one frog near the cave register. The register is in serious need of servicing, as we found it without pencils and pamphlets, etc. I got down on my belly in the stream crawl in Elderberry Cave and shined my headlamp down the passage ahead. It continues for at least another 25-30ft. and appears to widen out a bit in the downstream direction. But, the constriction in-between needs to be enlarged

1995 GROTTO TRIP & ACTIVITY CALENDAR

DATE	EVENT	PLACE	TIME	LEADER	CLUB
July 17-21	NSS Convention/Blacksburg, Virginia These former locals are going to show us the caves of the Blacksburg, VA. area.			Jeff Wheeler & Dawn Kiss (206)925-1748	PSG
July 18	Puget Sound Grotto Meeting	(Fed Wy)	7PM	Jeff Wheeler (206)925-1748	PSG
July 21	Cascade Grotto Meeting	(Seattle)	7PM	Paul Ostby (206)823-5107	CG
Aug 15	Puget Sound Grotto Meeting	(Fed Wy)	7PM	Jeff Wheeler (206)925-1748	PSG
Aug 18	Cascade Grotto Meeting	(Seattle)	7PM	Paul Ostby (206)823-5107	CG
Aug 18-20	Dynamited Cave Trip 2nd annual "Clean Up The Pit" and 1st annual "Lower Rod Down The Pit" conservation work party.	(Trout Lake)		Steve Fogdall (206)527-4741	CG
Aug 19-26	Mt. Rainier Summit Steam Caves Survey Bill Klimack from Tennessee and some of his climbing/caving friends will be conducting a multi-year project to re-survey and study these unusual snow/ice caves formed by hot volcanic gas and steam escaping from the summit crater of Mt. Rainier. They will compare their findings with the survey done by Dr. Eugene Kiver and other members of the Cascade Grotto in 1970. Dr. Kiver is still a member of the grotto and lives in Cheney, WA. Bill is in the army and just received news that he may be transferred to Colorado or Ohio in the next month or two. So this year's trip may be post-poned at the last minute. He welcomes any cavers interested who have the proper equipment, experience and are physically fit to join them for this week-long expedition. Contact Bill for further details. His email address is: klimack@amsaa-cleo.arl.mil His home address is: 2155 Watertown Pl., Clarksville, TN. 37043 If you don't have email, call Larry McTigue at (206) 850-8614 and I will try and get his ph. # for you.			Bill Klimack	
Sept 9-10	Windy Creek Cave Jerry'll have the key, if fire and ice allows. Cold, wet alpine caving at its best.	(Concrete)		Jerry Thompson (360)653-7390	CG
Sept 15	Cascade Grotto Meeting	(Seattle)	7PM	Paul Ostby (206)823-5107	CG
Sept 19	Puget Sound Grotto Meeting	(Fed Wy)	7PM	Jeff Wheeler (206)925-1748	PSG
Oct 7-9	Joint Northwest Region/Western Region Meet Yes, you read that right; Columbus Day weekend, not Memorial Day weekend. Well worth the trip to Lava Beds National Monument in Northern California. Willamette Valley Grotto is hosting it.			Bill Devereaux (503)363-3831	WVG
Oct 17	Puget Sound Grotto Meeting	(Fed Wy)	7PM	Jeff Wheeler (206)925-1748	PSG
Oct 20	Cascade Grotto Meeting	(Seattle)	7PM	Paul Ostby (206)823-5107	CG
Nov 5	Vertical Practice Guy Fawke's Day Memorial vertical practice. More details to follow.			Paul Ostby (206)823-5107	CG

While some trips die for a lack of interest, many successful trips happen on the spur of the moment. Please contact the trip coordinator regarding trips being planned or with a request regarding a trip that you would like to see happen. Members and family of any recognized caving organization are encouraged to join us on our field trips. Non-affiliated participants are by invitation only. For additional information call: Jim Harp--Cascade Grotto Trip Coordinator/ home(206)745-1010 work (206)388-3585 work 1-800-562-4367 ext. 3585 or 3436 The toll-free number works only from limited areas in Washington State.

"FEATURE ARTICLE"

CAVING IN THE UKRAINE

--by William R. Halliday

(This is a trip Dr. Halliday took a little over two years ago. He gave it to me about the time I lost my enthusiasm for editing this newsletter. So, it never got published...until now. It is interesting from a historical and cultural perspective since his visit occurred not long after the dismantling of the former Soviet Union --the editor)

In September 1992, I was able to spend almost two weeks in the Ukraine and Moscow. It was a remarkable experience: remarkable caves and karst, remarkable friendship and a remarkable, fast-changing culture.

I flew via Moscow only because I could use free miles on TWA which then was trying to establish a viable route there. (They gave up at the end of September.) But, it gave me a chance to see some of the famous monuments: the Kremlin, Lenin's Tomb (no lines to wait in now), the fabulous Metro and much more.

Alexander Klimchouk and Vladimir Kissel'ov and his father, Engels met me and gave me an automobile tour of the sprawling city. We overnights at the apartment of his father, a retired Red Army colonel (Transportation Corps). I was impressed by the exquisite wood paneling here and in several other apartments I visited.

After sightseeing the next day, Alexander and I took the overnight train to Kiev. The sleeper car was very comfortable but, Alexander was careful to lock the door of the compartment. The lady in the next one did not and someone reached in and stole her suitcase with all her money and documents during the night. Alexander said this had become normal.

We arrived in Kiev (10 days after the worst storm in its history. Broken trees were everywhere in Kiev and the Podolia cave area we visited next. Most survived, however and Kiev remains beautiful because of trees. We spent two nights and parts of three days here visiting famous localities and museums full of mammoths and cave bears and reconstructed Siberian native huts built of mammoth bones and tusks and notable geological specimens. At the cathedral, the Metropolitan of the Ukrainian Catholic Church happened to be giving Communion when we arrived -- a truly impressive sight.

Alexander told me much about caves of the Kiev area -- piping caves in loess and artificial caves. With a length of 105m, one of the piping caves is said to be second in length only to a 200-meter piping cave in Romania. Ancient bones have been found in Zverinetskaya Cave near a huge USSR monument that spoils the scenic values of parklands near the Lavra Monastery.

The two largest and most famous artificial caves of Kiev are on the grounds of Lavra Monastery in this parkland above the Dnepr River. They are called the Nearer and Farther Caves (I don't know why) and were recorded by 1638. Extensive additions have been made through the centuries. Most of the passages are about 7 feet high and 3 feet wide with some larger rooms. Burial niches are common. The Nearer Cave is longer and narrower than the Farther Cave. Both contain underground churches. That in the Farther Cave is still in use and is not on the show tour. Alexander thinks that these may have been natural piping caves enlarged for storehouses for Viking trade goods as early as the 10th Century with the religious use coming much later.

We took a slower but equally comfortable sleeping car overnight to Ternopol where we were cordially received at the apartment of Josef Zimel, a city engineer. Soon, we were joined by Miron Savchin of Lvov, co-discoverer and chief of the speleological team of Optimistic Cave, second longest in the world and the longest gypsum cave in the world. Sergey

Epifanov of the Ternopol Speleological Club drove us to the Borschev area of Podolia, near the Romanian border: the location of the enormous gypsum caves of Podolia.

The countryside looks much like Kansas but signs of the economic crisis were everywhere. The grocery store of one village contained nothing but boxes of soap powder and six links of sausage. I was happy to eat bread, cheese and sausage three times a day for several days. Their sausage is better than ours and the homemade vodka surprisingly good. Although they grow enormous quantities of sugar beets, the sugar goes elsewhere.

The people mostly appeared listless and apathetic. There were some exceptions. We met a lively religious procession and night life at a little resort for local tourists was beginning to get lively when we crashed.

Mlinky Cave was the first they showed me. Length of its network is 24km. The entrance section is a large chamber artificially enlarged. Then a slippery foot-polished passage with frequent changes in size leads into the main network. We visited about two km. of passages.

The Podolian gypsum is quite unlike what I have seen in Kansas, Oklahoma, New Mexico and Texas. In Mlinky it is not as spectacular as in later caves but, still very interesting. It is easy to observe three types of fissuring: pre-speleogenetic, speleogenetic and post-speleogenetic each with characteristic effects on the cave.

The pre-speleogenetic fissures show paleokarst with rosette crystals and irregular layers of clay in pockets. Little of the gypsum bedding was clear. Much appeared sandy. A little of it is thin-bedded. Speleogens are notable.

Alexander discovered that the primary factor in speleogenesis throughout this part of Podolia was rising artesian flow from a confined aquifer breached by down-cutting of the Dneister River and he showed me several points where rising water had left tongues of sand. But, speleogens also show down-cutting and possible fluctuation. Some secondary CaSO₄ crystals are present and a few of them are discolored by iron and manganese. A little powdery manganese is present.

We spent an entire day seeing a little of 188km Optimistic Cave penetrating as far as "Captain's Gallery" and seeing all three levels of the cave. At one point, we reached the water table, five feet below high water mark despite the recent storm.

Optimistic Cave is a memorial to 30 years of effort by Miron Savchin and his teams. After much squishy digging at the lower end of a small swallet gully on May 8, 1963, he and Olexa Soljar broke into a miserable little zigzag cave almost choked with mud and guck. After about 100 miserable meters, they found themselves at a junction of somewhat larger, drier passages and went back for a team.

Two weeks later, they began 30 years of digging -- "30 years of digging so Miron could fit." A million man-hours of digging and exploration have occurred here, I was told and I believe it. There are few spacious corridors and even fewer chambers.

In passing through the network of narrow passages, the visitor passes so many mud-filled side passages that I have the impression that by digging them all out, one at a time and putting the mud from each new one into another already mapped, the length figure can be extended forever. Most of the mapping has been done by the Lvov Speleological Club which controls access to the cave with a concrete entrance-way and thick iron door. (Lvov -- or Lviv in Ukrainian -- is pronounced "el-WOOF", more or less.)

The recent storm had brought much flood debris into the entrance series and at one point Alexander and I had to wait while Miron dug his way through a tight place (Sergey was guarding the car and hunting food and home-made vodka). One bad part of the entrance section is named "The Chinese Communist Party". I was told that this is a variant on the usual name for especially grungy passages in caves throughout the former USSR: "The Way to Communism." Especially, those with only a little air-space above deep mud. Other names in the cave are much like those in the USA: "Gallery of Eternal Youth", "Cyclops Hall" (named after the Lvov club by that name), "Turtle Room" (home of Turtle Rock), "Chamber of Nine Expeditions", "Auerbach Region" and "Sofia Room" (named for visiting

Bulgarian cavers).

The three levels of the cave have different morphological parameters. The lower two correspond precisely to two distinct beds of gypsum except that part of the middle level is in a third (upper) bed. A marker layer of clay 10 to 20 cm. thick is seen in the top-most part of the middle level. Its base is somewhat wavy and it is located in an extraordinary bed of brown gypsum containing feathery tan crystals sometimes many cm. in length.

In this bed are spheroidal aggregates -- "spheroliths" several meters in diameter. These are especially impressive in the area of the "Captain's Gallery". Often, cracks separate one from the next.

The lowest gypsum bed has much thinner bedding but, I did not see any inter-bedding with carbonate rock as I noticed in Minky Cave. Some secondary CaSO₄ crystals are present and I was told that in other parts of the cave are gypsum needles and a few small outcrops. Occasional occurrences of selenite masses are more than one meter in diameter.

Optimistic Cave is located near Korolevka village in woods west of a small valley with base-level springs. On the opposite side of the road which crosses the valley, near Optimistic Cave, is a former missile site. On the opposite side of the valley is Ozerna Cave with 111 km now mapped. Along the axis of the valley is a fault with a relative down-throw on the Ozerna side of 10 to 30 m. The valley has completely breached the gypsum but, at its head the gypsum is continuous and theoretically the two caves may be connected someday.

However, there are significant water-chemistry differences between the two blocks with little aggressiveness in the Ozerna water and thus much slower solution of this Neogene gypsum. I got the impression that boundary-layer effects here were little-studied and that present-day solution is limited to a thin layer of water replenishment which is almost absent in the sluggish Ozerna water.

Biota was very scant. We met a large brown toad about 1/2 km into the cave and I saw a beautiful little white moth on recent in-wash but, that was all. The toad had gone elsewhere at the time of our return.

Because of its interface with man, I deeply regretted not having time to visit Ozerna Cave. During World War II, some Ukrainian Jews hid from the Nazis in this cave, some surviving to emigrate to Canada after the war. A few have returned to celebrate their survival. Also, in 1946, some Ukrainian nationalists hid here from the KGB, leaving inscriptions which the KGB later defaced. At a meeting of the Ternopol Speleological Club, I was shown slides of remarkable CaSO₄ secondary crystals in the remote part of this cave where the going is extremely slow.

Exploration in these caves is proceeding through the use of underground camps, in increasingly difficult passages. Rest periods in Optimistic Cave have led to creation of mud sculptures, some of them of surprising quality. But, the kitchen I saw needs a cleanup job. Miron assured me that it would be done soon.

On the following day, we visited Crystal Cave, a show cave operated on the proverbial shoestring but, receiving occasional busloads of visitors (Podolian roads are much better than I had expected, though potholes prevent high-speed driving). 22 km has been mapped here. About 1/2 km from the cliff-side entrance is a comparatively spacious loop which forms the bulk of a notable show cave in the dramatic upper-most gypsum bed. Here, the feathery, tan crystals reach lengths of 40 or 50 cm. and curve like giant blades of wheat.

Much of the trail winds through solution pendants of this dramatic bed. Occasional ceiling channels and domes also are present. The cave is said to have been known for about 150 years but, the remains of a uniformed soldier of the era of Peter I is said to have been found in a remote area during recent explorations.

CaSO₄ "snow" and secondary crystals are locally impressive but, the feathery, tan patterns in the brown gypsum are its extraordinary feature. These are neither speleothems nor petromorphs. Do we need a new word for bedrock patterns exposed in caves?

Crystal Cave was briefly a show cave -- without lights -- around 1914. It was reopened in the 1960's. Because it is close to the main road from

Romania to Ternopol and other Ukrainian points, it has the potential for a bright future. But, a regional tourist infrastructure will have to be re-vitalized for this to occur.

Many other gypsum network caves occur in this general area. Several are of world class. At least one of them is of special archeological importance. I was told that Polish archeologists had worked in Verteba Cave in the late 19th Century, when it was within the boundaries of Poland. (20) skeletons were found under a block of gypsum and photos were published of figurines and other material. It all vanished from a Krakow museum during World War II.

The country-side consists of large flat areas and low, rolling hills. It is dissected by large rivers which have left numerous terraces. Essentially, no surface drainage is present and there are few collapse pits. Vehicles on farm roads seemed to have plowed through bottomless mud but, elsewhere the recent rains had rendered the country-side bright green.

After a meeting of the Ternopol Speleological Club, Alexander and I flew via Aeroflot from Ternopol to Simferopol, capital of the Crimean Autonomous Republic of the Ukraine and something of a Russian "island" in the Ukraine. My fare was about \$80 US; that of Alexander as a citizen of part of the former USSR was about \$3.50 US. (The differential for train fares is not nearly as much.) The plane was a sturdy prop-jet. At a stop at Odessa, everyone was allowed to get out and sit in the sun on the edge of the runway and I have had much worse flights on USAir.

After short receptions at the Simferopol Speleological Club headquarters and the apartment of Professor Victor Dublanskiy, we drove to Marble Cave on the Tchatyrdag Plateau behind Simferopol. There we had the privilege of a karstic excursion guided by this legendary figure of Soviet speleology.

Of the 857 caves listed for the Crimea, about 150 are located in this massif, together with 545 swallets, mostly solutional. The plateau has upper and lower benches. We toured the lower one. Other massifs in the Crimea include the Dolgurokovsky Massif where Krasnaya Cave (Red Cave) is located. It is the longest in the Crimea with 13.3 km on the map with several sumps close to the entrance. Professor Dublanskiy did pioneer scuba work there 30 years ago. The access road passes through an army base. The deepest Crimean pit is Red Army Pit, 500 m. deep.

Professor Dublanskiy classifies the caves of the limestone Tchatyrdag Plateau in three groups:

- 1) Corrosional gravitational caves. These are parallel to the edges of cliffs. Some are large and deep.
- 2) Snow corrosion. There are about 100 small examples of this type. The limestone surface here is lowered about (1) meter in 13,000 years by snow corrosion. He views the inter-glacial periods as the times of speleogenesis.
- 3) Corrosional erosional caves. There are about 50 caves of this type. They are at the points of recharge and discharge and it is not clear if they occur between them. These are correlated with the modern landscape.

The landscape is a classical mountain karst, mostly mantled, with comparatively little bare limestone and low vegetation. Thickets of alpine deciduous trees occur in patches. Dip is moderate. Sinks vary greatly in depth and width and tend to occur in groups. Only a few could be seen to open into caves. Where exposed, the limestone was seen to vary from dense to sponge-like. CaO was said to be 56 to 58%, Mg 0 to 3% and 0.5 to 3% clay, etc. Ice and snow accumulate at the bottom of deep shafts in complex dolines.

In the late 1800's, the Crimea Mountain Club had a hut near a saddle in an especially complex area of deep sinks and maintained two caves as show caves for several years, besides installing a ladder in one vertical cave. All trace of their work now has disappeared.

Before we reached this part of the plateau, a sudden rain squall developed. We took shelter in the sink-bottom entrance of Artuch Cave where poachers had built an extensive wooden framework. Later, we visited the entrance section of Partisan Cave used by Ukrainian guerillas during World War II. They left no inscriptions and did no damage to massive

speleothems near the entrance. This cave is about 750m. long.

Our third cave was near the site of the old mountain club hut and was one of the club's show caves: 1,000 Skulls Cave. Here many refugees from an earlier war were killed by a huge fire set in the entrance when they were discovered. We visited only its entrance section; no skulls remain.

A few hundred meters away is Bottomless Pit, where Maureen Handler, Alan Padgett and another American visitor had a problem a few years ago. This cave begins with a 100 meter shaft at the bottom of a funnelled sink. Total descent is 141m. Below is a cave that reaches a total depth of 160m., if my notes are correct: a big, long passage until the final room whose entrance had to be dug open. Professor Dublanskiy descended on a ladder in 1958 and is not likely to forget the experience. A snow mass is perpetual at the bottom of the shaft.

I was told that the Americans began their descent on a beautiful day. But, a sudden thunderstorm blew up and waterfalls joined them in mid-shaft. Apparently, it was a bit hairy for a while.

Marble Cave is a spectacularly successful new show cave -- a shining example of the future possible for the people of the former USSR. It was discovered, probably in 1987, by poachers. Soon, members of the Simferopol Speleological Club heard about it and found it. It was a truly spectacular and pristine cave.

Under the leadership of a KGB engineer, who was laughed at by his fellows in the KGB, the club protected and developed it. Their primary tool was enormous investment of personal time and energy. Of almost equal importance was the ability of their leader to scrounge. The lights for the cave are airfield landing lights. Some visiting pilots have been known to complain that some fields where they land are not as well lit as this cave. The development is not high-tech like Grotte di Frassasi in Italy but, considering the limited resources of this region, it is done with much sensitivity.

When we visited, it was in its third season as a show cave. Last year, 230,000 visitors came, mostly via bus over a partly unpaved road. Now, there is a heliport and the pavement will be finished next year. The cave is almost within eyeshot of Simferopol and easily reached from the Crimean seacoast resorts like Yalta, where car rentals now are possible. A heliport has been constructed and visitors have included Gorbachev, Yeltsin, Ukrainian President Kroutchouk and former Communist Party General Secretary Iwasko.

The cave consists mostly of one large passage, part of it extending back beyond the entrance section. A single side passage is called "Tiger Passage" because elated explorers thought they had found bones of a saber-toothed cat. But, the remains proved to be those of a cave bear instead (*Ursus speleus*). Part of this passage was opened artificially, by digging and blasting, where a trickle of water emerged from the wall. This entire side area is richly decorated and some is notably spacious.

But, it is the main passage that is awesome. The vista from the entrance platform is attention-getting, with the visitor trail winding down through a corridor of massive tan and white dripstone. Then, the passage enlarges progressively for about 100m. to a viewpoint where the passage is almost 100m. wide and 30m. high. Lights illuminate the cave for about 300m. beyond this point, revealing spectacular massive speleothems and large gours: "Little Carlsbad".

But, the best features of this great cave are seen only by speleologists and cavers in its undeveloped reaches. Not well seen from the viewpoint are sharp-edged solutional pendants hanging from the under-cut lefthand wall. Beyond are moonmilk coralloids, some of them in gours. At least one of these gour complexes has a small stalagmite in its center.

In the other end of the cave, in a twisting lower level are rarer and more delicate features. Helictites: small, large and gigantic, some with long draperies or pendants hanging from them. Others are in huge jumbled clusters. Calcite crystals and coralloids are clumped in patches on walls and on other speleothems. Some gours here are at least as spectacular as in the other part of the cave. Odd little "miniature trees" sprout from the floor in one alcove -- apparently an unusual type of coralloid. Thick moonmilk

flowstone -- some of it oolitic -- locally alternates with clay. Dollar-sized "cave money" appears locally in both parts of the cave. Even a little powdery black manganese is present and partially redissolved flowstone and dripstone show beautifully alternating colors in their concentric rings high overhead.

Alexander has been conducting analyses of radon daughters in some of the moonmilk and clay here. He took additional samples during our visit. Results of previous analyses will be considered surprising when published.

The Marble Cave project is a corporation formed by the Simferopol Speleological Club with members holding the key positions. Accommodations are available for only a very small number of visiting cavers but, more may be added in the future. Its leader retired from the KGB this summer. His former KGB co-workers no longer call him crazy.

From Simferopol, Alexander and I returned to Moscow by train (again nice in sleeping class). With Vladimir Kissel'ov, we killed a day at the weekend flea market (an amazing spectacle) until time for my crack-of-dawn return flight.

The pre-dawn darkness was enlivened by a dead battery in the caving car of a member of the Moscow club. We had to push it uphill to the main road and flag down a passing car to jump-start it. And yet it seemed in better condition than the one we used in Podolia -- part of the present economic crisis. My baggage was x-rayed and hand-searched leaving the country as well as entering it and I was hand-searched too. Routine. It truly was an educational experience.

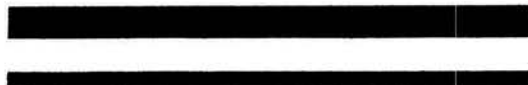
From what I saw and from what I heard of caves and caving in other parts of the former USSR, I have some conclusions and suggestions. The republics of the former USSR have enormous caving potential and we have much to learn from speleologists in that part of the world (as they do from us). But, the countries of the former USSR are not ready for any large number of caver-visitors.

To my surprise, I learned that the 1963 Russian language edition of my book, "Adventure is Underground" profoundly affected the course of Soviet caving and many people exerted themselves greatly for me. But, clearly, they cannot do this for many of us. Food is very scarce and lodging is extremely limited.

On the other hand, I heard that more and more visitors are driving into Russia (and maybe the Ukraine too) from western Europe and camping. And package tours from western Europe to the Crimean seacoast could be bases for cave trips by rental car even now. As the economic situation improves and an infrastructure develops, more and more opportunity will develop also.

The caving potential of the former USSR is so enormous that I suggest that internationally-oriented NSS members start learning the Cyrillic alphabet (even in the cities, you can't find your way around without it). I urge American speleologists to go all the way and learn at least first-year Russian and a smattering of Ukrainian and to start exchanging letters and publications with speleological clubs around the new republics.

For a long time, American cavers and speleologists will be almost wholly dependent on the goodwill and assistance of the clubs over there. But, maybe in five years lots of NSS members will be caving in what used to be the USSR. I know a lot of Ukrainian and Russian cavers and speleologists who will welcome that day.



A PROPOSED MANAGEMENT PLAN FOR DYNAMITED CAVE

The following paper is a rough draft description of the present situation and suggested management solutions for Dynamited Cave.

Prepared by Jim Harp, NSS # 28185

INTRODUCTION.

Located within the Mount Adams Ranger District of the Gifford Pinchot National Forest is Dynamited Cave. This cave is of significant geological and recreational interest because of its many vertical lava falls and unusual "sand castle" formations. It is considered one of the most remarkable lava tubes in the United States. The vertical development of the cave offers great interest and challenge to experienced cavers.

The cave became known in 1958 following an incident in which three local youths became trapped after sliding down a slender rope to the bottom of the 40 foot pitch. Eventually one of the victims managed to escape and summon help. Following the entrapment, a group of community-minded citizens blasted the entrance closed, but after a short time, enough rubble was removed by cavers to gain access again.

In the late 1960's the Forest Service installed a welded rebar gate about 120 feet inside the entrance, but this proved ineffective as it stopped short of the ceiling and could be easily climbed over. In 1972, with Forest Service approval, the rebar gate was removed and a masonry gate was constructed in a constriction just down slope of the former gate. This lasted but a short time when it was vandalized by a massive dynamite blast. Since 1972 there has been no effort made to control access.

Knowledge of the cave and its location continues to spread resulting in ever higher levels of visitation and further significant degradation of the cave and its resources. Without gating and active management of recreational access, one of the most outstanding caves in the Northwest will continue to be adversely impacted.

PRESENT SITUATION

Locating the cave is fairly easy and is often accidentally discovered by hunters and others not trained or experienced in exploration of vertical caves. An easily traveled logging road is followed until one encounters an obvious parking and dispersed camping spot, complete with makeshift fire pit and a picnic table which appears to have been relocated from Peterson Prairie campground. This acts as a sure magnet for the Sunday driver looking for a place to hang out with the family. From there a prominent trail meanders a short way through the woods to a distinct sinkhole entrance situated at the base of an overhanging lava wall. Human nature demands the accidental tourist give this situation more than a casual look.

A visitor to Dynamited Cave cannot help noticing evidence

of unfriendly and irresponsible traffic. Carbide dumps, cigarette butts, and other litter is observed on the floor. Northwest cavers have cleaned up messes only to find more of the same on subsequent trips. Pitons or bolts for rope attachment are continually being installed and removed from the top of the 40 foot pitch, weakening the fractured lava and leaving holes where bolts were once placed.

Over the years a number of heavy wooden bridges have been constructed and placed across the top of the 55 foot pit as a climbing aid. Lumber from a succession of these bridges along with hundreds of feet of telephone wire and other debris rest at the bottom of the pit. A party of cavers assembled at the cave in October of 1994 for the purpose of removing the debris but the project was abandoned because of controversy over the possibility that the wood products may now foster a habitat for endemic cave biota.

Home-made climbing aids are sometimes left in the cave, such as the 16 foot tree trunk with large spikes driven in the sides to form a ladder which was discovered by cavers on the Oct. 1994 trip. Thin cotton ropes, spikes pounded into cracks and other evidence of amateurish exploration have also been found. Use of this type of equipment is not only damaging to the cave but is very dangerous for inexperienced explorers and it is surprising a serious accident or death has not occurred.

Dynamited Cave is noteworthy for its well developed "sand castles" which are drip-eroded beds of sand on the cave floor. These formations have been severely damaged by foot traffic of uninformed visitors. Little now remains of its original beauty.

Considering the easy access to the cave and increasing numbers of visitors into the area, it is only a matter of time before more significant vandalism or a serious accident occurs. It is time for concerned and responsible individuals from the Forest Service and the caving community to negotiate a plan for conserving Dynamited Cave before it is too late.

PROPOSED GOALS

Foster positive communication, cooperation and exchange of information between the US Forest Service and those who utilize the cave. Prepare a plan for managing Dynamited Cave through the combined efforts of the US Forest Service and the local caving community.

Clean up the cave and return it to a condition approximating its natural state. Preserve the cave and create a safer environment for visitors through education, cooperation and controlled access.

SUGGESTED PLAN

Classify the cave as having outstanding value as a geological area as described in FSM- 2356.03. Secure a partnership agreement between the US Forest Service and local members of the National Speleological Society for the purpose of endorsement and implementation of a management plan.

Block physical access to the spur road that goes to the cave with a dirt berm limiting instances of accidental discovery. Plant the first 200 feet of the road with native flora and young

trees to further discourage accidental discovery. Establish a trail following an indirect route to the cave entrance. Remove the picnic table from the cave area. Control access into the cave by installing an approved bat gate. The gate should allow free passage of bats, small animals, air, water, etc.

Allow access by permit only, following Class III cave management guidelines. The "sand castle" area excepted. Classify the "sand castle" area as a Class I sensitive area, limiting access to cave management activities. A time period of closure should be established (say five years) while photo monitoring is initiated to determine if recovery is possible when undisturbed by human visitors. Devise a plan for the eventual reopening of the "sand castle" area.

Install a sign at the entrance stating that visitation is by permit only, how permits may be obtained and describing civil and criminal penalties for persons who knowingly violate the cave or cave gate. Install bolts for rope attachment in selected locations, advising visitors that setting or removing bolts is by permit only.

Have the debris in the 55 foot pit examined by competent authority to determine if it can be removed without disruption to any cave species. Clean the cave of all human rubbish. Devise or construct an acceptable procedure to cross the 55 foot pit. (Eagle Hardware retails a 8 to 12 foot telescoping aluminum beam for about \$200.)

Advocacy of cave gating should never be taken casually. Installation of the gate could prove a lot easier than obtaining the key from an unfriendly land manager. On the other hand it is important that we weigh our stewardship responsibilities against the selfish desire for unconditional use. In the words of the immortal bard, Mr. Pogo Possum: "We have met the enemy and they is us."

Respectfully,

Jim Harp (1995)

A TRIP TO LAKE CAVE

by Mike Fraley

On the weekend of February eighteenth, Bill Bailey, Jeff Wilson and I took a trip to Lake Cave near Mount Saint Helens. The day was cold and rainy, and turned this supposed easy caving trip into a real @#&%! We parked the car in a little parking lot just down the road from Ape Cave.

The cave was supposed to be a short 5 minute hike from that parking lot. Knowing that, of course, doesn't make a cave any easier to find though. We initially set out in the wrong direction, heading about thirty degrees north of the direction we should have been going.

After walking for some time, we came across an opening into the ground which looked promising. It didn't fit the description of the entrance to Lake Cave so we moved on. We ended up searching for 2 hours in ankle deep slush for the cave.

During this time we got a great tour of everything within a quarter mile of the cave. There are very large tree molds in places near the cave which are worth a look. We finally made our way back to the first opening we found to see if it could be pushed.

I love to do squeezes, so I went in to see if it went anywhere (it could have been just to get out of the stinking rain). Just as I was about to enter the tube, I noticed a marker fixed to the entrance. It said something to the effect of U.S. Forest Service Cave Survey? Seeing this, I immediately assumed that I was about to enter a somewhat large cave.

I got inside, and began to look around. It immediately made a hard turn to the right and looped back around the sink I had just entered through. I shined my light back there and saw that it went for as far as my light would shine.

I called the others in and we started crawling. Bill quickly became unimpressed with what he saw and exited the cave, grumbling the whole way out. Jeff and I continued for about 20 feet before we realized that the tube was becoming too small to crawl through, so we turned around and exited the cave, grumbling the whole way out. I then endured several minutes of "oh sure, it goes Mike!" statements from the others.

We finally STUMBLED across Lake Cave. We made our way inside and down a very unsteady ladder into the main section of the cave. The cave is a very large lava tube that looks very much like Ape Cave for the first few hundred feet.

There was a small stream trickling down through the cave during the time we were there, and it proceeded to get steadily larger the further we walked. The sheer amount of water dripping from the ceiling was enormous, worse than any rain I've ever been in. Eventually, the stream became so large that there was no more dry floor to walk on, so we pushed on walking right down the middle of the stream.

We finally found out how the cave received its name. In the steepest section of the cave, we saw a lake had formed which filled the cave completely to the ceiling, making passage impossible. To give an idea of how steep the tube was diving into the ground at that point, I estimated the distance from where the lake started to where it hit the ceiling to be around 60 feet.

On the way back out, we stopped for a brief snack and also to explore some side passages. Apparently, a sizable flow of water under the lava field carved a hole through the wall of the lava tube, providing entry into some very interesting passages through the hard packed clay beneath the lava field. The passage splits immediately into a small crawlway and a larger passage with a good flow of water originating from it. Jeff Wilson immediately scrambled into the crawlway, leaving me to tackle the bigger passage with the "river" pouring out of it. I stooped low and went for it.

The passage twisted and turned violently and led past a large number of tree molds and charcoal deposits apparently left from when the lava flow originally enveloped the trees. I noticed a sizeable breeze hitting me in the face as I walked along. I never did find the end, or ever saw any indication that there was any end at all. According to Jeff, it was the same story with the passage he took. Exploring these side passages made the whole trip worth the effort, I loved it. (This was the last trip anyone took with Bill Bailey before he had to move out of State on short notice. Hopefully, he will be able to return and rejoin us. Those of us who went caving with him miss his great enthusiasm for adventures like this one. Thanks, Mike. --the editor)

CAVE RIDGE SURFACE SURVEY

(1992 - 1994)

-- by Steve Sprague

This is a belated trip report for the surface survey work that was done from 1992 through 1994 on Cave Ridge. Chuck Crandall set brass tags as reference points at each cave and at strategic locations on the surface. Our goal was to tie these tags into a closed loop survey of relatively high precision. During this survey we documented that there are magnetic attraction problems on the ridge that are severe in places. Future survey methodology on Cave Ridge should account for this potential problem.

INSTRUMENTS USED

Either compass could be accurately interpolated to 1/4 degree and each was held steady on a tripod. The staff compass has a wire and vertical slit sight, the transiting compass had a 2.5X telescope with cross hairs. We used two tapes: After the first couple of trips a 200 foot steel tape replaced the 100 foot tape to limit the amount of multiple segments measured in a shot. The 200 foot tape was a mixed blessing. The sag induced when we used the full 200 feet undoubtedly caused some error. We measured the vertical angle with either an abney level and clinometer, or later, with the second compass's integral clinometer. Unfortunately, the abney was out of adjustment on the first days work and its error is incorporated into the data.

TRAVERSE FIELD WORK

5 September 1992

Party: Bill Bennett, Mark Sherman, Yosh Shiono, Steve Sprague, Ben Tompkins. Instruments: Staff compass mounted on a tripod, 100 ft steel tape, abney level and clinometer.

We heard that there may be magnetic attraction problems on the Ridge so decided to do the survey using the compass to measure relative angles between points. This means taking both a foresight and a backsight at the same point to determine the angle formed by three survey points. This allows the survey to be processed as if it were done with a transit, and the localized effects of magnetic rock should not affect the traverse. (Unfortunately, it cannot neutralize the localized effects of the compassman's iron belt buckle, which can eclipse any other source of error, but that's another story.)

We started the traverse on the small hill south of Newton Cave. From there to Hell Hole Cave there was not much local attraction noted. As we got closer to Lookout Cave, we began to have the foresights and backsights of the same legs disagree by about two degrees. The problem continued to get worse as we traversed away from Lookout. One of the brass tags was on top of the small hill directly east of Lookout. As we approached, the compass needle was dragging on the glass even though the compass was level! I thought the needle had fallen off its bearing until Mark had us all gather around the next point (the brass tag). He placed a hand compass near the ground and then started to raise it, keeping it pointed in the same direction. From ground to waist level the compass needle moved 70 degrees! We speculated that this was proof of the fabled Cave Ridge Magnetite. We ended up throwing out all the survey data in this area because the local attraction was too great to get good compass readings. At this point we called it a day and headed for home.

26 September 1992

Party: Gary Stebbins, Mark Sherman, Steve Sprague, Ben Tompkins. Instruments: Staff compass mounted on a tripod, 100 ft steel tape, abney level and clinometer. Weather: 40 degrees and raining.

On this day, we ran from the hill south of Newton towards Ice Cave. Our traverse loop didn't include most of the entrance tags. Rather, we took separate side shots to the entrances to minimize the length of the traverse and the number of shots. We encountered one leg with a difference of 3.5 degrees on the same shot. The weather was foul and we wrapped up early.

5 July 1993

Party: Mark Sherman, Steve Sprague, Gary Stebbins, Oliver Studley, Ben Tompkins. Instruments: Transiting compass mounted on a tripod, 200 ft steel tape, and clinometer.

After a winter's rest we were ready to finish the field work. On this day, we made a wide loop from Ice Cave, up the sinkhole amphitheater to Hell Hole and then on to Lookout so we had data for a closed traverse. We continued to have local attraction at many stations, the worst of it was about 1.5 degrees difference on a traverse leg.

10 October 1993

Party: Chuck Crandall, Steve Sprague. Instruments: Transiting compass mounted on a tripod, 200 ft steel tape, and clinometer.

We devoted this day to doing a side loop that was needed to get a brass tag located on the hill east of Lookout. We placed it in an area that was less affected by attraction than the tag with the 70 degree swing. (It don't mean a thing if it does got that swing! - Apologies to Cab Calloway, I think.)

TRAVERSE PROCESSING

Because many of the shots were longer than the steel tape, we had a lot of legs where we couldn't measure the slope distance of the shot directly. This led to some computational headaches, especially on the first day's data. However, after putting our heads together we were able to salvage the work. Ben processed the data on an Excel spreadsheet he developed to aid in blunder detection and to handle the multiple tape measurements on each leg. The error of closure was 2.3 feet on horizontal, which is acceptable considering the instruments used. The vertical closure was out by 8.2 feet. This was probably caused by the abney that was determined to be out of adjustment after the first day.

GPS CHECK OF TRAVERSE

19 October 1994

Party: Steve Sprague. Instrument: Differential-capable GPS receiver.

I played hooky from work one day to do a check of the survey for blunders. Primarily, I wanted to make sure that the location of the brass tags at the cave entrances were correct since a lot of them aren't part of the loop, so can't be checked for blunders.

The GPS receiver I used is a "mapping" grade receiver. It can provide position data to determine absolute position to within 5 meters after processing the data on a PC. The technique involves using two GPS receivers. While the "rover" is logging points in the field, the "base" is logging position information at a location where the position of the receiver is known. Later, the information from the two receivers is compared and the "rover" data is corrected to reduce the error. (This error has two main sources: atmospheric and the error intentionally put into the system by the military.)

The base station I used was in Kelowna, B.C. and its data is available via a computer bulletin board system.

After correction, I plotted the GPS points on an acetate overlay that was the same scale as a map of the compass traverse I had made earlier. All the points matched within the tolerances of the GPS receiver. All but one point differed by less than 9 feet.

BE CAREFUL OUT THERE:

Before this survey I had never seen such a pronounced example of local attraction. This is as good an example as any to support the necessity for always taking backsights if you care about the results. Question: How much of the cave survey data for Cave Ridge was taken with backsights? If they were not, are they representative of the caves on the Ridge?

(The following was downloaded from the "Cavers' Digest" on the Internet by Steve Sprague who obtained permission to reprint it from Thilo Mueller, a caver in Germany. Steve passed it along to me to publish in our newsletter. Thanks, Steve. --the editor)

From: Thilo Mueller

I know nothing about the Belgian Caving Code of Conduct, but since 1992 the Swiss Speleological Society has had an Honour Code. Influenced by that, we have had the same in parts of Germany since 1994. Here it is (in short form):

Swiss Caver's Honour Code

Basic Principles in Short Form

- A well accepted ethic code based on a consensus is preferable to mandatory rules.
- Responsible action as an example to others is more favourable than authoritative instruction.
- The self-awareness of each individual is the best natural protection for caves.
- Every caver is a potential nuisance to the cave, whether exploring or visiting.
- Publishing new discoveries is not only a must, but also a responsibility to bear. (Trip reports and maps, "**not**" cave locations!!!—editor)
- The Cave Protection Commission of the SSS promotes this ethic code.

Behaviour of the Caver

The self awareness of each person is the best protection for caves. The caver should be as careful as possible and try to closely follow the principles below:

- Keep a good relationship with the people of your area of visit or exploration, respect the landowners and their properties; be careful where you drive and park your vehicle; leave no rubbish/garbage behind, make no noise at late hours around buildings, leave cattle gates as you found them; avoid harrasing livestock and disturbing farming land.
- As a basic rule, leave as little trace as possible behind you and do not take anything out of the cave which belongs to it. The protection of the cave applies not only to the natural beauty, but to the cave as a whole, including for example all types of fillings like concretions, sediments, talus etc., which are also part of the cave's natural environment.
- Consider the underground world as a fragile and sensitive biotope, and be careful with its fauna (even the unseen microscopic fauna). This means that the climatic conditions of the cave should not be permanently altered.
- Stay within your own physical limits; good self-control is the key to smart behaviour, and an exhausted caver may not take care of the cave as he should.
- The use of equipment, bolting and construction in the cave must be kept to a minimum, and be as discrete as possible, but this should not be done at the cost of safety. Light expeditions taking a minimum amount of equipment, without involving the use of heavy bolting or rigging, are encouraged.
- Constructions and heavy work, such as erecting a bivouac, forceful clearing of breakdowns or crawls, emptying a sump, must be the exception and should, as far as possible, be only temporary. The consequences of such work, particularly on the cave climate, must first be evaluated.
- Avoid taking too large a group of people with you into a cave.

- The visit to a cave, or cave system, which is still being explored, should occur only with the agreement of the cavers doing the exploration, for safety reasons and to respect the work of the explorers (finder's rights or anteriority principle). But this does not give the explorers any right to "privatize" the cave; the SSS will fight using all means, including legally, any attempt to keep a cave closed without legitimate reasons.

In short: "**THINK**" before you act; the long term consequences could otherwise be catastrophic and irreversible.

(Taken from Info SSS, 3/93; Translated by SSS)

Glueck Tief!

Thilo Mueller

CAVING IN DELAWARE

--by William R. Halliday

I had never been caving in Delaware so, after working in the U.S. Geological Survey Library in Reston, VA. and convening the Virginia branch of the Hawaii Speleological Survey, I spent the Easter weekend checking out "THE CAVE OF DELAWARE", aka **Beaver Valley Cave**. Actually, the cave is well known, all 56 feet of it.

In 1977, Jack Speece published a 16 page booklet about it. Naturally, it was entitled "*The Cave of Delaware*". Primarily, it is a rockshelter but, an upward-sloping crawlway extends into total darkness.

The cave has two principles interests. First, it is a fun cave for kids and Beaver Creek, just across the road, adds to their fun. Secondly, its speleogenesis is unclear. Speece reported that it is in the Northeastern facies of the Wissahickon schist formation, probably Precambrian. He quoted Gerald Forney as stating that it specifically is in hornblende schist, which is not exactly a major cave-former.

Speece indicated that the cave appeared to be "a combination of rock slippage, fallen boulders and/or sea action." The elevation is 210 feet. The cave faces northeast and is at the upper end of a recently developed tributary gully of the Brandywine River, about 15 feet above the creek so, littoral erosion appears unlikely.

To me, undermining of a resistant facies by piping and other differential erosion appears the primary speleogenetic factor, followed by cracking and sliding as a result of gravity. I suggest that other speleo-geneticists go take a look and see what they think.

Even without Jack's delightful book, the cave is easily found, especially before summer foliage appears. It is at the extreme north end of Delaware, about 100 feet from the state line. Beaver Valley Road is shown on the current state road map. The cave is some 50 feet from the road on the opposite side of the road from a tributary of Beaver Creek, just inside the beginning of a narrow valley about one mile from the Brandywine River where the road terminates. Going toward the river on this road, it is easily seen when no leaves are present and an obvious trail leads to the cave.

In 1977, the area was closed and patrolled. Since then, a new stratagem reduces the number of visitors. Parking is prohibited for the entire length of the little valley, leaving one (1) parking place on the creek side of the road, just before the first "No Parking" sign. It looks directly at the cave. As of April 1995, there are no "No Trespassing" signs at the cave, itself. It is well worth a short visit.

And just a few miles away, at the 10 o'clock position in the round northern boundary of Delaware, the state road map shows a road called, "Limestone Road". Maybe, it's worth looking to see if there's more than one cave in Delaware.

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