

The Cascade Caver



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CASCADE CAVER

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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 Cascade Caver 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: Peter Carter 1/87, Maurice Magee 3/87, Mickey Hanson 4/87

Overdue:	Due:	Coming up:
Brown, Bob 5/87	Dr. E. Kiver 7/87	Stitt, Rob 8/87
Crawford, Ed 6/87		Garnick, Dick 9/87
Crawford, Mary 6/87		Garnick, Mark 9/87
Crawford, Rod 6/87		Hoyt, Howard 9/87
Gunsalus, J. 6/87		Balsdon, Sheila 10/87
van der Pas, J.P. 6/87		Brenner, Sue 10/87
		Cebell, Wayne 10/87
		Dickey, Fred 10/87
		James, Richard 10/87

Cover: Linda Heslop: Drawing of a generic fish-in-your-boots caver, nobody in particular. This drawing started out to be a T-shirt design.

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UPCOMING EVENTS

Aug 7-9	Cave Ridge - Help plan rescue scenario and observe rescue practice by W. Washington mountain rescue groups. See Jim Harp.
Aug 8-16	Bighorn Project work session #3.
Aug 21	G R O T T O M E E T I N G
Aug 22	Vertical practice
Aug 29	Garage Sale
Sept 4-7	Papoose Cave, Idaho. See Bob Brown.
Sept 18	G R O T T O M E E T I N G
Sept 19	Windy Creek
Sept 23	Business meeting to discuss changes to grotto by-laws and operating policy. Held at regular meeting place in Johnson Hall, U.W. at 6:30pm.
Oct 2-4	Mt. Adams: Falls Creek and Three Sinks.
Oct 16	G R O T T O M E E T I N G
Oct 17	Black Mountain. See Dick Garnick.
Nov 20	G R O T T O M E E T I N G
Nov 27-29	Pot of Gold, Idaho. See Bob Brown.
Dec 5	Pre-Holiday party inviting Oregon Grotto and VICEG.

JUNE GROTTO MEETING

There were 26 people in attendance at the June meeting making this the largest turnout in several years.

Thanks to the efforts of Cascade Grotto members, the 1987 Regional at Trout Lake was a success with over 70 people attending. The region made \$196 from the registration fees which was sent to Phil Whitfield, the treasurer. There was some discussion about why Cascade Grotto didn't receive any of the profits since it had hosted the show. According to Bob Brown, regional chairman, the grotto hosting a NCA regional function is entitled to 50% of the interest from the Region's bank account, which would only be a couple of dollars.

June marks the end of our six month trial of having meetings on Friday nights. It was voted on to extend this trial period for an additional six months.

There will be a business meeting held in August to discuss the bylaws.

Howard Hoyt volunteered (was volunteered??) to organize a garage sale to help fill the coffers.

Bob Brown suggested that maybe Cascade Grotto should merge with Oregon Grotto because, he says, both grottos have similar problems - lack of money, marginal interest level, limited material for their newsletters, etc., and by merging together it might solve some of these. Rob Stitt suggested having more joint ventures with Oregon instead of merging.

The program for the evening was given by Alex de Soto, a geologist from Puerto Rico. Alex was visiting the UW and was asked by Jeff Forbes to give a presentation on the Karst of Puerto Rico.

GARAGE SALE

The Cascade Grotto garage/yard sale is tentatively scheduled for Saturday August 29 on the parking strip next to QFC at 15th Ave. E. and E. Republican on Capital Hill. If you have things to get rid of and want them off your hands before the sale, bring them to the July or August meeting, or call Howard Hoyt at 782-4567 or Jim Harp at 745-1010 (After August 1 for Jim).

HORNE LAKE BROCHURE

In last month's caver we showed a "brochure" written by Linda Heslop on Horne Lake Caves. Linda called and said that she hoped everyone realized that this brochure was just a joke. Now that tours are being given in Horne Lake Caves there is an Official Brochure and Linda has sent us copies.

NEW BATTERY CHARGER CIRCUIT

Ben Tompkins

A new integrated circuit has been pointed out to me that is expressly designed for charging the sealed lead-acid batteries that many of us use for caving. Mark Sherman and I have produced a number of our own chargers that are relatively sophisticated as far as caving chargers go but this little chippy takes the prize. It makes the job much simpler, just add 6 resistors, a couple of capacitors, one transistor, and stir gently over medium heat.

The device is called the UC3906, made by Unitrode. There is a good article in the June 1987 issue of QST, a ham radio magazine. The article gives equations for adjusting values to charge batteries of different voltages and tells where to send for a bare circuit card.

Now if I just had the time I would love to lay out four of these circuits side by side in the same space as one of our existing chargers and recharge the whole crew simultaneously.

TIMBER SALE PLANNING

The following letter was sent to Bill Halliday from John Weston who is the Timber Sale Planner for the Wind River Ranger District of the Forest Service.

April 30, 1987

Dear Mr. Halliday,

The Wind River Ranger District is about to begin environmental analysis of the Outlaw Planning Area. This is an area with many lava tubes, the most famous being the Falls Creek Caves. The area surrounding the caves is being considered for protection under the preferred alternative of the New Forest Plan. However, this plan, which would allow no timber harvest within the area surrounding the cave, has yet to be approved. In

addition there are other lava tubes that have not been included in this area.

The purpose of this letter is to solicit your concerns and identify opportunities concerning timber harvesting and how it would affect the cave resource in this area. If you have any questions or need more information contact me at (509) 427-5645.

Sincerely,
John Weston, Timber Sale Planner

TROUT LAKE REGIONAL

Howard Hoyt

There are cavers and then there are cavers. This, although previously inferred on my part, was the lesson to be learned from my first official outing with the Grotto. The latter have an as yet undesignated disease; maybe speleopathology. Yes, I think these people are speleopaths; and they are dangerous maniacs. The filthier, the tighter, the more precipitous, tortuous-words fail - the quicker these men (exclusively men I believe) leap to it. And many even brag about it to an absolutely shocking degree. Around the campfire, where else. These folks even have their own vocabulary I found out. A few examples suffice:

	Cave:	
(me)		(them)
Underground rooms and passageways sometimes decorated with attractive formations.		Interstices between rocks where the dirt failed to fill in.

	Crawl:	
(me)		(them)
Anything other than walking.		Wriggling on back or belly.

	Walk:	
(me)		(them)
Walk.		Anything other than wriggling on back or belly.

No kidding, I'm not making this up. Looking at cave maps will help prove the point: names like Masochist's Maze and Rat's Anus ... We needn't deal further on the sordid minds of people who invent these descriptive titles, let alone those who enter such places.

Fortunately there were sane people there too. (Out of 75 registered there were bound

to be a few sane people.) And even the speleopaths were mostly cheery, so that, all in all, good cheer and exuberance were the order of the day (the three days). And aside from freezing at night and one rather impressive rain storm and difficulties starting the first fire, life was joyous. Easy to meet people, easy to talk to people, a lot of happiness, and even the kids seemed to be mostly good. I didn't know that well-behaved children still existed in 1987 A.D.

And, I'm told, there was very good food from the chuck wagon, a portable miracle kitchen equipped to handle the culinary needs and desires of legions. I watched it enviously as I burnt my food over a fire. Actually, it was great fun burning food over a fire. I'd never done it before, and I don't know if I'll do it again. But it was great fun.

It was a life replete with smiles, wonderful air, cave slime, back pains (chiropractors could make a mint if they set up shop outside the entrances to some of those caves), and in general everything remote from my daily urban life. I talked about it with folks. There, we 75 cavers were family. Jobs and friends and homes seemed distant. Now writing this from my living room, the opposite is true. Names that I was just getting familiar with have pretty much slipped away. But I know they are community, and that's what's important.

This hobby of ours - for most of us that is what it is, isn't it? - this sport, no, this compulsion to go underground, is playing with something very powerful. The layers of symbols manifest in "cave", some cosmic and some personal, are not left behind on our explorations. Alice fell down a rabbit hole and was transformed. This is something else I learned in my eight caves in three days. This business is not to be taken lightly. I dreamt of nothing but caves for one solid week. In my last dream I was hunting for, and at the same time fearing to find, and at last fleeing from an old bearded scary man that lived deep down in a cave. Remind me not to tell that to my analyst. And I did things I've never done and never ever hope to do again. I saw many beautiful wonders. I experienced a new sense of male comradie while relishing a few secret conversations with women. I existed three days without a bath. And as I walked through a cavern that shall remain nameless because my companions told me we would be laughed at if we admitted going there, lantern in hand, and I looked at

the strong high vault, the vast road of frozen lava, a geological moment one million years old, locked in time, the solid, smooth walls curving graciously, I said "This is a cave," and was proud to be there, secure in the knowledge that I am not, at least at this writing, a speleopath.

A few very dedicated people made this extraordinary gathering happen: Mark Wilson, registrar, organizer, entrepreneur; Bob Brown, organizer, adventurer, master chef; Rod Crawford who produced the thorough guide book (full of light reading for the dull moments, but unfortunately I left my OED at home); and of course our guides into whose hands we so eagerly committed our lives, if not our spirits.

I do have some recommendations for future gatherings. Cave maps should always have their ceiling heights CLEARLY designated. I discovered what those little circled numbers meant after it was too late. Caves should be rated, either like forest service trails (1=easy, 2=medium, 3=difficult), or, as I prefer, like movies: G, PG, R, or (frequently) X or even XXX. This would give non-speleopaths fair warning, while saving those who prefer pornography much wasted meandering in "subway tunnels". Finally, extra blankets should be advised. But details, details...

CAVE REGISTER EVALUATION

John Clardy

From March 1986 to June 1987 the Skagit County Chuckanut Mountain talus cave register recorded 289 individuals, 30 of whom are responsible for 48 return visits, but only 16 entries represent Cascade Grotto membership. Aside from the Grotto, organized caving activity was conducted by the Bellingham Rufus Jones Preparator School annual cave tour, Boy Scouts of America Troop One, and Seventh Day Adventist Church activity.

Of statistical interest, from a total of 114 dated entries by caving parties, an overview of traffic flow by day and month is displayed:

Table 1. Registered Caving Parties By Day

Sunday	32	Thursday	16
Monday	10	Friday	17
Tuesday	5	Saturday	29
Wednesday	5		

Sexual Orientation sums for registered visitors were 180 males, 74 females, and 35 individuals who remain unidentified. Of cavers with spirit for one or more return visits one third were female.

Wildlife information was tallied but was insufficient in detail and is not presented in this report.

Table 2. Registered Caving Parties By Month

1986		1987	
March	7	January	3
April	9	February	6
May	9	March	15
June	8	April	15
July	10	May	8
August	7	June	5
September	2		
October	2		
November	4		
December	4		

Study of the cave register denoted identification of return visitors. Flowcharts record dated entries of return visitors, identification of other individuals involved in exchange of cave related information, and developing traffic trends with one or more return visits. One individual was found to be an initial information source for 27 subsequent visitors. While registered as present in 6 of 18 dated caving parties the flowchart touched 6 other repeat cavers. None of the 28 individuals involved are Grotto members.

Within the 16 month period two registered individuals applied for Cascade Grotto membership. Two other cavers, both with flowchart in progress, have contacted the writer for regional speleological information; the pair were referred to the Grotto P.O. Box. The writer does not initiate contact unless requested by log entry or person-to-person contact during register station maintenance.

An evaluation procedure with other Skagit and Whatcom County cave register stations is being considered.

CAVE

A story by
Kathryn MacDonald

There was a moment, just as she started to fall, when Margaret knew she might have been able to save herself if she just hadn't been so tired. As it was, she tripped on the rippled lava of the cave floor, seemed to float for a moment in the dim light of her headlamp, and then crashed down hard on both knees. Reacting to the pain, she threw her body to one side and rolled through a small stream, hidden in the bad light. Her lamp went out.

She lay still in the dark, gasping with pain, clutching her left knee. It wouldn't move. She tried not to cry; ahead, she could hear her husband, Jon, calling her name. Then a light appeared around the next bend in the corridor and Jon's "omigod" voice (which told her he'd been expecting something like this) said, "She's down."

If it hadn't hurt to breathe, she might have found the expression amusing. It sounded like a stockman's comment on a foundered horse.

Two lights moved toward her now as Jon and Bob -- the only one of their friends who knew his way around a cave -- retraced their steps.

"Are you hurt?" Jon crouched down, his face yellow in the light from his helmet.

Gritting her teeth and fighting back tears she said, "Yes, dammit!", understanding at last why heroes in books were so terse when wounded or savaged by wild beasts. Pain was a great conversation killer.

"How bad is it? Do you think we should carry you?" His voice had the strained, overcharged quality of a child on the verge of tears. Poor Jon, she thought suddenly. The past few weeks have been hell for both of us.

Aloud she said, "No, you'd never manage it. I just need to lie here for a minute and recoup..."

"I could go for help." Bob's headlamp moved closer, its light increasing the gold glow on the walls, making them shine wetly. His voice, echoing off the rock, died away.

"No! I don't need help." Margaret imagined herself being lugged out of her first cave on a stretcher. "It's bad enough tripping over my own feet. I'm not going to break backs too. I'll be okay. I just need to rest a minute."

Jon and Bob crouched down and waited. She rested her forehead on her right arm and didn't look at them. Just lying down felt good, even on the hard floor of a wet cave. They had left the city at dawn, and it had taken three hours of steady driving to reach the mountain. Somehow Margaret had expected the entrance to the cave to be close to their campsite, but they'd had to leave the car and catch a ride up an abandoned logging road with a ranger until they were close enough to start hiking. Then there was the long slog to the upper entrance of the cave, through unexpected snowfields that should have been gone by this time of year. Instead, the snow had been hip-deep in places. Margaret's tennis shoes were soaked, and her jeans had numbed her legs long before they'd reached the chill air of the cave. The whole expedition had been so tinged with unreality by that time, however, that chafed skin and cold feet had seemed interesting, a challenge, until now.

Now the pain was insistent, especially in her left knee. I suppose it's broken, she thought dully. But it couldn't be broken! Her family didn't break bones easily -- she'd never broken a bone in her life! (Not that you tend to break bones curled in an armchair with a good book, she reminded herself sternly. This is probably one more new experience to credit to the day.) But no matter how hard she tried, she still couldn't believe she'd broken anything. She felt a person would have to know a thing like that. The crack of a bone, even if not audible, must communicate itself to the body somehow. How could you not know?

She couldn't imagine being in more pain but finally decided that it must be possible. She raised her head from her arm and kept her voice steady, "I think I've just bruised a few nerves. Hurts like hell, but I can walk."

But her glasses were gone, along with the extra flashlight she'd been carrying, and her helmet. It took several minutes of fumbling in small wet crevices to find the glasses, and several more to try to clean them on her damp, gritty clothes. Jon stepped on the flashlight and nearly fell himself. And Bob finally located her helmet, about six feet from where she'd fallen. He switched it back on. Its light was dim even by cave standards. "Damn!" he said, switching it on and off quickly. "The battery's almost dead. No wonder you fell."

"Listen, I feel better if I can blame it on the lamp," she said in his direction. Slowly, with Jon's help, she got to her feet and began limping along the cave's downward sloping floor. It had become ominously important to her not to give up, not to have to sit down and wait for rescue in the black tunnel of this lava tube. But for a long time each step was as bad as falling again, and she began crying silently, to no one, in the dark.

Bob moved on ahead and outdistanced them quickly. The glow from his headlamp outlined the top of a large rock fall as his voice floated back to them (eerie in the dim corridor) from the other side. "It doesn't seem to be getting any better ahead." His voice bounced from the rock with a hollow, musical sound. "The breakdown is a lot worse than I expected."

Jon and Margaret looked at the rocks in front of them, piled like a jumble of children's blocks until they almost filled the arch of the cave. "Should we turn back?" Jon shouted. Margaret thought of the long way they'd come already and hoped Bob wouldn't say yes.

"No," Bob shouted back. "It's uphill going back. Then we'd have to hike back through all that snow again to get to the road. We'd never catch a ride back to the car this late in the day ... that would make it five more miles, at least!"

"Damn! How much farther to the lower entrance, then?" Margaret glanced up at Jon, surprised. He sounded tired. He never seemed to tire normally. She shivered. Well, life hadn't exactly been "normal" lately. The arguments that exploded out of her at odd moments were difficult for Jon. He didn't understand her frustrations, her disappointments with herself -- with them both. She sat down on a boulder at the base of the breakdown, suddenly too weary to move. She wanted to laugh. Jon kept asking her, What is it you want? She didn't know either, unless it was change. Well, being stuck in this cave was a change. No wonder Jon was tired. Living with her was like being caught in an avalanche these days.

Bob's voice came back over the pile of rock between them. "I'm not sure how far we have left. I've never been in this part of the cave before. I have a map, but I don't know ... probably no more than a mile, two at the most. I wasn't keeping track of landmarks. And with all this breakdown ..."

"It's going to be a long, hard haul," Margaret finished grimly.

"Can you make it?" Jon sounded as bad as she felt.

"No choice, is there?" She tried not to dwell on her liabilities. Keep it light. "If I go slow I'll be fine. Sorry to hold you up, though."

Bob, talking to himself on the other side of the breakdown, said something almost unintelligible about never again bringing beginners to this cave. Margaret smiled faintly at Jon and thought he smiled back, then they began to climb. Margaret stepped up onto a flat stone (about the size of a stepping stone) and peered ahead. Jon was stepping quickly from rock to rock, using his hands occasionally, moving easily. The blocks formed crude steps ... sometimes high ones. They would be hard on her knees, she decided, but not impossible. If she was careful. Suddenly the rock moved as she shifted her weight. It rocked, making a heavy klokking sound, like river rocks she remembered from her childhood. If the whole heap slid ... but no, only her rock had teetered. It settled back into place and the pile loomed solidly, as though settled for millennia.

She took a deep breath and heaved herself quickly up to the next block, forcing her swollen knees to bend, her legs to tighten, push, relax. She scrambled onward, not her trusting balance, using both hands on the wet rock. It took six lunging steps to make it to the top. Panting, she sat down and rubbed her left knee gently. Water dripped from the ceiling, water from the snowfields lying far above the cave in the sunshine.

Her legs were numb, aching, but both knees felt hot, throbbled with pain. Her fingers ached, too, and her back was sore. She had shooting pains in her left hip and leg -- and oddly, her lips were chapped and dry. She catalogued her miseries with the self-pitying notion that she was doing penance for her life. Her teeth chattering, she licked her lips: grit, the metallic taste of cave water ... blood? Wiping her fingers on her jacket, she touched her lower lip. Split. Not bad, not bad though. She tried to keep from crying again and thought about how wonderful it would be to lie down, to sleep. The dark would seem more natural then, like night. She was tired -- that's why she kept tripping. Her feet were heavy. She needed to sleep now. But the rock was

hard beneath her, angular, unwelcoming. She sat up straight and stretched her arms above her head to rouse herself. Her fingers scraped the wet ceiling. A cold drop slid across her cheek.

"Peggy! You need help?" Jon had already made it down the other side and was waiting at the bottom for her to follow. She rose, bent over to avoid the low ceiling, her lamp casting impenetrable shadows among the piled rocks.

It was easier to climb down. Then there was a long stretch of cave, straight and clean, with sand on the floor. She tried to relax, but the walls moved. She saw them from the corners of her eyes. She would reach out to steady them by touch, but they moved away or back again as her light bobbed and shifted. Then, more breakdown. Jon waited for her at the base and they went up together, rested together at the top.

"This is sure weird," he said softly, rubbing his hand across his eyes.

Her face was so stiff that she couldn't even smile. She nodded agreement. The air was thick, damp, cold, with a peculiar mineral smell to it. The sun on the snowfields they'd crossed just this morning was as remote as Antares now. Once again, she reached up and touched rock with her half-numb fingers. Jon heaved himself to his feet, crouched slightly, but still banged his helmet on the ceiling. "Let's go! If we sit too long, you'll get stiff."

She rose slowly and they started down. Rock by rock. She tried to be careful, planted one foot at a time, testing each step before she let her full weight come down.

"I wonder what time it is," she said, more to herself than to him. "Does it seem we've been down here long to you?" He nodded. They were both hungry, thirsty. They'd thought of nothing beforehand, she realized suddenly, not even a watch. It made her feel stupid to think she'd used so little imagination and foresight when planning this trip.

"Better not think about time," he said. She concentrated on feeling her skin scraping against her wet clothes and wondered if a person could sweat in the cold. It seemed as though the water in the air seeped into you through your clothes, through the exposed skin of your hands and face, and filled you with liquid ice. Or else it was filling her from within, permeating her body with every breath she drew.

Bob, after seeing them safely down, moved off quickly. They watched his lamp disappear around the next bend. Soon they couldn't even hear the sound of his boots, the rock shifting as he climbed up the next breakdown. Margaret sat down and took off her glasses, put her head down on her knees.

"How do you feel, Peg?"

She put her glasses back on and got to her feet. There was breakdown ahead, and more beyond that. "Stubborn," she replied. "Ready?" He looked at her as though he were about to say something, then he just nodded.

They moved on. The cave seemed to lower. The rock pressed in. Her lamp was useless now, worse than useless, a dim flicker against the dark. She fell again when her left knee refused to lift her foot over a ridge of rippled basalt, a hardened stream winding along the floor. Now her knee quivered every time she put her weight on it. That worried her. She'd seen lame horses' legs quiver like this, as though there were wires vibrating just beneath the skin, but she'd never been able to imagine just how it must feel.

"Poor horses."

"What?" Jon turned to look at her. She waved him on. He stopped, said impulsively, "We make a good team, don't we?"

"Don't," she said. "We've been through it too many times already."

"Then this is the last adventure we'll have together? You're really leaving tomorrow?" He sounded so young, so unprepared.

She suddenly felt very old. Tomorrow seemed too far away to think about, but she nodded anyway. Just in case they didn't freeze to death, she didn't want any more complications. She stared into the dark, away from him. It all seemed so heavy and stupid, all this emotion, part of a world as alien now as the world of this cave, and even darker.

She wanted to say, "Look -- I do care for you ...", wanted to tell him she didn't understand what was happening to them any more than he did. Instead, moving away from him, she said "I want to thank you for helping me today."

He froze, then nodded as though he were a stranger she was thanking for having given her directions in an unfamiliar city. Then he moved off, leaving her behind.

She watched his light disappear after Bob's over the breakdown, watched the glow recede. The walls glimmered wetly in her small flashlight's dull beam. They looked

deceptively soft in the meager light under their layer of slime. She had reached out again and again today to touch them, but she was continually surprised when they felt as hard as the rock she had fallen on.

The bowels of the Earth, she thought ruefully. And the cave wrapped around her like the cold insides of a snake. She waited, a rodent swallowed whole, for the contractions that would crush her.

She shook herself. It would be too easy to let your imagination carry you away in here, she decided, and she concentrated on putting her body through the motions necessary to climb the next breakdown. Her hip, now, was adding its mite of misery to the whole as she struggled painfully to the top and sat down again. Her helmet brushed the dripping ceiling, and she took it off to wipe her face on her sleeve. Water trickled through her hair, making chill streaks down her scalp.

Shivering, she suddenly felt a wave of excitement, of recognition. The size, the shape, the true nature of everything she passed was hidden here, or distorted by her narrow beam -- loomed or was invisible in the darkness. What had she missed so far? What had she seen? She wished she could suddenly illuminate it all with floods of light, tried

to imagine what it would look like if seen exactly, objectively.

Still, she knew there was an absolute reality even to mistaken impressions, even those which, now and then, were given the lie when she cracked her helmet against a rock knob she hadn't suspected was there or when she tripped over ripples in the lava floor. Even when she established a limit -- the cave's height, for example -- with her hands, she still felt it was as high or low as her distorted sight of it had first reported. And the dark was always waiting to close in if the light failed. One couldn't forget the dark.

She understood, now, why people came back to caves again and again. The dark, near silence, magnified every bruise and aching muscle; each rock outlined by the light became significant, every drop of water that plinked from the ceiling had its own music. It was another world, ancient and difficult as dreaming.

She stood up and realized that her legs were stiffer as she began her cautious scramble, once again, from rock to rock.

"Jon? How much farther?" Her own voice echoed back at her.

Ahead was darkness -- and the steady whisper of the cave's endless rain.

CASCADE GROTTO STORE
PRICE LIST

Premier carbide lamp	\$23.00	Grotto decal	1.50
Lamp bottom with lid	6.00	NSS decal	2.00
Parabolic reflector 2.5"	5.50	Grotto patch	n/a
Parabolic reflector, 5.0"	5.50	NCA patch	5.00
Premier repair kit	4.00	Hardhat and bracket	15.00 7.50
Felt, 1.5"	0.25	Hardhat suspension	2.00
Felt Holder, 1.5"	0.75	Gas mask pack	8.00 5.00
Felt plate, 1.5"	0.75	L-1 bracket	3.50
Felt holder, 2.0"	0.75	Carbide	0.75 /lb
Rubber gasket, 2.0"	0.30	Caving tee shirts	8.50
Wing nut	0.75	Knee pads.	
Flints	0.10	Cascade Caver, back issues	0.60
Springs	0.25		
Cap nut	0.25	Rent Hardhat with light, requires 4 D cells	
Tip cleaner	2.50	1.00 /day, 2.00 /wkend, 6.00 /month	
Tip reamer	0.75		
Tips	1.25		
Hex nut	0.25		
Reflector brace	0.75		
Rubber grip	1.00		
Foam "O"	0.50		
Light bulbs	0.50		