



# THE CASCADE CAVER

International Journal of  
Vulcanospeleology



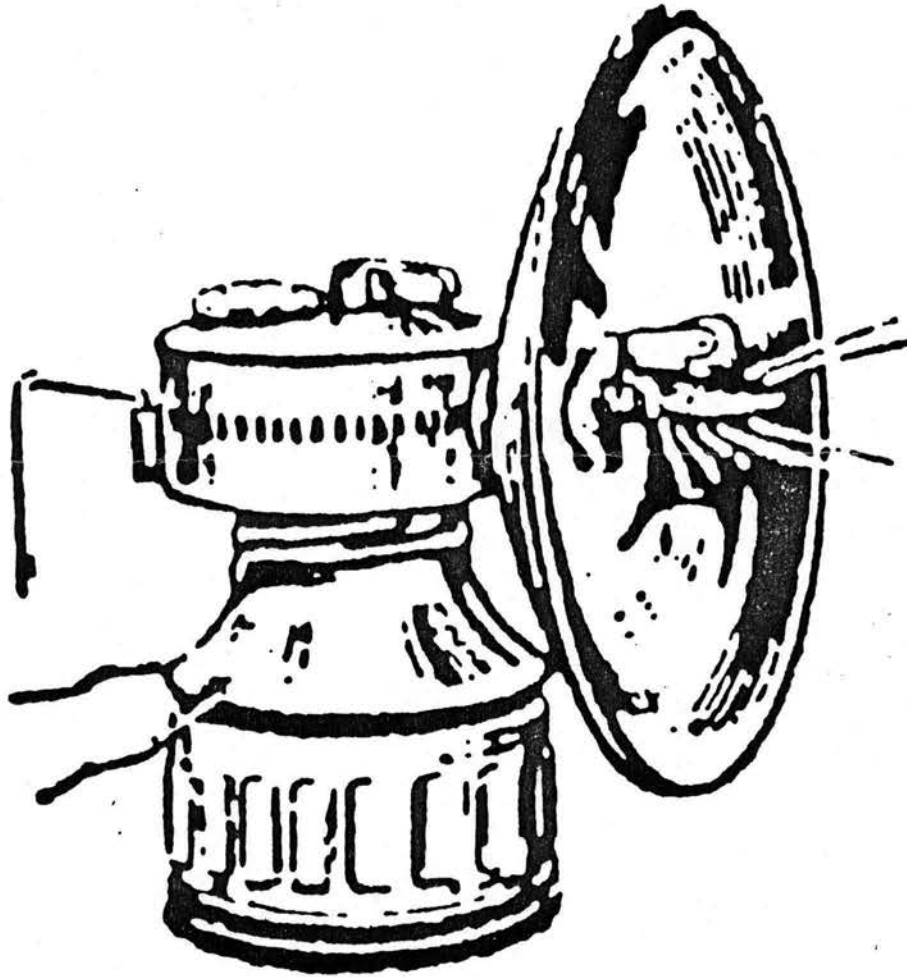
Published by the Cascade Grotto, N.S.S.

VOLUME 25 NO. 1-3

Editor: Mark Sherman

JAN - MARCH 1986

Assistant Editor: Ben Tompkins



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The C A S C A D E C A V E R

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The CASCAD E CAVER is published 10 times a year by the Cascade Grotto, a member of the National Speleological Society. Annual dues for the Grotto are \$7.50, which can be sent to the Grotto Treasurer, Al Lundberg, at: 19221 38th Place N.E., Seattle, WA 98155. Other correspondence should be made to: The Cascade Grotto, P.O. Box 75663, Seattle, WA 98125-0663.

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UPCOMING EVENTS

MARCH 18	G R O T T O M E E T I N G
APRIL 15	Grotto Meeting
MAY 20	Grotto Meeting
JUNE 14-22	Bighorn Cave, Montana. Call M Sherman at 524-8780 or Ben Tompkins at 524-9526 for more information.
JUNE 17	Grotto Meeting
June 22-28	NSS Convention, New Mexico. Contact Bob Brown for more information at 569-2724.

COVER

Just an old lamp we had laying around.

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DUES

Crawford, Ed	Cebell, Wayne	Halliday, Dr. W. R.	Cole, Roger
Crawford, Rod	Gillard, Jeff	Riste, Tad	Vance, Randy
Ehli, Lynn	Brannon, David	Fichtel, John	Walter, Richard
Enochs, Kelly	Martin, Robert H.	Foord, Andrew	
Richardson, Jed	Roberts, Jan	Harp, Jim	
Smith, Dr. Floyd	Bosshart, Walter E.	Wilson, Mark M.	

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## FEBRUARY GROTTO MEETING

The February Grotto meeting was sparsely attended due to the icy driving conditions that night. Al Lundberg stated that the NSS report had been mailed in the previous week [We got a note three weeks later saying that Evelyn Bradshaw still had not received the report so Al mailed another copy. Ed.]

The Labor Day Regional at Trout Lake, which Cascade Grotto will be hosting, was talked about. Some people were wanting to combine it with Vancouver Island's Speleofest which will be going on at the same time.

Jeff Forbes mentioned that the Grotto could use Johnson Hall on the UW campus as a meeting site at no charge. The main problem is the parking which would either be along 15th Ave (free) or on campus (I think that's \$1.00). Jeff also expressed interest in doing some work on Cave Ridge this summer. He would like to do a dye trace in Newton and also re-map it.

The program for the evening was the Castleguard movie, which Jeff got through the Canadian Consulate in Seattle.

The meeting ended at 9:00 with everyone heading for pizza in the U District.

## BIGHORN PROJECT IS COMING UP!

The Bighorn Research Project is calling for participation in the 1986 Bighorn Project field camp from June 14 through 22. This two-year NSS Project was initiated in 1985 to map, study, inventory, and develop management recommendations for Bighorn Cave in Montana. In 1985 the project netted over 23,000 feet of survey, geological studies were started, and a biological inventory was completed. As in 1985, this year's field camp provides an opportunity for cavers to participate in a significant, multi-faceted project at a major federally-owned cave.

The project needs your manpower and money. The project coordinator, Bob Brown, says that 15 to 20 cavers are still needed for the 1986 effort. You can donate your skills of surveying, exploration, cartography, cave science, or project support by contacting Bob at (206) 569-2724 or by writing the Bighorn Research Project at 1045 N.E. 103rd Street, Seattle, WA 98125.

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## HUGE CAVES DISCOVERED IN BELIZE JUNGLE

By Boris Weintraub

Reprinted from the Toronto Globe and Mail, Monday, Sept 10, 1984.

It took a 20-kilometre walk through the jungles of Belize, carrying backpacks weighing up to 40 kilograms just to reach the cave entrance. The explorers had to make the excruciating journey as many as three days in a row just to haul in supplies and gear.

Once there, they camped underground for weeks at a time, eating only freeze-dried food and getting water from an underground spring.

But for Thomas E. Miller, an assistant professor at Eastern Washington University, and his colleagues, the effort was worth it. When the expedition emerged from the sweltering jungle in May it reported that it had found one of the most extensive cave systems in the Western Hemisphere, including one chamber that is the second largest in the world.

In addition, the team found a large collection of Maya artifacts left in the cave at least a thousand years before. They also discovered a new species of blind white crab, Prof. Miller said.

Prof. Miller, who has been studying caves in Belize since 1973, tends to belittle the physical difficulties of the trip. The Maya helped, he said.

"We camped in a large chamber that had a permanent stream falling into a large lake where we could get water and also wash off," he said. "There were about 33 Maya walls and terraces built into the cave, and these flat areas we camped on. It was an extremely comfortable camp."

As for the hike in, said Prof. Miller, "People got in shape quickly."

Prof. Miller went to the Chiquibul River after studying aerial photographs that suggested an extensive karstic system was there. Karst, he explained, is a region of porous limestone cut by water into various forms such as sinkholes, fissures, and caves.

An eight-day solo journey in 1982 confirmed his judgement, and he began to plan for

BELIZE CAVES, Continued.

his spring, 1984, expedition.

The result was the discovery and mapping of a cave system that consisted of two distinct caves, each about 11 km long, separated by a 3 km surface stretch in which the caves disappeared.

"The whole cave system is basically due to the Chiquibul River, which sank millions of years ago in the limestone and formed a very large cave system," Prof. Miller said. "This was once an active route for the river, but some time in the last several hundred thousand years, the river developed new routes into the limestone at lower elevations."

Such a change of route leads to the formation of caves, which is to be expected in the conditions there, he said.

"The limestone is dense and well-fractured, which is the basic geologic condition you need for cave formation," he explained. "There is an enormous volume of rainfall, and the tropical climate produces carbon dioxide in the soil. That combines with rainfall runoff to provide an acidic condition that weakens the stone and produces a cave."

Most of the Maya region of Central America, from southern Mexico through Guatemala and Belize, has such karstic caves.

What makes the Chiquibul caves special is their size. The chamber in which the team first camped is about 240 meters long and more than 150 m wide. Even that, however, was no match for the second chamber, which was about twice that size. "It would swallow the biggest room at Carlsbad and still have a third left over," Prof. Miller said. "The ceiling is 213 feet (65 m) high."

The team found evidence of extensive use of the caves by the Maya. They left large quantities of pots, storage vessels, painted bowls, clay figures, and even a whistle that can still be played.

Fortunately for the scientists, the area is almost completely isolated. Looters who have stripped other Maya sites have done little damage there. Only a few loggers and chicle tappers have been in the area in the millennium since the last Maya left the caves.

Archeologists and Maya specialists who took part in the expedition say that few of

the finds alone are spectacular. But the accumulation of discoveries, dated between AD 600 and AD 1000, contains clues to everyday Maya life.

The expedition brought out about 50 kg of artifacts and returned with them to Belmopan, the capital of Belize, according to Logan McNatt, a U.S. Peace Corps volunteer working with the Belize department of archeology.

"That includes about five of six complete or nearly complete vessels," he said. "But there were others that would have been impossible to carry out on our backs. My rough estimate is that we took out probably about 1 percent of the artifacts in those caves. There's still an incredible amount of stuff in there."

[See also Oct. 84 Cascade Caver cover and pg 65. Ed.]

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LAVA CAVES OF SOUTH ITALY - 1985

By William R. Halliday, M.D.

In September 1985 I returned to south Italy for a week to follow up on the interesting and exciting lava caves scouted briefly in 1983. I was warmly welcomed in Catania and Napoli, but was disappointed to learn in Catania that the big 1983 lava tube cave on Mt. Etna which was too hot to enter on my earlier visit had been buried and/or filled by the renewed eruption, in early 1985. The smaller Grotta di Sapienza, into which I was able to go for only about 5 feet in 1983 because of the heat, apparently has been almost completely destroyed by construction of a road across the 1983 flows. The main part of this cave led down slope; in the entire area where it was located I could find only a short segment of tube leading up slope from the edge of the road. But high on Mt. Etna, somewhere around the 9,000 foot level, I did find and squeeze into two short caves just below the vent of the 1985 flow, still warm. The lower one had a narrow tilted room with a skylight, and I was probably the first into it as some one to two-inch evaporite stalactites (which are extremely brittle) were untouched. Also on Mt. Etna I had a longer look at the vertical stacking of Grotta di Tre Livelli (3-level Cave), and came away convinced that vertical stacking is

## LAVA CAVES OF ITALY, continued.

the result of development of overflow tubes within a pre-existing trench. A fascinating little cave.

From Catania, I proceeded by train (delightful) and hydrofoil (also very pleasant) to the island of Vulcano, for which all other volcanoes are named. From the boat on my previous trip I had seen some cave entrances in what looked like a hot spring deposit near the dock, and that is what they turned out to be: Grotta d'Allume. The local guidebook (in Italian) states that they are artificial. There has been some modification of the largest one which is quite complex although not very long. But on the basis of what I have seen in the terraces at Mammoth Hot Springs and elsewhere, I think that most of them are natural. I also checked for fumarole caves on and in the Gran Cratere of Vulcano, but although there were some narrow cracks with beautiful sulfur crystals, none qualified as caves. One hour up by trail, 7 1/2 minutes down, via a cinder path (don't try ascending it!).

Next, on to Stromboli (3,000 feet high) where there is an eruption about every 20 minutes. I had hoped to get a chance to look down some of the other vertical shafts between eruptions as I had done at the westernmost in 1983 but the wind never shifted enough to dissipate the fumes from the only practical route. I stayed on the rim all day and at dusk the fireworks became really spectacular, with the molten lava ejecta shooting high and cascading down the long cinder slope.

Vulcano is the southernmost of the Lipari Islands, and the hydrofoil trip to Stromboli (the northernmost) is really beautiful. From Stromboli it is 4 1/2 hours onward by boat to Napoli where I showed slides of the eruption of Mt. St. Helens and our subsequent studies. The showing was to the leading cave group there and held in a 13th Century castle on the waterfront. The next day they provided guide service to Vesuvius, which has a much more impressive crater than I had expected, but no caves worth mentioning. Along the main road to the summit parking lot are some very short segments of lava tube in a pasty, blocky pahoehoe lava, but the longest I could

find was only about 30' long and had been invaded by a later tongue. Nearby is La Grotta Ristorante but I was assured there was no large cave there, either.

For lava tube caves, Mt. Etna remains the Italian cave area, but this is subject to change without notice. Littoral caves exist in the Eolian Islands (one on Vulcano is large enough for a variety of postcards, though I didn't take the boat trip necessary to visit it). But there are plenty on speleoliferous limestones on the mainland and in Sicily for those with other interests, and some gypsum caves too.

I also had a quick look at Herculaneum, the Roman city buried like Pompeii but by a pyroclastic flow, not ashfall as in the case of Pompeii. Its flow was quite unlike that of May 19, 1980 at Mount St. Helens and is welded tuff that has to be chipped away, not merely scooped out. All in all, it was a trip any vulcanospeleologist would want to make, and one which might shake some calcareispeleologists from their faith in limestone caving.

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## LARGE TALUS CAVES OF THE WORLD

Robert W. Carroll, Jr.

The talus news is heartening. The Northeast is losing its monopoly on large talus systems. TSOD is still "far ahead" but there are at least four caves around the one-mile mark and a fifth very likely in the near future. In terms of mapped (Grade-5) systems, California is by far the leader with six 1000-plus-footers, according to Bob Richards.

North Carolina's 5560-foot Bat Cave is the record Grade-5-mapped system while Sweden has a 1550-meter (5086-foot) system. Greenhorn has 5108 feet of passage and 500 feet of relief and would be bigger if efforts had not been diverted. Millerton Lake, which sounds VERY exciting, how has 3316 feet. Colorado has lagged due to repeated bad runoff years and lack of concerted effort.

Figure 1 below shows what are apparently the world's largest known talus caves at this moment.

LARGE TALUS CAVES, continued.

13050ft	3977m	An	TSOD, Essex Co., NY	Grade 2	170 ft	1979
5560	1977	Gn,*	Bat Cave, Rutherford Co., NC	Grade 5	191	1985
5300	1615	Gr	MBDATHS, Grafton Co., NH	Grade 1	140	1976
5108	1557	Gr *	Greenhorn Cave, Kern Co., CA	Grade 5	500	1985
5087	1550	Gr	Bodagrottorna, Sweden	Grade 5		1983
3350	1020	An	Sphagnum Ravine, Essex Co., NY	Grade 2		1981
3316	1011	Gr	Millerton Lake, Fresno Co., CA	Grade 5		1985
2500	760	An	W.H. Lyman, Essex Co., NY	Grade 2-3		1978
1850	564	Gn *	Eagle Cave, Hamilton Co., NY	Grade 1-5	150	1983
1650	503	Gn	Chiller Cave, Windsor Co., VT	Grade 1-2		1984
1650	503	Gn	Good Luck Cave, Hamilton Co., NY	Grade 1-2		1982
1500	457	Gr	Cahuilla Creek, Riverside Co., CA	Grade 5		1985
1350	411	Gr	Witherle-ET, Piscataquis Co., ME	Grade 1-2		1983
1250	380	Gn	Mt. Washington STM, Coos Co., NH	Grade 2		1978
approx	370	Sf	"Devils Den", NW Arkansas			report 1979

Abbreviations: An = Anorthosite, Gn = gneiss, Gr = granite, \* = tectonic or fault, Sf = sandstone fracture

Figure 1, World's Longest Talus Caves

Althgether, there may be some 40 known 1000-foot-plus talus systems in the world. Arizona's fracture/collapse Paiute Cave descending 165 meters is the deepest. There are six each for New York, New Hampshire, and California, five in Maine, three in North Carolina and possibly Arkansas, and at least one each in Pennsylvania, Washington, Arizona, Texas, Sweden, Australia, and possibly France. Colorado has several but

the data is sketchy. This list seems likely to swell. The Northeastern roster is shown in Figure 2.

Another 20 caves exceed 400 feet in the Northeast while New Hampshire retains the snow tube record at 700 feet of passage and 145 feet of relief. The potential for additional talus "big ones" seems high for Maine, lower for New Hampshire, and still lower for Vermont and New York.

13050ft	An	TSOD, Essex Co., NY	1200	Gr	Mahoosuc Ice, Oxford ME
5300	Gr	MBDATHS, Grafton Co., NH	1150	Gr	Franc. Nch. Coral, Grafton NH
3350	An	Sphagnum Ravine, Essex Co., NY	1150	Gn	Mt. Adams Ravine, Coos NH
2500	An	W.H. Lyman, Essex Co., NY	1150	Gr	Champlain, Hancock ME
1850	Gn*	Eagle Cave, Hamilton Co., NY	1100	Gr	Saddleback Mt., Franklin ME
1650	Gn	Chiller Cave, Windsor Co., VT	1100	An	Manitou Abode, Essex NY
1650	Gn	Good Luck Cave, Hamilton Co. NY	1050	Gn	Gargantua, Windsor VT
1350	Gr	Witherle-ET, Piscataquis Co. ME	1050	Gr	Ice Gulch Nightmare, Coos NH
1250	Gn	Mt. Washington STM, Coos Co. NH	1000	Gr	Pathfinder, Piscataquis ME
1200	Gr	Franc. Nch. Slabs, Grafton NH	1000	Gr	Abenaki, Caledonia VT

Figure 2. Large Talus Caves in Northeastern U.S.

RECENT FIELD OBSERVATIONS IN THE  
MOUNT ST. HELENS PSEUDOKARSTS:  
By William R. Halliday, M.D.

An Interim report of the Mount St. Helens  
Caves Conservation Task Force.

The 1985 field work at Mount St. Helens began only on the July 4th weekend because of the heavy late snow pack. Photographic aerial reconnaissance on April 21 showed roads hopelessly drifted and the continued presence of the vertical pipes in the Pyroclastic Cave

MT. ST. HELENS, continued

area, giving rise to the hope that this unique cave was less ephemeral than had been expected. Little change could be detected from the air on another overflight on July 5, with drainage conditions much like those of early July 1984. However on July 6, both ends of the cave were found blocked and one of the central slopes had enlarged to become a vertical pipe like the others nearby. Only very short segments of similar caves could be found anywhere in the Spirit Lake Pseudokarst although some of the largest of the vertical pipes showed evidence of dendritic drainage at their bottoms. One especially large, deep vertical pipe near the eastern-most large flat-bottomed sink could be seen to open into a chamber several feet wide, perhaps 15 feet below the surface, but safe entry was not possible and the pipe was only a few meters from the edge of the large sink.

Standing brown water was present in the eastern-most large flat-bottomed sink and in the compound sink at a higher level few dozen meters to the south east. The next sink west again had green but nearly clear water while a little brown water was found in the large S.W. sink down slope from the remains of Pyroclastic Cave. The large natural bridge observed in 1984 in the same drainage was found to have collapsed so recently that rainfall had not reworked the ash mass.

The ablation sink where transported glacier ice was observed in 1983 continues to widen and become shallower. In general, vertical pipes appeared larger and more discrete than in 1984 in both the eastern and western parts of the pseudokarst. In the area between the sink with the green water and the outlet of the Corps of Engineers drainage tunnel (now dry), there evidently has been considerable bulldozing by the Corps. Burial or transport of non-native construction materials has occurred and a flood channel excavated directly into the NW end of the sink with the green water. The latter, however, shows evidence of recent torrential stream flow and may be a natural phenomenon; the national monument staff will be queried about this.

At the head of the Dryer Glacier, several small openings were noted during the July 5 overflight and aerial photos will be studied

looking toward the possible desirability of surface reconnaissance there. Other photos were taken of the Road 81 mud flows area.

Participating in the April and July 1985 overflight were Drs. Wayne and Floyd Smith (both flights) and Marcia Halliday (July only) as well as the writer. Participating in July 6 field work were Marica and Patricia Halliday and Roger Cole as well as the writer. Radio base was Oren Ewing; field radio team included Don and Helen Krehbiel and Eugene Wood; to all these hams, our fervently renewed thanks.

Also, at the May 1985 Eastern Washington University symposium: Mount St. Helens - 5 Years Later, this writer presented a paper (in absentia) on the sequential observations in the Mount St. Helens Pseudokarsts since June 1980 which was reported by one of the symposium organizers as well received. An expanded version will be published in its Proceedings.

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PURSUIT OF WILD GEESE IN  
THE ARLINGTON AREA  
By Steve Sprague

On Saturday, February 15th, Larry McTigue and I met to check out an area of sinks on the U.S.G.S. "Arlington East" Quadrangle map. The sink area is in the Northwest corner of the map. It shows a number of sinks near the edge of a plateau that range from 40 to 60 feet deep. I had been wondering what that area contained for a long time and finally got off my duff and asked if someone wanted to check it out with me.

Unfortunately, Saturday turned out to be a nasty day with lots of rain so only Larry made muster at the Arlington 7-11. We drove from there to the sink site which is located on land owned by Pilchuck Tree Farm. As we entered the area we could tell that we were on a wild goose chase; the area has a thick mantle of alluvial soil and there wasn't a rock bigger than a road apple to be seen. Never the less I managed to coax Larry out of the truck to check out a sink or two. Larry's lethargy was totally justified. One sink was dry in the bottom but there wasn't a bat's ass chance that it was due to limestone. The next sink we checked out had a

PURSUIT, continued.

a swamp in the bottom and we called it quits.

We did a little theorizing about what caused the topography to mimic karst. I stuck to my guns and said that maybe there was some limestone under the alluvial material and it had fallen in and filled up the voids in the rock. Larry came up with the gist of what I think is the winning thesis, which is outlined in the next paragraph.

A couple of days later I talked to Duane Weston, one of Pilchuck's foresters, about the area. He said that Stan Gessel, a soil scientist at the U.W. School of Forestry, had seen the area and suggested that it was formed by a glacial dam that trapped the alluvial material behind it. Blocks of ice might have fallen off the glacier and embedded themselves in the alluvium, or the soil could have filled in around the blocks before they melted.

I'd enjoy talking about it in more detail if anyone has some more thoughts on it. Although it doesn't seem to have anything to do with a karst process, I find the topography unique and I don't think the formation process outlined above is the best attempt that can be done to explain it.

Larry and I poked around in a limestone area nearby just to be able to say we'd actually seen some while we were out looking for it. I showed Larry the entrance to Hog Wallow cave at his request but he wisely declined to enter.

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CLARIFICATION ON THE  
"HISTORY OF NORTHWEST CAVING"  
By William R. Halliday, M.D.

Tom Millers's article in the March, 1985 Cascade Caver is very good and contains a great deal of useful information. A couple of points should be noted to for clarification and to correct the record. Additional details on the history of the the Western

Speleological Survey can be found in the publications of that organization.

As far as I know, there has never been a Western Speleological Society. I'm sure that Tom was thinking of the Western Speleological Survey when he write this. The Western Speleological Survey is not and was not, as Tom states, "a loose federation of the individual cavers in the Northwest who contributed at irregular intervals to the few publicatiions it made." It is a loose federation, indeed, but it extends much more widely than the Northwest, and it has published somewhere around 75 bulletins and two special publications including Caves of California and the Proceedings of the First International Symposium on Vulcanospeleology and its Extraterrestrial Applications.

Both the California Speleological Survey and the Washington Speleological Survey were and are units of the Western Speleological Survey. The two units were organized contemporaneously, primarily by California cavers. The present director of the Western Speleological Survey is Charles Larson in Vancouver, Washington.

Secondly, it is not correct that "Steve Knutson and others at Reed College started the Oregon Speleological Survey in 1960..." They started a second one not knowing that an Oregon Speleological Survey already existed but merged promptly with the first Oregon Speleological Survey when they learned of its existence.

Subsequently another Oregon Speleological Survey was organized which claimed to be a continuation of the second one but my recollection is that this happened well after 1972 but I can't verify this since my records are in Seattle and I am in Nashville at the moment. The details of this are well known and have been published in the Western Speleological Survey bulletin.

It is correct, however, that I did attempt to fill the gap left by the temporary demise of the Cascade Grotto with the Washington Speleological Survey. This was effective and led to the reincarnation of the grotto.