

PHOLEOS

JOURNAL OF THE WITTENBERG UNIVERSITY
SPELEOLOGICAL SOCIETY



Volume 12 (1)

December, 1991





The Wittenberg University Speleological Society

The Wittenberg University Speleological Society is a chartered internal organization of the National Speleological Society, Inc. The Grotto received its charter May 1980 and is dedicated to the advancement of speleology, to cave conservation and preservation, and to the safety of all persons entering the spelean domain.

The National Speleological Society

This is to certify that

Wittenberg University Speleological Society

having fully complied with all the requirements established by the Board of Governors, and having accepted the responsibility which such status entails, is hereby chartered in the National Speleological Society, and is entitled to all due rights and privileges: in testimony whereof the President and the Chairman of the Internal Organizations Committee have hereunto set their hands and the Seal of the Society, this 14th day of May, 1980.



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PRESIDENT

Evelyn H. Bradshaw
INTERNAL ORGANIZATIONS COMMITTEE CHAIRMAN

G-268
INTERNAL ORGANIZATIONS NO.



Cover: Julie Thorp in Adams Creek Cave, Carter County, Kentucky
Photo by Scott Engel

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SUBSCRIPTION RATE: 1 Volume - \$5.00 (2 issues), Single issue \$3.00. Send to Grotto address.

EXCHANGES: Exchanges with other grottoes and caving groups are encouraged. Please mail to Grotto address.

MEETINGS: Wednesday evening, 7:00 p.m., Room 206, Science Building, Wittenberg University, Springfield, Ohio.

Editor's Note

This Pholeos contains a little bit of everything....

The first two articles are directed at "reader response." Mike Hood would like to know how you feel about a "Caving Hall of Fame," and Annette Summers wants to hear about your first caving experience. If you have any comments on either of these, I encourage you to respond.

The next several articles are about recent WUSS activities. If you read closely, you may realize that "A Day of Caving in Ohio" and "My Introduction to Ohio Caving" are reports about the same expedition. Here is a chance for all you "arm-chair psychologists" to test your theories about why people perceive the same situation so differently. For example, how can two people that experience the exact same trip come up with two such different trip reports? My arm-chair analysis is simple: one is a novice caver (myself), and the other is an experienced caver (Mike). Do we need any more explanation than that?!?

Next, WUSS continues its commitment to the scientific research of speleology with "Adams Creek Cave and the Cool James System." This article contains a general, stratigraphic, and structural morphological description along with a map of Adams Creek Cave. WUSS also has many on-going research projects. The next issue will contain a report on a biological expedition to Lechuguilla Cave by Horton Hobbs. Other projects for publication in the future issues include a study of the drift of amphipods in Bat Cave, Kentucky and an economic cost/benefit analysis of karst regions.

Finally, this issue concludes with an article review on cave photography by Tim Lewis and poetry from WUSS' artist corner, S. Allen Kronk and Tom Stitzel.

J.T. (otherwise known as D.B.)

Should There be a Caving Hall of Fame?

by

Mike K. Hood, NSS 24166

Should the NSS sponsor a "Caving Hall of Fame?" Most sports and outdoor organizations seem to sponsor a hall of fame for their distinguished members and, in my opinion, the caving world needs one also. Granted, most cavers are not overly impressed with the accomplishments of fellow cavers, but you cannot deny there have been many individuals, past and present, living and dead, who have made an impact on the world of speleology. E.A. Martel, Norbert Casteret, Floyd Collins, Roger Brucker, and many, many others have made great discoveries and contributions in the sport of caving. Shouldn't they be afforded the same type of honor as many professional sports figures are? The NSS Executive Committee has authorized me to conduct a survey of the NSS membership to see if the interest in supporting a caving hall of fame exists. If the interest is there, a proposal at the Spring Board of Governors Meeting to establish a permanent committee will be made. If you would like to participate in the survey, please send any comments, suggestions, and whether or not you think a hall of fame should be formed to:

Mike K. Hood
23 Wells Drive
Dayton, OH 45431-1420

Thanks, in advance, for your help in this activity.

The First Time

by

Annette Summers, NSS 31319

CAVES — Dark chasms exposed through time that allow us to appreciate rare beauty; magic in formation that permits us to glimpse a part of nature few can only envision; an environment that provokes the imagination and contributions to the intellect.

CAVES — Hollowed out passages of rock that are filled with mud and water; a series of rooms connected by tiny squeezes; a place to find creatures such as bats, crickets, spiders, and crayfish who are as interested in you as you are in them; fear and fascination rolled up into one muddy package.

There are many, many ways to look at caves and caving. "To each his own," one might remark. Every experienced or virgin spelunker has his/her own concepts about the wonderful sport of spelunking. For many of us seasoned cavers, it holds special pockets in our memory which we hold dear. There is a driving force that brings us back time and time and time again... What could it be? Is it the science, the magic or the sport that gives us the name, "SPELUNKER"?

If I were to ask any caver whether he/she falls under the spelunker-having-fun category or the spelunker-in-intellectual-fascination category, I am positive anyone would think that I was crazy! A better way to determine which category a caver falls under would be to ask a caver to remember his/her "first time." The memory evoking the most emotional response provides the answer. Let's try...

Remember your first experience in the caves... for some it might have been some time ago, but try the best you can. Perhaps you were asked by some of your closest friends to join them on a "little trip" (the liars). You thought nothing of it and decided what harm could be done? Am I close?

Chances are they gave you a carbide lamp (the easiest light source to use as a beginner, of course) and then proceeded into the cave. When they discovered that you were missing, they returned to find you on the verge of tears and when they asked what was wrong, you replied, "Rock in my boot." Needless to say, you eventually got into the cave.

Once in the cave and after becoming used to all your new equipment, did you forget you had a flame on your head and get too close to a friend's behind and singe his

pants; or were you not aware of others' flames and carefully back into someone else's carbide and got your own behind burnt?

What about the mud? Recall your first MUDDY passage... I apologize if this was at the same time as the "carbide incident." Was the passage short and slimy or tall and sticky? Were you the lucky caver who got their boot sucked into the depth of the mud? When did you first eat mud? Did you like it? Mud does not taste very good, but you can get used to it.

How much did you crawl? Did you your friends inform you to bring knee pads? Were you given any? What about the preposterous noises that echoed in muffled struggles; then were answered by sighs of exhalation for another quarter inch? After such a passage, did it seem that every muscle in your body hurt? Mine did!

And the cave water; do you remember anything about it or is this something you WANT to forget? I seem to recall it being a liquid form of ice that tends to be about 4.25° F and everywhere it could present a problem—especially at the entrances, and in my boots, and in my pants, and in my socks, and down my shirt, and...you get the picture.

Let us not forget the different insects and animals you encounter in the cave (these are not those wonderful creatures that brought you on the trip). I can still remember my first bat. I had been crawling for quite some time and when the passage finally ended, I found myself in a large room. When I turned around to get the full effect, I found myself almost kissing a bat. It stared at me, I screamed at it, it flew away. And, of course, my friends laughed themselves sick. Oh, the memories!!!

As you can see, there are many things that can affect a person's attitude toward caving. As stated in the beginning, caves represent different things to different spelunkers. This is what makes the whole muddy sport fun, and still intellectually stimulating. Perhaps another time, I will share with you some more of my "firsts," but meanwhile you can share yours with me. The best will be seen here in *Pholeos*, so everyone can have a chuckle. Send your stories to: Annette Summers/ Wittenberg University, Box 2437/ P.O. Box 6100/ Springfield, OH 45501-6100. KISS A FRIENDLY BAT !!!!!!!

A Day of Caving in Ohio

by
Julie Thorp, NSS 32794

On October 13, 1991 Mike Hood, Scott Engel, Steve Johnston, John Ritter, and I ventured on a day trip to two Ohio caves: Freeland's and Frost caves. The first stop on our journey was Freeland's in Adams County. As this was my first Ohio cave trip, I was quite excited. I'd been caving for three years, but never in my home state.

From the first step into the semi-inviting entrance, I realized that Freeland's was unlike any other cave I had explored. To put it mildly, Freeland's was a very wet cave. Fortunately, the water level was quite low on that day. However, the texture of the walls and floor was evidence of a continual flow of water. In contrast to the smooth, rippled walls that I'd grown accustomed to, Freeland's walls were rough, rugged, and pocketed. Upon continuing into the cave, the large inviting entrance quickly turned into an uninviting crawl over rough cobble. The soda straws and gypsum blisters I passed along the way made the crawl more bearable.

About 300m into the cave, we decided to have a snack break in the "Big Room." This name is very deceiving. The Big Room was big if you compared it to the rest of the cave; however, I would not have classified it as a large room. Fortunately, there were only five in our group, or else we all couldn't have fit in the supposed "Big Room." After eating, the anticipated moment arrived when I got to sign my first cave register. My excitement dwindled when I realized the register was full of people from Dr. Hobbs' aquatic ecology class. Somehow, following in the footsteps of an aquatics class didn't seem quite as exciting as following in the footsteps of true rugged cavers. Signing a register didn't quite mean as much after that.

When we decided to continue, for some odd reason, I was chosen to lead. Scott, who was familiar with the cave, told me that the cave was basically straight and that there was only one fork, at which to go left. I had a phobia about leading because of an irrational fear that I would get cut off from everyone else and find myself lost and alone. Everyone else found this phobia amusing, so they got great enjoyment out of nominating me to lead. In the true caving spirit, I led us complaining all the way.

Upon leaving the Big Room, we entered a low crawl for about 10m. Finally, we squeezed through a snug hole and emerged into the tiny Breakdown Room. When I think of breakdown rooms, I usually think of a large room where huge fallen slabs of stones denote the floor. This breakdown room, however, was a small room where no more than two people could fit at a time. The tree roots shooting out of the walls indicated that we were very close to the surface at this point. Soon after leaving the Breakdown Room, we reached the fork, or so I thought. Under the instruction of my fearless leader, Scott, I went left.

After turning left, I noticed the floor change from a stony cobble to a smooth, slick, muddy surface, and the passage also constricted into a tight belly crawl. Later I found out this passage was called "The Tube," and I understood why. After what seemed like several hours, I emerged from The Tube into the main passage and then into a "C.P. Dome 77." Mike was right behind me, but we soon realized that we had lost the rest of the group. After a couple minutes, Steve and John trickled in. Finally, Scott, my fearless leader, rejoined us and informed us that he had made a mistake—there were actually two forks. He had meant for me to go left at the second fork. However, this time luck was on my side. By turning left at the first fork, I had taken an upper loop. Although the upper loop was a very tight belly crawl, the lower main passage was worse: it was a very wet, very tight crawl.

In C.P. Dome 77, the highlight of the trip occurred—the signing of the second register. The first register might have been full; yet, the second half of the cave was much more difficult to traverse than the first. We were the first group to have signed the register since 1989. Finally, I felt like I had accomplished something.

At this point, the group decided to turn back. We also decided to take the loop that I had mistakenly gone through on the way in, because it was easier to traverse. This time, instead of trying to fight The Tube, I made up my mind to enjoy myself. On the way out I actually had fun going through it. The smooth mud bottom caused The Tube to be like a small slip-and-slide. I felt like a kid playing on a mud slide. It is amazing what a change in attitude can do.

In what seemed like a matter of minutes, we were out. The trip out always seems to be much quicker than the trip in. Covered from head to toe in mud, I exited the cave, looked back into Freeland's and realized what an exceptional cave it was. I hope I get the opportunity to return again soon.

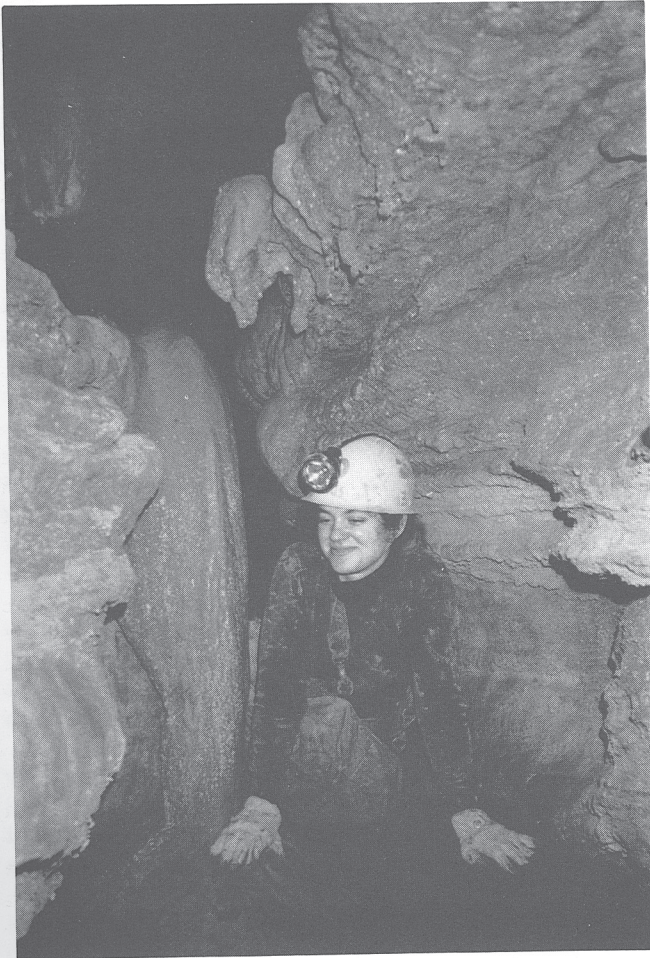
After peeling out of our wet, muddy caving clothes, we headed towards our next adventure—Frost Cave in Pike County. None of us had been to this cave and were surprised to find it in the middle of a camping ground. As I changed into my muddy caving clothes and suited up in my gear, a few campers looked on in curiosity. I love the look people give me when I walk around in my caving attire in a public place.

Upon entering through a small crawlway, which quickly opened up to a canyon passage, the distinct feature of the cave was obvious. Its chalky-white appearance was a complete contrast to Freeland's rugged muddy appearance. Man's effect on the cave also became obvious. About halfway through the cave, I saw where the sewage,

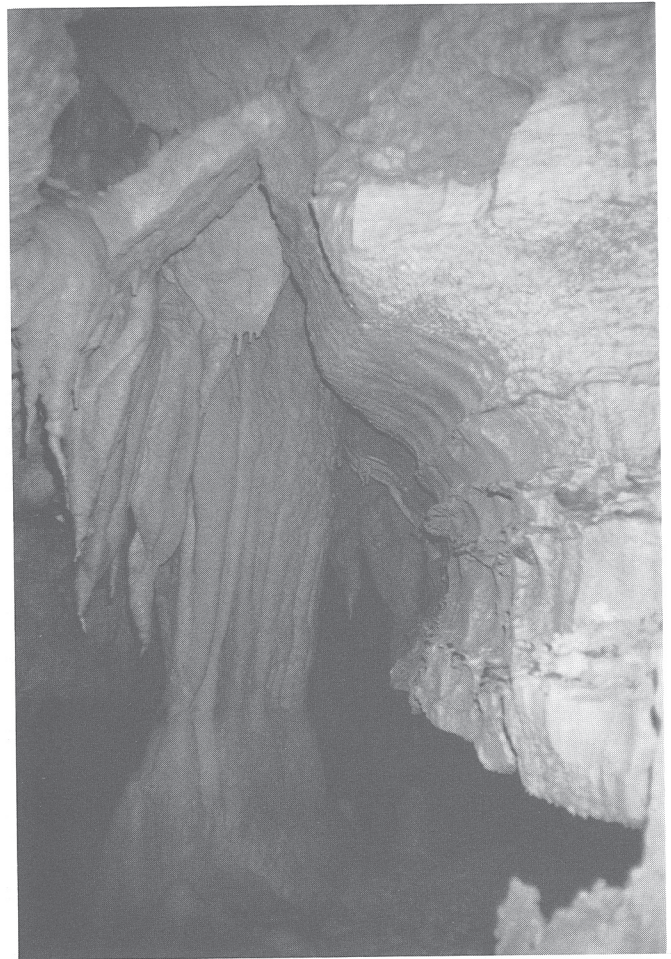
probably from a nearby bathroom, drained into the cave. The normally white cave was covered with a brownish-green slime. Man's intrusion was also evident by the several beer cans scattered throughout the cave and by a few broken speleothems.

Frost Cave probably took a total of five minutes to go through; yet in that five minutes, I saw not only man's effect on caves, but also some interesting formations.

Dead soda straws and dead flow stone, sparsely scattered throughout the cave, added to the beauty. However, the most spectacular view appeared as I exited the cave. The exit (which really was the entrance because we went through backwards) was a picturesque opening, sitting on the edge of a lake that reflected the yellow, orange, and red of fall in the rippling water. As I emerged from the cave, I thought "What a great day of caving!"



Julie Thorp in Zucchini Pass in Adams Creek Cave, Kentucky. Photo by Scott Engel.



Adams Creek Cave in Carter County, Kentucky. Photo by Julie Thorp

My Introduction to Ohio Caving

by
Mike K. Hood, NSS 24166

On October 13, 1991, I had the chance to experience my first Ohio cave trip since I arrived here in May. In my 14 years of caving, I'd caved in Indiana, Kentucky, Tennessee, Alabama, Georgia, Florida, and Missouri—but never in Ohio. So, come that Sunday morning, I found myself driving to Wittenberg University campus, looking for the Student Center, where we were to meet. After about 20 minutes, I found the appointed place and soon we were on our way to Freeland's Cave.

Freeland's Cave is the longest surveyed cave in Ohio with approximately 2300 feet of passage. The cave is formed in dolomite and has three entrances. The main entrance is the Turkey Creek entrance, and is a nice, walking-sized passage. Unfortunately, the walking didn't last long, and soon, we were crawling through water in a less than comfortable passage. The walls and floor are extremely rough and jagged. Anyone attempting this cave without knee pads would find their knees reduced to hamburger in no time. Most of the cave is crawling with the exception of a couple of domes and decent sized rooms. While we plowed along through the water, we noticed a few bats, a couple of nice salamanders, and one rather large frog. After about an hour, we arrived at the largest room in the cave and used the time to introduce Dr. Ritter (his first cave trip) to total darkness. After a few minutes of listening to the water dripping, we signed the register and proceeded on to the back of the cave. The passage to the next register room began as a low, belly crawl. Fortunately, this crawl was in soft, wet sand, and was a nice change from the sharp, water cut dolomite floor we had been crawling on. Scott said we would soon come to a "Y" in the passage and to take the left passage. Before long, Julie came to a "Y" with a muddy tube going off to the left. Well, Scott said to go left, so away we went. We soon ended up at the last register room. We also found the muddy tube was not the way to go, but the bypass was actually easier than the main passage, so no one complained. Upon looking at the register, we found we were the first group since July 1989 to visit this part of the cave. Only four other names were on the register. We returned to the big room and changed carbide. On the way out, one particular bat decided he would accompany us out and continued to fly ahead of us, then turned back just to see if we were coming. Despite the fact Scott saw him a couple of times, and that the bat actually brushed past my face once, Julie could never seem to see him. She claims she saw him a couple of times, but I wouldn't swear to it, as she kept saying, "where??", whenever we pointed the bat out as he flew past. We eventually emerged into a bright, warm sun and stopped to wash the mud off in the stream.

After changing into dry clothing, we set out for Frost

Cave. Frost Cave is located in a campground adjacent to Cave Lake. After visiting with the campground manager, we drove to the cave. I imagine we were quite a sight to the campers as we complainingly pulled on our wet, cold cave clothes. Frost Cave is an interesting, little cave with four entrances. The main entrance is the largest in Ohio and is located on the lake shore. The entrance is an impressive 20 feet high by 35-40 feet wide. However, the cave quickly closes down to a narrow canyon with nice, white flowstone and soda straws and eventually turns into another crawlway in dolomite, similar to Freeland's. The crawlway soon emerges at the bottom of a small sinkhole. The cave then continues from the bottom of the opposite side of the sinkhole as a comfortable three foot high crawlway in soft, dry dirt. This segment of the cave is perhaps 40 to 50 feet long and emerges in a very small sinkhole. If it weren't for a bend in the passage, I think you could see could see light from either end of the cave. The cave actually continues on from the small sinkhole for another 20 feet or so and finally terminates in a depression. However, this segment is too small to push all the way through.

We decided to do the cave in reverse and exit via the large main entrance and so while everyone was gearing up, I strolled down to the entrance of the short, 50-foot segment. As I was already in my caving clothes, I would crawl in the entrance section to see what the cave was like. After looking in the cave, then looking across the surface to the sinkhole exit only 50 feet away, I figured I would go ahead and crawl through. Unless there were any unknown pits (not likely, as there weren't any shown on the map I looked at on the drive over), I would probably make it through before everyone else had finished suiting up. After one of the resident campers assured me that no one could fit through the entrance, I managed to astonish her by disappearing down the small hole. In what seemed like one minute later, I popped out at the other entrance. Just as I thought, I came out before the others were ready. When everyone was ready, I waited while they crawled through this natural culvert, then proceeded to crawl into the small, cobble floored entrance passage to the main part of the cave. The crawlway gradually got higher and soon we were walking through nice canyon passage with a small stream flowing through it. This was a fun cave, and it all too soon terminated at the waterfall climbdown into the entrance room of the main entrance. After the rough crawling of Freeland's Cave, Frost Cave was a lot of fun and I wanted to spend the rest of the afternoon running back and forth through it. Unfortunately, it was getting late, and we still had about a two hour drive ahead of us.

This was an enjoyable trip and I look forward to future trips with Wittenberg University Speleological Society.

My First Rappel

by
Claire Sandt

Summer warmth lingered in the air, as I stood on the hill overlooking the wooded countryside. It was mid-September and I had ventured to Carter County, KY in search of Canyon Cave. It was in this cave that I would rappel in a cave for the first time.

I lost little time shedding my shorts, t-shirt and tennis shoes, replacing them with a stiff pair of jeans, a wool sweater, and mud-crusted boots. With a helmet under my arm and a weighted pack slung across my shoulder, I joined a group of eight cavers and headed for the cave.

Nestled in a grove of towering trees and underbrush, a gash in the earth turned out to be the entrance to the cave. It led into a spacious passage.

Shadows danced about on the dusty, brown walls and I could make out vague outlines of rock jutting randomly up from the floor. The cool, stagnant air smelled of wet soil — like fallen, autumn leaves disintegrating in the warm sun. The perspiration, which had dripped profusely down my face on the walk through the neck-high brush on the way to the cave, was now drying on my forehead, forming a stiff film on my skin.

I moved through the passage until the pit appeared before me. It was undefined — its edges shrouded in darkness. Straining to see as far down as possible, it appeared to me like a funnel spiraling down into the depths of the earth.

The anticipation I had felt at the outset of the trip was giving way to last-minute, motherly concerns. What if the rope snaps? If I lose control? If I hit my head? What if Hobbs pushes me down and then throws the rope after me as a mere afterthought?

Not wanting to be first down the pit, I withdrew into the shadows and watched the others as they descended, one-by-one. I stood in silence, half watching and half thinking to myself. I was fighting for the feeling of excitement I had felt earlier — the kind that builds inside and leaves a lump in the throat. But it wasn't there.

Searching desperately for something to dispel my fears, I found myself remembering a faded, orange t-shirt my father once wore. Across the chest, in black letters, were the words, "Be tough." The recollection bolstered my confidence somewhat. "Come on, live a little!" I told myself.

"O.K. lady, you're up next," came a gentle voice,

interrupting my thoughts. The voice was accompanied by a pair of eyes, which met mine and signaled me to prepare for my descent.

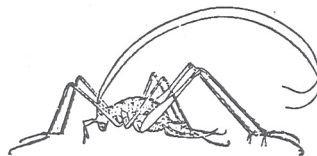
All right, I can handle this, I thought to myself. Grasping the rack with one hand in front of me and the other hand on the rope by my hip, I leaned back, waiting to feel the tension. When I did, I began easing down the edge to the opening. My white-knuckled hands gripped the rack tightly, as I continued to work my way backwards. I was finally consumed by the darkness. Moving steadily along, I headed toward the lights shining below me.

Exhilaration and fear seemed to battle within me. I was overcome by the thrill of meeting the challenge, yet at the same time, doubted my sanity. Who in their right mind would place faith in a rope to get in and out of a cave? Forcing myself to disregard any uncertainties, I proceeded down the pit.

The peaceful harbor of darkness surrounding me was so unlike the world above. Filling its passages with the light from my lamp and disrupting its solitude with my voice seemed inconsiderate. Yet, its beauty appeared to be there for the taking. The entrance had connected the exterior world with the interior and had lured me in to find out what was inside. I decided that I was free to enter, so long as I did not overstay my welcome.

Sudden panic cut off my wandering thoughts, as I realized the wall of rock, which my feet had maintained contact with during the rappel, had retreated. It was just the rope and me. "You be good to me, and I'll be good to you," I found myself saying in desperation, as if I could somehow establish a rapport with the rope. Gradually, my panic dwindled and a tremendous sense of freedom took over. There I was, suspended in dark, motionless air — enveloped in silence and free just to dangle or continue moving along. "You're almost there!" boomed a voice from below.

I savored a few peaceful moments of the freedom I had discovered and then continued moving rapidly towards the voice below. Within seconds, my toes met lightly with the ground. My initial relief gave in to a sense of satisfaction. "Oh I did it?" I thought to myself triumphantly. I knew right then that my first rappel would be an experience I'd hold on to for a long time. Getting out would be a whole different story.



Mammoth Cave Restoration Weekend

by

Mike K. Hood, NSS 24166

I had the opportunity to spend October 4-6 at the Mammoth Cave Restoration Weekend at Mammoth Cave National Park, Kentucky. The park has implemented a cleanup and restoration program where invited NSS grottos spend the weekend removing trash and other items from the cave.

This particular weekend found approximately 30 people from the Central Indiana Grotto and Evansville Metropolitan Grotto at the park to remove remnants of the old tourist trail walkway over Echo River. After arriving around noon on Friday, October 4th, I spent the afternoon visiting various places in the park that I'd been wanting to see for a number of years. This passed the time quickly and I soon arrived at the Green River Ferry that would take me across the river to Maples Springs Research Facility. Never having been on a ferry, I found I kept wanting to steer my car towards the road on the opposite bank—it was a strange sensation. Upon arriving on the opposite shore, I drove to the Maple Springs facility where I was to meet by a couple of park rangers who gave me the key to the facility. The Maple Springs Research Facility is a two-story house converted into a bunkhouse. The house had bunk beds in just about every room and was complete with kitchen, wood-burning stove in the living room, and numerous bathrooms with hot showers. Besides the house, there's also a bunkhouse out back and a large kitchen facility used by the Cave Research Foundation (CRF) when they're there. We had room for nearly 80 people so there was ample room for everyone. The facility is the office of the CRF now that they've abandoned the Crystal Cave property.

By 10 pm, nearly everyone had arrived and some of us decided to hike to a gate cave (I can't seem to remember the name) just to have a look. The cave is nearly a three mile hike through the woods and we set off around 11 pm. After crashing through the forest and disturbing numerous deer along the trail, we eventually found the correct trail and soon found ourselves at the gate of the cave. This cave was blowing a tremendous amount of air and could be felt as far as 50 feet away from the entrance. By 1 am, we arrived back at the house. By now, those who had missed the ferry's 9:55 pm last run had made the 40 mile drive around the park and were getting settled in.

I woke around 3 am by a rather noisy thunderstorm with lashing rain. It sure made me appreciate the nice bunk bed and house I was in and not spending the night in a tent. Saturday morning broke gloomy, rainy, and chilly. We were to meet at the park maintenance facility at 8:30 am before driving to the cave entrance. At the maintenance facility, we met up with Mr. Bob Ward, Park Historian and project officer for this program. Once we got our marching orders, we drove to the Mammoth Cave Hotel

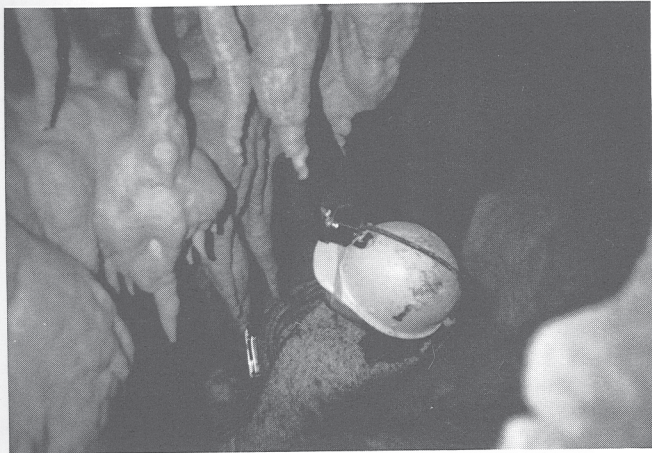
parking lot and assembled our gear. By 9 am we were in the cave and on our way to Echo river. This was only my third trip to Mammoth Cave and I was looking forward to seeing a part of the cave I'd never been to. Walking down the tower into Mammoth Dome was impressive and I couldn't help but ponder the hard work that would be involved hauling 30 pound bags of wood up those narrow stairs and on to the surface. In no time, we were at our appointed location and we all rather tentatively peered over the side of the walkway down into the water of Echo River. The clear, green water revealed an abundance of old wood planks and beams that would have to be removed. Many would have to be sawed into numerous pieces to make the journey to the surface. We were broken up into work details—two would be in the 56 degree, waist-deep water; others would be on the catwalk to take the wood as it was handed up and stuffed into bags; others would take the larger pieces to the saw crew in charge of cutting it up; the rest would ferry the bags to a designated location via wheelbarrows before transporting it all to the surface.

In short time, we evolved into a steady routine, and the work went in a smooth, orderly fashion. In no time, we had over 75 bags stuffed with wood located at the designed assembly point. We took a short lunch break and were amused by the tours that went through. We were the center of attention and the subject of numerous pictures. We must have been a sight to the clean, comfortably dressed tourists in our wet, dirty cave clothes and helmets. When the tour had passed, we began the human chain of passing the bags to the Mammoth Dome tower. When the last bag was passed, we spaced ourselves out at regular intervals up the 192 foot tower and the chain of passing bags was repeated. Once the last bag was passed, we began hauling the bags towards the entrance. Those that wouldn't fit into the two wheelbarrows were hand carried. Finally, the bags were on the surface. We had managed to haul 75+ bags to the surface by 1 pm. After a short break, we returned to the river. This time, the plan was for each person to fill one bag apiece. Once your bag was full, you began to haul it to the surface. This worked extremely well, and we quickly got the bags to the surface and returned to the bunkhouse for showers and a rest before heading into the Cave City Pizza Hut for dinner.

Sunday morning found us back in the cave for more of the same routine. We finished up by noon and were offered a trip into some of the wild portions of Mammoth Cave. I reluctantly declined the trip, as I was anxious to get on the road for the 4 1/2 hour trip home. Despite the hard work, it was an enjoyable weekend. This program brings the Park Service and the NSS together and strengthens the ties between the two organizations. With the continued

support of the NSS, the park may soon open up other opportunities for NSS member participation. There's enough work left in this world's longest cave to keep NSS

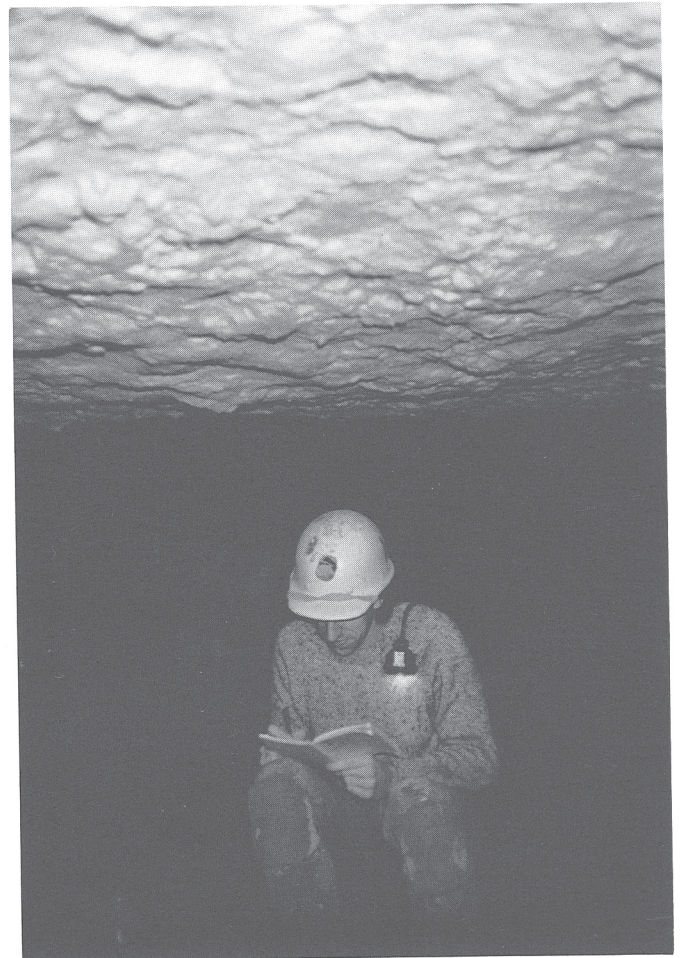
grottos busy for years to come. I encourage everyone to take the opportunity to participate in this worthwhile program.



Scott Engel in Adams Creek Cave Kentucky. Photo by Julie Thorp.



Adams Creek Cave, Carter County, Kentucky. Photo by Scott Engel.



Scott Engel surveying Adams Creek Cave, Kentucky. Photo by Julie Thorp.

Adams Creek Cave and the Cool Jamers System

by
Scott Engel, NSS 32520

LOCATION

Adams Creek Cave is located in Carter County, Kentucky, within the drainage basin of Adams Creek, a tributary of Tygarts Creek. The entrance is located approximately fifty meters up-valley from the northernmost entrance to Cool James Cave (Proctor, 1990). It is now known that Adams Creek Cave and Cool James Cave are connected; and therefore, they are being referred to together as the Cool James System.

HISTORY

The entrance to Adams Creek Cave was discovered in February of 1990 while conducting a surface exploration in an attempt to locate the source of the water flowing through Cool James Cave. The presence of undisturbed sediments in the passages of Adams Creek Cave suggested that it had either been unexplored or that a long time had elapsed since the last visit by humans. In fact, there was a comforting lack of graffiti and broken formations, which are all too familiar in the caves of the region. Inquiries with several property owners of the area revealed that they were unaware of a "smaller, second cave located near the larger (Cool James) cave."

The survey of Adams Creek Cave was initiated in March of 1991 and completed in September of the same year. The project being primarily directed by myself, with the aid of the members of the Wittenberg University Speleological Society.

METHODS AND MATERIALS

All measurements within the cave were completed using a Sunnuto compass and clinometer and a Keson 100 ft./30m. surveying tape. Data and notes were kept in a "Rite in the Rain Survey Notebook."

The basic surveying procedure consisted of establishing stations, or points, throughout the cave passages. We progressed through the cave measuring the distances, compass bearing, and degree changes in elevation between the points; and then measuring the point's distance from the left and right walls and from the ceiling and floor. Points were chosen in order to achieve the maximum distance between stations in a straight line and to include junctions between passages or other significant features of the cave. They were marked by using the flame from a carbide lamp, with the exception of important junctions that were marked with flagging tape for easy location and identification. Carbide is the preferred marking system since it is usually permanent enough to last the duration of the survey, but will fade over time and is biodegradable.

For the greatest efficiency and speed, the survey parties usually consisted of three individuals. One in front to establish the stations and to take the measurements. The second to assist in the measuring and take the compass and the clinometer readings between points. The third follows the other two and "keeps book" - writing down all the measurements as well as sketching the cave.

Once the data were collected, the information was entered into CAVEMAPR 2.3: a basic program that was written by Wittenberg graduate Terry Madigan. The program automatically calculates true distances between points and generates a line plot of the cave which includes marks for left and right wall distances. The program also provides such functions as generating Rose diagrams, determining elevation changes between stations, and automatically calculating THC (Total Horizontal Cave). With the aid of the program, drawing the map is nothing more than connecting the dots and adding in the features that were noted on the sketch drawn while in the cave.

The accuracy of the map is limited by the accuracy of the measurements taken and the detail of the sketching done. Most distance measurements were taken to two decimal places. Compass bearing were taken twice and compared so that there was a difference of no more than five tenths of a degree.

GENERAL DESCRIPTION OF ADAMS CREEK CAVE

The entrance is located in the base of the northeastern wall of the streambed being downcut by Adams Creek (Figure 5). Adams Creek drains into the cave entrance but is usually dry and flows only during high rainfall events. The entrance is four meters wide by one and one-fourth meters high. After ducking into the entrance, it is possible to remain standing for about ten meters. The ceiling quickly drops and the passage remains about one-half of a meter high for twenty meters. This discouraging crawl, frequently with water and always with mud, is believed to be one of the primary reasons for the lack of visitation to the cave. About halfway through this crawl passage is an opening in the right wall which is usually jammed with logs, and which connects to the top of the main water passage. When the cave was first explored, it was possible to crawl through this connection and drop into the water passage, but it has since been clogged with logs and other debris.

This front section of the cave shows visible signs of frequent flooding to the ceiling; and therefore, the cave should not be entered when there is a threat of rain. In fact, during the spring of 1991 the survey was delayed for over one month due to weather problems. However, the

entrance does appear to drain quickly following the isolated storm event. In one such case, the water level was observed to have dropped approximately 10 cm in a six hour time period.

The entrance crawlway is one of five passages that merge together at the Junction Room. To the northwest is a low winding passage that leads to the Pancake House. The first half of this passage has ankle-deep water flowing through it during wet seasons. A few meters past the insurgence of the stream, the passage opens into another passage trending northeast - southwest. The southwest sector is blocked by breakdown, but the northeast continues. At this point, the passage contains several small rimstone dams surrounding a flowstone column (Figure 6). These formations completely cover the floor of the passage and one must carefully crawl over them in order to continue. During the month of May, the pools that had collected behind the dams were filled with juvenile salamanders. Once past the rimstone dams the passage turns ninety degrees and continues to the northwest. After another fifteen meters, it deadends at the Pancake House - a low, flat circular room approximately ten meters in diameter and one-third of a meter high.

The passage leading to the southeast from the Junction Room is the main drainage for all the water flowing in the cave. Even when there is no flowing water within the cave, this passage contains water to depths of approximately one half to one meter. Fifteen meters from the Junction Room is an opening in the western wall near the ceiling which connects to the entrance passage (Figure 7). One of the most impressive testimonies to the force of the water that sometimes flows through this passage can be found just past this connection. Moving down the passage, it is necessary to walk beneath a large tire that has been wedged between two rocks near the ceiling so that it is folded nearly in half (Figure 8).

The passage maintains an average height of two and one-half meters until near its end. Almost to the end, the passage takes a sharp turn towards the east and has a corresponding short crawlway to the west. At this point the ceiling of the passage slopes downward into the water, creating a sump. This location was named "The Garbage Sump" due to the large volumes of trash and debris trapped there. Some of the debris included a tire still on its rim, paint cans, aluminum cans, oil filters, aerosol cans, and lots of plastic.

This passage is heading directly towards Cool James Cave before it sumps (Figure 2). The distance between the Garbage Sump and the water insurgence in Cool James Cave is less than fifty meters. The connection between the two caves is readily apparent based on passage orientation and water flow similarities, and no water tracing methods were considered necessary to establish this.

Returning to the Junction Room, there is a choice of two passages leading to the northeast. The more northerly of the two passages is a crawlway that enters the room about two meters from the floor and is more easily accessible coming from the other direction. The second, more southerly, passage which is opposite the entrance crawlway is a narrow twisting passage that usually has a few inches of water flowing through it. Twenty-five meters into the

passage there is a low crawlway to the northeast through which the water travels. To continue in the main passage, it is necessary to crawl through an elevated three meter long section which is about six-tenths of a meter high. The crawl opens into a northeast - southwest trending canyon passage that is approximately four meters in height. This is a dramatic change in the morphology of the cave and completely surprised the original survey team.

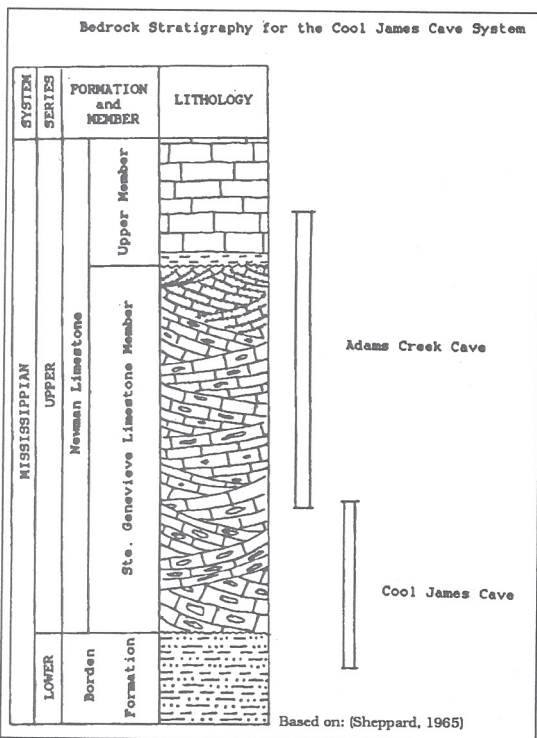
From this point it is possible to travel either northeast or southwest. To the southwest is a muddy, upward-sloping passage that originates near the top of the canyon. Following this passage will take one through a small crawlway filled with many dripstone formations. Near the end of the passage it is necessary to squeeze between two groups of formations that have developed on opposite sides of the passage; hence the name Formation Squeeze (Figure 9). A short distance past Formation Squeeze the passage rejoins the Junction Room near the ceiling. The north side of the drop into the Junction Room is mostly flowstone with miniature rimstone dams and the south side is a mud slope that can be carefully climbed down.

Heading to the northeast in the canyon passage, the passage quickly takes a sharp turn toward the north. A corresponding low, tight passage can be found heading to the south and connects back to the passage prior to entering the canyon. Immediately after turning to the north, the passage is blocked by a large dripstone formation that has developed on the western wall and has grown to a ledge jutting out of the opposite wall. This bulbous column looks surprisingly like a zucchini that has been stood on end. A slender person can easily squeeze around it, while others can climb up the wall and over the formation.

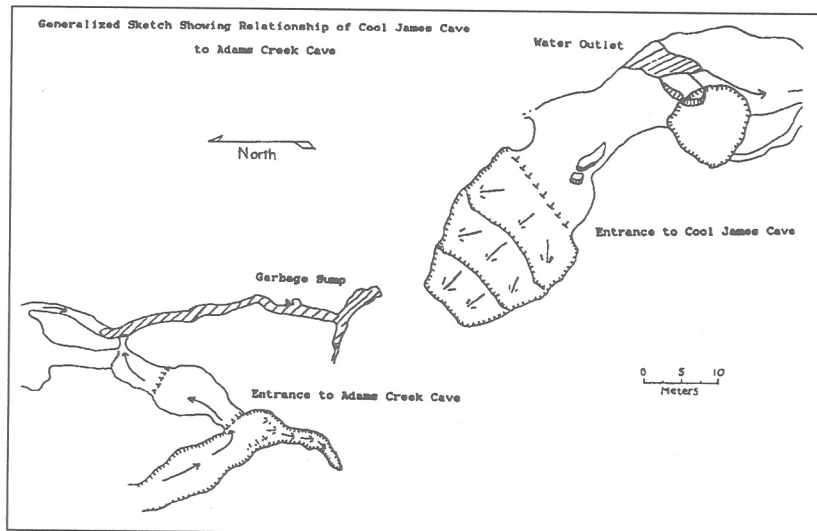
Past Zucchini Pass the passage continues as a high, narrow canyon with a general northerly trend. Occasional openings in the top of the canyon can be seen from the bottom and suggest more passage above. These passages can be reached relatively easily from the Lunch Room, which is accessed farther up the canyon.

Approximately twenty-five meters from Zucchini Pass there is a significant rise in the level of the passage floor creating several small waterfalls (Figure 10). At the top of the waterfalls area, there is a ledge on the eastern wall that stands about two meters above the floor of the canyon. The thin bedding of the rock layers in this region make the climb up to this ledge an easy one. Once on the ledge, it is possible to continue north for another ten meters in this intermediate level passage. From this point one can turn to the west and climb back down into the canyon passage, or climb up through one of several openings and into the Lunch Room. It is possible to continue in the canyon passage without climbing up into the intermediate level, but the area between the two climbs is very narrow and difficult to traverse.

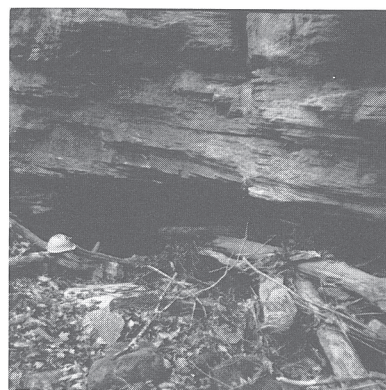
The Lunch Room is a large quasi-circular room with a diameter of approximately twelve meters and a height of one and one half meters (Figure 11). The ceiling follows the bottom surface of a bedding plane; therefore it is fairly smooth, with only a few fractures and small stalactites disrupting its surface. The floor is cluttered around the edges with large breakdown blocks, and it slopes gently



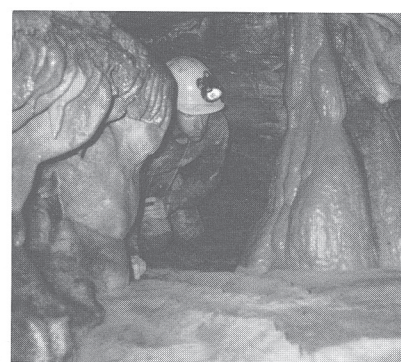
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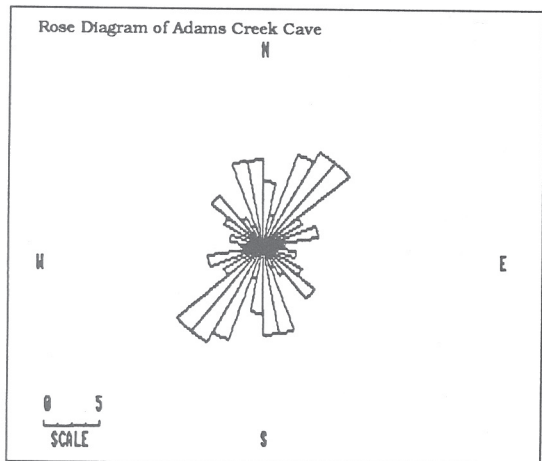
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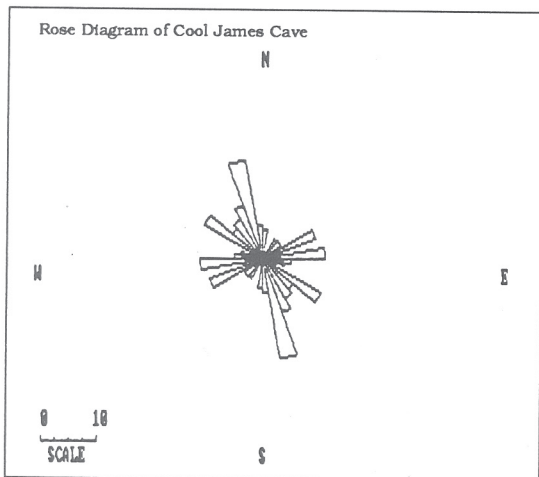
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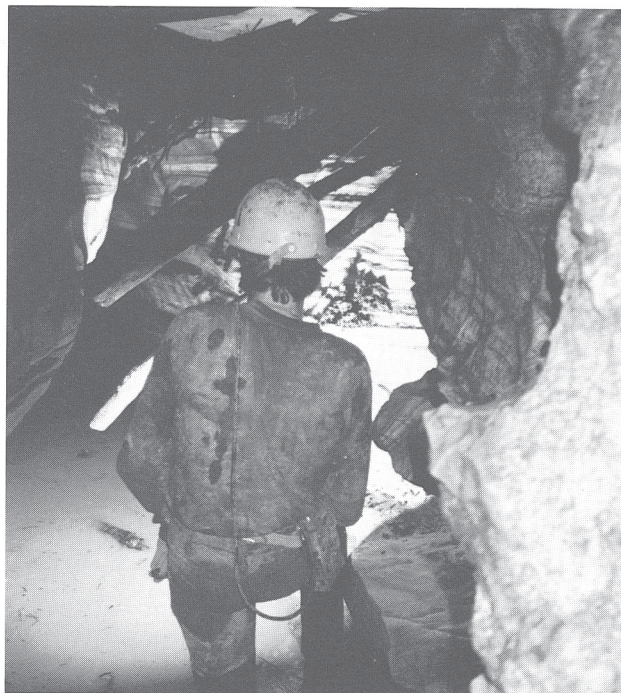
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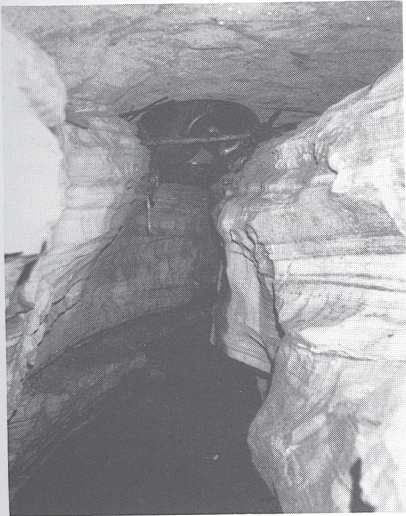
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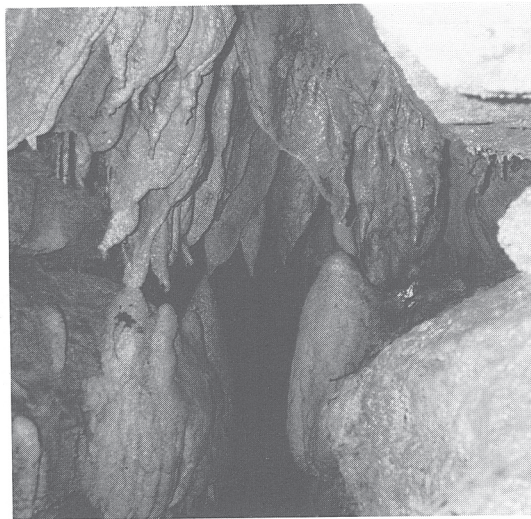
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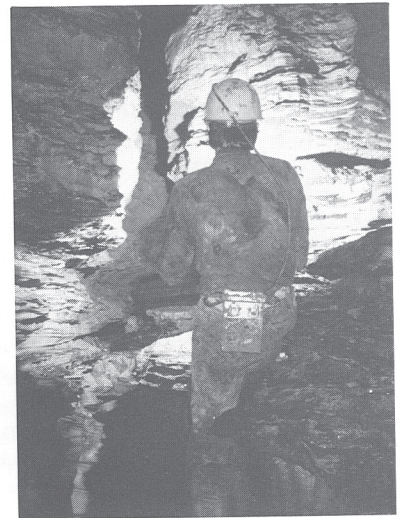
(Figure 7)



(Figure 8)



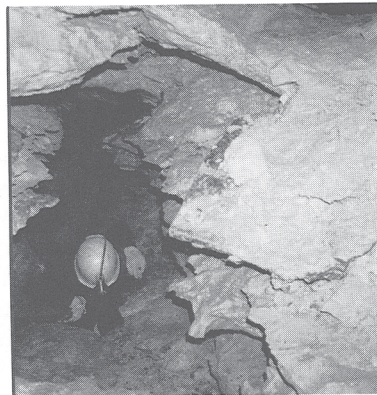
(Figure 9)



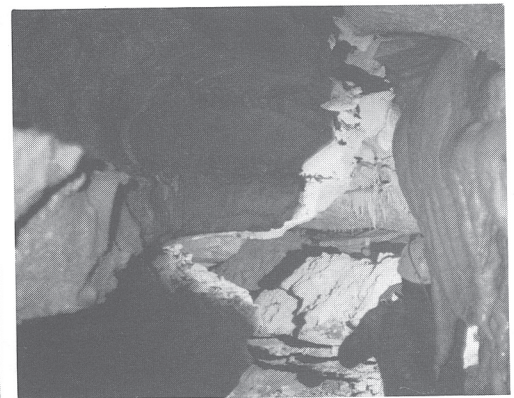
(Figure 10)



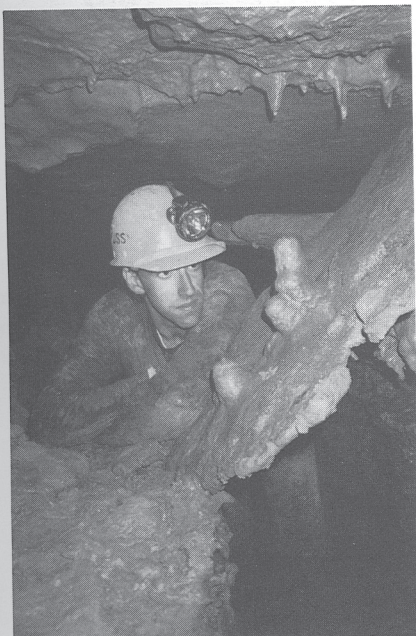
(Figure 11)



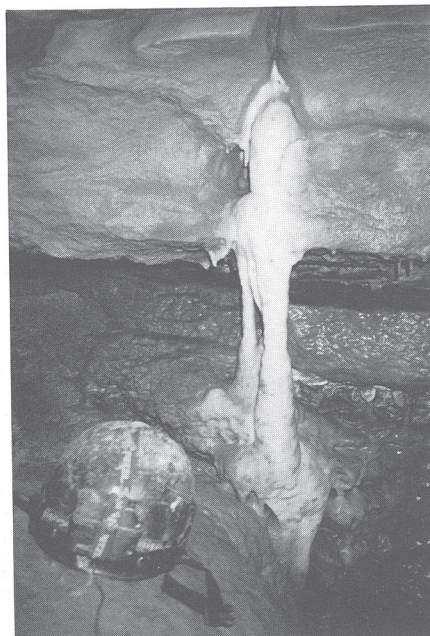
(Figure 12)



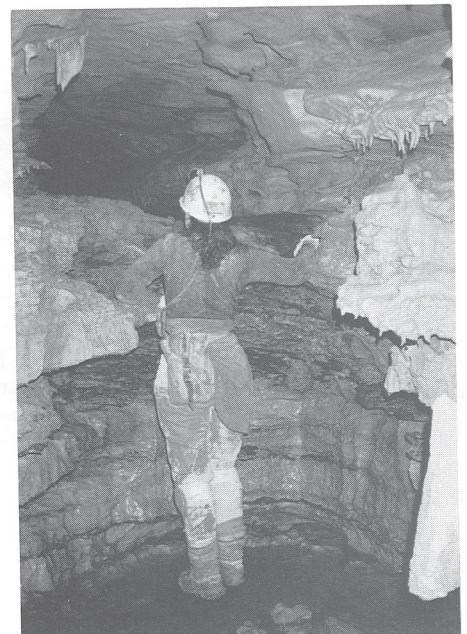
(Figure 13)



(Figure 14)



(Figure 15)



(Figure 16)

toward the pits located in the center of the room. There is a small opening in the center of the northern wall that opens into a small, mud-coated chamber. In the southern end of the room is another pit that drops down to the floor of the canyon; about ten meters.

There is a passage heading to the south that can be reached by carefully crawling along the eastern wall. Care should be taken in this passage because it follows the top of the canyon and contains several openings in the floor that drop into the canyon. Ten meters into the passage it takes a sharp turn to the west and widens slightly. A small crawl passage cutting through a shale and clay layer extends to the east for ten meters before ending in a small room with several water inlets.

After several meters the main passage turns back to the south and gradually decreases in height. Just beyond where it turns to the south, there is a hole in the floor that connects to a short intermediate level paralleling the main passage. This intermediate level contains abundant dripstone formations and rejoins the main passage ten meters later. Just past the point where the two passages rejoin, there are several large pits in the floor that drop into the canyon, making forward progression hazardous.

After climbing back down into the canyon passage and heading north, the passage widens to approximately three meters beginning at a point about one meter from the floor. Both walls in this area are covered from ceiling to floor with flowstone formations. Immediately beyond this widened section the passage makes a sharp "s" curve and the passage height drops to two meters. Past the "s" curve the passage narrows to about three-fourths of a meter in width, and gradually drops in height. The passage beyond this point was named Sandpaper Alley because of the high content of sand grains mixed into the limestone beds. The sand and the chert nodules jutting out of the walls make this a difficult section to traverse, particularly for clothing.

Approximately five meters past the "s" curve there is a small, upward opening in the western wall slightly less than two meters from the floor (Figure 12). This opening connects to the bottom of a larger upper passage, and provides an alternative to squeezing through most of Sandpaper Alley.

The upper passage curves to the northeast and averages two meters wide and three meters high for approximately twenty meters. Several locations along the walls of this section are covered with dripstone formations, some of which are a milky-white color (Figure 13). A low crawlway branches to the south and connects to the widened area of the canyon passage at the top of one of the flowstone formations. A second, smaller passage leading to the same location can be reached by squeezing through a hole found about two meters above the previous one.

Continuing to the north, several small openings in the floor connect to the end of Sandpaper Alley and represent the beginning, or top, of the canyon passage. Just past these pits is a low, tight crawl that starts to the northeast, but quickly intersects a north - south trending passage. The northern section of the passage appears to connect to Jailhouse Pit, but the rocks in the passage are very unstable; and therefore, it was not surveyed.

Just past this point in the main passage there is a

slab of rock that has fallen from the ceiling and is lying at a diagonal across the passage (Figure 14). Several stalagmites that have formed on the surface of this slab provide good age relationship clues. Several smaller stalagmites have grown perpendicular to the slab, but the largest one is growing at an angle to the slab - suggesting that it was formed after the slab fell.

Five meters further the passage is blocked by breakdown, but a small, upward-slanting opening can be found in the northeastern corner. This squeeze opens into the floor of a six meter diameter room with large breakdown blocks scattered around it. A passage continues to the northeast that is two and one-half meters wide, but only a half a meter high. Ten meters into the passage a large rock slab has fallen off the ceiling and broken down the middle to form a "v." The center height of the "v" is only a third of a meter and makes for a tight squeeze.

The next area is made up largely of breakdown blocks with passages leading southeast and northwest. The southeast intersects a relatively large passage that trends northeast - southwest and is approximately four meters wide and two meters high. The southwestern section quickly shrinks in size and becomes impassible within ten meters. Halfway through there is a small, upward opening on the western wall into a three meter diameter chamber. A noticeable change in temperature and the presence of roots and spiders suggest that this chamber must be very near the ground surface. Also, raccoon tracks were found in several localities in this section of the cave, so a small entrance must be nearby.

When walked on the surface, this room coincided with a depression in the ground and several small downward fractures exposing the bedrock through the ground clutter. It also lies about five meters from a gravel road, providing a good explanation for several "unnerving rumbles" that were heard while surveying.

To the northeast, the passage continues for another ten meters before ending in breakdown. Before the passage ends there is a dome slightly less than three meters high, with a corresponding depression in the floor. The floor below the dome is covered with large cobbles, suggesting that there is a high volume of water flowing through it at times.

Going back and heading to the northwest, the passage ends after a few meters, but it is possible to continue through a hole in the floor. A large dripstone formation has formed down the west side of the hole leaving about one quarter of a meter of clearance from the floor. Extreme care should be taken when squeezing under the formation because there are several delicate formations below that cannot be seen from this angle.

After sliding under, the dripstone there are passages to the northeast and to the southwest. The southwest is a small ten meter long section that is well decorated with many types of dripstone formations ending in a pool held by a rimstone dam. About halfway down the length of the passage is a small, one meter deep pit with a connecting passage leading to the southeast. However, a dripstone column has grown in the center of it, preventing travel; hence the name Jailhouse pit.

The northeast passage immediately drops into a five

meter long, one and one-half meter deep pit. At the southwestern lip of the pit is a one meter high, white dripstone column (Figure 15). About two meters from the floor of the northern end of the pit, the cave continues as a one meter wide and one-half meter high passage (Figure 16). During wet seasons, water flows out of the small, upper passage, cascades down into the pit, and exits through a small opening to the southeast.

The small, upper passage continues in a northerly direction for an additional five meters before ending in a one by two meter room. There is an upward-sloping hole to the southeast that opens into an upper chamber that is about three meters in diameter. To the northwest is a passage that turns to the north and has a noticeable air flow, but for a one half meter interval its dimensions are eight by nine inches. Attempts to get through have been futile at best; and therefore this room was designated — The End.

STRATIGRAPHY

Based on comparisons of field observations in conjunction with the stratigraphic descriptions provided in the Tygarts Valley geologic quadrangle (Sheppard, 1964), it has been determined that the Cool James System is formed in strata that range from the upper-lower Mississippian to the middle-upper Mississippian in age. The bedrock strata include the Lower Mississippian Borden Formation, and the Upper Mississippian Newman Limestone Formation, which is split into the Ste. Genevieve Limestone Member and the Upper Member. Adams Creek Cave lies within the lower layers of the Upper Member and ranges into the middle of the Ste. Genevieve Limestone Member. Cool James Cave occurs almost entirely in the lower layers of the Ste. Genevieve, downcutting into the upper layers of the Borden Formation only in the lowest 35 meters of the cave located near the southernmost entrance (Figure 1). The Ste. Louis Limestone Member and the Lower Mississippian Shale Member normally lie between the Ste. Genevieve and the Borden Formation, but both are absent in this locality and an unconformity is present. There is also an unconformity present between the Upper Member and the Ste. Genevieve Limestone Member.

The upper layers of the Borden Formation consist of light-gray to green interbedded siltstones and shales. The layers are thinly bedded and very susceptible to water erosion. The large amounts of breakdown and instability in this portion of the cave system are undoubtedly the result of the rapid erosional rate of the member. Once the cave's stream cuts through the limestone and into the underlying shale, they quickly erode away, undermining the limestones above.

The remaining portions of Cool James Cave lie within the lower half of the Ste. Genevieve limestone. These layers consist of a light-gray, finely-crystalline, thick-bedded limestone. Throughout Cool James Cave, the beds are highly crossbedded making it very difficult to distinguish between the crossbedding and the normal bedding. Nodules and localized beds of chert are abundant in this section.

Adams Creek Cave lies predominantly within the

upper half of the Ste. Genevieve Member. The front section of the cave and the entire canyon passage are within this unit. The upper end of the canyon represents the general location of the contact between the Ste. Genevieve and the overlying Upper Member. The Ste. Genevieve strata within Adams Creek Cave can also be categorized as light-gray, finely-crystalline limestones. There is still crossbedding present, but it is not as massive as that found in Cool James Cave and is usually limited to within distinct bedding planes. Fine layers of well-rounded quartz grains are commonly found outlining the structural layers of the crossbeds. These sand layers reach their maximum volume and development in the uppermost region of the Ste. Genevieve, just below the contact with the Upper Member. This area is referred to as Sandpaper Alley. Angular chert nodules ranging in size from several centimeters to half a meter are also present, being most abundant in the lower sections of the Canyon passage.

The contact between the Upper Member and the Ste. Genevieve can be readily observed at several localities in the back sections of the cave. In several areas, the contact is marked by thin lenses of maroon to light-olive shales. The Upper member consists of a light-gray (lighter in color than the Ste. Genevieve) finely-crystalline, massive limestone. There is a notable absence of crossbedding and chert nodules. However, the most distinctive features of these upper layers are white calcite fracture-fillings and the presence of beautiful white calcite speleothems which frequently cross the Ste. Genevieve/Upper Member contact and drape downward onto the Ste. Genevieve (Figures 13 and 15). The Upper member is obviously an excellent source rock from which calcium carbonate is leached by groundwater and deposited as speleothems.

STRUCTURAL MORPHOLOGY

Measurements taken periodically throughout the Cool James System show that the local rock layers are consistently striking in a 46 - 226 degree direction (North 46 degrees East) with a dip of five degrees to the southeast. When these numbers are applied to the maps of the two caves, it is evident that Cool James Cave is oriented in the direction of dip, and Adams Creek Cave is predominantly oriented in the direction of strike. This relationship becomes more apparent by comparing the rose diagrams of the passage trends in the two caves. (Figures 3 and 4) A vast majority of the caves that have been surveyed in the Carter County region have been oriented in the dip direction. The strike orientation of Adams Creek Cave makes it rather unique in that respect.

This strike - dip relationship is apparently the result of a regional occurrence of joint and fracture sets paralleling the direction of strike. The regional scale of this feature can be seen on the topographic map of this area by observing the orientation of the tributary streams flowing into Tygarts Creek. The vast majority follow dip, with small tributaries oriented along strike. The joints and fractures are particularly evident in Adams Creek Cave and can be observed in various locations throughout it. Perhaps the best example can be observed running across the ceiling of the Lunch Room.

Cool James Cave represents a relatively large trunk passage, averaging four meters wide and five meters high. The consistent passage structure suggests that the flow of water, and ultimately the rates of limestone dissolution, have been relatively constant throughout its history. Looking at Adams Creek Cave, the same passage size characteristics are observed in the passage running from the Pancake House to the Garbage Sump; only, on a smaller scale.

This passage in Adams Creek Cave represents the up-stream continuation of the Cool James Cave trunk passage. The separation between the Garbage Sump and the northern entrance to Cool James Cave is the result of a massive breakdown, or slump of the local beds. The limestone beds exposed in the area around the Cool James Cave entrance are massively crossbedded and display prominent fracturing. The combination of crossbedding, fracturing, and proximity to the ground surface as a result of the downcutting action of Adams Creek created enough structural instability to cause the collapse of the passage. The flow of water between the two caves proves that the two are still connected, but not within the ability of human travel.

Another important observation that supports the theory of a collapse between the two caves is the water depths of the pools that develop during dry seasons. Even when there is no water flowing within the cave system, there are pools at the Garbage Sump in Adams Creek Cave and at the water outlet in Cool James Cave. The water depth at the Garbage Sump averages up to a meter in depth, while the depth in the Cool James Cave water outlet is only a few inches. The elevation of the water in these two pools must be equal; and therefore, the floor of the Adams Creek Cave passage is lower than the floor of the Cool James Cave passage. Furthermore, the floor of the Adams Creek Cave passage is bedrock, while the floor in this section of Cool James Cave is sand and gravel. This increase in elevation, in association with the sediment floor, are the result of the debris created during the collapse.

The majority of Adams Creek Cave, represented by the passages running from the Junction Room to The End, including the canyon passage, is a tributary system to the main trunk passage. This theory is supported by the smaller size and higher slope of the passages, as well as such features as meander cutoffs and stream piracy.

The upper passages of this section, which include most of the area from the top of the canyon to The End, the Lunch Room, and the passage following the top of the canyon, are formed within the massive Upper Member of the Newman Limestone. This rock formation apparently has a much greater resistance to dissolution than the lower rock units, resulting in an increased horizontal development which tends to follow bedding planes. In regions of the cave where this type of development occurred, large breakdown blocks lie scattered on the floor. These blocks are usually tabular in shape and result from the weakening of bedding contacts by dissolution.

Once the stream reached the upper layers of the more easily eroded Ste. Genevieve Limestone Member, it was able to downcut quickly. This created an increase in

the vertical development of the passage with a corresponding decrease in the horizontal development, resulting in the formation of the canyon passage. The joints and fractures within the bedrock provided the water with less resistant conduits; and therefore, encouraged passage development parallel to their orientation.

The lower end of the canyon passage - closest to the Junction Room - provides an interesting look at age relationships and stream meanders. The upper passage that connects to the Junction Room from the top section of the canyon passage represents the oldest, or earliest, development of the passage. The lower passage that connects slightly farther south in the Junction Room is a younger passage that was formed as a meander cutoff. And the low, small passage just to the south of Zucchini Pass, through which the stream presently follows, is the most recent meander cutoff and the youngest in age.

The entrance crawlway has formed mostly as the result of surface drainage created during high rainfall events and is a result of stream piracy. When Adams Creek is flowing, the stream enters the cave and immediately turns back in an up-valley direction. This section continues for about ten meters before making another turn and continues flow in a down-valley direction. This dislocation has probably developed since the collapse of the section connecting Adams Creek Cave and Cool James Cave as the result of disruption of flow from debris. The section also contains a good example of a meander cutoff, represented by the small connection between the crawlway and the trunk passage through which the water presently flows.

SUMMARY

Adams Creek Cave and Cool James Cave make up the Cool James System with a total length of 1256 meters, or just over three-fourths of a mile. The cave system lies within the Mississippian aged Newman Limestone formation, and is primarily oriented parallel to dip with a smaller tributary section within Adams Creek Cave in the direction of strike. The system is separated into two caves by a region of collapse that disrupts the main passage, but still allows water to flow continuously through the system.

UPDATE

While visiting the cave at the end of the summer of 1991, it was noted that the western ridge of the Adams Creek valley had been clear-cut. When the cave was visited again in November there had been a road cut through the forest that passes between the entrances of the two caves. Many of the downed trees and other debris were thrown into the depressions at the cave entrances. This development could have serious environmental impact on the cave system, and is cause for great concern.

ADAMS CREEK CAVE BIOTA

The following is a list of organisms that were observed during the surveying of Adams Creek Cave. It is by no means a definitive list, but simply represents those organisms easily seen and identified. In addition to these observed specimens, it should be noted that raccoon

tracks were observed in several localities in the furthest back section of the cave.

Troglophilic crayfish, *Cambarus (Cambarus) bartonii bartonii*

Troglophilic entomobryid collembola (Springtail)

Trogloxenic rhabdophorid cricket, *Ceuthophilus* sp.

Troglophilic heleomyzid fly, *Amoebalaria defessa*

Trogloxenic phalangid (Daddy Longleg)

Troglophilic arachnid, *Meta menardi* (Spider)

Trogloxenic vespertilionid, *Pipistrellus subflavus* (bat)

Troglophilic salamander, *Eurycea longicauda longicauda*

Trogloxenic salamander, *Eurycea bislineata*

Troglophilic salamander, *Pseudotriton rub*

ACKNOWLEDGMENT

I would like to thank the following individuals for contributing physical and/or mental help to this project: Dan Alsmeyer, Jim Clark, Chris Frost, Dr. Horton H. Hobbs, Howard Kronk, Craig Lockwood, Dr. Robert Morris, Dr. John Ritter, William Stitzel, and Julie Thorp.

BIBLIOGRAPHY

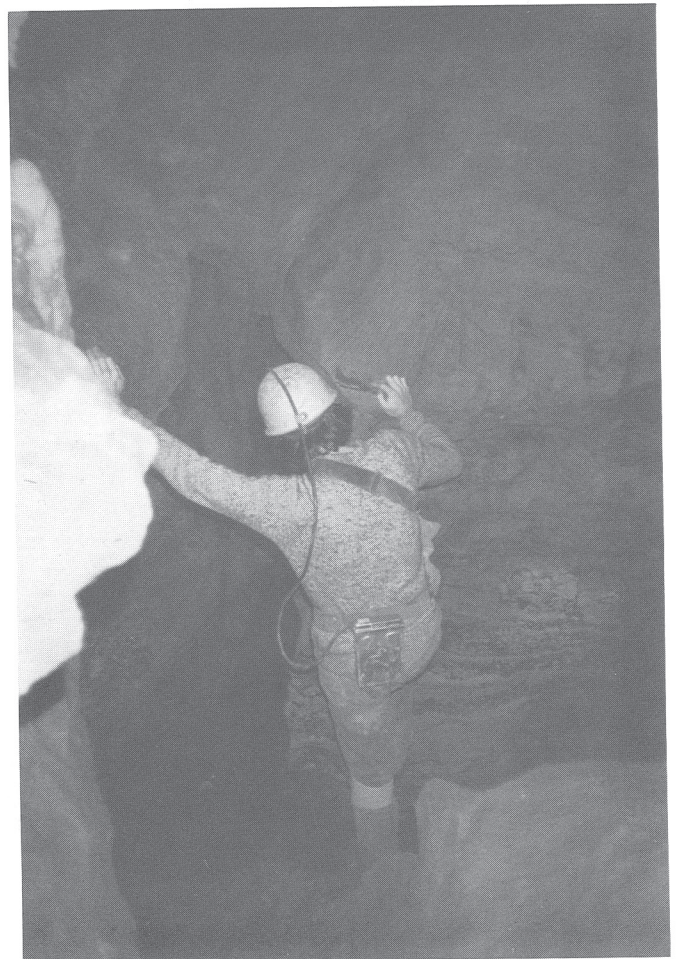
Proctor, Jonathan. "Cool James Cave, Carter County, Kentucky." *Pholeos* v. 10 (2) June 1990: 5

Sheppard, "Geologic Map of the Tygarts Creek Quadrangle, Carter County, Kentucky." U.S. Geological Survey, 1964.

White, William B. *Geomorphology and Hydrology of Karst Terrains*. New York: Oxford University Press, 1988.



Zucchini Pass in Adams Creek Cave, Kentucky.
Photo by Scott Engel.



Scott Engel in Adams Creek Cave, Kentucky. Photo by Julie Thorp.

Cave Photography

by
Timothy L. Lewis

A review of: "Day for Night" by J. Lawrence in *Outdoor Photographer*, November 1991, pp 40-47ff.

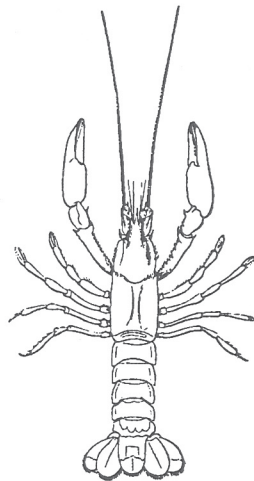
Outdoor photography taxes many skills unused on indoor work. However, when the indoors is really outdoors, as in underground, the difficulties mount. I have seen many pictures fellow cavers have taken while at their favorite pastime. Often these photos are largely underexposed with some foreground subject washed out. Michael Nichols has spent the last 15 years taking photographs in some out of the way places. In the November 1991 issue of *Outdoor Photographer*, James Lawrence interviewed Nichols, revealing some fascinating cave photography techniques, and publishing nearly a dozen shots of Lechuguilla.

The pictures alone are worth the \$2.95 charged for the issue. Included are the Chandelier Ballroom, the Great Wall of China, Underground Atlanta, as well as crystal towers and several aragonite bushes. Nichols' works are more art than documentary of the caves. He strives for motion or activity in every picture. There are cavers climbing, taking notes, or just pondering formations.

Like all who explore Lechuguilla, Nichols faced

many logistic obstacles. Transit through the cave requires significant amounts of rope work. Shots had to be designed to capture the cave's beauty without destroying it. On top of that, his team had to haul heavy batteries for the strobes along with thousands of bulbs.

Most shots used incredibly simple techniques. Nichols used a Nikon FM camera, since no electronics were needed. Bulbs were slaved to the strobe, so the initial flash would trigger the bulbs. Flash reflectors even included a foil pouch from a freeze dried dinner. Kodachrome 25 or 64 were the films of choice. Nichols used 20mm, 24mm, and 35mm lenses for most shots, and 100mm macro and 200mm macro for delicate formations too far away or made inaccessible by other delicate formations. Like others in this cave, the photographic team could not leave the trail lest they destroy what they came to see. In the interview, Nichols seems quite proud of his work, and the team who helped him. He has every reason to be. Lawrence asks how Nichols began photographic work and how he got involved with Lechuguilla. He details equipment used, hardships faced, and even how he framed his shots. His four months effort were well spent. National Geographic funded this, and has also published Nichols work.



Halloween Poem

by

S. Allen Kronk, NSS 27645

As I sat one night reading
Weird images I started seeing
I passed it away as mere imagination
Then came a sound outside the wall
And my mind tried to ignore it all
Then it came again a scratching at my windowsill
I was frozen still with fear
And in my seat I remained
I thought of other worldly beings come
to make my home their domain.
And then came the noise again
I thought of psychotic axemen
Or the beast that consumes brains
Still in my seat I remained
Maybe it was merely a mutated cat
I managed a slight smirk at that
Or maybe it was the merciless undead
Or a haunted severed head
Then again the noise came
In my seat I did remain
Until I gathered a little curiosity
And near the window I crept to see
All I saw as I gazed about
Was the moon, a tree, and a couple of cows
The tree! The scratching was only the tree
But wait! In the distance across the field
A gathering of lights were revealed
Burglar, kids, or the fabled willow-wisp
Whatever it was I awaited for a glimpse
The lights advancing ever near
Once again I was gripped with fear
Wait, the lights, it's only a caver or two
Then I thought, shoot, kill, or sue
Five, eight, and entire dozen
How many more are coming
I was relieved and returned once more
To my book of Legend and Lore
What is it that drives their need
To venture underground and see
All the beauties that lie beneath
I think I shall ask one when we meet
And my thoughts wandered as I drift to sleep
Full of dreams and images so real
And the sounds of scratching at my windowsill.

The Tree and Me

by
Tom Stitzel

This wooded trunk,
altar at which I pray,
proudly stripped of adornment,
stands slender and stately,
peaceful and calm

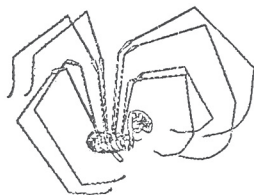
While its multi-limbs
fan-dance in symmetry,
outstretched in perfect balance,
graceful in spirit
as it is in form.

With open palms,
fingers spread wide,
it reaches outward and upward
in furtherance of
limitless space and time.

Its familiar beauty
speaks of the presence
of a universal god whereof
we are all in truth,
as it is in nature,

Majesty without ceremony,
intaking the sun,
the wind and the rain,
the very air we breathe,
fruitfully empowered with natural charm.

My soul passes
from me to the tree
knowing I am now, have been
as I shall always be,
perfect beingness in transition.



YOU CAN
TELL A
HAPPY CAVER
BY THE MUD
IN THEIR
TEETH!

