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# THE ALASKAN CAVER

A woman with long brown hair, wearing a blue helmet with a headlamp, a dark blue jacket, and white gloves with blue accents, is climbing a snowy mountain. She is holding a rope and a climbing tool. The background features green evergreen trees and patches of snow on the rocky terrain.

**July, 2007**  
**Volume 27, Number 3**





# A SPRING BREAK P.O.W. ADVENTURE

March 2007

Ketchikan's Caving Club, Prince of Wales Island Participants: Tristan Graham, Samantha Barnes, Olivia Round, Tara Wilhelm, Mira Wilhelm, Forrest Allred, Matthew Perry, Rachel Wall, Rebecca Wall, Katie Wall, Kevin Allred and Carlene Allred.

## OVERVIEW

by Tristan Graham

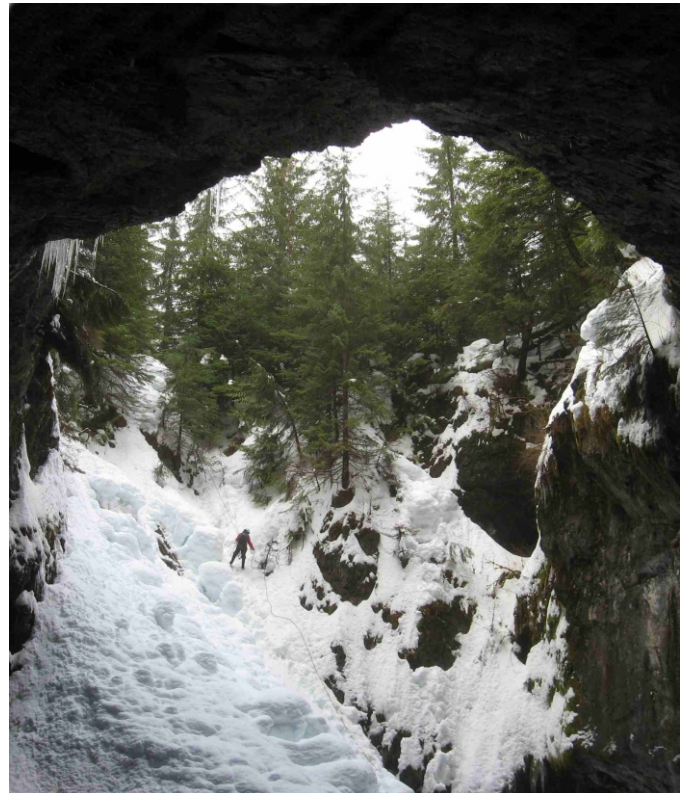
After a panicked last minute organization of gear in vehicles we found a place for the guitar and boarded the afternoon ferry to Hollis from Ketchikan. A gorgeous ride out of the Tongass Narrows, playing hackey sack on the stern deck, the game got interesting as we entered Clarence Strait and rocked back and forth to the larger ocean swells. Pretty soon one of us kicked the suede hack into the ocean, a sacrifice to fun. After a very social 3 hours we arrived in Hollis.

Snow'd lined the plowed roads up to about 5 feet, an unwelcoming sign, but the trip to Klawock went smoothly. Stocked up with extra supplies we traveled onward until we stopped again at a pre-arranged meeting site to pick up the key to El-Capitan Cave. The roads got progressively more difficult with snow from here on as they are not tended to as regularly.

We finally pulled into the Allred's cabin around 9 pm. It took us about another hour or so to dig out a 3 car parking space out of 4 foot of snow. It didn't look hopeful that we were going to be able to see all the caves we had planned to: El Capitan, Starlight, Bears Plunge, Cavern Lake. But morale was high, as our caving group could have fun in any situation regardless.

The next day we woke up early and got all of our gear together to head to and attempt to get to El Capitan Cave. But our vehicles were bogged as soon as we turned onto El Capitan Road. With 10 miles to go to El Capitan Cave, after a short discussion we decided to walk to Starlight Cave. We had two pairs of snow shoes, and the ones who wore these walked ahead of the rest of the group to make the trail easier over the snow. After a solid 4 hour hike through deep snow, often post-holing up to our hips (even with snow-shoers going back over the trail up to three times) finally we reached our destination.

Arriving at the entrance to Starlight Cave, we unpacked our caving suits and ascending/descending gear that we had trained with for the past 2 months. Kevin rigged up a line and we immediately started down into the cave opening. Starlight Cave itself is like a big chunk suddenly taken out of the ground, surrounded by relatively short Western Hemlock and Sitka Spruce



*Olivia Round descends into Starlight Cave.*

*Photo by Kevin Allred*

forest. The karst forms an amphitheater style opening about 100 ft vertical and 60 feet horizontal. The ceiling looked to be only 30 feet thick to the forest floor. The ceiling karst also had an interesting 20 foot opening in its exposed side that could be fun to explore if you were brave enough to hang off the edge and swing into it. [Editors note: measured entrance dimensions are actually quite a bit larger than as described above.]

The descent was easy, mostly steep slope walking rather than the free rope descending that we had trained for.

Once we were all down we divided into two groups. One group took off to explore the wide cavern teathed with long icicles, while the other scurried down a small opening that submerged us in a tight rocky passage. Without our headlights you couldn't see your hand in front of your face. I knew this because my carbide lamp malfunctioned when I knocked my headlamp and it went on the blink. The little handheld spare torch only shone that deep orange sunset color





*Rebecca Wall rappels into snowy Starlight Cave.  
Photo by Katie Wall*

tell-tale of dying batteries. Luckily I could see Mira up ahead around narrow corners.

There were two parts where we really had to squeeze to get down, and then the cave opened up wider and slightly higher, with a muddier floor to slide down. The air got cooler and we could hear a nearby stream gurgling.

After sliding off a tongue-like overhang of about 5 feet the cave opened up again into a small room with the stream running through. To the left we explored, and we found a small water feature with some beautiful mineral stalagmites, some reaching about 3 feet high and looking very old. Also some soda straws a few inches long. We all sat in the earthy dampness while Kevin explained to us some of the cave formation processes. Then we crept and slid back out.

One of the tight squeezes mentioned earlier was more difficult coming up as a caver would have to lift



*Kevin Allred is instructing Forrest Allred, Mira Wilhelm and Samantha Barnes in cave morphology.  
Photo by Tristan Graham.*

oneself over a tongued jut angled toward the roof. The larger of our group had to take several articles of clothing off to manage this. Our group then swapped with the members of the other group, who had entered the higher and more arched cave first. This was an easy walk-through for about 500 feet. The cavern ended perpendicular to a passage that went left a short way, to end with a hole in the roof. There was another entrance from the forest and it followed right along a narrow passage, which the roof steadily angled to meet the floor.



*Forrest Allred relaxes in a crawlway. Photo by Tristan Graham.*

After cleaning ourselves off in the snow we ascended out of Starlight Cave and walked peacefully back along our beaten trail in the dark.



*Mira Wilhelm and Samantha Barnes clean themselves off in the snow after caving. Photo by Tristan Graham.*

The next day we got up late in the morning and got ready to do Cavern Lake Cave. The same hike in along El Capitan Road but this time a shorter, much easier hike down through the forest to a stream opposite the turnoff to Starlight Cave. This cave has a stream (continues on page 5)

running right through it from an upstream lake.

We took turns donning drysuits (one of which did not have feet and the water was very cold!) in pairs and walking/swimming to the back of the cave which was only about 100 feet.

Katie and I went first and scaled along the right hand wall up to our necks in freezing stream water rushing past us in a current that would have swept us back outside if we let go of the wall. Our helmets were also scraping along the roof before a high cavern opened up with a passage going off to the left. Venturing up to the back wall of the cave, the floor rose out of the water as a shallow slope to reach the ceiling. Ambling up to the tight spots along this area showed small soda straws and bacon rind formations. We scrambled along this wall to the passage that arched off to left. This passage was about 10 feet across and water was near torrenting out into the main stream.

I leapt across from the edge of sloping back wall (about 4 feet out of the water) and scratched my nails on the slippery rock to get a hold on the other side of the passage away from the torrenting shoulder. From this position I could pull into an alcove a short ways into the passage and to a wall rocky enough to pull ourselves along. But first Katie had to also make the jump. She leapt and I reached out to grab her arm, but the current was too strong. I did not have a secure hold so we both got swept out to near the start of the cave. Before any of the other group could hear or see us (since they were waiting their turn) we half walked half swam back to our leaping position and tried again. This time we both made it and we had fun horizontally climbing along the passage wall with the current holding our legs up.

### ADVENTURES IN THE STARLIGHT CAVE

By Tara Wilhelm

The first time I peered through the trees down to the cave I was dumbfounded by the sheer size of the cavern below, as well as the other numerous large openings into the earth that gaped at me.

Our group of determined cavers had hiked around 5 miles during a gray winter day, along snow covered roads on Prince of Wales Island, to get to the Starlight Cave. Now we were slowly rappelling/climbing down the

steep slope to a large cavern. My friends Forrest and Tristan and I huddled together for warmth as we waited nearly an hour as our fellow members of the Ketchikan Caving Club slowly descended. Our group was dressed in many layers of wool and polypro, and many of us had caving suits. All of us wore harnesses and helmets, multiple pieces of climbing equipment attached to our

(continues on page 6)

## *Katie's Tale*

by Katie Wall

*Traveling across the Prince of Wales  
Passing mountain, hills and dales  
The young, kind-hearted girl Katie  
Went with the group to explore a cave with a matey  
As she entered the darkness of the cavernous hall  
She was under the impression she heard a voice from behind a rock wall  
Her curiosity caused her to crawl  
towards the sound thru a small tunnel that wasn't very tall  
But she crawled on to see pin pricks of light  
At the end of the tunnel when she could stand up right  
The echoey expanse of a monstrous chamber before her spread  
She realized the light came from the eyes of a beast that filled her with dread  
It was far taller than a man, covered in hair  
Its enormous wings sprouted tall into the air  
Fangs protrude from its jaws  
It hung motionless, with its long black claws  
From the top the of tunnel so it hung upside down  
In her breast fear did abound  
When she saw her friend Tara captured in its terrible claws  
Without second thoughts brave Katie leaped without pause  
And threw her ice pick into the thing  
It dropped to the floor  
Then reached out to grab her as it gave a high pitched roar  
She had then the choice to run or to fight  
Without further ado she pulled out her knife  
Standing alone against a mutated creature  
She decided she must become that beast's teacher  
Thus with a slash and a wack the fight was won  
Loyally she had protected her friend until it was done  
Together they marched into the sun  
Let it be known that a true friend never runs*



belts. As we lay in the packed snow near the edge of the cliff, Tristan, Forest and I waved our arms and legs around in the air in an imitation of a crackling fire, brought on by our super bright orange and red caving suits that we were all wearing.

After enough time had passed for my toes and fingers to get sufficiently cold and immobile, it was my turn to make my way down the rope, half jumping as I moved my safety device down the rope with me. Nearing the bottom of the slope I was able to better understand the layout of the cavern before me.

What I was climbing down into was like the bottom of a bubble, a huge bowl shaped hole in the earth, half of it was covered, creating the huge cavern that we climbed into. I had just climbed down the side of the bowl that was not covered. Inside the cavern there were multiple caverns leading away. Also, higher up on the surrounding cliffs other cave mouths could be seen, but they were far too high for us to get to today, and it was uncertain if they actually created real caves.

I walked into the back of the enormous cavern which had a large pile of rocks on one side. On the other side was a huge slope of snow, one part of which we had climbed down. I wandered over to where a few of my friends stood at the back of the cavern.

We have two leaders of our new caving group; Kevin and Carlene Allred. Carlene had helped us rappel down the slope to get to the cave, and she remained at the top to help people back up. Kevin was in the cave with us. By the time I got down he was already leading a group in through the main cave. So the remaining five of us wandered through the smaller cavern.

It was a large, breezy hole, with a jam of frozen logs at the entrance. Icicles hung from the opening,



*Matthew Perry, Katie Wall, Rebecca Wall, Olivia Round and Rachel Wall pose together in Starlight Cave.*

*Photo by Tara Wilhelm.*

and as I climbed over the logs and into the passage I was amazed by the small frozen waterfall that glistened in the wintry light.

Venturing farther into the cave we turned on our headlights and gazed at the high rock ceiling and walls. On the ground we noticed small patches of ice, created, I suppose, by drips from the ceiling. Nevertheless, they had formed strange but beautiful-looking sculptures of crystal ice that looked like frightened anemones. We walked carefully around them as we proceeded along the mostly level ground.



*Strange anemone-like ice formations adorn the floor of Starlight Cave. Photo by Tara Wilhelm.*

The floor slanted uphill and we saw a glow of sunlight ahead. Switching off our lights we gazed up at a jagged scratch through the rock that revealed a glimpse of the gray sky. Some snow and a log lay frozen under the patch of sky, and there was no further passages for us to fit through. We made our way back to the light of the large cavern, my friend Olivia being my model as I took pictures of the large, intricate structures of ice on the walls, and other cool rock formations.

Back in the main entrance we now looked for more caves to explore. The other side of the cavern was dotted by small entrances and we explored around, but none but one led farther than 15-20 ft. One ended at a low pool, inside of which was almost a perfect square of deeper water, and also an ugly scratching of some guys' name in the soft cave rock beside the pool.

We now ventured into the only remaining long passage, crawling quickly in our excitement. It narrowed down to end at a trickle of water and some awesome rock formations. Unable to find further, deeper caves inside the passage, we returned to the surface. I was wondering where the other group had gotten off to, as we were unable to find them. We didn't wait long before the other group returned,

*(continues on page 8)*

# *Tales of Prince of Wales*

*By Tara Wilhelm*

*In the rainy greyness towards the winters end,  
The slushy snow of the Southeast Alaska season still tends*

*To randomly fall and clump around*

*A few birds occasionally will sound*

*But still, one source of happiness is found*

*It clings to the youth just now from school unbound*

*They disperse into countless adventures far and wide*

*But a certain group is called to seek out new territory with a guide*

*They go to a land where they can find caves*

*They travel across rough road and sea waves*

*They seek wild thrills and explorations*

*To gain some experience and see some awesome cave formations*

*They gathered to embark before a mighty ship*

*With much confusion and stress they managed to slip*

*Their massive packs and bags into the three cars*

*And hurriedly rushed to board the barge.*

*Now a three hour voyage lay before*

*So I messed around with my friends and I'll now describe them some more.*

*We had an exceptional leader, he's been over the world to every cool cave*

*This awesome spelunker's experience and knowledge is something we crave*

*He lives for adventure and exploring the earth's hidden pores*

*He's fun-loving and kind and has taught us about caving,*

*opened our minds' doors.*

*Another comrade that is totally tight*

*She's wonderfully crazy, awesome and rarely full of spite*

*She loves to be random, wild and weird*

*Her name's Olivia, one not to so greatly feared*

*She's ever kind and nice to everyone she meets*

*She's a high school student who doesn't believe in eating any kinda meats!*

*Now there were two sets of twins who joined in this feat*

*Rachel and Rebecca are such a wonderful treat!*

*Naturally considerate and thoughtful they are never at a loss*

*When jumping into icy water they are boss!*

*They have lovely blond hair, one has slightly shorter locks*

*Their bright blue eyes, slim figures and they are very smart!*

*Though similar looking their personalities show them apart*

*A girl of brown tresses, with curly, long eye-lashes*

*Was the older sister of the twins, she dashes*

*Into any available adventure or sport*

*A brave girl from the farmland in North Dakota she's the sort*

*She knows all about animals, horses and sheep*

*She's so nice and friendly, open and deep*

*A traveler by practice, musician and teacher by trade*

*He's adventurous and loves hiking and for kayaking he is made!*

*He's kind, energetic, quite wise and strong*

*And can sing and dance all night long!*

*He's searching the world for society's reasons*

*He believes in intuition, and is gone with the season.*

*Another companion on this wild foray*

*He goes by Matty to me, but I suppose he'd rather I say*

*Matt, Matthew, an amazing nice, great guy!*

*He's probably better at you at juggling or trombone, challenge him!,*

*just try!*

*Always energetic and smiling as he learns skills, and I'm*

*Gonna call him a brother since we beat each other up all the time!*

*This is just half of the crew that came on those treks*

*to explore the caves and risk their necks*

*To view the wonders found below ground*

*The journey is beginning, our adventurous hearts pound!*



covered in dark brown mud and earth, some of which was smeared across each others faces in friendly affection. Kevin was with them, and he now took me and Matt, Rachel, Rebecca and Katie into the large cave, the longest tunnel in the Starlight Cave.

We went down the same large passage, but this time slipped through a narrow entrance I hadn't noticed on our first exploration of the tunnel. There was a twisty rocky tunnel, then a very small steep entrance, mostly blocked by a large rock, that came to a point.

We had to climb, sliding on our bellies, to get through the small entrance to venture further into the cave. The tunnel was so steep it made this a bit scary to do, but we all managed fine, and with Kevin's narration of rock formations and where to go, we explored the cave further.

Some different tunnels branched off in this cave with pools of water, and skinny, high ceiling passages that wrapped around. Near the small place we had just squeezed through there was another tunnel leading down very steep, and covered in loose soil. Kevin told me it didn't go much anywhere, but I climbed down anyway to check it out, covering myself in dirt as I scooted down the passage, some loose dirt sliding with me. It did indeed end soon, with only fist-sized holes continuing on.

Now fully caked in dirt I returned to the others, and we continued exploring in the tunnels that twined through one another. I attempted to keep track of all the passages with the different, awesome rock formations and twists within the cave, but I soon became lost as to where I had come from exactly.

As I wandered around with the others, some of us climbed up above a passage way, and finding a deeper, skinny tunnel we edged our way along, walking sideways. It was Kevin who came to realize he had never been here before. We continued, totally excited to be exploring a new passage.

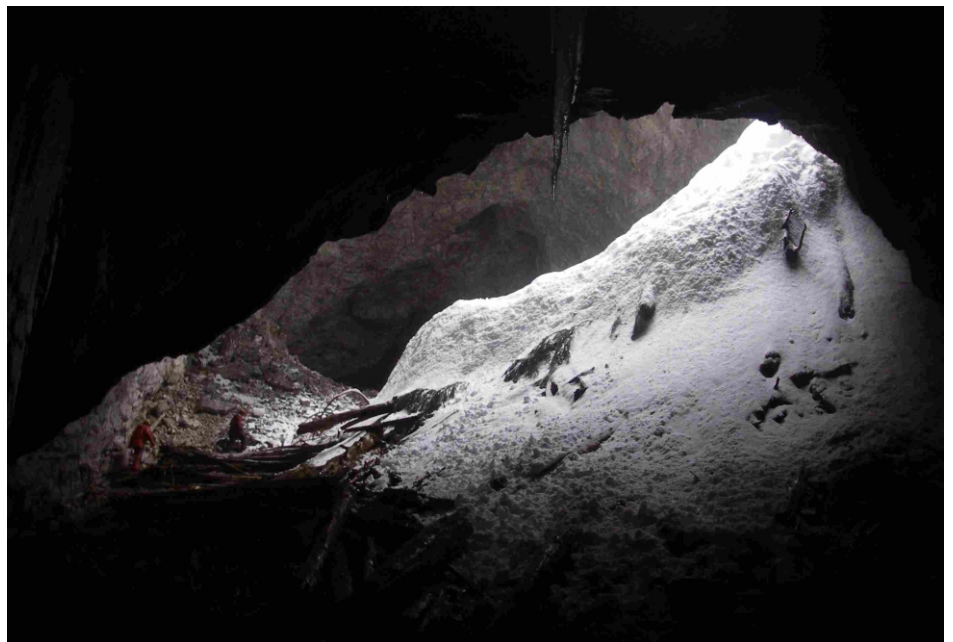
After a few minutes along this un-mapped passageway we came to a drop-off, some water flowing at least ten feet down the sloping floor. We looked around, seeing that the cave continued deeper, but without rope or climbing gear we couldn't descend safely. So, bubbling with happiness to having found a new segment of passage, we made our

way back to the surface.

However, as we took turns climbing through the narrow segment of passage with the jagged rock jammed in the middle, Matt found that a very big rock had started to slide towards the tunnel entrance as he came out. Everyone but Kevin was still waiting to climb out of the narrow passage, and as I sat in the dark closeness of the tunnel I heard Matt scrambling, saying something about a falling rock. Not fully realizing the implications of the situation, all of us still in the passage moved out of the way so as not to be hit by a rock. Eventually Kevin and Matt managed to move the rock and we climbed out slowly and returned to the light of day.

On the way out Matt explained that a very large rock, big enough to block the tunnel we had been climbing through, had nearly slid past him to do just that, trap the rest of our group underground!! But we safely emerged to the surface and spoke of our new passage finding to the rest of the group. We were all so filthy from some of the more dirt-filled tunnels that we jumped into the snow on one side of the huge cavern to clean ourselves off, leaving a brown swath in the once pristine snow.

We had explored the cave, found new tunnels, and nearly been trapped! We climbed back up the rope out of the cavernous basin and began the long trek back to our cars. Our caving club's first venture into a cave has been an amazing, great experience for the participants, and we hope to return to map out the new parts of the cave, and have many future adventures in this beautiful subterranean world of caves. ▼



*Kevin Allred and Samantha Barnes negotiate Starlight Cave. Photo by Tristan Graham.*

## THE BASICS OF MAPPING

There are many different mapping styles in the world, some better than others. However, our point is not to promote a particular standard (this would be another article), but to remind cave surveyors that the fundamentals of cave mapping do not change. These include:

Use well-maintained and functioning instruments, tapes, lasermeters etc., preferably ones checked for accuracy, for instance on a calibration course.

Use only co-surveyors who know the importance of correct data collection, are experienced at reading instruments, and for whom you are aware of possible eye defects (dioptry, parallax, etc.).

Be VERY aware of the danger of deviation by metallic objects (carbide generators, handrails in tourist caves, batteries, glasses) and light sources. It has been shown that even modern, lightweight LED lamps may cause substantial magnetic fields (some only when lighted)! Please check and re-check - often!

On the danger of "changing methods," we strongly insist on mapping "from point to point". Please



Carlene Allred reads compass in a Kilauea Caldera lava cave. Photo by W.R. Halliday (Photo added by the editor of the Alaskan Caver)

do NOT use for a survey station, the head of your colleague who happens to be standing in the middle of the passage. Choose points on the wall, on a break down blocks, or other features that can be marked and recovered later. Make recoverable stations by marking the survey points (nail polish usually does the job very well, a small red dot being discreet and long-lasting; another method is a small, removable clip of reflector tape). [editor's note: colored flagging tape is commonly used because it doesn't leave a permanent mark in the cave, and it is removable.] Be sure to include the location of the station with respect to the left and right walls and the ceiling and the floor (this is the standard method for recording passage dimensions). The station can also be shown in cross sections, to help locate it in the future.

Since we are addressing methods: some surveyors will voluntarily round the dimension measurements to the nearest decimal (3.56 m giving 3.55 or even 3.6 m). Why? The critical measurements, which are the survey readings, are already done, so why decrease precision if it is not needed?

The location of survey stations seems to be a hot topic. Some of the reviewers of this paper wanted to leave basically no mark within the cave (to preserve its natural state), while others wanted an easily visible, durable (and labeled) marking at least on bifurcations to allow future tie-ins. My personal preference is to have points that you only see if you search for them but they

are present and labeled on critical sites.

Last but not least, make a detailed and accurate sketch. The importance of that is described below in the section "Why precisely drawn maps?". Some people draw the sketch to scale already in the cave (with the aid of protractors and scale), which lengthens the survey process, but helps to eliminate possible errors and increases accuracy.

## WHY THE HOLY TRINITY?

The first question one might ask is why is it necessary to have more than only a plan view, especially for horizontal caves. The answer is simple: The Earth's surface is a two-dimensional object that can easily be represented on a map, and geographical, geological, or road maps are widespread. On the contrary, a cave (even if horizontal) is a truly three-dimensional object, and thus cannot be fully represented in a map; even in perfectly horizontal caves, the shape of the passage contains much valuable information that should not be neglected. Below, we present the advantages of all three necessary elements and what information they usually contain. Then, we indicate why it is much more useful to make accurate drawings instead of having a rough "exploratory sketch" or only the mapping data. In the end, we emphasize the importance of publicizing the maps and results.

## WHY A PLAN VIEW?

The first answer is the first motivation of anyone making a map: a plan view shows the orientation of the cave passage, illustrates its width, relationships with other passages, and shows passage details.

More specifically for caves, it helps to get information about possible connections between separate caves in the same area. This is why it might prove very useful to also make maps for caves that are mainly vertical (and of which sometimes only a longitudinal section was made). The true extent of a cave in space may reveal that it is only a very short distance to the next (maybe more important) cave (Fig. 1). Surveys that are tied to surface bench marks show the relationship between surface features and cave features.

A plan view offers little information about the genesis of the cave. However, it can often give information that is related: for instance, if the cave follows a set of predominant fractures, or if the cave is very meandriform.

A plan view is informative for the sediments encountered in the cave and their location. Sometimes it is of great importance for finding a continuation to know the location of sediments and whether they may obstruct the main continuation. Such information is usually easily seen by cavers, but if it is not reported in the map, there will be no systematic search for continuations.

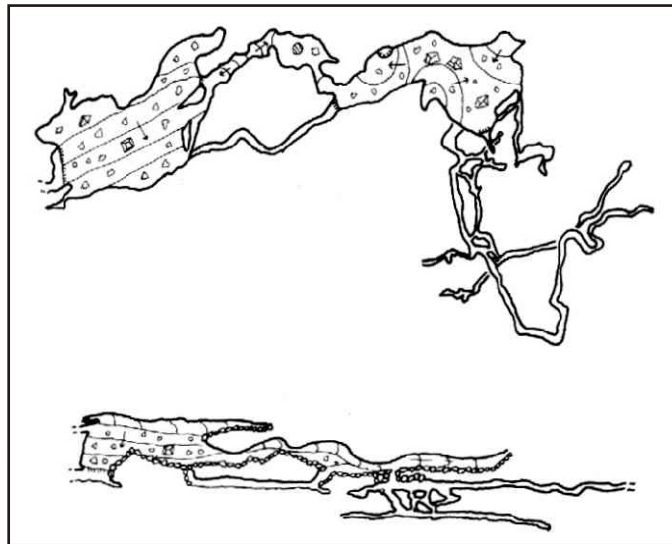
The limitation of the plan view is that it does not show the shape of the passage, nor its vertical extent (the other two dimensions).

(continues on page 10)



## WHY A LONGITUDINAL SECTION, WHY CROSS SECTIONS?

The first oppositional question to that might be why is it not sufficient to have a projected section [projected profile]. The answer is that a projected section hides some important information. Let us assume a S-N plane for projection, and a cave passage that falls first to the south (thus is represented "correctly" in the projection), before it turns west and continues with the same dip. This portion will be represented resembling a vertical shaft. If now there are important changes in cross-section of this passage, then this cannot be seen: information is lost. A good mapper can construct a projection with the help of plan and



**Fig. 1: Sketch in plan view (above) and longitudinal section (below) of the entrance part of Pestera Humpleu (Muntii Apuseni, Romania). Both of the sketches are of poor quality (so don't take them as examples). However, only in the longitudinal section, a genesis of the cave in three distinct phases can be seen. Do draw longitudinal sections also in horizontal caves!**

longitudinal section, but it is much more difficult (or in case of changes in passage inclination, impossible) to extract a longitudinal section out of a projection.

Projections are important for having the 3D-representation of the cave together with surface features. However, such projections are usually done with a computer, since the mapping data are processed with it in the first stage.

Longitudinal sections can give insight on fracture guidances and bedding planes which cannot be seen with a plan view alone.

Longitudinal sections can give comprehensive views of expected difficulties (pits, crawlways, waterfalls etc.) and can thus be useful for planning a next trip. They represent the total development of the passage to scale.

The foremost and most important use of the longitudinal section is that it gives information about the caves genesis! All the fractures a plan view may give, all the sediment displayed, cannot give half of the information a longitudinal section does. Is the passage of phreatic genesis (i.e. a rounded tube)? Or is it a vadose meander? Or a superposition of both, a keyhole passage? Sure, all this information is contained also in

the cross-sections, but the interrelation of these forms are of importance and best presented in a longitudinal section. A good example is presented in Fig. 1. [Editor's note: Shown in the lower part of this figure is what appears to be a sketch of a combined extended profile and projected profile. When creating a finished cave map I prefer to use projected profiles. I will add additional sections, projected from different angles in order to portray passages that do not view well in the main projected profile. This way it is easier to compare the plan view with the profile.]

Cross-sections are very important too: They give the shape of the actual passage, which is also very informative in terms of determining speleogenesis. In order to portray the important geologic features of the cave, all three views (map, longitudinal section, cross section) are needed.

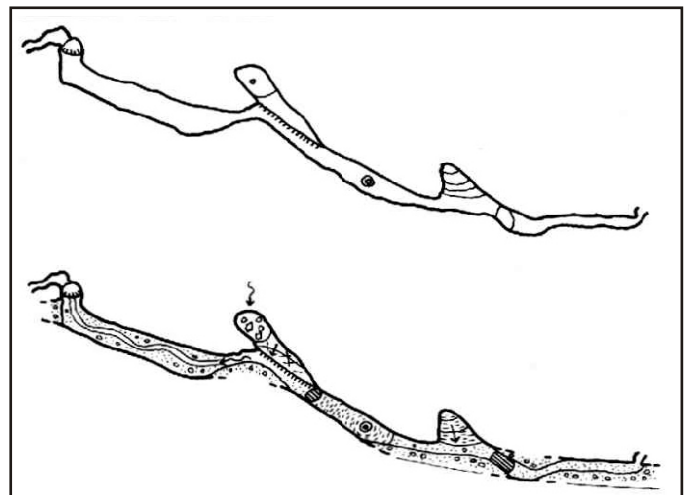
## WHY A WRITTEN DESCRIPTION?

The answer is very simple: Did you ever try to draw a bat into your plan (to scale, of course)? Or the extent of possible flooding danger you observe on the cave walls? How do you represent your ideas about the cave's genesis?

The written description is an invaluable source of information that may be very important, not only scientifically, but for basic cavers: Equipment lists, flooding danger, types of rocks encountered, unstable breakdown, gypsum occurrences, biology and genesis... all these things cannot be represented graphically and have to be written down. Thus, the description is not a marginal text describing only the things you can see on the map yourself ("To the left, a passage leads to a shaft...") but all your important observations. And YES: Everyone can observe important things! Even you can do it!

## WHY PRECISELY DRAWN MAPS AND NOT ONLY TOPOGRAPHIC DATA OR SKETCHES?

This is a very good question at first sight, because it is the precise drawing that takes most of the mapping (continues on page 11)



**Fig. 2: The importance of drawing quality is seen in this part of a cave in Romania. The upper drawing is a sketch in plan view without major details; while the lower drawing represents the same passage with much more detail. Only the precise drawing shows a possible continuation of the large passage which may lead to the main continuation of that superb cave.**

Editor's note: The following previously unpublished article was recently sent to me by Julius Rockwell. Chuck Pease is one of the founding fathers of the Glacier Grotto, and is the one responsible for putting out the first two issues of the Alaskan Caver. Because this is a very long article I am going to present it in serial fashion. Below begins the first installment:

## DIARY OF A CAVE RESEARCH FOUNDATION CHINA EXPEDITION

13 March 1993 - 10 April 1993 by Chuck Pease

Saturday, 13 March 93, we departed the house at 0830 in Cynthia's car. She prefers it because it is smaller than mine. Arrived at Naha's International terminal at 0930. My two duffel bags were 39.6 kilograms and my weight limit was 20 kg. The agent said I'd have to pay 8,700 yen (~\$76) for 10 kg overweight. At 1015 Cynthia and I said goodbye and I went through airport security. My small moustache scissors set off the detector when my carry-on bag passed through the x-ray machine. When they saw the size of the scissors they said okay. At 1035 the waiting room emptied out when they called for the boarding of the 1100 China Airlines flight to Taipei, Taiwan. It appears that the JAL direct flight to Hong Kong will not be full. After the crowd departed I found a Stars & Stripes newspaper that one of the Americans had left behind. We had not gone through the base on our way to the airport so I didn't have the chance to get a paper.

Hong Kong is one hour ahead of Japan and it was 1320 when I got through passport control quickly and my 2 duffel bags were among the first off-loaded. Passed customs without stopping and got a taxi after  
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SUSTAINABLE MAPPING.... continued from page 10

time and which makes mapping so "boring." So why not only use a rough sketch? For scientific purposes, it is clear that an accurate drawing carries much more information. But also "normal cavers" can extract a lot of important information from a good drawing. Figure 2 shows an excerpt of a cave map. On the upper side, the original map. On the lower side, a possible "beautiful" [detailed] map. Where is the continuation of the large passage? Yes, at the lower right corner you may try to dig to find the BIG continuation. And of course you do not see that on the [upper] sketch.

In short: type of of passage form, as well as sediments and their position, coupled with information about reduction or increase in passage size, gives important information for possible continuations. But these things are only visible in a precise sketch.

Besides: If you, bored instrument reader, wait for the drawer to end his endless pencil-scratching, what do you do (besides freezing)? Yes: you look for possible lateral passages. They exist, be assured, look for them, you'll find them! Another intelligent form of keeping warm is to take backshots to confirm the accuracy of the previous reading. Be ready for some surprises!

There might be a problem of scale for the map. This has to be addressed depending on the needs of the survey: a paleontological site might want a scale of 1:50 on a large sheet, while a big cave might be sufficiently mapped 1:500 in several atlas sheets. In Central Europe, we usually map 1:100 for very small caves, 1:200 for caves between 20 and 500 m, and 1:500 for larger caves. Try not to mix too many scales within the same cave area for the sake of comparison between the maps. What you cannot do is to sketch with 1:500 precision in the cave and still draw a precise map on the scale 1:50 at home! So please think about this issue before beginning to map.

## WHY PUBLICIZE?

You found an easy, beautiful, promising cave, and you've mapped it with great effort. You may be afraid that fellow cavers, wild spelunkers, or even trekking organizations may misuse the cave, so your reaction is to keep the cave secret. This is very understandable. The very

negative point is that once you're no longer active, or the mapper had a row with his mother who subsequently burned all his maps (mind you, that is not a joke, I know such a case!) all the information is lost.

So this is to implore you: please publish your caves, your maps, your data! If publishing means a real danger to the cave, please put it (at least) into your national cave register. Several countries have registers which offer to keep the maps and data secret use this possibility if you think it is needed. Please, do not throw away your great work by hiding it in your cupboard!

Keyword hiding: Even if you publicized your great work, it might be that the original data are to be introduced in a computer to get 3D images of the area and the surface in question. This last point might be very important in convincing a quarry manager NOT to blast where the cave is. Or, there may be new passages found (breakdown? - it needn't be that you didn't look well!). In both situations it is vital to have everything somewhere either at your home, or in a club archive, or in a central register. Please do NOT throw away your field notes and sketches; even though dirty they might prevent another complete remapping for just the cases I described above. Keep them they take up little space and future use might be tremendous!

## A LOOK INTO THE FUTURE?

More and more, computers replace the traditional ink-pen drawings. In recent years, the use of drawing programs (such as Adobe Illustrator) are used to generate accurate and actually very nice maps. The advance of technology permits us to add colors to the maps (sand is brown, water is blue, or at least it should be). For persons interested in computer drawing, there is a website below where they'll find information and prepared libraries for Illustrator. Please keep in mind: The most durable archive form is still paper, which lasts between 20 and 500 years or even more, while CDs might be unreadable after only 2 years. So please: after having drawn by computer, print the map out for archive purposes! Save your work!

Thanks to all persons who gave input, corrections, suggestions, and who translated this article. ▼



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a 10 minute wait. Traffic was very heavy and it took almost 30 minutes to reach the New World Hotel. Cab driver commented about my heavy bags. Total weight of all three bags is ~118 pounds. I checked in and got room 1140 and I will also be in this same room with Ron Bridgemon Sunday night. I was in the room less than 10 minutes when my 2 duffel bags were delivered. In another 10 minutes or so I got a call from Bestour guide Catherine. She was at the reception desk and had our new schedule for Monday. I went down stairs and met her and also paid her the \$109 I owed for the hotel room tonight. If I had booked the room myself directly through the hotel the room would have cost me \$190. I then went down to the Park & Shop grocery store to get some drinks and snacks for the room. Park & Shop is located one floor below the street level hotel lobby. Back in the room I unpacked my carry-on bag and hung clothes.

At 1700 I signed up for a pay TV movie and watched "A League of Their Own", a film about professional women baseball players during World War II. I didn't feel like going to a fancy place for supper so I went over to the McDonald's near the ferry and got some burgers to go. Stopped at the 7-11 to get cold diet Pepsi. Checked McDonald gift shop but the red sweatshirts don't come in XL (only the white ones). Watched a little TV but mostly read the book Cynthia gave me on my birthday - "Gates", the story of Bill Gates the founder of Microsoft and now the richest man in America.

Sunday, 14 March 93, up at 0915 and down to the excellent breakfast buffet. Free newspaper at the door this morning. When I returned the room was already made up except for vacuuming. Visited the Space Museum and got ticket for the 1430 show today. Then took the ferry to Wanchai and without any trouble quickly found the used book shop that Ian had told me about. The Sam Yick Book Store at 209 Hennessy Road, Hong Kong, is very small and half of the books are in English. Many of the English items are special editions written to help people learn to read English. I found one such book, a condensed booklet of "Journey to the Center of the Earth" for 10.00 HK\$ or \$1.35 US. Took ferry back and returned to the hotel to cool off and remove at least my jacket and sweater. It is overcast and warm today. A couple of things have changed since our January visit here. The bank on the ground floor next to the hotel has closed and the spot is under renovation for a new clothing shop. Also the Star Ferry rates have increased from 1.20 to 1.50 HK\$.

Went to space exploration show at the Space Museum at 1430. Later I grabbed a burger, fries and shake for late lunch. Spent rest of afternoon reading. At 1930 I returned to the Space Theater to see a show on Hawaii and volcanoes. Back in the room I telephoned Mom & Dad to see how they did with the big snow storm reported on the news. On Saturday they got about 16 inches of snow. Mom went out a couple of times to shovel it away from the back door. Dad can't do it because he has a weak heart and too much exercise causes serious problems. Their biggest complaint about the entire storm was that all the TV stations only had news and reports about it on all day long on Saturday and didn't carry any regular broadcasting! I then talked to Cynthia and she got through her first two days and one night without any problems. Said that she mostly just worked on her April Toastmaster newsletter. She only had four people at the Investment Study Group tonight. I then walked over to the Baron's Table (second floor in the Holiday Inn on Golden Mile) and had an excellent meal. The service there is extremely good, they keep your water glass full, have excellent warm breads, a great salad bar and very good food. I was in and out in less than 40 minutes. Back in the hotel room by 2200. At 2245 I'll go down to the lobby to start looking for 12 very tired cavers. Everyone will have been traveling for over 20 hours by the time they get in here! At 2315 the group arrived and we are short 5 people. One Mike Newsome, is already here but at another hotel. Three- Pat Kambesis, Don Coons and Mick Sutton were five hours late leaving Chicago and as a result missed the Narita-Hong Kong flight by 35 minutes. They are spending the night in Tokyo and will be here at 1330 on Monday. Ian Baren's flight out of New York was cancelled due to the snow storm. So he will be late getting to Hong Kong and we aren't sure when he will catch up with us. We are using our room to pile all the bags tomorrow until we go to the airport.

Monday, 15 March 93. Up at 0730 so everyone can meet for an 0800 breakfast buffet. Mike came over and joined us (9 of us at this point) for breakfast. I met everyone. We then walked over to Mike's office and saw some very interesting Christmas decorations that he's working on. The company is called "Mr Christmas". It was almost noon when we caught the ferry over to Hong Kong. We took the Peak Tram ride up Victoria Peak and then hiked the 3.5 kilometer paved Hong Kong trail around the top of the peak. Nice views from the trail and even a small 50 foot cave right beside the trail with a rope hanging to make it easy to get in and out of. It was 1445 when we came off the ferry in Kowloon. Next stop was McDonald's for a late lunch. Then to the supermarket to get four 2 liter bottles of vegetable cooking oil. We then watched the fancy clock panels at the New World Center and then went to the room and arranged to have the bags taken to the waiting area. Catherine from Bestours had arrived to assist in our move to the airport. With at least 2 large and heavy duffel bags per person the hotel boys had their work cut out.

We arrived at the airport at 1630 and started the lengthy procedure of checking in our bags and paying the 150 HK\$ departure tax per person. While we were checking in Don, Pat and Mick found us. We were each only authorized 20 kilograms each (about 44 lbs) and of course everyone was far over weight. In the end we were charged a total of \$460 U.S. or about \$39 per person. At 1800 we were bussed out to a 737-300.

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we were charged a total of \$460 U.S. or about \$39 per person. At 1800 we were bussed out to a 737-300. The plane had just economy seating with 25 rows of six seats across. Leg room was tight and my carry-on just fit under the seat. The plane was almost full. It was 1845 when we finally departed so we were about 20 minutes late. Got a meal on the flight and although it was cold cuts it wasn't too bad. The canned orange juice was great and I had two. Don Morris is 56, Dwight is 54 and I'm third oldest at 52. We landed in Guiyang at 2045. It took awhile to go through customs, health and quarantine and get out the bags. The health and quarantine folks decided to seal the duffel bags and to inspect them at the university tomorrow afternoon. We finally loaded the 25 bags onto a small truck and 6 of us each got in two vans for the 40 kilometer drive to Guizhou Normal University which took about one hour. There we were assigned two per room in six rooms. Four of them were doubles with bedroom, living room and bath and two were just bedrooms with baths down the hall. One room had a double bed so Don and Pat got it. Ron and I were in room 503 on the top floor. It meant a long climb up but at least it had a bath in it. We had a brief meeting to outline the plans for the next four weeks and also sampled their beer and a excellent soft drink called "Jianlibao" that was like an orange juice. They also have a nice grape juice drink. Bed at midnight.

Tuesday, 16 March 93. I woke up at 0720 and Ron was already up. My left red eye now appears just about healed with very little redness left in it. We slept well and the beds were comfortable. We washed up and then went out for a short walk around the local area. Met a few others coming back and John joined us. At the Plaza Hotel we converted U.S. dollars into Chinese FEC. For \$50 I got 279.50 FEC yuan, all in paper bills. I took several pictures of the local people. Back at the University Guest House we all met out front and then went next door for breakfast. The morning meal was interesting to say the least. It consisted of a warm dumpling with some type of filling, a rice cake thing and a noodle type of soup. The noodle soup was available either spicy or not spicy. Six of us chose each type. At 1000 we met in a small room on the second floor with President He of the University. Besides the 12 of us there were 9 Chinese University professors or students. Daisy acted as the main translator while the President made a welcome speech to us. A caver then passed out several xerox copies of cave reports in English that their people have published in various publications around the world. We had tea and other drinks during the meeting. They also announced that we would have a banquet tonight. A new 38 story building is planned to be constructed across the street from the guest house in the near future and should be finished in three years. The speech also stressed cave safety and future close working together. Weather from March to December is good for caving expedition. They forgot to mention that the rainy season would not be good caving weather. Last year a team of 10 Japanese visited this area. The president and translator both are heavy cigarette smokers. Prof Yang then discussed the arrangements and plans for the next few weeks. Seven people from the Geography Department and a few others are in charge of our living conditions and handling those type of things. We will be visiting two main areas. The first area will be in Ping Ba and the second area will be Duyun/Kai Kou. The plan is to spend the first 5 days in the village of Guado (Ping Ba county) to finish the work there! The second area has much karst and we will be there 22 March to 6 April. The caves there have never been explored and are very beautiful. Karst research, cave survey and some hydrological work are the primary goals. After they all explained what was planned then Ron Bridgemon gave our thanks for being invited here and briefly explained what we hoped to accomplish here. We have some reports to present before departing. They plan two afternoons when we can do this. We then went around the room and each person briefly introduced themselves and what they specialize in. I said I was a civil engineer, interested in spelean history and also interested in helping to finance cave studies. The university cave students then introduced themselves. They all speak some English.

At noon we had an excellent lunch that had 12 different dishes placed on the lazy susan in the middle of the large table. Half of the plates contained things that we weren't sure what they were. Sometimes a Chinese could translate something into an English name but often they could not. Then we all (11 of us) went out shopping with Professor Zhang. Mike stayed back at the room with all our duffel bags and we each gave him the keys or the combinations to our locks so that he could open the bags for the health inspectors. We visited the Plaza Hotel gift shop, the nearby Friendship store, a cultural arts center for minorities, two antique shops, rode a mini bus to the bank, and another mini bus back to the university. We were very surprised to discover that at the bank you could get a mixture of both FEC and the local RMB yuan and that the bank's receipt even said that some of the RMB could be converted back to dollars when you departed China. The currency rules seem to be changing almost daily. We came back to the guest house on a very interesting short cut walk. It was almost 1800 when we got back and were able to locate someone to unlock our room. The Health/Quarantine folks had sent two people here and they looked inside the top of each bag and partially unpacked many. All bags were then treated by soaking balls of cotton with a chemical and putting them back in the top of the bags. We moved the bags to our own rooms so we could repack them at our convince. I had two piles of loose items outside of my bags so I moved it all upstairs along with my bags. Ron did the same.

At 1810 we went back into the cafeteria next door where tonight's meal was being served. There were three tables with 10 seats at each and we divided out to all the tables. Of the nine American guys here so far, 5 of us have beards and 4 were at my table (Mike, Don Coons, Mick & me). The other one with a beard is John. We also had a couple of the Chinese cavers, a VP and the head of the Geology Dept at our table. The food and drink then started to flow. The drinks were mainly 53% (106 proof) liquor, beer or Pepsi. I only

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had Pepsi. The food must have been at least 20 different dishes. I found 5 or 6 of them to be very good. At the end came apples. By 2000 supper ended and we went back to our rooms to pack and to crash. I then brought these notes up to date and at 2145 called it quits for the night. Ron was already fast asleep.

Wednesday, 17 March 93. Up at 0800 and finished repacking our bags and at 0830 went to breakfast. The largest minority in this province of Guizhou is the Miao (pronounced meow). Ron called Bestours and found out that Ian went from Hong Kong to Guangzhou by boat and then CITS will meet him to take him to the airport for a flight to Guiyang. He'll probably catch up with us tomorrow. At the university guest house I purchased 4 cans of grape drink and 4 cans of Jianlibao. It was about 1030 when gear truck and two vans finally hit the road. We were on an expressway for quite awhile and it was 1140 when we left the paved roads on a good dirt road. At one point we passed through a construction area with one lane traffic. We arrived in the tiny village of Guado at about 1245 and picked out our rooms. The Chinese cavers used the rooms on the first floor and we were assigned the rooms on the second floor. There were 5 rooms set up with two beds each and one room with three beds plus another large room for meetings, gear and mapping. Each bed has a sheet, pillow and a quilt. Front side rooms were as follows: Don C & Pat, the meeting room, Don M & Dwight, and Mick, Mike & Ian. The rooms on the back side were: Carol & Janet, the meeting room, Ron & myself, and Tom & John. The bathroom is an outhouse just below our sleeping quarters and on the other side of the main road. I think it serves the buildings in the immediate area plus travelers. The men's side is closest to the road and has five holes in the floor. It is very dirty and you must bring your own paper. I did notice that it is periodically swept out. We walked around the village a little bit and found three stores. Each store is a small building about 10 feet wide and 5 feet deep. I got a package of cookies for one yuan but I am not sure what the correct price that he was asking was since he only wrote it out in Chinese characters. Around 1415 our hosts decided we had waited long enough and lunch was finally served. I drank one of my grape drinks. Around 1500 the gear truck and the second van of people arrived. When they visited the county officials in Ping Ba they had to go out to lunch with them and that's why they were over 2 hours late.

At 1610 Ron, John, Tom and I took a walk. We went down the road and took the first path to the right through a small village or actually just a cluster of houses. The interesting trail went around the south end of a large cultivated sink and then started down into a karst tower valley. At that point another smaller trail went off to the left and we took it. The smaller trail soon crested a ridge and shortly after that we were back on the main road. As we hiked back we passed a pit on the left but ropes would be needed to bottom it. Back at home base we found Mike throwing rocks into a tree to knock down his frisbee. He then decided to rig a rope and climb up to retrieve it. This was a good show for all the local kids and adults. He just got it down and wasn't even on the ground himself yet when it was in another tree. Ron freed it using a long bamboo pole. My contact lenses were causing me problems so I put my glasses on. I also took a couple of aspirin. Our hike only took one hour. We now have all of our duffel bags unpacked and things piled around the room but mostly stacked under the beds. It will take quite awhile in the morning to pack for the cave trip. Also we discovered that with the ropes and gear left by the last group there are only 2 inner tubes so with my three we still only have 5 total and that's way short. We want to try and send a note to Ian and ask him to get more inner tubes and a couple dozen cans of Jianlibao. I took the outside temperature and it was 40°F. The room is now up to 50°F since we closed the window over the door and closed the room. We ate supper around 1830 and were just finishing at 2000 when the electricity came on. All rooms were able to get a light bulb to work except for ours. We have no socket so we put the bulb in the socket outside the door. It didn't matter much since the electricity went off in only about 15 or 20 minutes anyway. Both Ron and I put the quilts on the bed to make it a bit softer and are using our sleeping bags to sleep in. After supper we divided the Americans into four groups to explore the following caves:

Duo Bing Dong - Mike, John, Mick, Liang Hong

You Cai Dong - Ron, Carol, Janet, Xiong Kangning

Shuiluo Dong - Don C, Dwight, Don M

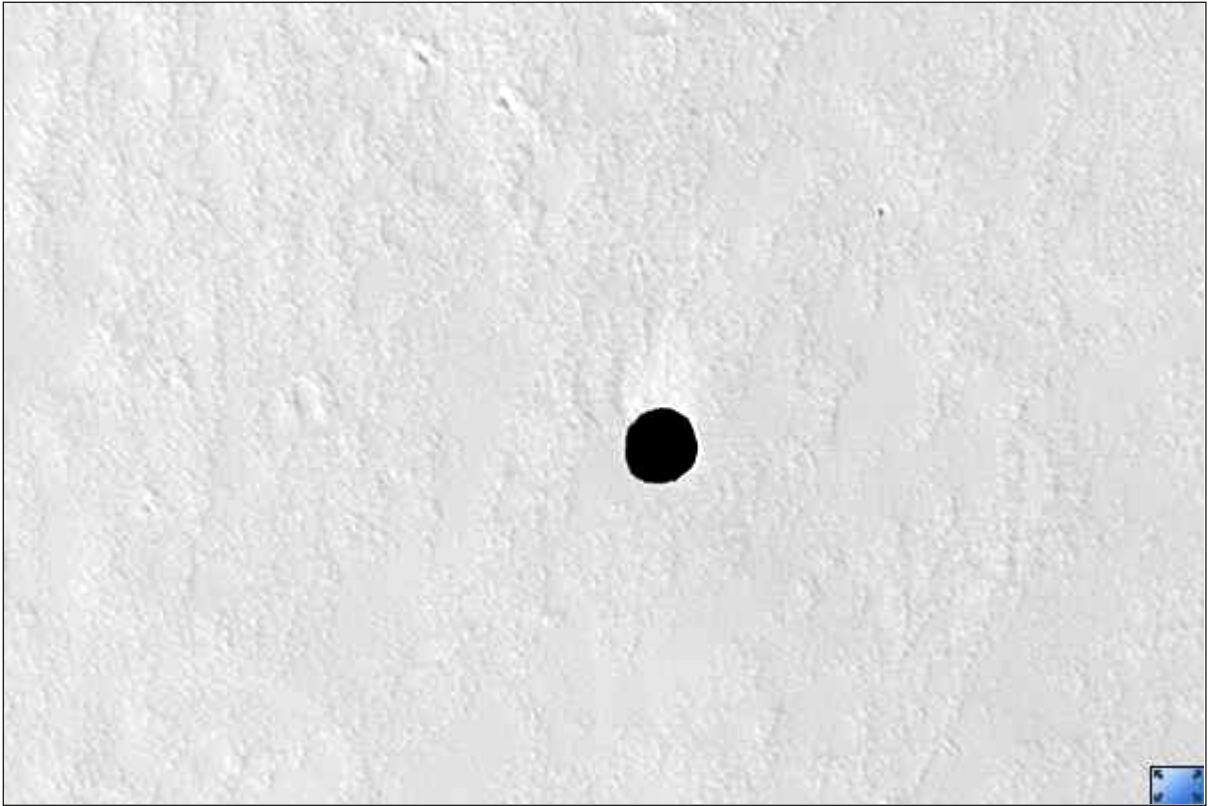
Hau Ta Dong - Pat, Chuck, Tom, Xiao Hong Ling

Then Kangning decided which Chinese cavers would go with each team.

Thursday, 18 March 93. Power came on during the night and stayed on. I got up once to use the outhouse. Sleeping bag was nice and warm and bed was comfortable, but for some reason I kept waking up very hour or two. Ron said he did also. We got up at 0730 and worked on cave packs again. One thing that I wish I had brought along is Instant Oatmeal. It would have been a great supplement to the breakfast. Tang powder drink would also have been nice to have with the hot water in the morning. The two trucks will take all 4 caving teams out at once after breakfast and will come back for us at 1900 tonight. A couple other items that I forgot was a pullover cap and a pair of gloves. I also needed a cup. I've been using an empty can.

(to be continued in the next issue)

# Caving on Mars, Anyone?



Candidate Cavern Entrance Northeast of Arsia Mons (PSP\_003647\_1745)

Acquisition date: 5 May 2007  
Local Mars time :3:27 PM  
Degrees latitude (centered):  $-5.5^{\circ}$   
Degrees longitude (East):  $241.4^{\circ}$   
Range to target site: 252.5 km (157.8 miles)  
Original image scale range: 25.3 cm/pixel  
(with 1 x 1 binning) so objects  $\sim 76$  cm  
across are resolved  
Map-projected scale: 25 cm/pixel and  
north is up  
Map-projection: EQUIRECTANGULAR  
Emission angle:  $0.6^{\circ}$   
Phase angle:  $51.7^{\circ}$   
Solar incidence angle:  $52^{\circ}$ , with the Sun  
about  $38^{\circ}$  above the horizon  
Solar longitude:  $233.4^{\circ}$ , Northern Autumn

This photo was taken from an internet site called HiRISE HIGH RESOLUTION IMAGING SCIENCE EXPERIMENT, Department of Planetary Sciences-Lunar and Planetary Laboratory, found at [http://hirise.lpl.arizona.edu/PSP\\_003647\\_1745](http://hirise.lpl.arizona.edu/PSP_003647_1745). To the left is information copied from the site and below is some copied text.

This image shows a very dark spot on an otherwise bright dusty lava plain to the northeast of Arsia Mons, one of the four giant Tharsis volcanoes. This is not an impact crater as it lacks a raised rim or ejecta. What's amazing is that we cannot see any detail in the shadow! The cutout shows this dark spot and a version that is "stretched" to best see the darkest area, yet we still cannot see details except noise (1380x782, 1 MB). The HiRISE camera is very sensitive and we can see details in almost any shadow on Mars, but not here. We also cannot see the deep walls of the pit. The best interpretation is that this is a collapse pit into a cavern or at least a pit with overhanging walls. We cannot see the walls because they are either perfectly vertical and extremely dark or, more likely, overhanging. The pit must be very deep to prevent detection of the floor from skylight, which is quite bright on Mars. ▲



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Ketchikan, AK 99901

Address Service Requested

