

*Best of*

# The Tech Troglodyte



**Highlights from the Tech Troglodyte  
from 2000 through 2009**

**Written by cavers over the years  
Compiled by Julie Booker  
Edited by John Bowling**

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**Cover photo:  
Pig Hole Cave  
Taken by Julie Booker**

## You Can Only Be So Serious with Pants Full of Cheese

by Bob Cohen (Guru and Wearer of Lactose Tolerant Underwear)

Surprise Cave continues to pleasantly live up to its name. On a recent trip to the cave I somehow got separated from Chris' group. Bob Z. heard about a shortcut to the Heaven area. We were checking it out when I saw a lead that had my name on it. Some mysterious force drew me on, and I lost the group or they lost me. It compelled me to keep going into a passage I had never seen before. I heard a voice and thought it was Chris and our new Russian caver friend. I crawled and climbed to the voice. It turned out to be a false god named Harry who was on an early trip (big surprise) with Barbara. They were on their way out when I met them on top of the Corkscrew. However it worked, I found another way from the top of the Corkscrew to the main stream passage. Bob Z. found a shortcut to Heaven. These routes were far from virgin, but they were new to us. It's nice to fantasize about being the first, just like dating.

Some years ago one surprise the cave summoned up was quite outstanding. I had some cavers in from out of town. Mutual caver friends set it up for them to see me and go caving. They were my friends' work acquaintances. As far as my friends knew, my guests were serious geology types. The instructions I received were, "Show them a good cave, but don't get too silly or wild." (What, me?)

We went to Surprise Cave. I decided to pack a snack for all. It consisted of an assortment of crackers in a Nalgene jar and two cans of that pressurized cheese product. This is the stuff that needs no refrigeration and will last into the next Ice Age. It comes out of a nozzle, flowerette style, like whipped cream, so it can remain untouched by inhuman cave hands. This seemed like a perfect cave food.

I ran out of room in my cave pack, so I put the two cans with the capped nozzle down in my front hip pockets of my coveralls. We were on a mellow sightseeing trip, so I thought this arrangement was fine. I forgot all about the cans after the beginning of the trip. When we all cleared the bottom of the Corkscrew, I started having a slight sensation of my lower cave like my outfit was shrinking. At first I wrote it off to putting on a few pounds. As the trip went on,

I acted as a serious tour guide to these serious folks. Everything went fine, but I couldn't shake the feeling of my suit getting tighter. At one point I slipped and slammed my leg. I braced for the pain as I hit the rock, but it barely hurt. I continued my role as guide until someone in the group said, "This cave is unusual; it smells like Swiss and cheddar." Then it hit me what was going on. A quick check of my pockets confirmed the curdled facts. The caps came off the two cans in a crawlway. The nozzles ripped a hole inside my coveralls, broke off, and filled my outfit with two kinds of cheese. I decided to hide the truth and go on with the show. This worked until I started to lead up a tight climb. My cheesy past was revealed when each leg bottom produced a different flavored yellow mass. The group realized at once what happened and produced a laugh that reverberated through the entire cavern. We all just sat down and told a whole bunch of raunchy jokes and cheesy stories.

The rest of the trip was considerably more silly. I tried to keep a straight face and point out speleothemes, but the rest of the crowd wanted more from me now. When I tried to continue, they dropped their pants in unison and made animal sounds. My surrender took the form of all of us exiting the cave in Monty Python silly walking style. They all assured me they had a great unforgettable time and wanted me to promise another cheese performance the next time they were in town. Days later my friends wanted to know how it went with their serious co-workers. I told them, "You can only be so serious with pants full of cheese."

One last note of a more serious nature. The cheese padded my leg from being hurt when I hit it on a rock. Maybe cave suits could be designed with C.P.S. (cheese protection system). Imagine pressurized cans connected to shock and motion sensors that would immediately fill your suit with cheese to prevent injury. I could see somebody taking a fall down a large pit and no one getting too concerned. They should just have a large amount of crackers and wine on hand for the clean-up.

**Quotable Quotes**  
eavesdropped and submitted by various folks

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- SL to KD: "We need the special beer-holding bra attachment."
- SK to EOM: "I'll bet he bought you a mountain. Probably Mount Rainier."  
EOM to SK: "Yep. I think I'll rename it Mount Eileen."
- SW to crowd: "People have died just like that, but I never worry about it."
- AW to MB: "I slept with all of them."
- DC to RS: "That was a great award, the blue silk ribbon."  
LB to RS: "Speaking of that, I have some pictures for you."
- BG to crowd: "I'd rather it be condoms than Kirk's dirty socks."
- SL to SW: "You know what his first job is when he rolls into town? Fixing my crotch."
- DC to DB: "The tighter the crack, the better."
- DC to group: "We need to decide who's driving on this trip."  
SK to DC: "The pilot, I hope."
- CF to KS: "You should do it in DC and make money."
- JR to JR: "Do you want to suck the head? I'm not going to suck the head."
- SL to DW: "If there's a crack, Kirk's been in it."
- EOM to SL: "See? When Hobbes was done he walked off, sat down, and went to sleep."  
SL to EOM: "Well, that's what I do when I'm done."
- BG to JG: "If you fuck D\*\*\*, I'll fucking kill you!"
- SL to BB: "It was only a matter of time until he got hurt in that cave."
- JO to KD: "Is the Ed on this trip the one they call Captive Ed?"

**From the Signout**  
 compiled by Kirk Digby and Steve LePera

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VPI cavers and their guests logged in 2876.5 caver hours from 5/1/1999 to 4/25/2000.

5/8/99	Starnes	Eric Stanley, Dave Colatosti, Chris Garguilo	These lead climbs were so sketchy... we could hear the Indiana Jones music playing.
5/15/99	Pig Hole	Kirk Digby, John Deighan, Phil Benchoff, Dave Lamb	Caving with John is Superfun!
5/22/99	Tawney's	Joe Thompson, Rosie Thompson, Joel Bergstein, Ruth Groling, Matt Burnett	Why can't FEMALE nerd cavers burn their shirts as a light source?
6/19/99	DMC	Sandy Knapp, Joe Zokaites, Ray Sira	"Sandy, your left breast is flashing."
7/10/99	James	Chris Rourke, Matt Finarella	Matt went lame and Rourke, well he's always lame.
7/12/99	Pig Hole	Kent Wilson, Steve LePera	"It's over there...."
7/22/99	Newberry's	Kirk Digby, Steve LePera, Chris Rourke, Damian from Poland	Polish cavers are much better than Polish rope.
7/25/99	Scooter's Boneyard	Steve LePera, Eileen O'Malley, Matt Burnett	We dug and found mud!! I mean we didn't find anything. Yeah. Stay away from our mud damnit!
8/7/99	DMC	Steve Wells, Steve LePera	Snake rescue team at it again.
9/17/99	Miller's Cove	Rick Altman, Janet Altman, Kirk Digby	I can't believe we have no beer.
9/18/99	Stay High	John Deighan, Mike McAvoy, Katherine Shelor, J. Phillips, Beth Geiger, Seth Pritchett, Brad Atkinson	We came, we saw, we got muddy....
10/9/99	Smokehole	Beth Geiger, Becca Geiger, John Deighan	Becca says carbide tastes like Pop rocks. "Ouch....damnit!"
10/10/99	Links	Chris Hibshman, Marie Holder, Matt Burnett	Chris did the high way, Marie tried the middle, and I took the low road.
1/13/00	Becky Knob & Morgads Pit	Wil Orndorff, Virgil Brack, Matt Burnett, Steve Wells	3 hours of caving. 3 hours of driving
1/23/00	New Castle Murder Hole	John Deighan, Andrew Oberhardt, Jason Obenschain, Jeff Leech, Pete Sauvigne	If you go that way, you probably won't even break your leg.
1/29/00	Clover Hollow	John Deighan, Eric Stanley, Jason Obenschain, Clewn Taylor, Tim Bratton	No fair padding your in-cave time by taking an hour to tie your seat!
3/24/00	DMC	Steve Wells, Steve LePera	See below....
3/25/00	DMC	Ben Schwartz, Chris Rourke, Eric Stanley, Matt Burnett, Alison Williams	Beer will be purchased... oh yes, it will be purchased.
4/1/00	Wilburn Valley Cave	Jim Pugh, Gary Movak, Bess Tenant, Chuck Waller	A real cave trip.
4/22/00	Newberry's	Kirk Digby, Chip Mullins, Ed Fortney, Mike Malsbury, Kevin Rock Jason Obenschain, Bobby Zokaites	"It's a good thing we had Bobby along to watch out for me!" - Sgnt. Fortney

## Stay High for Dummies

by Mike Malsbury

If you haven't been to Stay High yet, I recommend it. Although it's a vertical cave, you can bypass most of the ascents up rope. Overall, it's a pretty easy cave with some nice sights and climbs.

Eileen O'Malley, Sandy Knapp, Mark Eisenbees, and I recently went there. At the cave entrance, I changed slowly to avoid being the first into the cave and having to rig. It worked. The only problem was that I had been to the cave the most recently. I was expected to recognize and know the route. That didn't last long.

We found ourselves in a room with a handful of obvious exits. None of them ended up working. The group's confidence in me had started to falter. Thankfully, Mark stumbled across the exit, literally. It was a hole in the floor.

He was okay, and we started searching for the waterfall that leads out of the cave. After following several streams, some deep and unavoidable, we came to what looked to be it. Maybe to make up for not rigging, they made me climb. I ended up knocking down a lot of chirt and loose rock; not a good sign.

"This can't be the right passage," I thought to myself.

"Does it go?" Mark asked from below.

"This sucks," I thought to myself. "The passage is too narrow. I don't remember having to

get this wet. I don't remember having to crawl through the water with a rock sticking into my spine. There's no way this could be the right passage." Twenty minutes passed. "This sucks. There's no way this is right."

"Is this the right waterfall?" asked Mark, who was waiting patiently from below.

"Umm..... I don't know. Come up and see if it looks familiar." At this point, my inner monologue packed up and left.

Mark climbed up through the waterfall, knocking loose rock and detritus down behind him. Since the climb was sketchy, I helped belay him. Another twenty minutes passed. We both agreed that this wasn't the right passage.

Mark helped belay me down, but he was stuck at the top without a belay and nothing to rig to. Innovative guy that he is, he wedged a rock between the floor and the wall and rigged a pull-down line to it. If the safety committee can do it, it must be valid technique.

We found the correct waterfall, and to our chagrin, immediately recognized it as such. We walked to the exit through nice open passage. My inner monologue even returned to berate me some.

If you want to go on a Stay High trip, ask us. We have the tourist route memorized. Of course, if we get off course, all the passages are going to look familiar to us.



"Okay ... it's 'stalactite' when they hang down. It's 'stalagmite' when they point up. But what do you call it when you see one sideways like this?"

## What Do You Know About Saltpeter?

by Chris Hibshman

What is saltpeter? Why did people go to extreme lengths to get it? Why did saltpeter mining result in those large mounds of dirt in Tawney's, which are evident 140 years later? If you are looking for answers to these questions, you should continue reading.

My duties as Vice President of the VPI Cave Club include leading training trips, often to Tawney's Cave. Tawney's Cave has a rich history, dating back to the Civil War when saltpeter was "mined" from the cave to manufacture gunpowder. To impress the new and naive trainees, I would spout out everything I new about saltpeter (two or three facts, plus several lines of bull sh# @). After a few minutes (okay, maybe it was less than a minute) of preaching, it became clear to me that I had no clue what I was talking about. Worse was when one of the more intelligent trainees picked up on my ignorance, usually by asking a smart-assed question that I had difficulty answering.

For these situations, I had two responses. Sometimes I would bull sh# @ a reply, piling on the guano up to my neck. Other times I would carefully change the subject. Either way, I felt humbled by the experience. Combine that with being a chemical engineering graduate student and you'll see why I decided to research the subject and write an article so future members will not have to endure similar humility. (It is important to note that I rarely expressed my ignorance about the subject.)

### WHAT IS SALTPETER?

The common name "saltpeter" usually refers to potassium nitrate ( $KNO_3$ ). However, it may also include calcium, sodium, and ammonium nitrates. The archaic spelling "saltpetre" is a synonym for niter or nitrate. What is the difference between the various nitrates? Many years of field testing revealed that the potassium saltpeter is preferred because it produces a better explosive than the inferior sodium and calcium nitrates. (Incidentally, nitrates are common to most commercial

fertilizers. Combined with diesel fuel, this can also make a powerful explosive, like the 1995 Oklahoma City bombing.)

Once saltpeter is purified, it can be mixed with charcoal and sulfur to produce gunpowder, which is an extremely important commodity, especially when you are trying to win a war. The composition of gunpowder varies, depending upon the application and manufacturer. Gunpowder consisting of 75% saltpeter, 15% charcoal, and 10% sulfur seems adequate to propel most projectiles effectively. The origin of this mixture is obscure, but the Chinese were using it over 3000 years ago. (Another side note: The reaction for the burning of gunpowder is very complex and may include dozens of simultaneous reactions. The most probable starting mechanism is the nitrate oxidizing the charcoal.)

There are many places where potassium nitrate can be obtained. It can be mined in its native state in a select few locations worldwide, but these places are limited and the purity is not very good. Other places include organic waste piles and animal manure, specifically cattle, sheep, pig, chicken, and human excrements. In fact, in Europe during the 1500's, it was not uncommon for people accumulate their excrement (and the excrement of their livestock) into a large pile, allow it to sit unabated for at least a year, and then extract the saltpeter. Another common place to find potassium nitrate is in the soil of caves, including those of southwest Virginia.

### SALTPETER CAVES

The soil in caves was the source heavily exploited during the Civil War, and also during the Revolutionary War. An article by David Hubbard in the 1995 NSS Convention Handbook lists 88 saltpeter caves in Virginia, including several local to the Blacksburg area (see Table 1).

Physical evidence of saltpeter mining in these caves is limited to etchings of names in the cave walls, old timbers or vats, and mounds of dirt

from the leaching process. More subtle evidence is the old sediment marks on walls, mattock marks, torch marks, and soot marks. Most of the physical evidence that these caves were once saltpeter caves has since deteriorated or been destroyed, but an oral and sometimes written history remains.

A recent visit to Tawney's Cave revealed several pieces of evidence about the saltpeter mining. In the Saltpeter Room (this proved to be a good starting point) you should notice several large mounds of dirt, which was the soil after the saltpeter had been extracted. Old sediment marks are found along most of the walls in this room. Further down the passage near the stream are dozens of names etched into the wall. Several of these date back to the Civil War and are still present. Here are a few to look for:

"John W. Surface - Feb9th 1862"

"W.L. Surfice - 4 February [sic] 1862"

"Wm.L. Surfice - Fabuary [sic] 7th 1861 -  
Bought this cave in the year 1860"

(And now it is time for a lesson in chemical engineering... so pay attention!)

#### THE LEACHING PROCESS

During the Civil War, Major George W. Rains was assigned by the Confederacy to oversee the production of saltpeter. In 1861, he wrote an article on the subject and distributed pamphlets called "Note on Making Saltpetre from the Earth of the Caves," which is where most of this information is obtained. Now, Major Rains is somewhat of a newfound hero of mine, because he was a great chemical engineer. The best part is that he probably had no idea what a chemical engineer was at the time. He optimized the process and even included an economic analysis of how much money a team of three people could make in a week.

Cave dirt contains large amounts of potassium nitrate, along with calcium and sodium nitrates and many other impurities. Fortunately, potassium nitrate is very soluble in water, whereas most of the impurities are not. This is the basis for extracting or leaching the saltpeter from the soil.

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Table 1: Listing of Local Saltpeter Caves

Giles County	Bluff City Saltpeter Cave No.1 Bluff City Saltpeter Cave No.2 Canoe Cave Curve Saltpeter Cave Daisy Williams Cave No. 1 Klotz Cave New River Cave Saltpeter Cave Straleys Cave (Straleys No. 3) Straleys No. 2 Tawney's Cave
Bland County	Buddy Penley Cave Hamilton Cave Repass Saltpeter (Bland Saltpeter) Cave
Montgomery County	Adams Cave

Basically, there are four steps to "making" saltpeter from cave dirt. The first is to leach the  $\text{KNO}_3$  out of the soil and into water. Since all nitrates are very soluble in water, this is quite simple. Potassium nitrate is not the only substance dissolved in the water. Hydrogen nitrate and hydrogen nitrite is also present. To increase the amount of  $\text{KNO}_3$  in solution, potash lye (potassium hydroxide,  $\text{KOH}$ ) is added to the react with the hydrogen nitrate and hydrogen nitrite to produce  $\text{KNO}_3$ . The third step is boiling the saturated  $\text{KNO}_3$  solution to evaporate excess water and produce a supersaturated solution. Finally, cooling the supersaturated solution results in nearly pure  $\text{KNO}_3$  crystals. (Solubility of  $\text{KNO}_3$  in 100g  $\text{H}_2\text{O}$ : 246g at 100°C; 32g at 20°C). These four steps are analogous to making rock candy from dirty granulated sugar.

The following is a simple description of how the leaching process may be set up at a local cave. To start out, four large barrels with at least one head (end cap) are needed. Drill a half-inch hole in head of each barrel and plug it up with a cork. Set the barrels on some timbers, with access to the plugged hole at the bottom. Place some twigs and sticks in the bottom of the barrel and cover with about 6 inches of straw. Fill the barrel to the top with cave dirt and then add as much water as possible. The twigs and straw act as a filter to allow the water to drain from the barrel without clogging the hole. The potassium nitrate will dissolve in the water, while most of the impurities stay in the soil.

After a day, the first barrel is drained and that water is placed into the top of the second barrel. More water is added to the first barrel. The next day, this process is repeated. Major Rains recommended that each barrel has three washings, and then the old soil is replaced with fresh soil. The saltpeter-rich water is placed into a fourth barrel. Some strong lye made from wood ashes is added to react with the hydrogen

nitrate and hydrogen nitrite to form potassium nitrate.

The water is boiled in a kettle to evaporate the water and increase the concentration of the solution. When "a drop taken up by the end of a stick becomes hard or solid when let fall upon cold metal or upon a plate," the liquor is poured into a trough to cool. Nearly pure (~5% impurities) potassium nitrate crystals will form and should be dried in the sun.

If done properly, twelve barrels of cave dirt will produce about 100 pounds of saltpeter on average. Of course, this depends on how much saltpeter is in the cave dirt. Three men can easily process twelve barrels of soil in six days using the process illustrated in Figure 1. In 1861, the Confederacy was paying 35 cents per pound of saltpeter. This would result in \$35 per week for three men, which was a respectable income. By 1864, the price increased to \$1.50 per pound, or \$150 per week for three men.

The quality of gunpowder depends upon the purity of saltpeter, so it was refined even further at a plant in Nashville, Tennessee, before being sent to the soldiers on the front lines. This consisted of additional filtering and recrystallization processes, similar to those described above.

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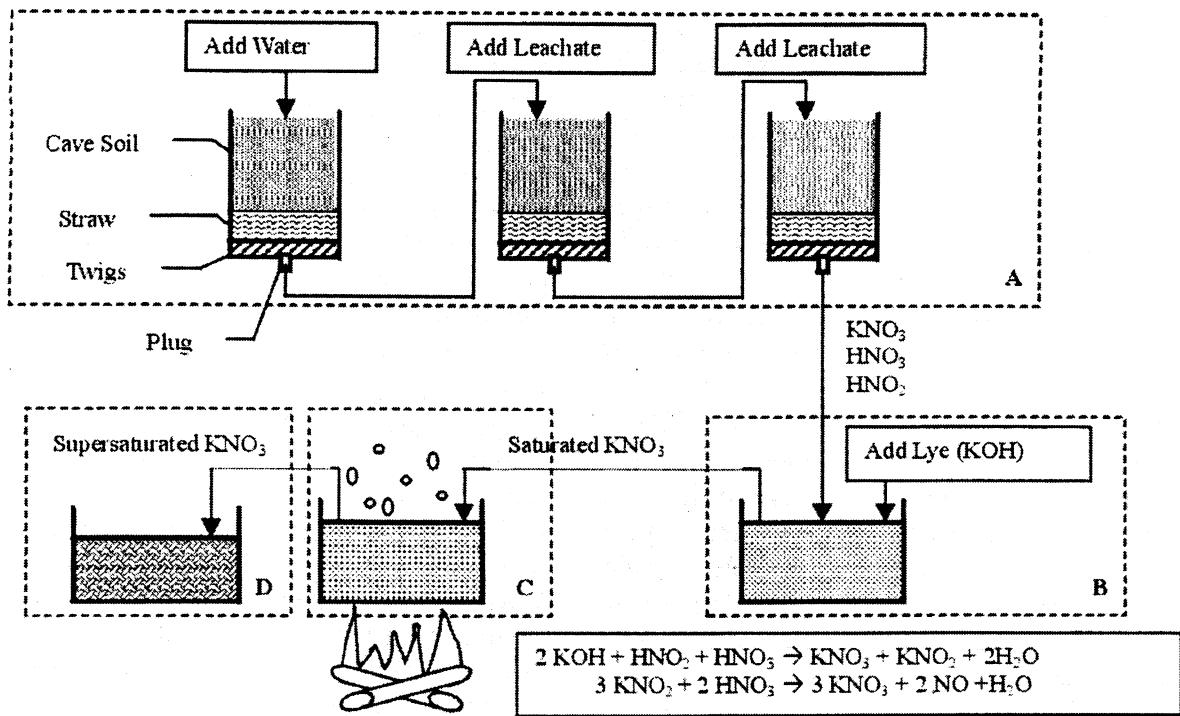


Figure 1: Schematic of a typical salt peter process during the Civil War. A) Dissolving the salt peter in water. B) Adding lye to produce more KNO<sub>3</sub>. C) Removing water to produce a supersaturated solution. D) Cooling the solution to produce nearly pure crystals.

## 90 Useful Caver Tips

by Kirk Digby

In no particular order:

1. Bats aren't bugs.
2. Convention is really cool.
3. If you can, stay out of the water.
4. Cave mud is an aphrodisiac.
5. Female cavers can be rare; cherish them.
6. Sunlight causes cancer.
7. Carbide lamps make a good heat source.
8. Awakening hibernating bats can kill them.
9. Avoid purchasing used vertical gear and helmets.
10. Know when you've had enough, and tell the trip leader.
11. Don't jump in caves.
12. Remember, your actions affect everyone on the trip.
13. If anyone wants to leave, it's time to turn around.
14. After negotiating an obstacle, help the person behind you.
15. Make your next car purchase a four-wheeler.
16. Know your limits.
17. Learn to tie some knots; at least a bowline or figure-eight.
18. Don't camp near a port-a-john.
19. Leave keys, wallet, and jewelry above ground.
20. Carry a first aid kit with pen and paper in a waterproof/smashproof container.
21. Turn around and look at the passage behind you on the way in. This will help on the way out.
22. Before choosing a cave food, consider not only flavor, but also structural integrity.
23. Keep the group together.
24. Don't shine your light in someone's eyes.
25. Dress in layers. Wool and synthetics are best. Avoid cotton.
26. Don't assume.
27. Keep It Simple, Stupid. Not to be confused with Keep it Stupid, Simple.
28. It *will* rain at all caving events.
29. Duct tape.
30. Find out about histoplasmosis and blastoplasmosis.
31. Learn how caves are mapped.
32. Learn about the cave protection act in your state.
33. Jack Daniels is made with cave water.
34. If someone yells rock, DON'T LOOK UP.
35. Do not climb above someone else, and conversely don't hang around below someone climbing above.
36. Eat and futz with your gear while waiting for others.
37. Stay out of caves known to flood if there's rain in the forecast.
38. Use three points of contact when climbing.
39. It's *better* in a cave.
40. Take three helmet mountable sources of light.
41. Wear a UIAA approved helmet.
42. Dress up for court.
43. Wear a seatbelt.
44. Save partying for *after* the trip.
45. NEVER CAVE ALONE.
46. Tell someone where you're going, when you'll be back, and what to do if you aren't.
47. Learn and live by the NSS motto.

- 48. Avoid caves with names like "Grim Rock."
- 49. If it looks sketchy, it probably is.
- 50. If she looks sketchy, she probably is, too.
- 51. Don't eat chili before a crawly trip.
- 52. Practice vertical above ground with a qualified instructor.
- 53. Watch the trip leader pack if you aren't sure what to take.
- 54. Know and follow access policies for the caves you visit.
- 55. Bring a change of clothes.
- 56. Beer is good.
- 57. Find out the local rescue callout numbers for the areas you cave in.
- 58. Know how to give a belay and carry approximately 35 feet of webbing always.
- 59. Watch for hypothermia.
- 60. Be nice, caving is supposed to be FUN.
- 61. Leave your troubles above ground.
- 62. Anyone who asks for a belay gets one.
- 63. Ask for a belay *before* you fall.
- 64. If you don't feel well, stay home.
- 65. Keep the caver behind you in sight, or at least within earshot.
- 66. See trash? Pack it out
- 67. Keep batteries and vertical gear separate.
- 68. Borrowed gear? Make sure to return it.
- 69. DO NOT ATTEMPT TO PUT WOOD ON THE O.T.R. FIRE.
- 70. When changing at a cave, be discreet.
- 71. If you make a promise to a landowner, make sure to keep it.
- 72. Survey as you explore.
- 73. If you encounter spelunkers, help them find the NSS.
- 74. Cave with a waterproof watch.
- 75. Wear boots.
- 76. Knee pads are good.
- 77. Seek out First Aid training. Consider an EMT course.
- 78. Become an NSS member.
- 79. Join a Grotto. The fellowship of caving is easily half the fun.
- 80. Be wary of surface people; they don't understand us.
- 81. Share your knowledge. Many beginners can benefit.
- 82. Take pictures.
- 83. Avoid photo trips if you aren't the one taking pictures.
- 84. Survey trips can be cold.
- 85. Don't do or say anything in front of a landowner that you wouldn't in front of your parents.
- 86. Avoid speleopoliticians and their politics.
- 87. Support your local caving vendor and cave conservancy.
- 88. Support your local brewery.
- 89. Polypro is good.
- 90. If you find food in your pack from the last trip, give it to someone you don't like.

## An Adjustable Spacer for Rappel Racks

by Mark H. Eisenbies

In October of 2000, I was a member of a team of VPI cavers who participated in Bridge Day and rappelled off the New River Gorge Bridge in Fayetteville, West Virginia. At just over 700 feet, the rappel was probably my longest to date, and several of us had some difficulty picking the right configuration of our racks on our first rappels. Several of us found ourselves feeding the rope through our racks while using five brake bars.

On long drops, acquiring the right balance between friction and smoothness can be a challenge. Maintaining the proper spacing, particularly between the first three bars, can be tricky because of their tendency to jam together due to the weight of the rope. Since attempting long rappels like this on four bars is undesirable, many cavers resort to the use of spacers in order to maximize smoothness while keeping five bars engaged. This article will describe an adjustable spacer using a simple hose clamp within a SMC stainless steel brake bar. While this method has surely been independently developed elsewhere, I have not encountered it as of yet.

According to Smith and Padgett (1996), the use of spacers is a radical and dangerous addition to your rappel rack. However, Smith and Padgett also state that one of the challenges of using a rappel rack is preventing the second bar from overheating. They recommend the use of

spacers as one method for controlling the heating of the second bar, although on the next page they rebuff them as a "drastic" modification by reducing the available friction by up to 30%. How this 1/3 reduction in friction should be considered more drastic than a 1/3 reduction in friction by changing from aluminum to steel bars (Smith and Padgett, 1996) is not explained.

Whether or not Smith and Padgett can reach a consensus on the use of spacers isn't the point. Rappelling is an inherently dangerous activity, and I assume no particular responsibility for the use or misuse of the following suggestion. It is always prudent to practice with any changes to your vertical technique in a controlled environment before utilizing a change underground.

Traditionally, spacers are constructed from pipes, springs, washers, nuts, or any other item that can be placed on the U-frame of the rack to set the minimum distance between the first and second bar (see Figure 1). For years I used two 0.6 inch pieces of PVC pipe to serve this function. The rest of my rack consists of a solid, 3/4 inch, grooved, stainless steel top bar, and SMC stainless steel U bars. I have been using this particular rack since 1990. While I weigh 170 lbs., a four or five-bar rappel commonly is my preference. I have never had the occasion to use all six bars.

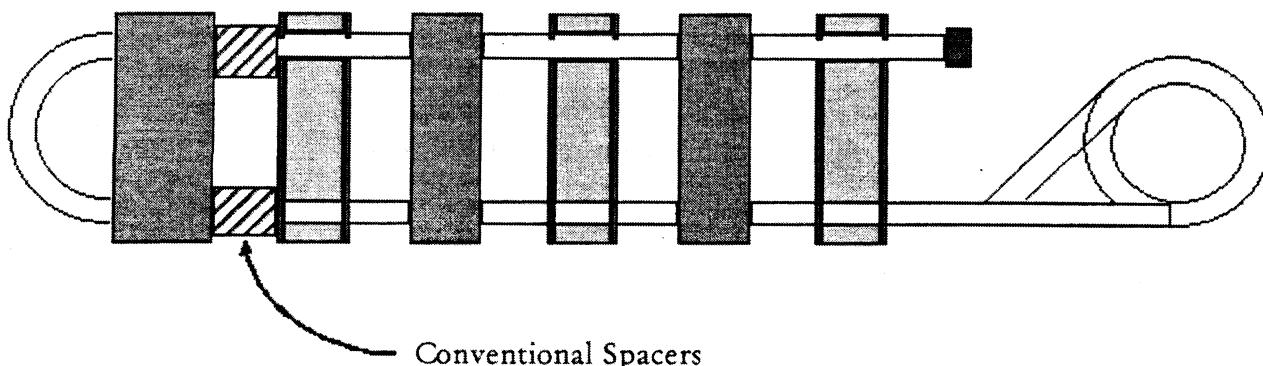


Figure 1: Rappel Rack with Traditional Spacers Installed

At Bridge Day, I found that my second bar would jam tightly against my spacers and it took a great deal of hand strength to move the bar even to the point where force-feeding rope allowed my descent. On my second rappel I switched to a 4.5 bar configuration (braking hand on the same side as the face of the last engaged bar), and the rappel was more acceptable, but not ideal.

Just after Bridge Day, I installed a stainless steel hose clamp within my SMC U bar in the second position (see Figure 2). Cut off the excess band and file smooth. Because it fixes the second bar in position, the bar had to be filed into a strait-groove, idiot bar to allow the bar to be opened for rigging. My initial spacing between the first two bars was set at 0.7 inches, and the maximum spacing I have used in practice has been no more than 1.1 inches. I currently have it set for approximately 0.9 inches.

Since installation, five-bar rappels have been my standard even on dirty ropes, and I have still not required the use of a sixth bar. Thus, I have found this modification to improve the overall performance of my rappel rack. There have been no problems with slippage or creep

of the hose clamp, and I have not had to adjust its position after setting it.

Because the second bar is fixed, friction can only be controlled by bars three through six. Despite this minor inconvenience the modification allows a precise setting, as well as the ability to tweak it. Since my hand can only manipulate three bars at once anyhow, I do not find this particular disadvantage all that problematic.

In conclusion, despite what Smith and Padgett happen to say in favor or against the use of spacers, I have found this addition to be useful in providing myself smoother rappels. Furthermore, the option of fine-tuning the spacing to provide the exact friction I desire is a definite advantage. Now that I've found a balance that suits me, I have not had the need to change my spacing of 0.9 inches. Because of its adjustability, this method of bar spacing probably has promise for owners of long racks.

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Smith, B., and A. Padgett. 1996. *On Rope: North American Vertical Rope Techniques*. New Revised Edition. National Speleological Society, Huntsville, AL. 382pp.

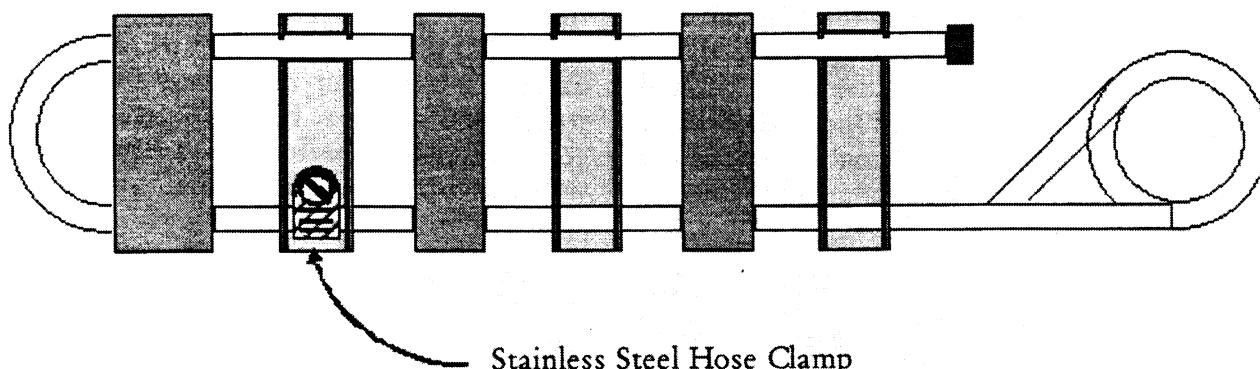


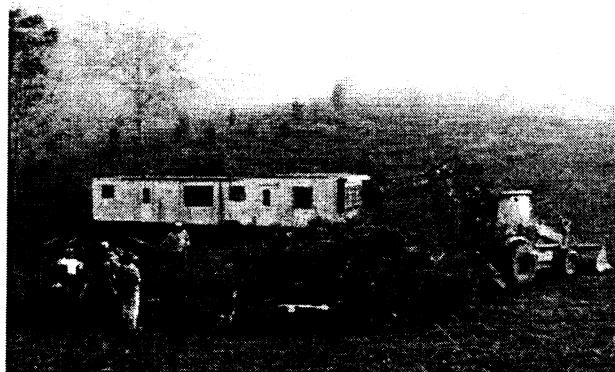
Figure 2: Rappel Rack with Hose Clamp Spacer Installed

## Neel Sinkhole Clean-up Project

by Joey Fagan, Conservation Committee Chairman

On Saturday, September 22, 2001, members of the VPI Cave Club along with personnel from the Giles County Public Service Authority and the Virginia Department of Conservation and Recreation Division of Natural Heritage cleaned out a sinkhole located on property owned by the Kenneth Neel family.

The sinkhole was used as a dump by previous landowners for many years. Former occupants of a house trailer located next to the sinkhole almost certainly "straight piped" their sewage and wastewater to the sinkhole and into the karst aquifer below. Cleaning the trash from the sinkhole will serve to improve the groundwater quality for many of the area's residents who depend on springs or wells for their domestic water supply. It is possible the drainage from the sinkhole on the Neel property makes up part of the calcium carbonate-rich water flow emerging from a spring on Sinking Creek known for its travertine deposits. It was hoped excavation work performed to remove debris from the site would uncover a cave entrance, but no opening was found.



What a mess! The sinkhole at the beginning of the day.  
Photo by Joey Fagan.

The bulk of the debris removal was performed by a backhoe provided by the citizens of Giles County. A grant from the Cave Conservancy of the Virginias provided funds for removal and proper disposal of the sinkhole debris at the regional landfill as well as purchase of erosion

control supplies and seed for groundcover. Twenty-five VPI cavers provided considerable help in moving equipment and sorting recyclable material. In all, three "roll off" boxes full of material were removed from the sinkhole along with the old mobile home. Jay Williams, Vice Chairman of the Giles County Board of Supervisors, attended the clean-up to personally express the gratitude of the board for the cooperation and work by the Cave Club on this worthwhile karst protection project.

People participating in the Neel Sinkhole Clean-up include:

Philip Balister	Eileen O'Malley
Carrie Blankenship	Naomi Orndorff
Matt Burnett	TJ Orndorff
Michael Cole	Wil Orndorff
David Dent	Zenah Orndorff
Mark Eisenbies	Mike Porterfield
Brian Ekey	Sandy Ramsey
Joey Fagan	Kevin Rock
Chris Hibshman	Ray Sira
Mike Horne	Eric Stanley
Sandy Knapp	Gary Tickle
Steve LePera	Sandy Warner
Richard Long	Steve Wells
Dana Martin	George Williams
Chip Mullins	Jay Williams
Madge Neal	Andy Yeagle
Scott Neal	someone with illegible handwriting

URL of The Cave Conservancy of the Virginias  
<http://members.aol.com/caveconser>

## The Piddle Factor: a Mathematical Definition

by Christina K. Lee

The following is an explanation or equation for the time expected to pass between the predetermined sign-out and before arriving at the cave, where T is the expected time of arrival at the cave. The other variables involved are: S, Start Time; C, Number of Cavers on trip; F(S), Food time as a function of Start Time; and W, the number of Wheeled Vehicles to be negotiated towards the cave. An example is threaded throughout this explanation of T to hasten understanding.

With the intended Start Time, S, and the Number of Cavers, C, you can begin setting up an equation for time, T, in hours, where C is multiplied by 8/60 for the average of eight minutes each caver will delay the trip either at sign-out or getting to sign-out and T is the sum of all the factors.

$$T = S + C * (8/60)$$

If the Start Time, S, was set for 8 A.M. and the Number of Cavers, C, was 4, the initial delayed Time is:

$$T = 8 + 4(8/60) \text{ or } T = 8.5333 \text{ A.M.}$$

Into this equation, one needs to account for time of day, in relation to the natural feeding times of cavers, F(S). Starting a trip near a peak feeding hour will delay a trip up to an hour because cavers will not move unless fed. Peak feeding hours are usually midnight, 7 A.M., noon, and 7 P.M. (Cavers will eat if given an opportunity. Do not let that happen!) F(S) can be modeled by a cosine function, where times are transformed into radians (the origin is valued as 21.00 or 9 P.M. and an hour has the value of  $\pi/12$ ). To change the Start Time into radians, one must take the find the number of hours passed since 9 P.M. and multiply it by  $\pi/12$ .

$$F(S) = \text{abs}(\cos(1.5 * S))$$

For our example:

$$F(\text{abs}(21-8) - \text{abs}(\cos(1.5 * 2.8798)))$$

$$\text{or } F(11) = 0.38268$$

Introducing F(S) into the equation of T, gives:

$$T = S + C * (8/60) + F(S)$$

For our example:

$$T = 8.533 + 0.38268 \text{ or } T = 8.91568$$

Transportation is another huge factor in the equation for T. The number of cars carrying cavers may either speed or delay the trip, as shown with the equation for time, t, with respect to the number of wheels, W, where 3 is the optimal maximum number of cars and 0.3 is the amount of time per car in a caravan.

$$t = 0.3 * (W - 3) \quad \text{if } W < 3, t = 0 \\ \text{if } W = 3, t = 0$$

For our example, we will only have two cars in the caravan. Thus, t = 0.

The final complete equation for the time, T, spent from sign-out to cave entrance is:

$$T = S + C * (8/60) + F(S) + t$$

For our example in which there are 4 cavers in 2 cars, starting out at 8 A.M., the time, T, is:

$$T = 8.91568 \text{ A.M.}$$

The total amount of time lost for our example is less than one hour (0.91568 hours).

### NOTE

The above equation is based on what little data is known about the 'average' caver and by no means attempts to take into account a caver known as Kirk. This caver equation will NOT apply to any trips with KIRK and should NOT be used as an explanation of tardiness! Also, not suitable for underground use or consumption.

## Use of the 2001 Cave Survey Protractor

by Joe Zokosites

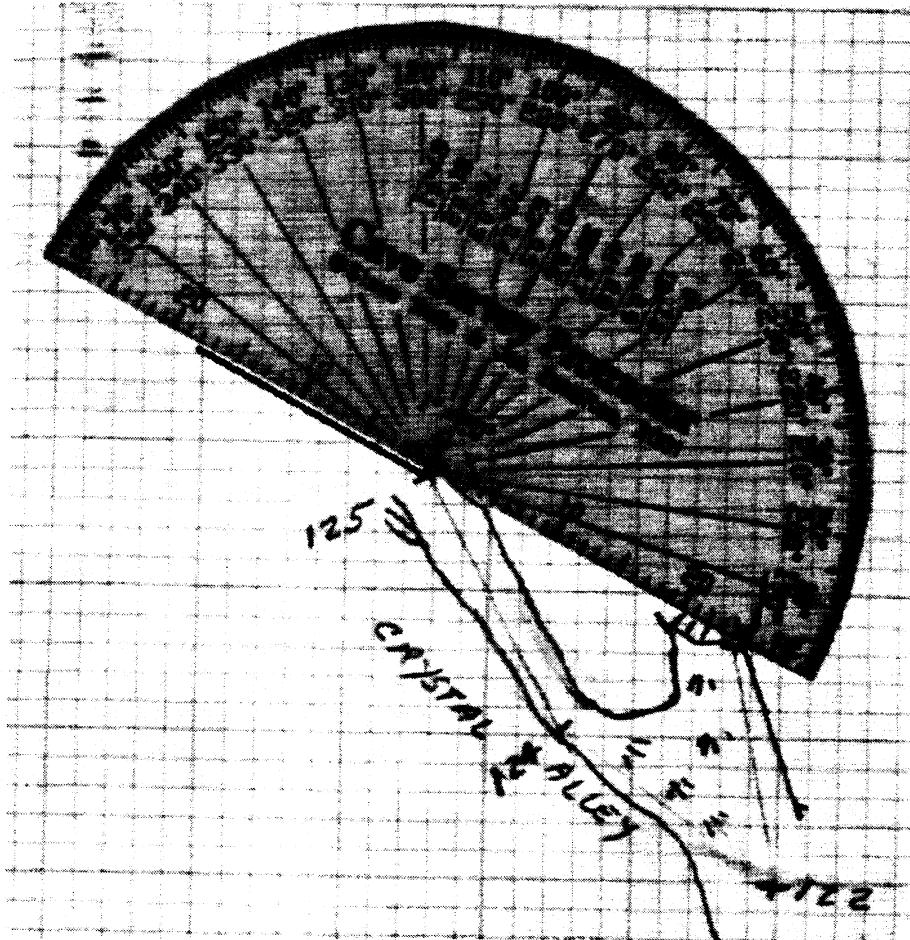
Before you go underground, cut off the excess material around the round part of the protractor.

Set the center of the protractor at the first station and rotate it until a line from the center to the compass bearing is pointed straight up. Note whether the compass bearing is red or black. Using the protractor's straight side, draw the survey shot in the red or black direction, stopping when you reach the tape distance.

As an example, starting at station 125, the tape distance is 17.8 feet, the compass direction is  $298^\circ$ , and the slope is  $2^\circ$ . Set the protractor center at station 125 and rotate it until  $298^\circ$  is straight up. I use the colored lines to help orient the compass. Starting at station 125,

draw the shot in the red direction ( $298^\circ$  was on the red scale) stopping at 17.8 feet. If you have a steep shot, you may want to draw the actual horizontal length.

To calculate the horizontal length of the shot, find the slope angle in the left side of the cosine table and multiply the taped distance by the number in the right side of the table. For example, with a slope between  $18^\circ$  and  $32^\circ$ , I multiply the tape distance by 0.9. An easy way to calculate 90% is to subtract 10% of the distance. For example, with a 23.4 foot shot, I subtract 2.3 feet to get 21.1 feet. To multiply by 0.8, I use the same trick, but subtract 20%. Using the same distance, but a slope of  $35^\circ$ , I would subtract 4.6 feet (double the 2.3 feet) to get 18.8 feet.



Cave Survey Protractor Example

On the actual protractor, the lower degrees ( $350^\circ$  to  $190^\circ$ ) are in red and the feet to the left of zero are in red.

## Purchase of Stay High Cave shows Virginia's commitment to protection of caves and rare cave fauna By Wil Orndorff

The Commonwealth of Virginia is purchasing Stay High Cave and approximately 24 overlying and adjacent acres to form the Clover Hollow Natural Area Preserve. This will be the state preserve system's second Natural Area Preserve centered on a cave and its associated fauna, and the first such property purchased with state dollars. Unthanks Cave Preserve, in Lee County, was donated to the state preserve system by the Nature Conservancy in 2004. The Department of Conservation and Recreation Natural Heritage Program manages the state Natural Area Preserve system.

Stay High Cave is located in Giles County, between Clover Hollow and Smokehole caves on the southeast side of Clover Hollow, a short drive from the Bat Ranch. Stay High was selected for incorporation into the Natural Area Preserve system because of both the outstanding assemblage of rare, cave obligate invertebrates in the cave, and the high quality of the habitat for these species. Stay High Cave includes outstanding examples of cave stream, drip pool, transient organic matter, and riparian communities. The cave is designated as significant under the Virginia Cave Protection Act in terms of biology, hydrology, esthetics, geology, and length.

The Virginia Natural Heritage Program uses a conservation site based approach for protecting documented occurrences of rare animals, plants, and natural communities, which include caves designated as significant under the Virginia Cave Protection Act. A "conservation site" is defined as the landscape area in which land use activities could reasonably be expected to potentially impact such an occurrence or associated group of occurrences. The Clover Hollow Conservation Site includes four caves designated as significant under the Cave Protection Act – Clover Hollow Cave, Tawney's, Smokehole, and Stay High. The site is defined as the recharge area for the Smokehole and Tawney's cave streams, as determined by dye trace studies performed in the late 1970's by Joe Saunders and Keith Ortiz, and refined by traces of Benjamin Schwartz, Zenah Orndorff, and Wil Orndorff (see Figure). Eight globally rare invertebrate species are known from

the Clover Hollow conservation site, four of which are near endemics having but a single known occurrence outside of the site. In addition, two rare bat species, the Eastern Small-footed Bat (*Myotis leibii*) and the Endangered Indiana Bat (*Myotis sodalis*) have been documented in Tawney's Cave, although the Indiana Bat has not been seen there for decades. To help prioritize conservation efforts, conservation sites are assigned biodiversity rankings (B-ranks) based on the number and quality of occurrences of rare plants, animals, or natural communities within a site. The Clover Hollow Conservation Site has a rank of B1, the highest possible.

Stay High Cave was a relatively recent discovery, found by Dave Colatosti and Jim Washington on a 1988 ridge-driving expedition. Cavers had for years driven by the narrow, downward tapering crack that gave the cave its name, probably because of the perennial surface stream that flows right past the entrance, seemingly oblivious to the underlying voids. The owner, Mrs. Nancy Sibold, was a retired Giles County schoolteacher who graciously allowed the club access to the cave for exploration and recreational trips. Many of us remember sitting in her parlor, shooting the breeze and looking at pictures of the cave prior to a trip. I believe she even managed to drag the odd caver to a church service over the years.

Many club members participated in the survey, led by Doug Bruce, Mark Honosky, and Jim Washington. The list includes Cecile James, Chris Stine, Joe Uknalis, Ko Takamizawa, Mike Horne, Mike Futrell, Craig Ferguson, Mike Fiore, Dave Colatosti, Walt Pirie, Steve Wells, and many others. The cave survey yielded over a mile of passage and a depth of 245 feet below the entrance. Jim Washington drafted the map that appears in the 1995 NSS Convention Guidebook. A more detailed map with cross-sections has yet to be drafted.

Dye tracing performed by Zenah Orndorff and Benjamin Schwartz in 2002 showed that the stream in Stay High Cave resurges at the Smokehole and Tawney's springs along Sinking Creek (See Figure).

## Purchase of Stay High Cave shows Virginia's commitment to protection of caves and rare cave fauna (Continues) By Wil Orndorff

Documentation of the fauna of Stay High Cave is incomplete, the result of a single inventory trip in August of 1994, performed by Virginia Speleological Survey Director Dave Hubbard and Natural Heritage Program Zoologist Chris Hobson with assistance from Steve Wells and Wil Orndorff. The resulting collections included two rare, troglobitic\* cave beetle species; two rare stygobitic\*\* crustaceans - one amphipod and one isopod; and a species of springtail (an insect) new to science. Of the caves in the Clover Hollow conservation site, only Tawney's has a higher number of documented occurrences of rare invertebrate species (six versus the five of Stay High). Further collections from the cave will undoubtedly increase the number of rare species documented, certainly in terms of rare millipedes if nothing else. At present, two rare species of millipede are known from Clover Hollow, but were not documented on the 1994 trip into Stay High. In addition, numerous common cave animals live in Stay High, including cave salamanders (*Eurycea lucifuga*), cave crickets, harvestmen, bats (mostly pipistrelles), common cave amphipods (*Stygobromus mackini*), and surface crayfish species, all of which add to the cave's significance.

An interesting footnote to this story is the origin of the biological inventory trip. One of the early routes proposed by American Electric Power for the 765kV Transmission Line would have crossed Clover Hollow very near the cave, and local citizens contacted Hubbard to perform the inventory as part of their attempts, ultimately successful, to have that route rejected by regulatory agencies. The role of the cave in the rejection of the route was probably minimal. This is the same power line that is now under construction, passing near the Skydusky Hollow area of Bland County on its way from West Virginia to a substation at Jacksons Ferry near Wytheville. Efforts by the club in 1999 and 2000 to assist Bland County landowners in their battle with AEP led to the discovery and survey of several new caves, better documentation of the bat population of Skydusky Hollow, and agreements by AEP to modify right-of-way clearing and maintenance practices to protect caves and karst. The VPI Cave Club was awarded a Certificate of Merit

at the 2001 convention for these efforts, and both Carol Zokaites and Wil Orndorff owe their current employment status in no small part to their respective roles in this battle. But I digress.

During the late 1990's, the VPI Cave Club continued to be the primary user of Stay High Cave, mostly for sporting, vertical trainee trips. According to signout logs, the cave was typically visited once a month or less, usually by groups of six or fewer individuals, as often as not with John Deighan at the helm.

Nancy Sibold passed away in August of 2000, ushering in a phase of uncertainty over the cave's future. Over the next year, a group of Clover Hollow residents attempted to form a coalition to purchase a large portion of the estate from the heirs, and the Cave Conservancy of the Virginias explored the possibility of acquiring Stay High Cave during this time. However, the heirs ultimately chose to sell to a Blacksburg-based developer planning to develop the 200+ acres as a low density (5+ acre lots), rural residential subdivision called Clover Springs. In response, the citizens formed an organization called the Friends of Nancy Sibold (FoNS) in an effort to stop the proposed development. This organization included individuals who had arranged for the 1994 inventory trip while fighting the power line. However, they were not successful in stopping the subdivision.

In November of 2002, voters approved the *Commonwealth of Virginia Parks and Natural Areas Bond Act*, liberating millions of dollars statewide for acquisition of properties of outstanding biodiversity significance for incorporation into the Natural Area Preserve System. Shortly thereafter, in my capacity as Karst Protection Coordinator in the Natural Heritage Program, I proposed that the state purchase Stay High Cave and some surrounding acreage as a Natural Area Preserve.

The state entered negotiations with the developer to purchase 4 lots totaling about 30 acres. A myriad of bureaucratic hurdles had to be crossed, and in the interim one of the lots was sold. Fortunately, Clover Springs remained patient with the state.

## Purchase of Stay High Cave shows Virginia's commitment to protection of caves and rare cave fauna (Continues) By Wil Orndorff

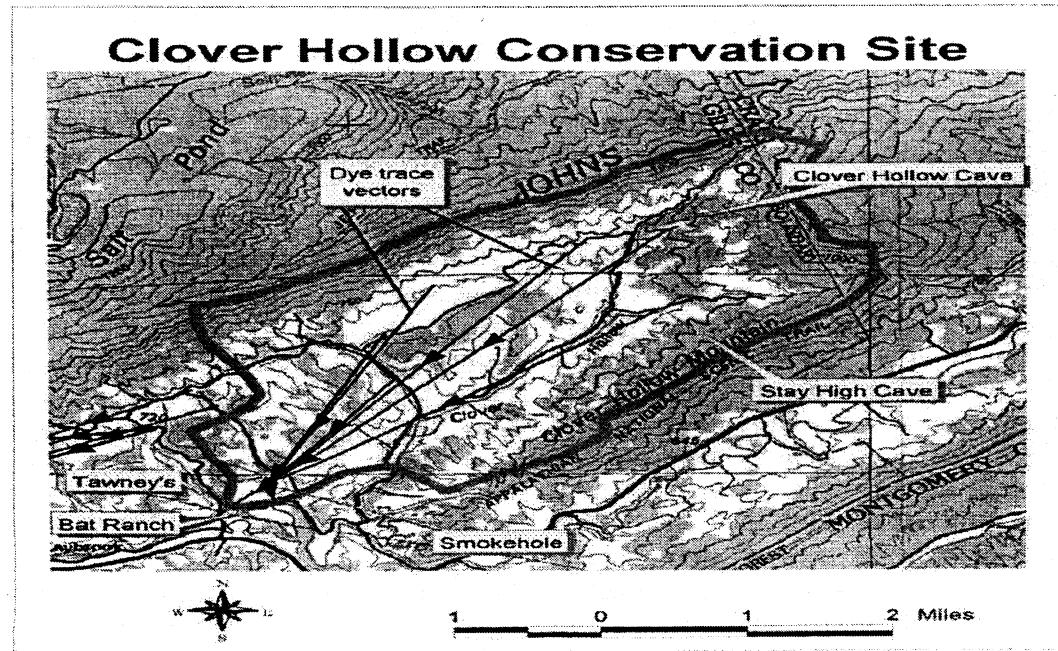
An agreement was finally reached for the state to purchase 3 lots, a nine-acre lot overlying all but the extreme upstream portions of the cave and two adjacent parcels, totaling about 24 acres. The deal is scheduled to close in early 2005.

Once under state control, use of the cave will be governed by a management plan currently under development. The plan calls for restricting access to the cave via installation of a gate. However, the state plans to partner with the VPI Cave Club for management of the cave, allowing access to continue at existing use levels – one trip a month of six or fewer individuals. Certain, small portions of the cave, off the usual sport trip route, will be flagged off, and each trip will be encouraged to perform a small set of observations centered on cave life and environmental variables. These observations will not only provide data to the Natural Heritage Program, but also will help cavers develop and awareness of biological aspects of the cave that are usually overlooked. The goal of this partnership is to preserve both habitat for cave fauna and access for cavers.

In closing, it should be noted that the knowledge of cave life in Virginia is rather incomplete, despite the substantial efforts over the years of folks like John Holsinger of Old Dominion University, Dave Culver of American University, and VSS Director Dave Hubbard. This is particularly true in the VPI playground of Giles, Bland, and Craig counties, which have received very little attention outside of the Clover Hollow and Skydusky Hollow areas. Over the next few years I'll be working, mostly in my spare time, to coordinate and perform a systematic survey of the biota of this area while continuing to investigate the region's hydrology by dye tracing and spring gauging. Preliminary work suggests a rich and diverse cave fauna and interesting hydrology. Anyone in the club who wants to help in these endeavors is welcome, and should contact me at [dirtyrocks@earthlink.net](mailto:dirtyrocks@earthlink.net) or call me at home (951-8403). Meanwhile, keep your fingers crossed about Stay High. We're almost there.

\* troglobitic – terrestrial, cave obligate

\*\* stygobitic – aquatic, cave obligate



# Starnes Radiolocation

By Matthew Burnett

If you go to the back of Starnes, you have come to Lost Promise. There is no mistaking that Lost Promise comes extremely close to the surface. You can see surface debris all over the place, there is a temperature change and you can actually smell the surface air. Since Philip's cave radio proved successful, he now wanted someone else to carry that damned thing to the back of Starnes and see exactly how close to the surface Lost Promise is.

The radio consisted of coil of wire contained in a wooden rectangular box that measured 16 x 19.5 x 2 (see diagram) that was the antenna, a battery and a switching box. I sought reassurance that these items could be beaten soundly and still work. Philip said everything but the switching box could. Well, we would see exactly how much abuse that switching box could take.

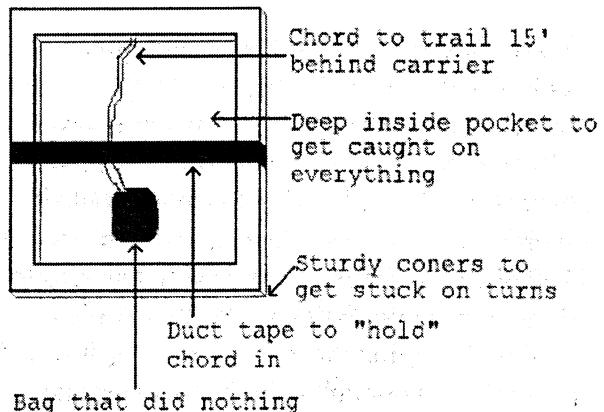
On Saturday, March 15, Kevin Rock, Kara Smith, Kathy Despain and I set off for Starnes. The plan was that we would get underground at 10 AM, get to the Plinkerboing at 1 PM and Lost Promise an hour later. The Plinkerboing shot was to be an orienting shot so the surface crew would know roughly where we were and when to expect us at Lost Promise.

As expected we did not get underground until somewhere around 10:30 (and no, it was not because I was watching Mystery Science Theater 3000). We decided to travel relatively light that day: each person would be responsible for their own food, water and vertical gear but we would share lamp equipment and extra gear, like webbing. Faced with the Humble Pie crawl, I decided to strip my gear down further and ditch my usual steel rack in favor of an eight and my frog in favor of a more compact knots system.

I had even cut a new piece of rope for the 30ft drop. My usual rig is a 50ft piece and, if you rig it just right, you get the thrill of rappelling off the end of it and dropping to the floor. If you rig it wrong, then you get the thrill of rappelling off the end of it and falling to the floor. No such adventure today.

We entered the Humble Pie with the usual high amount of regret for going to the back of Starnes. Kathy and Kara had never been to through the Humble Pie so Kevin and I briefed them on what to expect and how to carry their equipment. Because I have what is known in medical circles as weak little girly arms, I generally attach my gear to a quick link in my shoelaces and drag it through the crawl. With my pack and all of Philip's junk attached to my right foot I found I could barely move it. Kathy wrapped her pack strap around her ankle while Kara and Kevin were manlier than I and decided to largely push their packs.

I cannot offer much detail about the crawl as the view is fairly limited for most of it. I went first and Kara volunteered to go behind me and free up my equipment when it would get stuck. The antenna box was brilliantly designed with a large square cut out of the middle of it that catches on any little



extrusion beautifully so I managed to keep her busy. Kathy followed her and Kevin took up the rear. As much as possible we would point out the sights of the crawl like the Mr. Yuck dig (Casket Crawl), the Humble Pie marker, Dave C.'s and Kirk's mark and mini Stonehenge. Almost every feature of that passage has a name.

We were moving at a good pace through the crawl but we could not overcome our late start. We were halfway through the crawl when we should have been at the Plinkerboing. Stupid radio antenna. Stupid Philip. Once we made it through to the Andrews Dice and Clay room we pushed ahead to the Plinkerboing and started to work. Kevin set up the radio antenna while I messed with rigging the Plinkerboing. Kathy and Kara were kind enough to recharge everyone's lamps and grabbed something to eat while we were waiting. Someone also made a really cool frog-looking clay formation to mark the spot of the radio.

The Plinkerboing had taken on a lot of water recently so the entire slope was extremely slick. That also meant that my nice new rope was now a solid rod of mud. Blegh! I am of the opinion that new bolts need to be set at the drop higher so you do not have to slide in the mud to rappel. That sentiment was echoed later as everyone climbed out. For the first time that I remember you dropped more mud off the Plinkerboing drop than rocks.

The Plinkerboing drop has a midline bolt in it to avoid padding the lip of the drop. I warned Kara and Kathy not to get confused with the ropes but did not feel the need to warn Kevin since he had done it before. Silly me. We got to watch him do some pretty cool rope acrobatics as his leg got caught in the bight. It was good for a few minutes amusement at least. Once he was through screwing around I asked how much time we had to get to Lost Promise. He said we had something like fifteen minutes to make it up the breakdown slope and be in position. Damn Philip.

All of us started sprinting up the breakdown in a feeble attempt to make it to the top in time. There really isn't too much horizontal distance from the Plinkerboing to Lost Promise, but you have to go up this rather steep breakdown pile. The breakdown pile is usually slick, but with the recent rains it was almost impossible to climb up. I made it a quarter of the way up before getting stuck. Kara and Kathy wisely decided to wait at the bottom and probably laugh at Kevin and I while we fell.

I would try and dig out footholds but the mud was too soft to really support my weight and would give way sending me sliding down the slope. Lucky for me there was a rock that I could always catch myself on so I would not lose all my progress. It is a sick thing to consider repeatedly taking a large rock to the groin, but such is my experience in Starnes.

Getting up that breakdown the traditional way was just not going to work so I called Kevin over and we made our own trail up the right wall. You might be thinking to yourself, "I love scurrying over breakdown." I did as well until I went to Starnes. This isn't nice happy Tawney's breakdown—these are really big rocks that you have to extend yourself fully and expose yourself to face plants to get up. Throw some very slimy mud into the mix and it just sucks. The radio sucked as well. As did Philip.

We finally made our way to level ground and up to Lost Promise. I found survey point SQ 20 and I was all ready to use that but it was about a hundred feet or more from the end of the cave and there are points in Lost Promise that were much closer to the surface. I collapsed into a heap while Kevin looked around for another point. When he could not quickly find one, we decided to set up at the given point because it was already recorded and close enough to get a rough idea of where everything should be on the surface.

We left the radio on for thirty minutes while looking around the room. Kevin spotted some hay in the puddles and looked around for some daylight. It is so close to the surface, but it just will not open a second entrance for us. I blame Philip.

Getting down the breakdown was much easier than getting up, let me tell you. All you had to do was position yourself just right and make sure you did not slide too far too fast. As we were climbing up the free climb above the Plinkerboing, Kevin noted a large crash and lots of rolling noises from the breakdown area. Apparently something big had fallen in the breakdown area not too long after we had left. Damn Philip and his radio antenna.

As we headed back into the crawl, Kathy had the unenviable job of fixing the radio antenna every time it got stuck. Look at the map—the Pennsylvania Borehole it quite twisty. The stupid thing got stuck every few feet. I bet Kathy regretted the decision to follow me almost immediately because dealing with that antenna sucked almost as much as Philip does. I tried my best to splinter that thing, but Wells made it too well. He earned many curses back there as well.

As I went through this funky downward pinch just past the Pennsylvania Borehole, Kathy called up to me to tell me one of my steel toes fell out. Woohoo! My boots finally died and it was an honorable death! I made them carry my steel toe up to me as the antenna was stuck behind me and there was no hope of me freeing it by myself. I still have my steel toe in my cave gear as an odd trophy.

It was about seven or eight hours into the trip at that point and everyone was starting to get worn down. We redistributed the gear to the pack mules (why do you think we invited Kathy and Kara anyway?) and split up to save time. Kevin and Kara crawled ahead to the 30ft drop while Kathy and I took our time wrestling with the

radio gear. Philip sucks as does his cursed radio equipment!

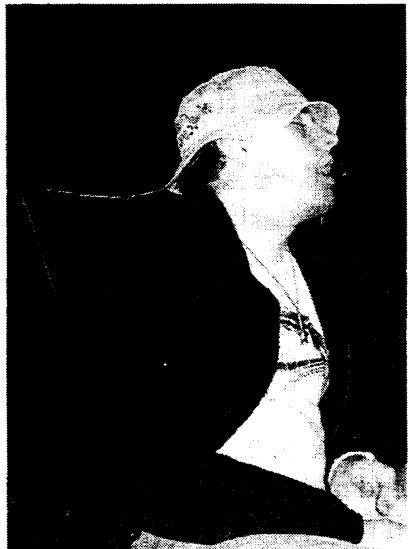
We made it out after around eleven hours underground. None of us were all that lively, but we all made it out under our own power. Unfortunately, the radio equipment made it out as well. We had seriously contemplated leaving it in there for Philip to take out, but we knew that he would just make us get it. Talking with Philip later he seemed quite happy with the points we set and it was a successful trip above ground as well. The only bad aspect was he was happy that the equipment was in as good a shape as it was. We tried really hard to break it because Philip sucks, but I guess we failed in that respect.

The next day Kevin, Philip and I started talking about taking another trip to the back to mark the “fingers” of Lost Promise. Sick, sick, sick.

## Club Members Attend 5<sup>th</sup> Annual YTR

By Michael Cole

This year marked the 5<sup>th</sup> Annual Young Timers Reunion which was held in April at the WVACS field station in Greenbrier County, WV. Several cavers from VPI attended and, once again, had a great time hanging out and meeting cavers from other student grottos. Everyone from VPI went caving on Saturday. Members broke up into several groups or joined other groups leading trips. Some of the caves visited by members included McClung's, Benedict's, Bone-Norman, and Cass.



Friday night, everyone spent some time by the campfire listening to Kirk, Chris Michie, and Dave Colatosti play guitar. Later in the evening, several members joined in a wild game of Janga. The Janga game was made more interesting by writing embarrassing tasks on each piece, which had to be done when the piece was selected. The game was a lot of fun and lasted for a long time, but was finally brought to an end when Kirk knocked over the Janga tower.

Saturday night there was a live band from Radford who played inside the field station. During the band's break, there was a raffle for a large assortment of prizes. Many VPI members won Nalgene bottles, hats or shirts. Chris won a Kong carabiner and Kirk won a caving pack from Howie's Harnesses.

This year's YTR marked one of the largest ever. The WVACS site is reaching its capacity, and so alternative sites may be considered next year. Wherever it ends up, it is an event not to miss next year.

The Tech Troglodyte, Spring 2003

## **Two Days, Two Gates**

by Eileen O'Malley

Most of us never expected to see one of our local favorite caves blocked by formidable piles of steel. However due to years of disrespectful spelunkers vandalizing the landowners' property, they decided that gating the Tawneys road entrances made an attractive solution. So on November 15 and 16, 2003, a large group from VPI Cave Club and several folks from Blue Ridge and New River Grottos gathered on Zells Mill Road to fulfill the landowner request.

The organization began months in advance when Steve Wells contacted Roy Powers, a well-known specialist who has gated hundreds of caves. Steve had recently seen Roy's work at Greenville Salt peter Cave in West Virginia. Over the course of many phone calls and faxes, Steve provided a rough sketch of the two entrances and Roy provided a list of materials he would need for both gates. Also, Roy's regular welder could not make the trip; Steve needed to find a replacement welder.

One evening at the London Underground, as Steve wondered if he'd find a welder in time, he met up with Charlie Maus. Charlie had recently completed a welding class and recommended Adam Mount, a classmate, for the job. Charlie volunteered himself to spend the weekend cutting the steel, and we ended up paying Adam \$300.00 for the weekend.

The gating activity actually began on Friday. Due to some miscommunication, the steel company could not deliver the steel on time; we had to send some cavers to Lynchburg to retrieve it. Steve LePera, Mike Cole, and Sandy Ramsey made the trip and acquired \$866.00 of steel – ask LePera about driving Ray Sira's van in the dark without headlights. Despite his reputation as a Bastard, Wil Orndorff also contributed; he picked up and later returned the canisters of gas needed for the torches (an expense of \$55.00).

Saturday's project, the larger of the two entrances, began at 8:00 a.m. in the Bat Ranch driveway where cavers met in the rain (naturally) to get ourselves and the gear organized. Roy came prepared with welding torches, a generator, extension cords, and all the other tools needed for the job. We parked his red truck on the road by the entrance and placed orange "road work" cones along the road.

Thanks to continuous morning drizzle, the path to the Tawneys entrance presented a slippery, muddy challenge. One manly crew struggled to bring gas canisters up the slimy slope and then roped them to trees; the rest of us carried smaller, lighter gear up to the entrance.

Then came the steel. We had purchased angled, flat, and round steel in various sizes in 10-foot lengths, and the biggest piece of 6-inch angled weighed a hefty 150 pounds. Given the slippery conditions, we decided to pass the steel up the slopes similar to passing a litter in a cave rescue. Stationed near the top of the slope, I glanced down to see a string of females lining the route – the big beefy men gathered at the bottom chatting! Though I don't doubt the strength and toughness of caver women, I noticed smiles of relief when a few strong men noticed the discrepancy and weaved their way up through the line.

Like many others I didn't want to see the cave gated, yet the actual gate-building process fascinated me. I tried to stay involved near the entrance so I could see as much as possible. Most of the time I probably just got in the way; luckily Roy didn't seem to mind me or my pesky questions.

First Roy and some caver helpers placed a large (4' x 8') sheet of steel mesh on the floor of the entrance to serve as the bottom of the gated area; Roy cut the edges to make a better fit. This will prevent gate vandals from digging below the gate to gain access. Then Roy determined the lengths of steel needed for the actual barrier bars and support structure, and Charlie fired up the torch.

As Charlie cut the steel, glowing sparks attacked everyone and everything nearby. When a newly cut piece fell to the ground, someone grabbed it and placed the hot end into a bucket of water to speed up the cooling process. Steam rose as the water hissed from the intense heat.

Adam used the arc welder to attach one bar of steel to the mesh reaching from one side of the entrance to the other – the foundation of the gate. Then he angled pieces towards the ceiling to form the outer edges, and one piece ran straight up from the bottom center to the ceiling. Charlie cut hangers (3.5-inch pieces cut from 6-inch angled steel) to hold the horizontal bars while Roy measured the distance between each row of hangers using a tool he created specifically for the job. The distance between bars is crucial to allow bats to fly in and out unimpeded yet prevent skinny trespassers from slipping through. Cavers clamped the hangers into place for Adam to weld them. I was able to help Kevin Rock place a few of the hangers thanks to being small enough to shove into a tight corner.



Welding Tawney's Gate

Photo by Mike Cole

And so we settled into a system. Roy measured and supervised, Charlie cut, cavers passed in the steel, cavers clamped steel in place, and Adam welded. Dan and Marian McConnell stopped by to check out the progress, and Dan took a several-hour turn cutting the steel. With each shower of sparks from the torch and each flickering glare of the arc welder, the gate took shape.

Once Adam welded the hangers into position, we placed the horizontal bars. We built each horizontal bar from 4-inch angled steel arranged with the apex pointing up, with 1.5-inch angled pieces welded inside with their "L" shapes back-to-back to form a flat bottom. The inside pieces act as stabilizers to strengthen the bars.

Before we secured the highest bar, we needed to remove a pesky section of the ceiling. Kevin Rock and Travis Coad each spent time using a hammer drill to make the "adjustment;" the task looked tiring but fun. I wanted to take a turn, but I reined in my request because it required more muscle and I didn't want to waste anyone's time.

With the horizontal bars welded in place, the gate looked nearly complete, but not so. We still needed to add the key-lock access and connect the steel to the cave ceiling and walls. The actual locked pieces used flat steel with holes torched into it; more flat pieces surrounded the lock area to protect someone from simply breaking or cutting the lock. As for securing the gate to the actual rock of the cave, Charlie cut 6-inch sections of round steel to act as pins. A drill-wielding caver opened holes in

the rock and placed the pins through the hole of a flat piece; Adam welded the pin to the flat piece and the flat piece to the sides of the gate.

We still had a gap underneath the mesh floor, but we intended to roll some big rocks into the opening on Sunday as a temporary measure. The long-term plan, by now completed, involved filling the opening with concrete. Roy tries to avoid using concrete whenever possible, but in this case it seemed the best solution.

Finally we declared the formidable gate measuring approximately 10' x 5' complete. By this time the sun had gone down and we brought the equipment carefully down the slope and into Roy's vehicle and lock-box. We guided our way with headlamps borrowed from the Bat Ranch; many of the cavers on hand (myself including) had forgotten to bring their own! The gas canisters spent the night on the hill between the entrances concealed with leaves and debris.

On Sunday morning we met again, but with a much smaller crew. We simply had no need for crowds since we moved most of the heavy steel up to the second entrance the day before. Good thing, given the lack of stable, flat places to stand. We repeated the process of Roy measuring, Charlie cutting, and Adam welding, yet we completed this gate more quickly because of the much smaller entrance (approximately 3' x 4'). We even had enough spare time and cavers to fill the previous day's gap with rocks as planned. Roy began his four-hour drive home by 3:00 p.m.

All told, gating both Tawneys road entrances cost around \$1500 which we covered with generous donations. We spent a very full weekend hard at work. Thanks to everyone who showed up to help, we honored the landowners' wish to control access into the cave. With the approval of the Link family, we created an official access policy which folks at the Bat Ranch will maintain. Please spread the word to everyone you know who frequents the cave.

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#### IN TAWNEY'S

photos by Mike Cole



Trainees stuck in the mud



Icicle Stalactites

## Elvis Grotto: The Twilight Zone of Caving

By Rob Story

In the rolling hills of Giles County, amidst farmland and horses (I will get to them later), there lies a cave which defies the normal rules of caving. Elvis Grotto #1 looks fairly innocuous at first; it's just another hole in the ground in a state filled with much of the same. But this cave isn't like the others....This cave is jinxed.

My first experience with Elvis Grotto really wasn't my idea. Philip Balister came to me one night with a gleam in his eye that I should have, and now know, to fear. He told me that Dave Colatosti and Kevin Rock were going to do some surveying in Elvis Grotto in hopes of getting to and drilling the bolts for a "promising" forty foot virgin pit and they needed another person for the trip. I, not having been there before, was mildly excited at the thought of getting to see a new cave as well as possibly dropping the pit. We set out the next morning.

For those who have never been there before, Elvis Grotto is almost inexplicably covered with mud. No matter how hard you try, you will be slimed when you exit the cave. It's just that kind of place. By the time Dave, Kevin, and I got to the lead, we were already decently covered with mud, having gone through the two rebelay and down mud covered ropes. What I didn't realize is what surveying the lead entailed. Basically, the hole drains the water that is dropping from the 100 foot pit. The mud in the tube has the consistency of peanut butter and is probably anywhere from three to six inches thick. I got appointed the job of lead tape, having never read instruments or drawn before, so I started my way down the hole. After setting up my first station (a mound of mud, incidentally), I was already completely slimed. I took a good bit of time to set up, so I probably laid in the same place for 30 minutes or longer. I remember that when I moved to the second station, Kevin took my place and commented on how I had warmed up the mud for him. My, what a generous caver I am.

After we had surveyed around 70 feet or so to the virgin pit, Kevin and I were downright cold, myself probably more so than Kevin. Dave set the bolts and grudgingly admitted that we should probably get out there, given our rather chilled and ridiculously muddy condition. I could tell that he really wanted to drop the pit, but to his credit he let us leave so that we could warm up. One muddy hole, three ropes, and about two hours later, we sat just inside the entrance. We knew this was going to be the worst part...it couldn't have been more than ten or fifteen degrees outside, and we were absolutely soaked through. We untied our boots and took off our vertical gear, which in retrospect was a very good idea. By the time I got back to the car, most things attached to my body were frozen. My gloves were frozen to my fingers, my helmet latch was frozen shut, and my boots were almost frozen to my feet. It was cold. Really...damn...cold.

After rapidly stripping and getting into a semi-warm car, we headed back on our way to Blacksburg, us looking like grotesque creatures with our faces and hair covered in mud. Here is where the first jinxed event occurred. Driving back from Elvis Grotto involves going through three gates, all of which need to be carefully shut and locked to prevent the escape of horses. I really don't know how I managed to mess this up. I was *sure* that I looped all of the chains the way I found them...but I guess I wasn't as sure as I thought. At the next Cave Club meeting Carrie Blankenship, whose family owns the land, cheerfully comes up and tells me that I let most of her family's horses out. This is after Dave, Kevin, and I had already let one escape in our journey to the cave. I apologized profusely and was relieved to hear that they thought it was rather humorous. Rather humorous indeed....I know what happened...I was jinxed by Elvis Grotto.

In my next cave trip after that fateful night, a trip to Link's cave, I truly realized what an enigma Elvis Grotto is. I didn't manage to clean my gear after that first trip, with the exception of all of my vertical equipment. Therefore, the rest of my stuff was absolutely crusted with mud. I literally

came out of Link's cleaner than I went in. I can't think of many other caves that will cause you to come out of a cave looking better than when you started. That's Elvis Grotto for you.

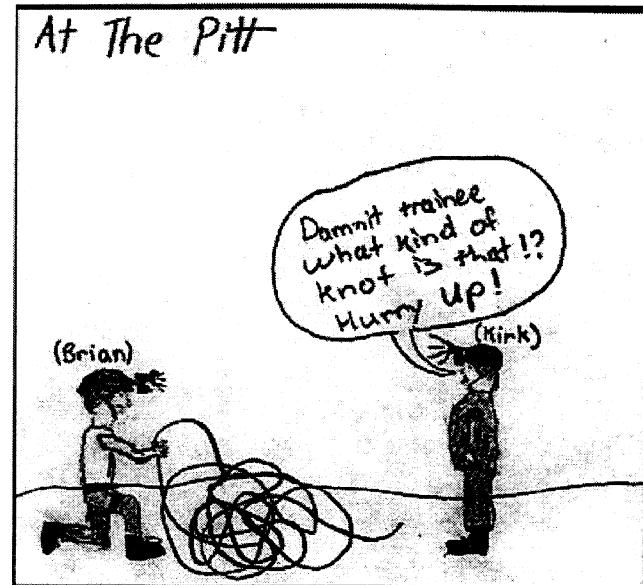
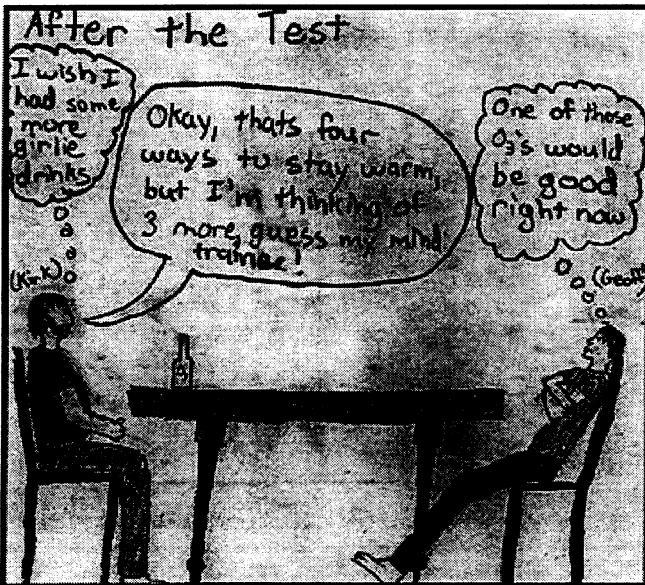
Even after all of this, I volunteered to go back a couple weeks later, under the promise that I wouldn't have to crawl down that absolutely nasty hole that I did the first time. Philip, Steve Wells, Chris Garguilo, and I went back to survey a promising high lead that would go over the nasty crawl. We got to the lead and Steve commenced knocking loads of rock off of the wall, both with his hammer and with his explosives. Philip and Chris surveyed the small bit of new passage and then we waited for Steve to finish his bolting. That is when Elvis Grotto struck again. Half a bolt-hole away from our virgin pit, the drill quit. We didn't panic...after all, we had another battery. But of course, that battery didn't work either. I'm not sure who got blamed for the battery failure in the end; I was probably the culprit, having dragged the batteries through the water in that nasty hole on my first trip. We all cursed and moaned the battery packs and headed back out into what was thankfully a beautiful day. Elvis Grotto had struck a second time.

I'm not really sure if there were any more incidents worth noting after that. I do know that according to Wells, the 40 foot virgin pit that Philip had high hopes for pretty much did nothing. From what I understand, there is a good bit of water going down it that funnels into a small hole. The dye tracing done gives us good hope for a big cave in the area, so I am sure that there will be more trips into the cave to search for new leads. However, I am warning those who go to Elvis Grotto...the cave is jinxed...it is the Twilight Zone of caving.

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## For the Love of Kirk and those Damn Membership Requirements

By Geoff Lewis



HUGE AND CONFUSED

# BATMAN & ROBIN

ADVENTURES



by Kaitlyn Hart

# BEST QUOTABLE QUOTES 2000-2009

## *2000 through 2001*

SL to KD: "We need the special beer holding bra attachment."

SW to crowd: "People have died like that, but I never worry about it."

JO to KD: "Is the Ed on this trip the one they call Captive Ed?"

MB to SL: "Once again I went to Smokehole and came out without pants."

SL to crowd: "Pretty much anything fun you do to a women is illegal in Virginia."

PB to SK: "Well that sure makes me wanna go home and play with my drill."

## *2002 through 2003*

SL to KF: "Craig is not a good example of a normal person."

PB to group: "Now...this is how you tie a diaper seat."

ME to PB: "Shouldn't someone your age call it a Depends seat?"

KD to waiter: "Don't call me sir; I feel like I am getting arrested."

JF to KD: "The night is still young"

ME to group: "Some people need the meanness. Without the meanness, they would not know that they are stupid."

## *2004 through 2009*

MC to GPS: "Tell me where you are now bitch."

CL to MP: "Your hand is sticky."

MP to CL: "Yeah so is the other one."

S&S on repairing cable ladders:

SL: "You fucked it up!" SW: "I didn't fuck it up, you fucked it up!" SL: "Well now it's fucked up."

KT to PH: "Scott's is better his is **smaller.**"

# BEST FROM SIGNOUT 2000 TO 2009

## *2000 through 2001*

1/23/00 New Castle Murder Hole	John Deighan, Andrew Oberhardt, Jason Obenschain, Jeff Leach, Pete Sauvigne	If you go that way, you probably won't even break your leg.
12/13/00 Munsey Twins	Joe Thompson, Kevin Rock, Kirk Digby	It's about 10 feet to the wall since Kirk is 3 feet tall.
1/25/01 Tawney's	Mike Cole, Chip Mullins, Kevin Faherty, Nikky LaBranche	I've never seen boobs catch like that.
11/11/01 Pighole	Jerry Redder, Kirk Digby, Jeff Leach, Pam Mohr	"Stop putting survey marks on my car!" -Pam

## *2002 through 2003*

2/25/02 Clover Hollow	Kirk Digby, Pam Mohr, Zenah Orndorff	It's better with a trainee.
8/04/02 DMC	Steve LePera, Philip Balister, Eileen O'Malley, Mike Cole	Smells like dead things.
3/17/03 Smoke Hole	Matt Burnett, Rance Edwards	C'mon boxer shorts do your magic!
12/19/03 Mexico	Steve Wells, Steve LePera, Eileen O'Malley, Joan Johnson, Ko Takamizawa	Hard to do 'drinas with no rope. At least the trucks survived (mostly).

## *2004 through 2009*

11/17/04 Clover Hollow	Kirk Digby, Brian Plisch, Brian McCarter, Mike Cole, Brad Atkinson	Q: Hey trainee! What did you lose? A: My keys...
9/11/04 New Castle Murder Hole	Kevin Rock, John Deighan, Dave Colatosti, Rutger Thomschutz, Peggy Sloss, Chris Greemry, Otis Farmer	Lesson learned: Don't follow John
1/27/07 Clover Hollow	Philip Schuchardt, Dustin Schleifer, Brian Wolford, Alice Jaworski, Kaitlyn Hart	"Wells, I'm not going caving with you tomorrow! It is currently 4:30 am." --Philip