# The Cascade Caver



Published by the Cascade Grotto of the National Speleological Society

Volume 26, No. 2

March 1987



#### CASCADE CAVER

The <u>CASCADE CAVER</u> is published 10 times a year by the Cascade Grotto, a member of the National Speleological Society. All correspondence should be sent to: The Cascade Grotto, P.O. Box 75663, Seattle, WA 98125-0663.

Meetings:

7:00 pm on the third Friday of each month at the University of Washington, Room 6, in the basement of Johnson Hall.

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Dues:

Membership in the Cascade Grotto including subscription to the <u>Cascade Caver</u> is \$7.50 per year. Dues for additional family members is \$1.50. Subscription to the Cascade Caver only is \$7.50 per year.

Please note the date on your mailing label that indicates when your dues expire.

Dropped:

Jeff Gillard 10/86

Last issue bounced

Overdue:

Robert Martin 11/86 Peter Carter 1/87 Art Tasker 11/86 Frank Hymes 1/87 David Becker 1/87 Jeff Forbes 2/87

Due:

Jim Harp 3/87

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New Member:

Thad Hahn, 128 Van Geisen, Richland WA 99352

Cover:

Linda Heslop: Jim Jacek in the Frigid Dragon, Thanksgiving Cave on Vancouver

Island, British Columbia.

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| UPCOMING EVENTS              |   |                                 |  |  |
| Mar 20                       | Grotto meeting at the University of Washington.   |                                 |  |  |
| Apr 17                       | Grotto meeting at the University of Washington.   |                                 |  |  |
| Apr 10-12                    | Mt. St. Helens (See Mark Wilson)  |                                 |  |  |
| Apr 25                       | Cross country trip to Paradise Ice Caves and potl   |                                 |  |  |
| May 1-3                      | Vancouver Island  | (See Jeff Forbes)               |  |  |
| May 15                       | Grotto meeting at the University of Washington.   | (6 )                            |  |  |
| May 16                       | Vertical Practice (See Jim Harp or Gerry Thompson) Regional at Trout Lake (See Mark Wilson) |                                 |  |  |
| May 22-25<br>June 12-14      | Regional at Trout Lake Windy Creek with Oregon Grotto and VICEG.                            | (See Mark Wilson)               |  |  |
| June 20                      | Grotto swap meet and BBQ party.   |                                 |  |  |
| July 3-5                     | Nakimu Cave or else Cody and Gardiner Caves   |                                 |  |  |
| July 18                      | Cave Ridge trip to set up rescue scenario   |                                 |  |  |
| Aug 7-9                      | Cave Ridge practice rescue  |                                 |  |  |
| Aug 8-16                     | Bighorn Project work session #3.  | (See Bob Brown or Mark Sherman) |  |  |
| Aug 22                       | Vertical practice   |                                 |  |  |
| Sept 4-7                     | Papoose Cave, Idaho   | (See Bob Brown)                 |  |  |
| Sept 17                      | Black Mountain  | (See Dick Garnick)              |  |  |
| Nov 27-29                    | Pot of Gold, Idaho (See Bob Brown)  |                                 |  |  |
| Dec 5                        | Pre-Holiday party with Oregon Grotto and VICEG.   |                                 |  |  |
|                              |   |                                 |  |  |

#### **EXCHANGE PUBLICATIONS**

We have received exchange issues from the following organizations in the past year and so they are renewed on the <u>Cascade Caver</u> mailing list for another year.

Central Indiana Grotto
D.C. Grotto
Glacier Grotto
Paha Sapa Grotto
Timpanogos Grotto
Windy City Speleonews

Cleveland Grotto Gem State Grotto Oregon Grotto Massachusetts Caver VICEG

Also the Louisville Grotto and San Francisco Bay Chapter of the NSS are being added.

#### **FEBRUARY MEETING NOTES**

There were some 24 members and visitors at the February meeting which included a raffle for a donated bottle of Australian wine. Gerry Thompson won the bottle and we moved on to business. Dick Garnick reported on activities of the safety committee and Mark Wilson announced details of the trip planning meeting set for the following day. Mark also announced plans for the NCA Regional at Trout Lake.

A motion was passed to purchase 3 video tapes to gather copies for the library of cave videos that occasionally become available. Last month's discussion about posting meeting announcements around campus was continued for a while.

The Senger's Talus Cave trip was postponed until March 8 (when it was probably rained out again) and Jeff Forbes gave a report on his most recent trip to Vancouver Island.

#### GROTTO TRIP PLANS

Mark Wilson

I want to thank all of you who attended the trip planning meeting last month. As you can see from the calendar we have a really great line-up of trips for the coming year.

You will notice that some of the activities have been suggested but do not have

a leader yet. Hey, guys, volunteers are welcome. If you see a trip to somewhere that you are familiar with and you are sure you'll want to go on, consider being the trip leader. The only responsibilities will be deciding a rendezvous point, finding the cave, and finding your way through. That's not much to ask, is it?

I've installed an answering machine to catch your calls when I'm not here. If you are going caving or if you have a free day or weekend and are wondering who might want to go caving then give me a call and leave a message.

As leader of the Mt. St. Helens trip on April 10-12 I will be passing around a sign-up sheet at the March grotto meeting. We'll plan on meeting at the Lava Cast Picnic Area at 9:30 a.m. on April 11 and probably visit Lake, Little Red River, Ape, and Gremlin Caves during the two-day stay. It should be a good trip to get the winter kinks out and see if your light still works.

# NORTHWEST REGIONAL

Mark Wilson

The Cascade Grotto will be hosting the 1987 NW Regional the weekend of May 22-25 at Peterson Prairie Organizational Campground near Trout Lake, Washington.

Plan on three days of good caving, good partying, good weather, and good times. We look forward to seeing you. The campground is all ours from Friday until Monday and has plenty of room for all, including trailer sites (maximum 30 ft.). Registration will be available from 6:00 p.m. on May 22 and a fee of \$5.00 per person is requested to help defray our costs. Kids under 15 are free. There will be a banquet held on Sunday night featuring the finest of cave cuisine for an additional \$3.00 (not bad for all you can eat).

There are literally hundreds of lava tubes within easy driving distance of the campsite. A guide book will be provided for all registrants. In addition, there will be guided tours to Deadhorse and Dynamited caves on both Saturday and Sunday.

On Sunday night we will be presenting several slide shows from the extensive NSS

audio visual library. On Saturday night after the Regional business meeting, we will hold the first ever Northwest Regional Association Grotto slide show contest. We are asking each grotto to make up a slide show of 50 slides or less to be shown to the crowd. The winning grotto will be determined by audience applause. After that the projector will be open for anyone to show slides so bring a few along.

The Northwest Cave Research Institute will have a Chuck Wagon operating Saturday, Sunday, and Monday and will be providing meals so you can buy lunches at a nominal cost.

If you would like more information please contact me:

Mark Wilson 1910 - 12th Avenue West, #103 Seattle, WA 98119 (206) 285-5724 - evenings.

We're looking forward to seeing you there! Directions to Trout Lake:

#### From Boise:

Follow I-84 west to Hood River. Cross the Columbia and go west on Route-14. Turn North on Route-141 and follow it to Trout Lake.

#### From Portland:

Follow I-84 west to Hood River. Cross the Columbia and go west on Route-14. Turn North on Route-141 and follow it to Trout Lake.

#### From Seattle:

Follow I-5 south to Tacoma and take Route-7 to Morton. Turn east on Route-12 and follow it to Randle. Turn south on Forest Service Road 23 which directs you to Mt. St. Helens. Follow it past Mt. St, Helens all the way to Trout Lake.

#### At Trout Lake:

From the intersection of FS-23 and Route-141 proceed west on Route 141. It will turn into Forest Service Road 24. The Peterson Prairie Campground sign is 6.5 miles from the town of Trout Lake.

### THE CAVES OF CHEJU-DO, KOREA

Joel M. Sneed

The following is a reprint sent to us by Bill Halliday. It is taken from TAGLine Volume

1 Number 2 published by the Clayton County Cavers Grotto 285 of the NSS -Ed.

One bit of advice that I was given when planning a visit to Korea's Cheju Island was a warning to beware of the snakes. According to legend, a huge snake - some say he was 100 meters long and 4 or 5 meters around - once lived in the Gim Nyeong Cave, also called Sakull (Snake) Cave, on the northeast corner of Cheju-do. The villagers believed that unless a 15 year-old virgin was sacrificed to the snake once a year, a natural calamity would occur on the island. This sacrifice was held annually until about 1514 A.D. when a new governor under the Yi Dynasty, Governor Sol, was appointed to the island. During a mock sacrifice service, the governor dressed as a guard lured the snake into a large box, and then, with a poison-tipped arrow shot the snake in the eye and killed him.

Not long after this event, for which the governor gained quite a reputation for his heroics, he was drowned during a storm as he was making a return visit to the mainland. Upon his death, a cloud in the form of a snake appeared. To this day, it is felt that if a snake is killed, death will occur to a government official. Most of the people on the island supposedly believe this; the man relating the story to me seemed rather skeptical.

Cheju Island is located off the southern coast of Korea, 248 miles south of Seoul. The island is oval shape with a circumference of 162 miles. Except for some recent sediments along the southern coast, the island is totally volcanic, dominated by Mt. Halla, an extinct volcano and Korea's highest mountain, some 6,400 feet high.

The caves on the island are volcanic tubes, but in at least one cave calcite formations are found. This occurrence has been made possible by the cave's close proximity to the ocean, where shells have washed up over the lava, have been compacted over time, and have created a circumstance for the development of formations as we know them.

Many of the caves on the island are either associated with legends, have been used as places of worship in the past, or are presently Buddhist shrines.

A quarter mile from Sakull Cave is Manjang Cave which is operated somewhat This is, according to their commercially. advertising, the longest lava cave in the world, at about 4.3 miles of passage. At the beginning we were issued a Korean carbide lamp, a most primitive contraption that was only a metal cone loosely stuck in a tin can. Carbide was placed in the can, the cone inserted, and water poured into the top. The water sloshed around the edges of the cone and down into the carbide providing a very insecure light source. We were only able to see about the first half mile or so of the cave, to a point where the "Turtle" formation is located. This formation is a blob of lava standing a couple feet high that very loosely resembles its namesake. The cave passages are for the most part very large, from 15 to 100 feet wide by 10 to 60 feet high. Manjang Cave was probably formed at the same time as Sakull Cave and has since been separated by collapse.

Legend has it that some 2,600 years ago three gods emerged from a cave named Mohunghyol, located at the northern foot of Mt. Halla. These gods, Ko, Pu, and Yang, founded the Korean people and the name of the cave has been more recently changed to Samsong-hyol, meaning "cave of three family names". It is not now possible to enter this cave, which is marked with a statue and is a highly visited attraction on the island.

One cave of note that is a Buddhist shrine is located on the southern coast of the island. The entrance of Sambang Cave is reached by climbing a steep trail rising to a height of about 1,300 feet above the ocean. I am told that this cave has been used as a temple continuously for 1,100 years. Many jars, statues, and other items used in the worship of Buddha are found around the entrance area, and one Buddhist priest was engaged in his activity at the time of our visit.

Additional reading:

Peterson, Larry, <u>Caves in Korea</u> (Part II), Crawlway Courier, Fall, 1972.

Ueno, Shun-Ichi, et. al., Results of the Speleological Survey in South Korea, 1966, Bulletin of the National Science Museum, Tokyo, Japan, Vol. 9, No 4, Dec 20, 1966.

#### Vancouver Island, Jan.29-31, 1987 Jeff Forbes

Caves: Devil's Bath, Vanishing River,

Minigill, Arch Cave

Personnel: John Pollack, Brian Bischoff, Tich Morris, Pat Shaw, Keith

?, Earl ?, Steve Clark, Jeff

Forbes

It was an unlikely mixture of Canucks and Yankees. John had come all the way from Smithers, in central B.C., via the Prince Rupert ferry. And my friend Steve Clark had flown out from Indiana for a weekend of good North Island caving. In fact, Brian was the only Islander to make an appearance, the remainder sailing over from Vancouver.

An intense downpour began as Steve and I pulled into Cheslakees Campground at the north end of the island at 2 A.M. friday morning, weary from the long journey. No welcoming committee awaited us, as the Canadians had long since gone to sleep. Although he never said so, I think that Steve, accustomed to the dry gypsum-lined bore holes of Kentucky, had begun to doubt the wisdom of Vancouver Island caving in January. But all worries soon dissolved under the blissful spell of Morpheus, accompanied by that most sedative music of all, the patter of raindrops on a good tent.

Next morning's sky was the blue of a robin's egg. Tich was scraping about the fitful campfire, which burned stubbornly in spite of his efforts. "Here come the Yanks," he proclaimed, "hold onto your lands, boys!" After breakfast we split into two groups, Tich leading one party to a newly discovered shaft near Bonanza Lake, and Pat, John, Brian, Steve, and I heading up Benson River to check on cave diving conditions. En route we stopped by the Macmillan-Bloedel Timber Company office in Port McNeill to obtain a map of logging roads. The "Mac-Blo" office has on display what is claimed to be the world's largest burl, and I would not disagree. Our next stop was Devil's Bath, an immense circular flooded karst window about 200 feet in diameter with vertical walls and

large logs floating about. Obviously once quite beautiful, the area around the Bath had been clear-cut just a few years previously, and heaps of slash lay about in disarray. One look make it clear that cave diving was out of the question. The heavy rains of the past week had reduced visibility to nil. Devil's Bath is reported to descend to a large underwater chamber of unknown depth. Griffiths' hair-raising account of a dive during which he had to jettison his weight belt, is exciting indeed. Perhaps some other day. A quick side trip to Vanishing River Cave convinced us that this too was out of the A foaming river tumbled down the vertical entrance pitch with the noise of a freight train, and into a large lake 80 feet below. We were fast running out of options. After a brief encounter with the world's largest logging truck, we arrived at Minigill, yet another cave whose entrance had been defaced by logging. Steve and I dropped the beautiful 100 foot entrance shaft into a broad walking stream gallery going both ways. We spent a couple of pleasant hours exploring upstream, then prusiked out to a drizzly dark night. Back at camp the others had a fire roaring. Some local teenage boys were raising some Saturday night hell nearby. Tich, age 48, took the words from by mouth, saying "Thank God I've got that behind me!"

The following day most of us set out to see Arch Cave, a multi-drop vertical system which was guaranteed to be quite lively. Arch is 302 meters deep (6th deepest in Canada) containing something like 29 individual pitches. Steve, Brian, and I trudged through thigh deep snow to the Arch Entrance, while the rest entered through Tunnel Vision, which connects in deeper down at 38 meter Confluence Pot. The caving was delightful and sporting. The clean steeply descending canyons with numerous roped pitches and free climbs were never boring. We conveniently ran out of rope atop Dirt Pot, which was extremely wet that The trip out was uneventful, with one Steve's encounter with a certain exception. deviation while ascending Confluence Pot was quite amusing. After the better part of a half hour, he successfully reasoned his way past it, gaining a new respect for "deviant European caving techniques." The six hour trip ended not with a bang, but with a whimper.

The journey down island had its moments, as when Earl blew our doors off, got a speeding ticket, and ran out of gas in rapid succession. Such are the hazards of Island caving.

#### SUMAS MT. CAVE VISIT

Dick Garnick

February 21, 1987

On a brief visit to the Sumas Mt Cave area in April of 1986, the cave was found to be filled with water up to the level of the base of the sink. This left about 2 feet of space between the water and the ceiling. We could hear the water dripping back in the cave but decided the chest deep, or deeper, cold water was more than we were willing to endure for the day.

As described in CAVES OF WASHINGTON page 114, "Its low entrance is at the base of a low limestone face that forms the west wall of a shallow sink, which is on a small flat section of the steep eastern slope of Sumas Mountain" Looking at the large flat bench area above the entrance and the size of the out crop, it would be easy to miss the entrance. The out crop looks more like a large isolated limestone boulder.

With the last visit almost a year ago and the dry weather we have had for the past month I decided to recheck the cave and see if the cave was still full of water. From the parking area it is about a hour hike up the steep road to the sinks and cave. The cave entrance area is being over grown by alder and berry vines about 8 feet high. The sink didn't have any water this time but the cave itself still had to much water to enter. The water level was about a foot lower than my first visit a year ago. Maybe I will have to visit the cave in the late summer like a normal caver would do then I might make it in.

In W.R. Danner's book <u>Limestone</u>
Resources of Western Washington, there is a
map of the Sumas Mountain Cave area. This map
shows 1 large sink, a small twin sink and 3
other sinks. I looked over the large sink and
the twin sink to the south but the 3 other

sinks have so far eluded me. Oh well here comes July and August.

#### NCA DIGEST Bob Brown

I am hoping that this regional digest will be an effective way to inform members of the Northwest Caving Association about what is going on in other areas of the region. As I get newsletters and other material from the regional clubs I will put it in digest form. Two or three times a year I will send the digest out to all the NCA organizations to be printed in their newsletters.

WASHINGTON (Cascade Grotto) - 1986 was an average year of activity for the Cascade Grotto. Several cave hunting trips to the North Cascade Mountains turned up no new caves but did relocate a 60-ft. pit on Black Mountain. Many recreational trips were held in the Trout Lake lava tube area and the new JaR Cave. There were even a few visits to the limestone caves on Vancouver Island.

In July a major remapping of the "500 ft. deep" Newton Cave on Cave Ridge resulted in Newton being taken off of the deep cave list. The new detailed survey gives Newton a depth of 141 meters and a horizontal length of 285 meters. A first-time dye trace through Newton Cave shows that its stream resurges in Commonwealth Creek which is some distance from the cave. A new entrance to Hell Hole Cave, also on Cave Ridge, was discovered.

Over the course of the year the Cascade Grotto changed meeting time to 7 p.m. then moved to the basement of Johnson Hall at the University of Washington, then changed its meeting nights from the third Tuesday of the month to the third Friday. Jim Harp was elected Chairman for 1987 and Jeff Forbes is the Vice-Chairman.

OREGON (Oregon Grotto) - The Oregon Grotto spent much of 1986 exploring caves in the Bend, Oregon lava tube area and in the lava tube areas of southwest Washington. Maps of two major lava caves; Charlie-the-Cave (Deschutes Co., OR) and JaR Cave (Skamania Co., WA) were completed. The Oregon Grotto's conservation work for the USFS at Ape Cave also continues.

The Oregon Grotto Chairman for 1987 is Laura Poulson with Mary White as Vice-Chairman. General grotto meetings are held on the third Friday of the month at the Southwestern Washington Research Unit in Vancouver, WA. It starts at 7:30 p.m.

IDAHO (Gem State Grotto) - The Gem State Grotto continues to undertake a number of conservation projects. This year a gating project was completed at Black Ridge Crater Pictograph Cave (Shoshone lava area). The Kuna Cave cleanup in April was another successful conservation project. It is reported that the Shoshone lava tube area and Papoose Cave continue to be major areas of activity.

Terry Shannon was still chairman of the Gem State Grotto at last report and Chuck Jopson was vice-chairman. Grotto meetings are held at 7:30 p.m. on the second Wednesday of each month. The meeting location varies and is printed in the Gem Caver.

UTAH (Salt Lake, Wasatch, and Timpanogos Grottos) - 1986 seems to have been a normal, active year in Utah with cave surveying, ridge walking, and a variety of conservation projects.

Members of the Timpanogos Grotto did a lot of ridge walking which found many small but interesting caves and more than 20 cave maps were produced. Several cave-related papers were presented and a photomonitoring project at Timpanogos Cave National Monument is being conducted.

Wasatch Grotto members completed a survey of a major lava cave, assisted the resurvey of Little Brush Cave, and worked on cave surveys with the Utah Speleological Corp. Ridge walking paid off with the discovery or rediscovery of several caves and Wasatch members also helped with paleontological digs being conducted by Brigham Young University.

Salt Lake Grotto members continue their ridge walking activities and exploration of caves in Utah and neighboring states. A recent SLG trip to Whipple Cave in Nevada shows that use of the cave is increasing, especially by NOLS from Lander, Wyoming. Two members on a trip to Boomerang Cave found some interesting rigging when they arrived at the 140 foot pit. It was rigged with

3/8-inch rope tied onto 1/4-inch polypropylene rope. No bodies were reported at the bottom.

An account of an 11-hour bottoming trip into Neffs Cave ,describes the 1,170-ft. cave as an "OTC" (One Time Cave).

Remapping of Little Brush Creek Cave is a major cave project in Utah. After 5 years of work the survey stands at approximately 15,000 feet and going. The entrance to the system sports a large surface stream flowing into it allowing the mapping efforts only in the winter months when the temperatures at the entrance reach 20 below.

The Salt Lake Grotto meets at 7:00 p.m. on the first Tuesday of the month in the Story Room of the Salt Lake City Public Library. Officers for 1987 are Paul Hill, chairman, and Randy Kohlway, vice-chairman. I don't have current information on meeting times and officers of the other grottos.

BRITISH COLUMBIA (VICEG) - The Vancouver Island Cave Exploration Group, with more than fifty members and a vast amount of cave-bearing limestone, has trips every weekend and maintains a high level of activity.

The VICEG Newsletter recounts many weekend trips to reliable cave areas on the Island. Nearby Cascade Cave has seen several trips as has the Nixon Creek and Horn Lake Cave areas. Mapping and exploration in Thanksgiving Cave are still going strong at more than 3 miles in length. 1986 also saw new passage in Windy Link Cave and the hope that a connection between Windy Link and Q5 might yet exist.

Several new areas were checked in 1986 with the Kennedy Lake karst area being most interesting. This spectacular karst area located near the west coast of Vancouver Island required a helicopter flight to get in and an epic hike to get out. Several days were spent exploring this area and a few small caves were found and mapped.

The Caribou Mountains of central inland B.C. were also visited. The trip required an airplane flight to a remote airstrip and then a three day horse back ride. Unfortunately, the area produced little of interest on this trip. Close to the Edge, a 294 meter pit in the B.C. interior, was another 1986 discovery. That's right, a

single pit more than 800 feet deep. Exploration of the mainland B.C. is just now getting started. And then there was the 50 km ski trip to a small cave in Jasper Park in temperatures as low as -42 degrees.

The year also saw the death of Glenn Peppard in Thanksgiving Cave in late August. Many skilled cavers were already on hand, emergency gear was available fairly quickly, and the accident occurred near an in-cave emergency cache. The years of preparation for an emergency would have paid off if Glenn's injuries had not doomed him at the time of the accident.

On the up side, VICEG and the B.C. Speleological Federation have patched up their differences and merged. 1987 should be a very productive year in British Columbia.

MONTANA AND WYOMING - The Northern Rocky Mountain Speleological Survey has started work in the Horsethief Cave for the BLM. I hope to have details in the future.

The Bighorn Project completed its second field camp with more than 33,000 feet of passage surveyed and many other work items completed. A 350 page report was submitted to the NPS in January, 1987. A third work camp will be held in August, 1987.

NEW PUBLICATIONS - Depths of the Rockies is printed quarterly. Cost is \$3/year. Contact Vi Allured, 4231 Eaton Court, Boulder CO 80303.

The Canadian Caver is printed twice a year. Cost is \$12/year. Contact The Canadian Caver, Box 1175 Station G, Calgary, Alberta, Canada T3A 3G3.

NCRI Bighorn Cave Report, 200 page version is available now. Cost is \$20 each. Contact NCRI, 9417 - 8th Avenue N.E., Seattle, WA 98115.

# NEWSLETTERS IN THE GROTTO LIBRARY Larry McTigue

The following are some of the periodicals donated to the Cascade Grotto by Dr. Halliday. See also Vol 25 (1986) page 65 for a list of books and other items donated to

AGLAROND Vedauwoo Student Grotto, U. of Wyoming, Laramie, WY

the library by various members.

AIRIN' OUR VIEWS - Cornell University Outing Club, Ithaca, NY ALTO NEWSLETTER - Alto Cavers, Texarkana, TX BALTIMORE GROTTO BULL SHEET - Baltimore, MD BALTIMORE GROTTO NEWS - Baltimore, MD BIRMINGHAM GROTTO NEWSLETTER - Birmingham, AL BLOOMINGTON INDIANA GROTTO NEWSLETTER BRASS LIGHT - Richmond Area Speleological Society, Richmond, VA CALIFORNIA CAVER -NSS Western Region CAVALIER CAVER - University of Virginia Grotto, Charlottesville, VA CAVE CONSERVANCY OF VIRGINIA NEWSLETTER CAVE CRAWLER'S GAZETTE - Central Arizona Grotto, Tempe, AZ CAVE GEOLOGY - NSS Cave Geology Section CAVE LIGHT - U. of Wisconsin Caving Club, Milwaukee, WI COG SQUEAKS - Central Ohio Grotto, Columbus, DESERT CAVER - Escabrosa Grotto, Tucson, AZ DOWN UNDER - National Caves Association DRIPSTONE - Cornell University Student Grotto, Ithaca, NY EL ALPINISTA - Sandia Grotto, Albuquerque, NM ELECTRIC CAVER - Greater Cincinnati Grotto, Cincinnati, OH EXPLORER - Southern California Grotto, Pasadena, CA FORESIGHT - Chouteau Grotto, Columbia, MO GEO2 (NSS Cave Geology and Geography Section) INTERCOM - Iowa Grotto IOWA CAVE BOOK - Iowa Grotto, Iowa City, Iowa IOWA CAVE INDEX - Iowa Grotto IOWA CAVE SURVEY REPORTS - Iowa Grotto JOURNAL OF THE YALE SPELEO. SOCIETY - Yale University, New Haven, CT LIMESTONE LEDGER - Sierra Mojave Grotto, Ridgecrest, CA M.A.R BULLETIN - Mid-Appalachian Region MET GROTTO NEWS - New York, NY MUDDY SQUEESE - Maryland Cave Survey N.E. CAVER - N.E. Region, NSS, New York NEOG LOG - NE Ohio Grotto, Painesville, OH NETHERWORLD NEWS - Pittsburgh Grotto, Pittsburgh, PA NEW YORK CAVER - Mohawk-Hudson Grotto/MET Grotto NSS ADMINISTRATIVE MEMO NSS BOARD OF GOVERNORS MINUTES NSS CONVENTION\*GRAM

OHIO VALLEY CAVER - Ohio Valley Region, Cincinnati, OH OKLAHOMA UNDERGROUND - Central Oklahoma Grotto, Oklahoma City, OK PHILADELPHIA GROTTO DIGEST - Philadelphia, PA PHOLEOS - Wittenburg University Speleological Society, Springfield OH PIASA CAVER - Piasa Grotto, Florissant, MO POTOMAC CAVER - Potomac Speleo Club (1961 index only) R.A.S.S. REGISTER - Richmond Area Speleological Society, Richmond VA ROCK RIVER SPELUNKER - Rock River Speleo. Soc., Rockford IL SFBC NEWSLETTER - San Francisco Bay Chapter SHIPPENSBURG GROTTO NEWSLETTER -Shippensburg, PA SOUTHEAST CAVER - SE Missouri Grotto ? SPELEO\*TYMES - Indiana University Spelunking Club, Bloomington, IN SPELEO-THEMES - Northern New Jersey Grotto, SPELEONEWS - Nashville and Chattanooga Grottos, Nashville, TN SPELEOTHEM - SW Montana Speleo. Soc., Shining Mtns. Grotto SUBTERRANEAN SUN - Sligo Grotto, Rockville, TECH TROGLODYTE - V.P.I Grotto, Blacksburg, TEXAS CAVER - Texas Speleological Association THE HOLE TRUTH - Niagara Frontier Grotto, Niagara Falls, NY THE NEWSLETTER - NSS Cave Conservation and Management THE NEWSLETTER - Ozark Underground Laboratory, Springfield, MO THE REGION RECORD - V.A.R THE UNDERGROUND - Mid-Mississippi Valley Grotto, University City, MO UNDERGROUND LEADER - School of the Ozarks Troglophiles, Pt. Lookout, MO VALLEY CAVER - Mother Lode Grotto, Sacramento, CA WISCONSIN SPELEOLOGIST - Wisconsin Speleological Society, Madison, WI WOMEN'S NEWS - Women's section of the NSS WSS NEWSLETTER - Wisconsin Speleological Society, Madison, WI YORK GROTTO NEWSLETTER - York, PA

NSS IO NEWSLETTER