The Cascade Caver

Published by the Cascade Grotto of the National Speleological Society

Volume 26, No. 5 June 1987

This brochure was drawn up by Linda Heslop to advertise the soon-to-be-commercialized Horne Lake Caves. For more on these caves see the trip reports on page 49.

AMAZING

HORNÉ LAKE CAVES

~ NATURALLY VENTILATED ~

MOST SPECTACULAR IN THE WORLD!!

METRES DEEP!

-FEATURING-
MYSTERIOUS VOIDS AND WEIRD FORMATIONS

WRITTEN AND DRAWN BY LINDA C. HESLOP
RE-PRINTED BY TERRY BOOKMAN
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SEE · What were once common stalactites and stalagmites interestingly vandalalized over many years.

FREE! (only a dollar)

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ACTUAL RELICS OF THE PAST

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HORNÉ LAKE CAVES WILL REALLY MAKE YOU BLOW YOUR HORN

·EXPERIENCE OF A LIFETIME·

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WHAT OTHER VISITORS HAVE SAID ABOUT THEIR TRIPS THROUGH HORNÉ LAKE CAVES.

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THE AMAZING DEVASTATION ROOM

NO SHOW CAVE IN NORTH AMERICA HAS ONE LIKE IT

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- A BRIEF HISTORY -

The unique Horné Lake Caves (pron. hörny) were discovered and surveyed years ago by the famous speleologist R.U. HORNÉ (?) who followed a dog into a hole. They have since been totally commercialized and exploited for the benefit of all.

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CASCADE CAVER

The CASCADE CAVER 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 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.

Overdue:	Due:	Coming up:
Peter Carter 1/87	Ed Crawford 6/87	
Maurice Magee 3/87	Rod Crawford 6/87	
Randy Vance 4/87	Jerome Gunsalus 6/87	
Mickey Hanson 4/87	J.P. van der Pas 6/87	
Bob Brown 5/87		

Cover: Linda Heslop: Olivia Whitwell in Quatsino Cave, Vancouver Island.

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UPCOMING EVENTS

July 3-5	Cody and Gardiner Caves	
July 4	Spirit Lake Pseudokarst	(See Bill Halliday)
July 18	Cave Ridge trip	(See Mark Wilson)
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.	(See Bob Brown or Mark Sherman)
Aug 22	Vertical practice	
Sept 4-7	Papoose Cave, Idaho	(See Bob Brown)
Sept 19	Windy Creek	
Oct 2-4	Falls Creek, 3 Sinks	
Oct 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.	

MAY GROTTO MEETING

We had about 15 members at the May meeting plus a few Canadian cavers who were in town for a conference at the U. of W.

Several grotto members reported on their trip to Vancouver Island. They saw some of the Horne Lake caves, Riverbend, and Cascade Caves.

Dick Garnick reported on trying to get to Windy Creek Cave but was stopped by snow still on the road. The June 12-14 trip to Windy Creek was confirmed with plans to meet at the Grandy Lake camping area.

Larry McTigue called attention to the Federal Cave Resources Protection Act in the N.S.S. News. Larry also submitted 2 pages of proposed changes to the operationg policy but action was postponed until the June meeting to give time for review.

The guest speaker for the evening was Henry Schwarcz of McMaster University. He gave a fascinating presentation called "Speleothems as Records of the Past" about examining the age and chemistry of the layers of rock that make up stalagmites and other speleothems. The age and growth rate can then be correlated with other geological indicators to estimate the general temperature, climate, and occasionally even broad plant types present during the growth of the speleothem.

WINDY CREEK TRIP - Jim Harp reports that the Windy Creek trip was a success. There were 17 or so people on the trip including 8 from Oregon. Dick Garnick spent some time digging out a snow drift so cars could get closer to the cave. Gerry Thompson climbed a wall nearby to find a small cave under an overhang about 40 feet up. He calls it Hole-in-the-Sky Cave.

MANUAL HAULING SYSTEMS

Bill Clem

(This article is from a series of handouts taken from the 1984 NW Regional at Papoose Cave in Idaho. See CC July 84 for an article on knots and Aug-Sep 84 for a companion article on anchor systems. -Ed.)

At least in caving what goes down must come up. Sometimes it doesn't and the job of providing an underground elevator service falls to the cave rescuer.

Hauling systems are not magical. They do not make the job of hauling easier; they just make it possible. We rely on mechanical advantage (MA) systems that reduce the instantaneous force we have to apply to raise the load but require that we exert the force over a longer distance. In simpler terms, what we lack in strength we make up for with endurance. With a MA of 2, for example, we can (theoretically) raise a 200 pound man with 100 pounds of force but to raise him 10 ft. we must pull 20 ft.

There are six basic parts to a system. These parts will be assembled, disassembled and mixed in various ways to set up various hauling systems.

a. The load.
b. Main line - this is a rope (7/16" nylon or better) which runs from the load to the top of the face.
c. The haul line - this is the rope which is pulled by the hauling team; in some cases it may be the main line as well.
d. Pulleys - these provide us with our mechanical advantage. Good pulleys are worth their weight in gold.
e. Cams - cams are mechanical devices which grip and hold on rope. The most popular types are Jumars, Gibbs, and Clogs. Prussik knots and other ascending knots are sometimes used in place of cams and perform the same task. These cams will provide a method to perform long hauls with a short hauling system and provide a method to safeguard the haul.
f. The haul - usually a group of weak-kneed, under-muscled Woody Allen look-alikes who attempt to pull on a rope.

Some Definitions

Mechanical advantage: ratio of load to pull required.

Theoretical Mechanical Advantage (TMA): Mechanical advantage disregarding pulley friction.

Practical Mechanical Advantage (PMA): Takes pulley friction into account.

Some Very Subjective Notes

Cams - In our experience Gibbs cams work very well. They are strong, lightweight and only moderately confusing. Hauling systems can develop tremendous forces and the various documented Jumar failures (fractured frames) leave one with the impression that Jumars do not belong in hauling systems. I have no experience with the Clog cams but they do have a rolled alloy frame rather than a cast frame like the Jumars. Prussik knots are commonly used by many groups in hauling systems. Unlike mechanical devices, prussiks seem to fail slowly, by slipping, before complete failure occurs (800-1200 lb. max.). In mountain rescue this may be acceptable, but in the muddy, icy, dark world of cave rescue I prefer the Gibbs.

Ropes - Rescue people will argue ad nauseam about the virtues of laid ropes vs. kernmantle ropes in cave rescue. In hauling systems I have used both low stretch Bluewater, PMI, and high stretch Goldline. I have not found the 'stretch' of Goldline to be an insurmountable problem, but using a low stretch rope as the haul line reduces the amount of pulling necessary to "eliminate" the stretch with each haul.

Pulleys - There are various pulleys on the market, some good and some not so good. Fortunately, the big difference is not strength. The efficiency of the pulley is a major factor and wide differences are seen. Pulley efficiency is a factor of the pulley size and the pulley bearing. The larger the pulley sheave and the smoother its bushing or bearing the more efficient the pulley will be.

Key things to look for in a good pulley are: (1) Strong aluminum or alloy straps (side pieces) oriented so that when a load is applied to the pulley the straps will NOT bind the sheave in any way. (2) A nylon or metal sheave for use with nylon rope - never cable. (3) An oiled brass bushing or ball bearings preferably well sealed against mud. (4) The shape of the alloy straps should protect the rope from abrasion by the rock as it passes over the sheave.

The Basics

In Figure 1 we see the simplest of systems: A load, a main line and a haul.

The Basics

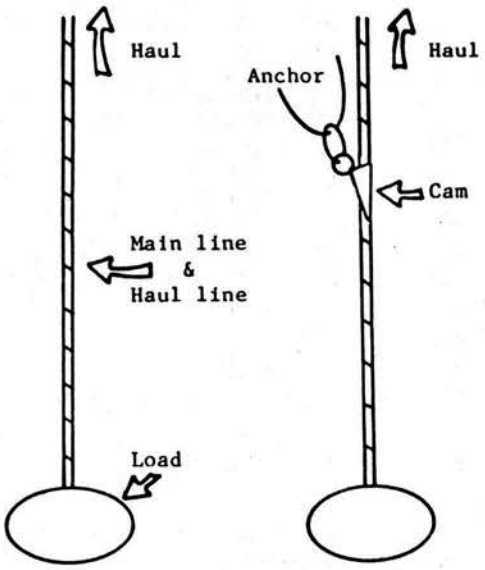

Fig. 1

TMA - 1
PMA - 1

Fig. 2

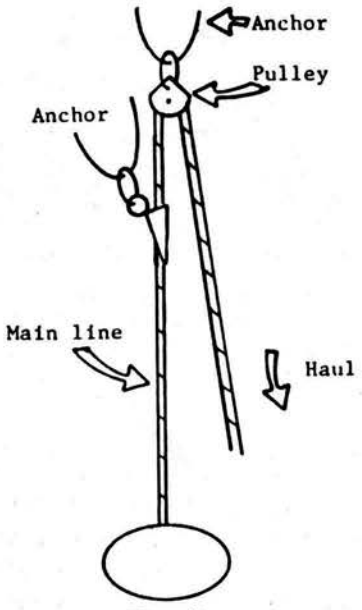

Fig. 3

TMA - 1
PMA - .7-.9

A Simple MA 2 System

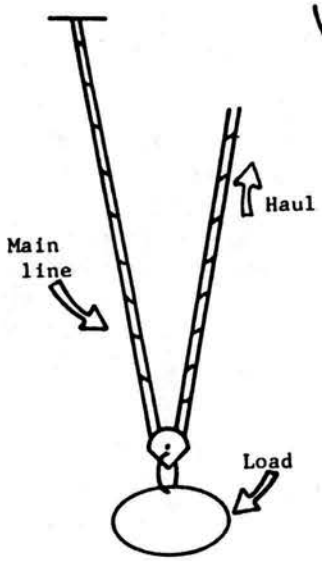

Fig. 4

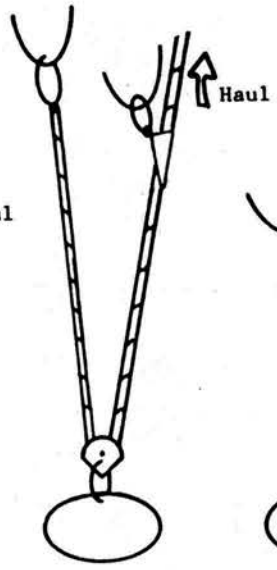

Fig. 5

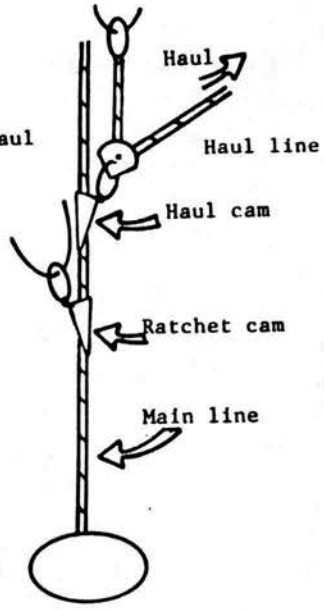

Fig. 6

The Z-Rig

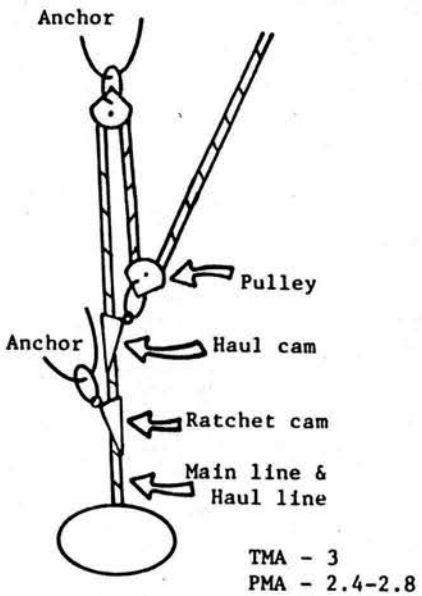

Fig. 7

In Figure 2 we have added a safety item. A cam is placed in the position where the weight may be held by the anchor - this cam is often called the SAFETY or RATCHET. By pulling above the ratchet cam, the haul team may rest or reposition itself easily.

Figure 3 shows the addition of a pulley as a DIRECTIONAL. A directional merely changes the direction of the haul; it does not add any mechanical advantage. In fact, the loss of pulley efficiency through friction means that a greater force must be applied to raise the weight.

A Simple MA 2 System

Figure 4 shows a simple MA 2 system without all the gadgets. The instantaneous force applied to move the load will be roughly 1/2 of the weight of the load but to move the load 10 feet you must pull 20 feet of rope with the same force.

Figure 5 adds a ratchet cam.

Figure 6 shows how a short hauling system can be used to haul a much longer main line. It is obvious that using a system like Figure 5, you would have to use 200 feet of rope for a 100 foot lift. But by using a cam (called the hauling cam) on the main line, with a ratchet cam, the hauling system can pull up on the main line, shift the load to the ratchet cam anchor and reposition the hauling system for another "bite" of the main line.

The Piggyback System

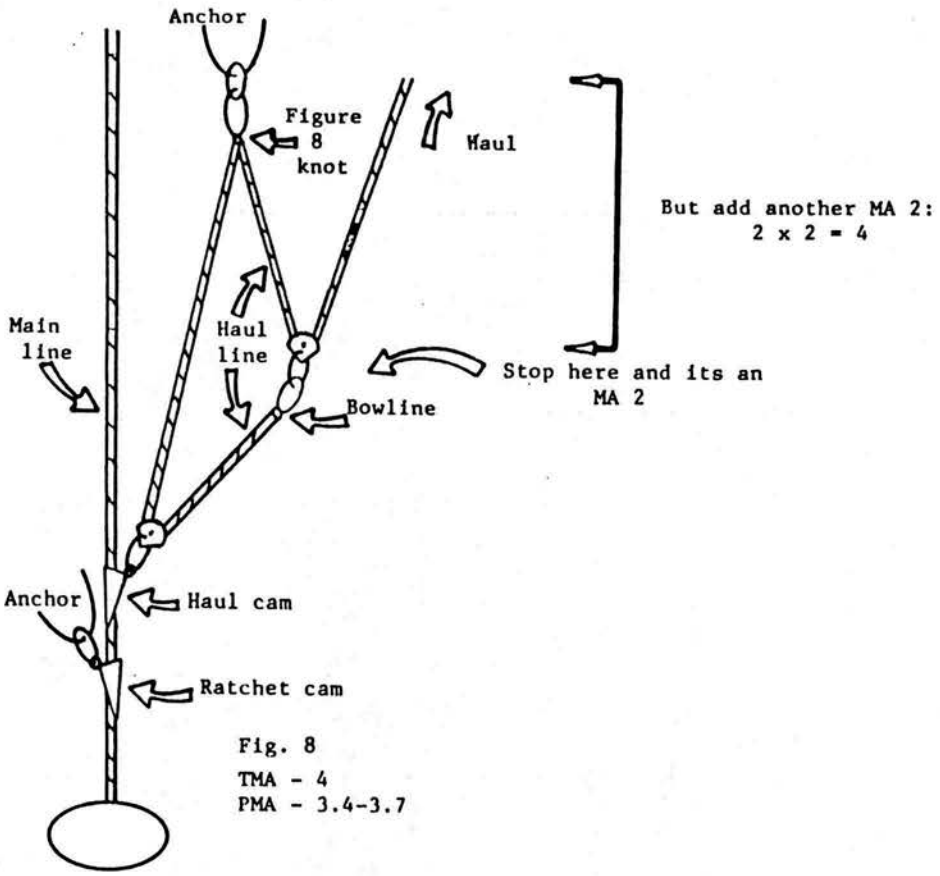

Fig. 8
TMA - 4
PMA - 3.4-3.7

The Z-Rig

The Z-rig derives its name not from a black caped, sword-toting hero (despite what other may say) but from the shape of the rope as it goes through the hauling system. Here again the main line and haul line are one and the same. This is the simplest one-rope system you can use.

In Figure 7 you will see that the pulleys will creep closer and closer together as the haul line is pulled. It is imperative that the ratchet cam be set and another bite be taken when the pulleys meet because all MA is lost without the Z shape to the system.

This is basically a good system and many lifts have been done using this method. Though it is possible to rig a MA 4 system with one rope, it is somewhat complex. This system and the next system should be learned.

The Piggyback System

The essence of the piggyback system is to set up a MA 2 system and to haul that with another MA 2 system yielding a TMA of 4. The haul line is divided in the middle with a figure 8 knot (or equivalent) which is anchored. One-half is used to set up a MA 2 system with the haul cam. The end of this half is connected to another pulley and the second half of the rope is used to set up another MA 2 system. It is possible to set up this system with one rope but it requires an extra knot or two. The major advantage is that you get an MA 4 system with the same amount of hardware you would use for an MA 3 Z-Rig.

The Ratchet Cam

There is one subtle point that needs to be observed when using a ratchet cam. The cam should be located beyond the furthest extent of the hauling system; it will be your last ditch safety should the hauling system fail. Incidently, the main line may be belayed easily in the system where the main line and haul line are separate. Looking at Figure 9, you can see the cam as it should be, fully extended with no slack between the cam and its anchor. If the situation in Figure 10 occurs and the hauling system should fail, the slack would allow SHOCK LOADING making the failure of the ratchet cam and anchor probable. This can be prevented by positioning a person or an elastic cord or even a small sling to hold the cam in position so it cannot ride along the main line as the haul line is pulled.

The point has been made that the ratchet cam may be located behind the hauling system instead of in front of the system. The only advantage of this method is that it might allow more room to extend the hauling system (a bigger "bite") but two major disadvantages exist. If the cam used as the haul cam should damage the rope or the cam itself fail (of the two cams this is most likely since the greatest force is applied here) then the ratchet cam would be located BEHIND the break where it would be useless. Secondly it is necessary to have one person manually pull the rope through the cam instead of the "automatic" system described above.

The System

Whatever system you use to lift the load, you must observe simple rules.

1. Use good solid anchors - backed up AT LEAST TWICE.
2. Inspect the hardware and ropes before and after using, particularly the pulleys.
3. Beware of abrasion and edge friction- it will destroy any advantage you may gain.
4. Belay the load wherever possible.
5. Have one person directing the haul and get your signals straight before, not during, the haul.

The signal sequence we use is:

'Haul' The hauling team pulls;

'Set' The ratchet cam is engaged by a person or is visually checked for slack if held by elastic cord;

'Slack' The haul team RAPIDLY yields the haul line and the haul cam is advanced.

Like all things, practice beforehand is the key ingredient. You simply must go over and over the systems, convincing yourself that they work, and then you may be able to apply them with something that may approach confidence.

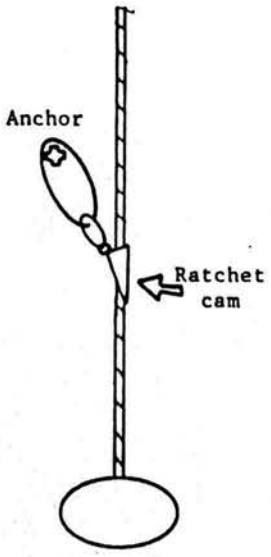

Fig. 9

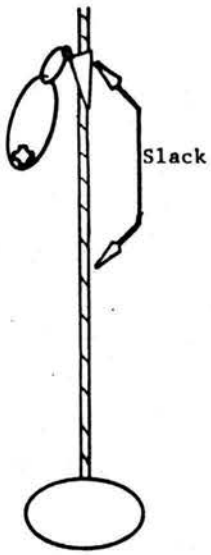

Fig. 10

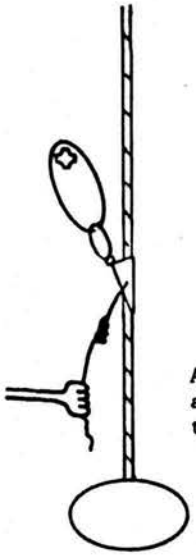

Fig. 11

VACATION U.S.A.

Courtesy Moaning Cavern

A small hat light helps an explorer in Moaning Cavern

Cave exploring in California

THE Indians called the underground cave in the "motherlode" area of California the Moaning Cavern, because they could hear what sounded like human noises coming from the ground. Explorers eventually demystified the legend, discovering that the sound came from water dripping 50 feet into tiny bottle-shaped holes, which forced air noisily up.

Today, Moaning Cavern and an old mining cave called California Caverns are as deep, dark, and scary as ever – and they're open for exploration. A group called Caverns outfits daredevils with coveralls, miners' hats with lights, and picks and shovels for three- to five-hour tours that go way beyond the conventional trip along lighted walkways.

At Moaning Cavern, adventurers rappel 180 feet past stalactites and stalagmites into the bowels of the cavern. Guides teach you what to do.

At California Caverns, a guide shows how to wriggle through tight passages lit only by helmet light and cross a "bottomless lake" on a raft. In the process, they teach geology and cave conservation.

Moaning Cavern, where the tour costs $32, is open year-round, but California Caverns ($45) closes when rain raises the water level during the winter. – N. O. B.

California Spelunking
PO Box 78
Vallecito, CA 95251
(209) 736-2708

This ad was found in the Christian Science Monitor.

HORNE LAKE AND CASCADE CAVES

Report by Dick Garnick

Date: May 1-3, 1987
Personnel: Jeff Forbes, Dick Garnick, Shaun Larson, Jerry Thompson, Mark Wilson

When this trip for Vancouver Island was planned, the Gordon River caving area was to be the center of our activities for the weekend. Some where along the way the plan was changed to the Horne Lake Caves northwest of Nanimo.

We arrived at the Heslops' home in Victoria at 11:30 pm and had a nice visit, retiring at 1:30 am (cavers hours I guess). The next morning we woke to the alarm (Ziggie, the Heslops' friendly caving dog) and drove to the Horn Lake area. We met Brian Bishoff, Olivia Whitwell, and Steve Grundy who were in the Horne Lake area to do some photographic work for the cave tour project there.

The first cave we visited was River Bend. The entrance had a locked door that looked like it could survive a tank attack. After descending the fixed stairs we went down to the siphon area which, due to the season, was full. We retreated to look at the formations around the entrance then left the cave.

Graham, Shaun, and Dick went up and checked the Euclataus entrance. Wow, another nice gate and it even looked landscaped. We poked around for a while in the Main and Lower caves. It was amazing to see the places people can find to deposit broken bottles. From the sound of things this area will be changing shortly.

We then had to choose between a going to a party that night in Victoria or driving to Port Alberni to see Cascade Cave. Since we had come to the island to go caving we skipped the party and drove an hour and a half to Bill West-Sells home to get the key and a cable ladder. After a driving tour of Port Alberni and pizza we drove up to the cave.

We arrived at the entrance ready go caving at 10:30 pm. This locked door was even more bomb proof than the others. These Islanders really know how to gate a cave! We rigged the 35 foot entrance pit with the borrowed cable ladder and dropped into the bell-shaped entrance chamber. It took a few minutes of searching the edges of the breakdown to find the crawl into the main passage. This passage was about 30 to 50 feet of low breakdown crawlway breaking out on a short ledge then into a nice stream passage. We worked our down through the stream passage, down the shovel pitch, through more crawlways, and into a larger room. At the end of this room, there was a dirty flowstone climb up into a room called the Theater. There were stalagmites and stalactites 3 feet long and 10 inches in diameter along with other nice white flow stone features. We sat in this room and just looked for 20 minutes or more. We knew there had to be more cave than this but we didn't find the passage on. On the way out a few more small holes were explored but no large passages were found. Our exit was made around 2:00 am.

Five weary cavers drove down the road one mile to a flat area and camped the rest of the night. The ferry trip home was spent discussing when the next trip could be arranged to return to the Cascade and Riverbend caves.

The next week Bill Bourdillon kindly sent the surveys of Riverbend and Cascade caves. The time in Cascade cave was spent in less than a quarter of the cave.

Report by Shaun Larson

On Friday afternoon, May 1st, Mark Wilson, Jeff Forbes and I fought through rush hour traffic heading north to Limestone Land (Vancouver Island). At the Tsawwassen ferry dock we met up with Dick Garnick and Jerry Thompson. We arrived at Graham and Linda Heslop's house at 11:45 after giving two talkative Quebecians a ride to the Victoria bus station. We were up till 1 am talking about caving and sacked out on their living room floor. At 7:00 Ziggy, the most energetic dog I have ever seen, invaded and made sure we were up and at'em. After a much needed refueling stop at the Golden Arches, we arrived at the Horne Lake Cave region about noon.

Graham, Linda, their daughters Sarah and Faye and us five Washingtonians headed up to Riverbend Cave. Three other VICEG cavers went to take pictures in Main Cave and Lower Main Cave which are down slope from Riverbend. Immediately behind the gate of Riverbend a 30 foot long iron rung ladder descends to the floor of the entrance room at approximately a 45 degree angle. About 200 feet down the stream carved passage a crawlway which was floored with cobbles led to a seasonal sump which unfortunately was in

season. This halted our progress. Three quarters of the cave lies below the sump including several pits and the best decorated portions of the cave.

We hauled the tackle bag back out and poked around a short side passage off of the entrance room. After that Mark, Jeff and Jerry went down to Lower and Main Caves while Dick and I watched Riverbend's unlocked gate until the cavers arrived from Main and Lower caves. When they arrived we went with Graham up to the gate of Euclataus to check on it's security. Euclataus is a beautifully decorated cave which has been locked up tight for the past fifteen years with the provincial government holding the key. However, commercialization is in the works which would open up Euclataus as well as show Joe Tourist the damage that people have inflicted upon unregulated Lower and Main Caves in hopes of instilling the importance of cave conservation into their heads.

Dick and I went to Main and Lower Caves and crawled around in the upper levels above the main stream passage. It was quite disgusting observing how badly gutted these passages were. We squeezed along a diagonal slot and popped up through a manhole in the far reaches of Main Cave, to find the scars where three large stalagmites had been broken off and the sickening brown glitter of broken beer bottles. I hope some of the bottles broke in the culprit's pockets on the way in!!

Meeting at the cars at 5 pm, we had the choice of a tequila party in Victoria or going to Cascade Cave near Port Alberni. Our caving appetites still whetted, we parted company with the British Columbia cavers and headed west. After pizza and several doses of caffeine we picked up the key and a ten meter cable ladder and headed toward the cave as the night was turning black.

Even with instructions it still took us several stabs to find the cave. It was found just as we were about to give up for the night. About 10:30 p.m. Jeff was the first person to drop into the pit via the ladder. The gate was in the ceiling of the pit which had been cemented over, so one found himself 30 feet above the floor after squeezing through the manhole. Never having used a cable ladder, I found it quite exhilarating descending the ladder, a backup belay was quite welcome.

After about 10 minutes of searching in the entrance chamber I won the crawlway lottery, discovering the passageway leading to the rest of the cave (we had been warned that it was difficult to find). The crawlway popped into a stream passage. At one point stemming across a pool was necessary and me being short and the passage being wide, it felt as if my hips were going to dislocate. About 200 feet down passage, it broadened out into a room and the stream fell over a 20 foot drop. A down climb was possible on the right side of the stream, fortunately away from the waterfall. The stream then disappeared into a long narrow fissure with passages leading at right angles to the stream.

We took off to the left with Mark, Jeff, and I crawling through an increasingly tighter slot-shaped crawlway, while Jerry and Dick explored an upper passage. We backed out after the passage became rather tight, in hopes of exploring more promising leads. Jerry and Dick had worked their way into the Theater, a well decorated chamber with several three-foot high conical stalagmites as well as numerous stalactites.

After resting a few minutes to soak in the sights, we pushed on with the passage quickly changing into a breakdown maze. We "dove" down discovering a tiny lake (puddle) lined with calcite crystals and small columns behind it. Dick and I worked our way down to the bottom of the breakdown in this room while the others poked around up above. Seeing no obvious leads we worked our way back out of the cave, poking into nooks and crannies with Jeff taking a few shots along the way. We emerged around 2:30am satisfied we had seen quite a bit of the cave, only to discover several weeks later upon seeing a map, that we had only seen one quarter of the cave with the rest extending from the breakdown room.

We pitched our tents by some railroad tracks in the middle of nowhere only to have a beer-bottle-tossing truckload come by at 3:30. Today's 7:30 am alarm was a low flying plane almost scrapping our tent. The trip home was uneventful other than observing strange characters on the ferry. I think we all agreed that Cascade was worth skipping a party for. Anyone up for a Cascade Cave trip in October?