



Cascade

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C a v e r



LINDA HESLOP

CASCADE CAVER

The Cascade Caver

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Grotto Mailing Address

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Monthly Meetings

Regular grotto meetings are held monthly at 7:00 pm on the third Friday of each month at the University of Washington, Room 6, in the basement of Johnson Hall.

Business meetings are held on the first Monday of even-numbered months at 7:00 p.m. The location varies so contact a grotto officer for specifics.

Cover

This month's cover, drawn by Linda Heslop, shows John Buchanan and Steve Grundy at a pit in the Bastille karst in British Columbia. Amazingly enough, it coincides with one of our major stories this month.

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Grotto Notes

Upcoming Events

Here is our current list of planned and proposed trips. Call the trip leader or Jim Harp, grotto trip coordinator, for more information. Anyone with other trip ideas is also welcome to contact Jim at 745-1010.

February

- 17 Grotto meeting.
- 25 Cross-country ski trip to Stevens Pass (no caves), led by Mark Wilson.

March

- 3.. Lewis and Clark Caverns, Montana, to discuss possible future mapping project. Led by Andrew Dayton. Leave Friday morning and return Sunday night. The exact weekend is being arranged with the Caverns staff.
- 17 Grotto Meeting.

- 31.. Tentative trip to Gardiner Cave in northeastern Washington led by Mark Wilson. Depends on getting permission for access to the cave and may be restricted to specific research tasks.

April

- 3 General Business Meeting
- 21 Grotto Meeting.
- 22 Vertical Practice, possibly in a cathedral bell tower.

May

- 12.. Register servicing trip. Leave Friday afternoon and return Sunday evening.
- 19 Grotto Meeting.
- 27.. Northwest Caving Association regional meet, scheduled for the Bend area in Oregon. More details when we hear from the Oregon Grotto.

June

- 5 General Business Meeting
- 16 Grotto Meeting.
- 17 Day trip to Ramsey and Jackman Creek Caves.
- 23.. Novice trip to Deadhorse Cave and Trout Lake area, led by Jim Harp. Leave Friday evening and return Sunday evening.

July

- 7.. A two-nighter to Cave Ridge to service registers. Climb the ridge on Friday evening and return Sunday afternoon.

- 22.. NCRI Jewel Cave Work Session in South Dakota. Travel arrangements vary. Project is from July 22 to July 29. Contact Steve Sprague at 652-6489.
- 21 Grotto Meeting.
- 22 Day trip to Big Four Ice Caves
- 31 NSS Convention in Kentucky.

December General Business Meeting

Our first General Business Meeting was held on December 5, 1988, at Mark Wilson's house. There were 5 grotto members present including officers Mark Wilson and Ben Tompkins. Quite a bit of business was discussed and changes to the operating policy were made. The updated Operating Policy will be printed in the May, 1989 issue.

The date for the next General Business Meeting was set for February 6.

January Grotto Meeting

The January meeting was chaired by Chuck Crandell, newly elected vice-chairman, who announced that Mark Wilson and Ben Tompkins were both re-elected as chairman and secretary/treasurer.

Chuck continued with goals for the coming year including programs to improve the overall grotto skill level in vertical work, knots, rigging, and surveying.

The next grotto business meeting was announced for February 6, 7 pm., at Mark Wilson's house.

The appointed grotto offices were discussed next and volunteers solicited for unfilled ones.

Tina Coakley reported on a Christmas trip to Cave of the Winds in Colorado then Dan Montoya and Chuck Crandell described their Lechuguilla experience.

Jerry Thompson suggested a climbing class that he thought would be good training for cavers.

Keith Schoonover narrated an NSS slide show about Mt. Kaijende in New Guinea.

February General Business Meeting

The Grotto General Business Meeting for February was held on February 6, at Mark Wilson's house with 5 grotto members present.

The possible functions of two new committees were discussed, one to handle membership and the other for the cave register program. The majority of the meeting was spent devising the schedule of trips that appears in the Upcoming Events section above.

The next business meeting was scheduled for April 3, at Howard Hoyt's house.

Complete minutes of both business meetings are included later in this issue.

Two men found after lanterns fail

from Vancouver WA *Columbian*

Two Vancouver men, missing for several hours in Ape Cave, were found safe late Monday night.

According to a press release by the Skamania County Sheriff's Office, Brian Krebs, 21, 3205 W. St., and Ray Richardson, 26, 3207 W St., were missing for about 8 1/2 hours when they were found about 10 p.m.

Ape Cave is a lava tube about nine miles east of Cougar.

The two were with a party of seven people Monday afternoon. About 1:30 p.m., Krebs and Richardson left the rest of the group and went to the upper section of the cave.

When they reached an exit at the upper, or north, end of the cave, they left the cave and tried to walk back to the parking area. A heavy accumulation of snow stopped them, so they returned to the cave and tried to head back.

However, they had no matches and their lantern broke.

Searchers from the North Country Emergency Medical Service and Skamania County Sheriff's Office were summoned about 6 p.m.

The two were found uninjured in the cave and required no medical treatment.

McLaughlin Canyon Cave

by Jerry Thompson

Jim Harp and Jerry Thompson left Everett after work on November 18, 1988, with Ron Smith, a first-time caver. They drove over Stevens Pass and made a primitive camp on rangeland just above McLaughlin Canyon and high above the Okanogan River. They woke to a dusting of fine, dry snow and had a breakfast of coffee, pancakes, turkey sausage, and more coffee.

After carefully packing for caving, the trio drove to the spot by the road where the route to the cave begins. The hike to the cave took about forty minutes and they entered the main cave about 10:30 a.m. They

proceeded fairly directly to the rope pitch in "Deep Purple" where Harp scrambled down using the existing handline while Thompson rigged the pitch.

Not a lot of cave was found below the pitch. Smith and Harp practiced ascending while Thompson found and removed twenty-three cents from the floor of the most remote grotto found. The group left the cave at 2:00 pm. vowing to organize a clean-up activity for this cave.

They returned through a very snowy Stevens Pass and were back in Everett by 10:30 pm.

Cave of the Winds, Colo.

by Alan Coakley

We went caving in Colorado during our Christmas vacation, thanks to contacts provided by Skip Murray of our grotto. We were lucky enough to see a wild section of the Cave of the Winds called Silent Splendor. Only a few trips each year are allowed into this room due to its rare and delicate formations.

For most of its 107-year commercial history this privately-owned cave has been totally off-limits to exploration, but it has been recently purchased by a new owner who has allowed limited access to its wild sections in exchange for scientific and commercial information.

The section called Silent Splendor was discovered by accident while pushing another part of the cave in 1983. Several other sections are currently being explored, one being found only last week and according to the locals, may exceed Silent Splendor in beauty.

About 15 people showed up on Christmas Eve so we broke into two groups. One went to Silent Splendor while the other went to help dig in the new discovery.

Our trip entered at the tourist entrance and continued about half way through the commercial area. The floor in this section was full of deep, red clay that covered us in mud. Almost all of the passage leading to Silent Splendor was full of this stuff, but except for some flowstone, was devoid of speleothems. There were walking passages, crawlways, squeezes, and a 30-foot clay chimney. Several digs were evident in the many side passages.

The top of the chimney opened out into a large room, about 200 ft. by 30-40 ft. wide, called the Whale's Belly. The muddy red walls and ceiling here were covered over with white formations. There were huge sprays of long, delicate crystals up to 18 inches long all over the room, plus beaded and non-beaded helectites.

According to the "experts" (which we ain't), the massive number of formations, their size and pristine condition, make this room a very rare find. How to protect this section is currently being discussed, but it is clear that it will not be part of the commercial tour.

After about 45 minutes of taking pictures we headed out. We entered the chimney with Tina and another women in the center of the group and as we reassembled on the other end we discovered that the women had disappeared. Several minutes were spend trying to figure out how the guys in the rear could pass two full-grown women in the vertical, four-foot diameter hole and not notice. But the lost soon reappeared. It seems they had turned the wrong way at the bottom of the chimney into a tight crawl that none of the rest of us had noticed.

The rest of the cave trip was just as perfect. We dumped our muddy clothes into trash bags, accidentally surprised a tourist group, and did some last minute Christmas shopping at the gift shop.

Yakinikak

by Tom Miller

The Flathead Mountains of Montana lie directly west of Glacier National Park, and like the peaks of Glacier, run far into Canada with broad outcrops of limestone. Yakinikak Creek flows through one of the narrow valleys, sinking and reappearing several times before emerging for good at a series of springs. From there it runs through dense stands of lodgepole pine to the Flathead River. The dry bed of the Yakinikak is joined several miles south of the Canadian border by the empty course of Thoma Creek.

Yakinikak was a remote caving area in 1970, and Newell Campbell was just preparing his book on the caves of Montana. Bob Ries and I drove east from Spokane at the end of school to check some of his leads for him. One of them sounded especially good - the 1.4 miles straight-line distance from the enterable sinks of Yakinikak Creek to the resurgence. There was also the possibility of connecting the creatively-named Caves #1, #2, and #3 into a Yakinikak system.

It was June, in the days before much wetsuit caving in the U.S., and the melted snows of winter filled the creekbed, shooting in high, cold flood through Cave #2. Only the dry walkways of Cave #1 could be comfortably travelled before leaving on the long dirt road south to look at the caves of the Bob Marshall Wilderness.

Yakinikak was still a remote caving area fourteen years later. Even after Campbell's maps and books were published I hadn't heard of much activity in the area and no one had apparently entered or followed the sinks of the creek.

My brother Ben and I paid a visit at the beginning of freeze-up. By mid-October it was 17°F in the late morning, already bitterly cold in the Montana mountains, but the sky was cloudless and sunny. Well padded, we followed the creek for several miles from our Forest Service campground to the springs. We found a number of small caves and several places where the creek sank and re-emerged. Where the water was supposed to flow into a major cave, however, there was nothing but a small, dry maze whose passages all terminated in cobbles, sand, and wood; perhaps the result of a decade of stream deposition.

We got lucky a bit over a mile farther. Half-hidden in the brush was an empty, rocky channel that joined Yakinikak Creek. It was hemmed in by the mountainside so it had to come from a resurgence and less than 50 yards away we found a passage large enough to walk in for 200 feet. We had not yet put on our caving clothes because of the cold so when we reached crawl space we turned back.

Our main objective, however, was Yakinikak Cave #2. After kitting up, we followed a trail, worn in the intervening years, to the stoopway entrance. We proceeded inside to the streamway that had stopped Bob and I so long before, noting with dismay the new spray paint. Much of it appeared to have been the work of a busy semi-literate named Rick Clark.

The leads shown on Campbell's map we divided into the "dry" and the "wet" because Ben was only an occasional caver while I had worn my "Gomex pontonniere", a latex farmer-john. Between us we did a fairly thorough job, but all of the downstream leads ended in sumps or in cobble and boulder fill that had originated as glacial sediment.

Next we turned upstream from the entrance passage junction to a deep pool and eliminated the final lead when the pool sumped. Before exiting the cave I checked a small crawl, following it to a tight duck with a 6-inch air space. I managed to fight my way through quickly enough to prevent my Gomex from flooding over the top and was immediately able to stand up in a high passage with the roar of a waterfall in the distance and no spray paint.

"Hey, Ben!" I shouted, "Come on through -- virgin cave!"

But I was wrong. A few minutes farther we found an aluminum medallion tied to a projection with

parachute cord. It read "M. Quinn - J Randolph - 1979", the year after the publication of the Caves of Montana. The stream sumped and the bare, scalloped rock split into separate passages. We continued in the upper tube and reached the stream again at another sump. This one was terminal and beautifully clear, just right for diving. There were no other leads so we left, scratching our names on the medallion on the way out.

A short scramble through the brush took us to Cave #1 where there was a small, intriguing well that hissed. Through a crack in the wall could be heard a stream, almost certainly upstream of the sump in Cave #2.

The next day we followed the dry Thoma Creek, probable source of the stream in Cave #2, toward Canada while marveling at the abundance of limestone and the elevation rise. Certainly the potential for a deep cave exists in the area.

Four more years passed while I wondered what lay beyond the sump in Cave #2. In July of 1988 a week-long caving trip in the Bob Marshall Wilderness finally brought me close enough again.

Linda Gough and I camped on the banks of the clear Flathead River. Early in the morning we drove to big springs and walked leisurely up the small dry gorge to Confluence Cave, the big cave found by Ben and me where the Thoma and Yakinikak creek beds join.

We mapped to the end of the walking section where to my surprise we found a moderate-sized tube that Ben and I had overlooked. This passage led from breakdown to a complex passage series, and then to running water.

Although the water chemistry was similar to that of the big springs, the water that sank and re-emerged a number of times throughout the cave was smaller in volume. All of the downstream leads were sandy-floored crawls with scalloped walls and terminated in sumps. Upstream was a jagged belly-crawl of bare rock to one side of a wide bedding plane. This passage connected briefly back to water and then ended in collapse. We mapped a total of 630 feet before lunch.

Lunch included a leisurely soak in the sun so it was late afternoon when we re-dressed for Cave #2. To our surprise, we met two cavers from the recent NSS convention leaving the area after a short tourist trip.

We visited Cave #1 first to supplement Campbell's map with some passage detail and then surveyed the overland route between caves #1, #2, and #3. Inside Cave #2 we headed immediately for the upstream duck-under. Thanks to Linda's pointed comments about lacking a wetsuit plus my misplaced sense of chivalry, I

had decided to forgo my Gomex and share the misery of surveying the new section soaking wet.

I soon regretted that decision. It may have been summer, but the cave temperature was still just above freezing. Soaked, we mapped as rapidly as we could, and found a surprise waiting at the sump. I had taken up cave diving in the intervening years and had brought equipment out West thinking to check out the suitability of a dive. The water was as clear as ever, but leading into the sump, and firmly attached somewhere beyond, was a yellow polypropylene line.

The survey was a bit anticlimactic after that. We were both shaking with muscle-tensing cold by the time we finished 300 feet and it was difficult to shout out the survey data. When we exited there was enough light left for us to change clothes, drive to a nearby campground, and relax in the glow of a big pine fire as we ate a hot dinner.

Presently, there is just over 2300 feet of mapped cave in the Yakinikak area, but certainly the potential exists for a system length of several miles as well as a depth in excess of a thousand feet if it is possible to push upstream in Cave #2.

Storming the Bastille

by Tom Miller

John Buchanan and I drove north from Washington State for several days, through the broad valley of the Columbia River, past the glaciers of Banff's Icefields Parkway, then westward from Jasper into the huge Rocky Mountain Trench, where British Columbia tears apart along a massive fault.

Much of our conversation was about weather: clouds shrouded the mountains we had hoped to climb, then occasionally parted to reveal fresh snow scattered down the sides. The last time I had been caving in British Columbia was on the Dezaiko Expedition of 1985 (N.S.S. News, November, 1985); my memories were still vivid of exiting with soaked clothes into night blizzards, then stumbling through snow and hard wind back to the soggy tundra where 17 of us camped.

That had been September's end, too late really for a project in the mountains at 54 N. latitude. This August of 1988 was to be better, but it seemed now to be more of a hope than a rational expectation. Our last word with Bill MacDonald, the trip organizer, buttressed our impression of an accelerating decline in participants, and consequent increase in the costs of chartering the helicopter needed to fly us with our gear to the remote headwaters of the MacGregor River. And

no radio? No medical kit? We hoped the planning was up to the formidable foe the weather was likely to present.

We all met at Snoopy's Restaurant in the isolated waystop of McBride along the Yellowhead Highway. There were a dozen cavers from Alberta, British Columbia, Britain, and the U.S.: barely enough to make the trip economically viable. Ian Mackenzie had driven out from Jasper with his 4WD just to say hello and proved crucial the following day when the staging point for our helicopter had to be moved 150 kilometers from McBride.

Our pilot had originally directed us to an abandoned sawmill up the road from McBride. We cast gloomy looks at gloomier skies, rattled the rusty old sawdust burner with a few rocks, and waited for the chopper's "wop-wop".

The pilot was not encouraging when he landed: the flight ceiling was marginal with the ridge tops fogged in, and taking Bill for a short reconnaissance (costing \$400), it became clear that the tortuous detours created by the weather would put the cost of the chopper beyond our reach. "Think of it this way," said our grinning pilot, "every time that blade turns it says 'dollar, dollar, dollar, dollar...!'"

But an old logging road, possibly still passable to 4WD, offered the slim hope of getting us within affordable distance of the karst spread out below Bastille Peak, if only the weather would clear slightly the next day.

We drove the 2WD vehicles as far as we dared up the mud and ruts of the MacGregor River valley, then John and Ian ferried people and gear another 30 kilometers. I was dropped in the vanguard with fuel, food, carbide, and other jetsam needed to support a dozen people for a week in the mountains. When the sound of John's truck faded from hearing I was left alone in the damp, overcast center of a colossal destruction. For over 70 kilometers we had driven along side the tremendous stumps and abandoned rubbish of a huge clear cut. Empty fuel drums, squashed plastic buckets, rusting cables, and puddles of spilled oil all murmured with disquiet of the obscene obliteration of an entire forest.

There was no shortage of slash for firewood and I soon had a warm blaze constructed in the lee of two large bulldozed mounds of glacial debris. Each run of the 4WD's brought a trickle of other cavers and gradually a small city of dome tents grew.

The next morning was still grey, a depressing prospect for the week ahead, but the clouds were high enough for the chopper to operate. Our wise-cracking

pilot gave the obligatory instructions about how to enter, exit, and avoid helicopter blades, then John, Bill, Norman Flax, and I were swept over the treetops and up Bastille Creek. We kept a lookout for the 13th member of our party, Dave Thomson, who had been bushwhacking up the creek for two days to avoid the helicopter charter cost. Dave had discovered the Bastille karst on a similar trek two years before.

At the head of the valley the Alberta-British Columbia boundary leaves the continental divide (between the Arctic and Pacific Oceans) and runs due north to Canada's Northwest Territories. Here the trees gave way to open meadows and we circled to look for a sheltered spot with wood and water.

The only suitable spot was at an elevation of 1750 meters, right at tree line, where a stream fell precipitously down the mountain-face from a snowfield to meander across a lush, enclosed meadow. We landed and quickly dragged gear from the outside compartments. Then while we crouched against the blast of wind the lightened chopper sprang above the meadow, then began the long gliding descent back to the vehicles.

It took two more loads of people and three 500-kilo loads of gear before the pilot shut down the engine and climbed out to make arrangements for our pickup in six days. He wished us good luck and in a couple of minutes the sound of the engine was lost in the wind that was tearing apart the clouds to expose blue sky.

It was now Sunday, August 21.

Nine tents for 12 people popped up along the water's edge. Where the stream left the meadow to continue down the mountain, we erected a large canvas cook tent with poles cut from a local tree clump. These facilities were placed some 100 meters from the tents in the event we were visited by bears. The Canadians set to work with plastic and tape to erect the sauna - essential for apres-speleo activities.

At this northerly latitude, several daylight hours were left for reconnaissance, a "recce" as the Brits put it, and we split into several teams. All returned before dark with similar tales of scores of pits located within an hour's walk of camp. John and I had climbed 350m to the barren rock basin circumscribed by Bastille and Wallbridge Peaks to the east, and an unnamed peak to the west. At first we had carefully noted the description and coordinates of each shaft but then gave up, overwhelmed by the sheer extent of bare limestone, covered with fossils, and perforated by melting snowfields draining down vertical fissures....

It was blustery and chilly on our first full day in the Bastille but the sky was almost clear. Dave Thomson had arrived from his three-day backpack and was warming by the fire.

Olivia Whitwell and Steve Grundy had located the only entrance found as yet that did not require vertical gear, so John, Dave, and I tagged along on the steep climb to the bare knob where a little streamlet left a small ice-filled lake and trickled into the frost-shatter of a 2m-wide entrance.

It was not inviting. John and I left it to the other three and wandered down the bare rock to the prime pitted area we had found the day before, locating more pits enroute. Each new hole was marked with a cairn and by now a score of them were visible just in this isolated part of the basin. The largest shaft, a narrow slot a bit wider than a body and 10 meters long, trapped a large meltwater stream that splattered down out of sight and hearing.

We opted to try the neighboring dry pits first but were hampered by lack of suitable rigging points. The only available vegetation was lichen, having a tensile strength insufficient, by our calculations, for a caver and rope! Even solid rocks were scarce and each drop was rigged with several elaborate backups formed by piling large frost-shattered slabs. The bullying wind made care required walking near the pits and anything light needed anchoring.

John's 30m pit and my 15m pit were proving blind. Meanwhile Dave, Steve, and Oli had given up on their nasty hole and were busily diverting the stream around the big wet shaft -- towards the shaft that John was ascending. John initially thought our urging to climb faster were a joke until the diversion started to pour in.

We couldn't completely rechannel the meltwater from Steve's pit so Steve wormed his way down the corner farthest from the spray, wearing a somewhat apprehensive look. At 40m he shouted something about a narrow ledge, rebelayed the rope, then continued. Communication became increasingly ragged.

We had all seen the large black spot across the rock basin, but had ignored it as obviously a frost pocket. The grey limestone beds curved upwards around another white-and-blue, ice-and-water lake in a series of wide shelves that framed a dark hole that didn't vary as the sun progressed through the after noon. As Steve's water-garbled communications were in capable hands, I grabbed my light and wandered off across the pavement, stopping occasionally for an exceptional fossil or to cairn yet another pit

A cold breeze blew from the opening, which widened immediately and passed quickly through the shatter zone into solid rock. An obviously solutional roof and narrow ledges framed a rift that extended to the limits of my electric light.

This was too easy -- a big cave on our first full day! When I got back to the others, Steve was shivering in shorts and bare feet as he wrung out his clothes in the wind. A bit bedraggled after his 60-m deep shower, he was easily persuaded to accompany Dave, John, Oli, Bill, and me to rig the new cave's 10m entrance drop. We crawled briefly across ice in the angular passage below then stepped over a shaft at least 30m deep to the top of a high rift. Here we confronted a set of enormous jammed boulders having limited apparent support. Nothing made of this dark gray; and black rock seemed really solid, whether from frost shatter or some innate property of the bedrock itself. It was now too late in the day to fetch the needed rope and rigging gear so we returned to camp.

The wind dulled considerably by evening. The air was crisp enough to make the campfire welcome and to highlight Jupiter as it rose brightly in the east.

We had another omen that night: a series of green and yellow curtains rustled silently in the cloudless sky, split, faded, brightened, and billowed in the solar wind long after I went to bed.

That was the last time we saw the Aurora Borealis that week but the weather was still calm and fair in the morning. John decided to use the continuing fine weather for a solo attempt on Mount Buchanan and a recce of the outlying karst areas. Dave, Steve, Oli, and I set off for the initial assault on the big new cave.

We surveyed in to the chockstone pit, then spent considerable time searching for dependable rigging points, even making a partial downclimb. From below the huge jammed boulders looked even more precarious. The ethics of bolt-placing defacement played a role in our search for secure points for chocks, pitons, and "Friends" but bolting was precluded anyway by the brittleness of the rock.

Steve descended in a shower of loose rock to an exposed rubble floor that sloped to a second drop-off. After re-belaying, he abseiled a parallel, shorter drop to put a huge boulder between himself and rock shrapnel from our descents.

The ceiling was now invisible from the bottom of this 30m-high rift. We stepped carefully across the precarious rubble of the floor and followed a route frequently obscured in monumental heaps of dark stone which we squeezed beneath and around.

We next rigged a marginally climbable drop and clattered through a small chamber where chunks of wall suddenly dropped at a touch and heavy slabs teetered atop splintered fulcrums. Only the rattle and crash of rocks broke the silence, we never heard the drip of water or saw a pool.

That first trip we headed steadily downward to a depth of about 60 meters, then abruptly up a steep debris ramp to an uneasy perch beneath some of the largest and loosest rock we'd seen. Large sub-cubical guillotines and grand pianos were slung raggedly on incredibly tiny rockpoints, held more by some faith of the rocks in their own destinies than by any known laws of physics.

The way on turned decidedly vertical and upwards, halting our progress until we could return with more slings and chocks.

With an hour of daylight still remaining back at the entrance, I explored the slopes and pavements of the karst immediately west of the cave, setting cairns, and ultimately looking down over the sheer cliff that split the Bastille karst from Mount Buchanan to the west.

The stones in the campfire were a dull red within a couple hours that night. Art Peters became "Fire Bearer", rolling glowing rocks into a large cook pot with his feet then running with it in gloved hands to the sauna. Inside, water poured on the rocks created an almost unbearable atmosphere in which most of the party suffered contentedly until midnight.

The next morning Steve and Oli took Norman and Jim Jacek and sufficient gear to rig the vertical climb in the big rift cave, as yet unnamed after three days. John and I set off early for a summit push on Mount Buchanan. He'd returned the previous day looking for a partner to negotiate some crevasses. The weather was still remarkably fine but how long could it possibly last?

In the next several hours John and I crossed three valleys, each spotted with dolines and small sinking streams that John had perfunctorily checked on his retreat yesterday. The separating ridges contained a few sandstones and shales among the limestones.

Our shot at a summit ascent ended early in the afternoon. The last ice field rose steeply in front to the top of the mountain, a brown smear down the center left by the recent rockslide that John animatedly described after I'd negotiated the most recent stretch of scree. After re-attaching our crampons we rested on ice aces and watched the occasional rock bounce down the ice across our intended route. We had arrived just too late in the day.

Before heading back, we had a thorough look with binoculars at remote parts of the Bastille karst that we hadn't yet visited. Several of the resurgences we spotted were quite large and hundreds of meters below the pitted plateau. Our return route finished a broad circle down the canyon bordering the Bastille karst to the west, and onto the broad ledge and shelf ending it on the northwest. Everywhere was the same pattern of streams sinking into caves or dry shafts. We cairned each before moving on.

We found the rift-cave crew back at camp having successfully climbed the wall below the guillotines to be stopped shortly afterwards by another descent too long for their backup rope. It was becoming awkward to discuss a cave with no name and eventually the sloping rock shelves (or tiers) surrounding the entrance, plus its single conduit, suggested the name we finally gave it: "Tier Duct".

I couldn't believe the next morning's weather. Every day had been sharper, calmer, and just a little warmer to the point that the sun on the snow and rock made it possible to dispense with our shirts. Mark Crappelle and I were first out of camp, intending to race over to the resurgences seen yesterday then enter Tier Duct to support Chas and John who were to enter shortly before us.

It took two hours to cross the basin, descend the scree slope, and locate the springs in thick forest so different from the barren pavements above. Unfortunately, the smaller springs came from impenetrable bedding planes and the largest from a small cave that sumped almost immediately.

Mark and I kept a lookout for grizzlies as we wound back through the trees to meadow and finally up to bare rock at the farthest end of the karst basin from camp. No one had been to this remote shelf yet and we wandered about dropping rocks down scores of shafts and stacking others into cairns.

We met Jim, Art, and Wesa Gleave enroute to Tier Duct, wandering the basin in the warm sun checking more of the endless number of leads. Along with Bill, Chas, and Pierre Lebel, they had been working the pit area above camp below the west face of Mount Bastille. They'd finished off a number of shafts including a waterfall series that had dropped rapidly to a depth of nearly 100 meters.

It was early afternoon before Mark and I finally entered Tier Duct, rapidly traversing the ropes and rubble with more confidence than I'd felt on my first trip.

The climb at the end had been re-rigged into 10m and 4m prusiks, ending at the rift ceiling and followed

by a short, tight squeeze to the drop that had stopped progress the day before. We found John, shivering in the 2°C cold, and listening to Chas' progress reports yelled from below.

I followed Chas down the rope to a stepped set of shelves, then swung over to a ledge 21m below. The pitch continued down a fissure in rubble for perhaps another 10m. Everywhere was shattered and splintered rock shifting loosely or jammed precariously in the collapse. The whole cave was nothing but straight lines and sharp corners.

Chas had climbed back to the ceiling in a narrow crevice and I followed in a shower of rocks, occasionally tossing a vital handhold to the right or left. He reported having sorted out several dead ends and found the passage continuing to yet another deep drop. Both he and John were by now cold and ready to rout. It was suggested that the additional passage found on this trip was insufficient to survey and that perhaps de-rigging should start. Eventually it was decided to carry the exploration ahead down just one more drop.

Mark joined me at the original solutional ceiling, stepping from chockstone to chockstone above the empty rift. Eventually we reached Chas' limit where the required steps became a bit too long and too bold. The drop angled down over sharp rock but to the right we found a free-hanging cleft that appeared to connect to the main fissure. Good protection was limited and it required a lot of rope and effort to rig. Unfortunately the rope fell short and it was late so we started out without descending to check it out.

We reached the surface with a thin sliver of light in the west. The moon had already risen full and it climbed steadily as we dumped coveralls and SRT gear on a convenient table of rock. The hike back to camp was a magical stroll in sharp moonshine bright enough to read by. We skidded down the snow banks, angled around the deep shadows of pits, and stopped occasionally to enjoy the distant outlines of neighboring peaks.

The subject of an all-out push of Tier Duct was broached around the camp fire as we waited for the sauna rocks to reach usable temperatures. Enthusiasm was not particularly high because of the reputation for unstable rock and because of the enormous amount of unfinished surface reconnaissance that remained for our last full day. Out of hundreds of shafts only 2 or 3 score at most had been thoroughly checked and the cave was consuming nearly all of the available rope. Since weight was limited on the trip, we had planned for a reconnaissance, not the possibility of a full scale

TIER DUCT

Bastille Karst, British Columbia, CANADA

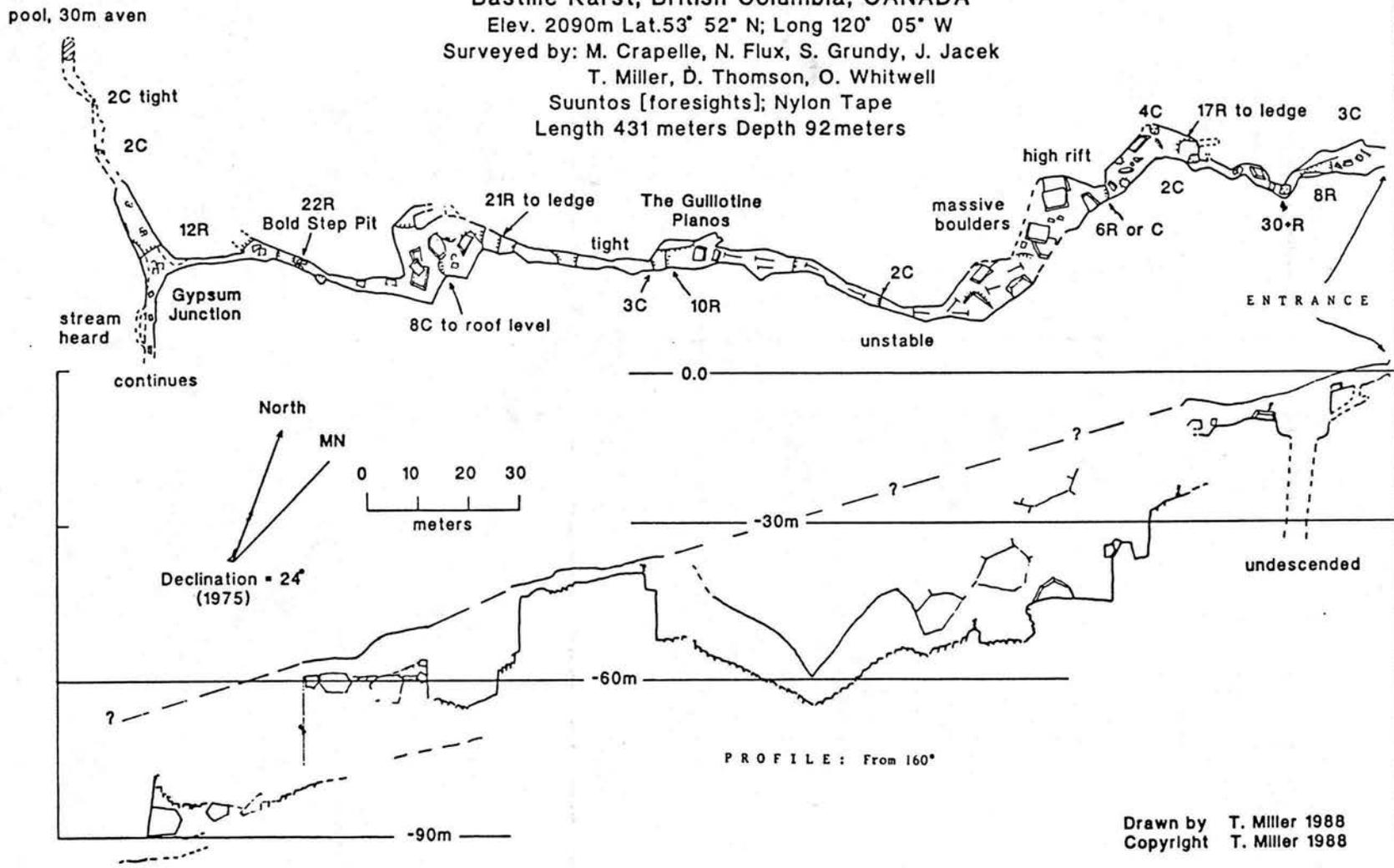
Elev. 2090m Lat. 53° 52' N; Long 120° 05' W

Surveyed by: M. Crapelle, N. Flux, S. Grundy, J. Jacek

T. Miller, D. Thomson, O. Whitwell

Suuntos [foresights]; Nylon Tape

Length 431 meters Depth 92 meters



cave assault. People were also wearing thin after a week of lengthy and strenuous exploration in the long sub-Arctic days. We eventually compromised on a staggered series of teams to push, survey, and completely de-tackle back to the entrance. The single surface crew would meet us there and help carry the gear back to camp. Clean-up and packing had to be completed by 9 a.m. the morning after, when the helicopter was scheduled to arrive.

Art, John, Chas, and I crested the ridge below Bastille in the slightly smokey haze the next morning, raiding the gear cache for chocks, carabineers, and longer rope. After hauling it across the basin to the cave entrance, Art and I plunged ahead to re-rig the last drop and planned to be finished when the backup rope arrived with Chas, Pierre, and Mark.

Our last drop fell free only 22 meters. Rocks bouncing down the steep slope below had only made it sound deeper. I explored ahead past an immediate climb up the collapse that nearly filled the bottom, and was barely able to squeeze through the boulders and narrow fissure beyond. Up to now, the cave had been like an exuberant run-on sentence, punctuated by the colons and semi-colons of pits and climbs, with no definitive end. Now it abruptly widened and split with an apparent tributary entering from the left and the main passage dropping yet again to the right. Surprisingly large piles of gypsum lay on the boulders, partially hidden by a covering of dust.

I headed back to ask Art to bring the remaining rope but he was already descending after hearing the other group in the passage behind. The left-hand tributary, unfortunately, led quickly to a canyon too wide to chimney. We waited in frustration, calculating that we had only until 5 p.m. before de-tackling must start.

The other party and the ropes arrived an hour and a half later and we dropped to the wide room below. The passage quickly narrowed in the rubble then ended abruptly in a high aven down which trickled the only flowing water we'd seen in the cave.

It was now obvious that the "tributary" was the main route. Its narrow and sinuous walls were the first clearly stream-carved passage we'd seen. The usual large blocks were caught high in the walls. The floor was still rubble-filled but Pierre heard the faint sound of a stream beneath it.

We were only able to penetrate a short distance before another vertical climb required rope, and then suddenly it was 5 p.m., the departure time. Simultaneously the survey team could finally be heard and the "push" attitude seemed to melt with its arrival.

In a few minutes, Art and I had begun the rout with the first of the ropes and the exploration of Tier Duct had ended with a whimper.

The final morning was sunny, but again with a visible smokey haze. Nine o'clock came and went without the helicopter, then became noon, and we keenly felt the lack of a radio. The most probable explanation was simply that the chopper had been commandeered to fight forest fires encouraged by the week of dry weather, but the other possibilities were darker -- a crash, a misunderstanding about pickup time, or maybe we had simply been forgotten? And if our flight had been commandeered, how long before it would be released to pick us up? Our supply level would rapidly become critical, not to mention the beer situation, the last of which had been downed in rapid gluttony prior to 9 a.m.

The chopper finally droned down in early afternoon. The delay had indeed been caused by forest fires, but this was quickly accepted and forgotten in the rush to load up and fly out. By late afternoon we clustered in the biggest bar in McBride, well-fed if not clean, well-lubricated if not well-mannered, and loudly relived and exaggerated the glorious week.

Acknowledgements: The Rennie Clark Memorial Fund for partial financial support, Bill MacDonald for organizing the venture, and John Buchanan for suggesting the title.

General Business Meetings - Minutes

December

1. December 5, 1988. The General Grotto Business Meeting was called to order at 7:20 pm. at the home of Mark Wilson. There were 5 grotto members present including Mark Wilson - chairman, and Ben Tompkins-secretary/treasurer.
2. Mark Wilson stated that the NSS Board of Governor's meeting minutes are available for review.
3. Mark Wilson has received a notice about the 10th International Congress of Speleology in Budapest, Hungary.
4. Mark Wilson received a catalog from the NSS Library. This will be passed to the grotto librarian.