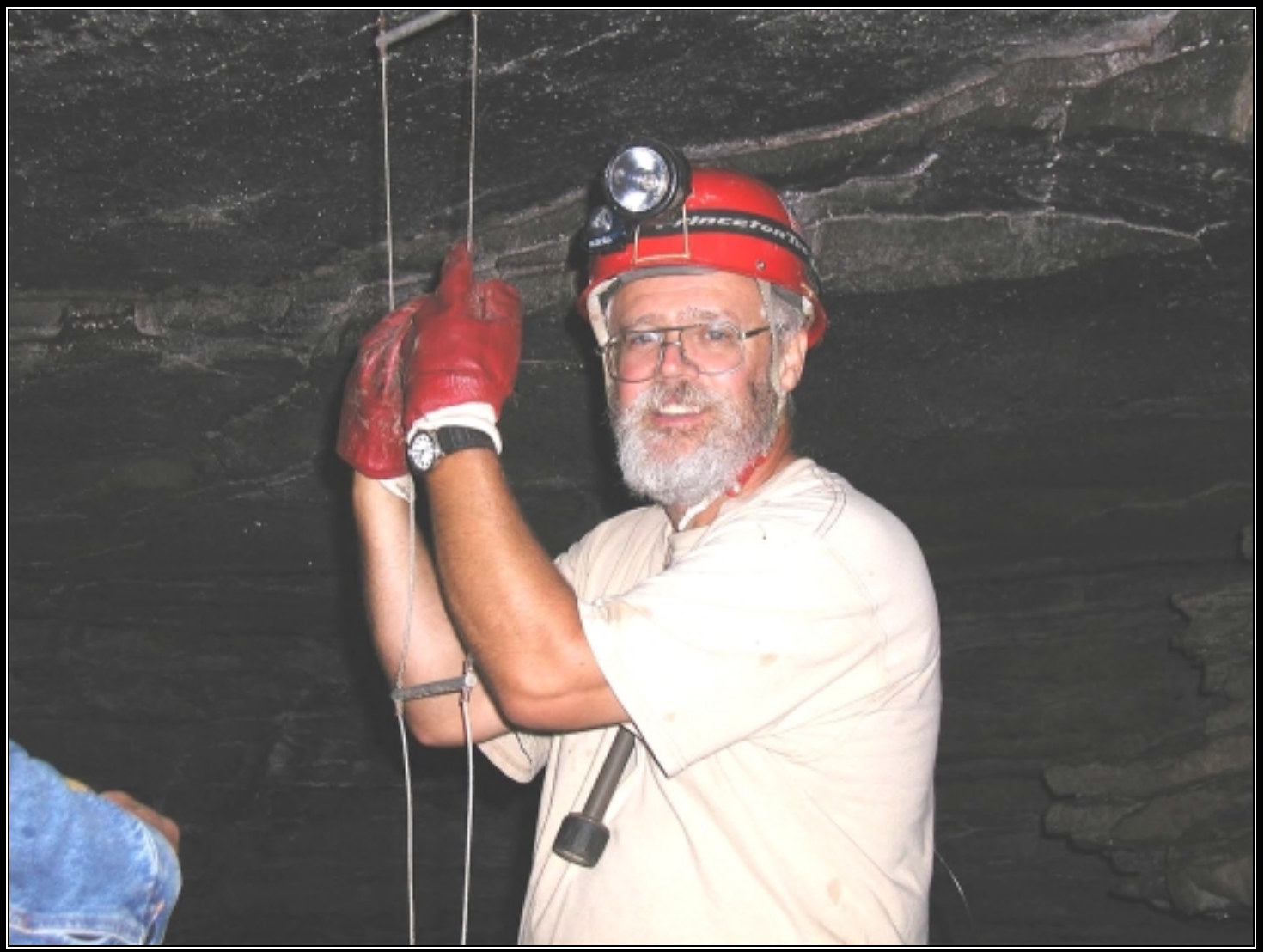




C.O.G. Squeaks

September 2004



Paul Unger Holding the Cable Ladder in Jugornot Cave

Photo by Cat Whitney

THE CENTRAL OHIO GROTTO (COG)

The Central Ohio Grotto (COG) of the National Speleological Society meets at 7:00 p.m. at **the Westerville Library** the fourth Tuesday of most months. The Library is on State route 3, east side; just south of downtown Westerville. Parking is available behind the library. Please contact a grotto officer to confirm meeting time and place. The December meeting is not held at the library.

Grotto Mailing Address: C/O Bill Walden, 1672 South Galena Road, Galena, OH 43021 740-965-2942

Email: wwalden@columbus.rr.com

COG WEB page: www.tuningoracle.com/cog

Grotto Membership Dues:
\$15 per individual or \$20 per family.

Grotto Officers	Name	Telephone
-----------------	------	-----------

Chairman	Lacie Braley	614-895-1732
Vice Chair	Dale Andreatta	614-890-3269
Secretary	Bruce Warthman	614-459-8345
Treasurer	Karen Walden	740-965-2942
Exec. Committee	Darrell Adkins	740-392-6382
Exec. Committee	Bill Walden	740-965-2942
Exec. Committee	Cat Whitney	614-851-6933
Exec. Committee	Joe Gibson	614-855-7948

Squeaks Editor- Bill Walden - wwalden@columbus.rr.com

Webmaster - Kevin Toepke - ktoepke@tuningoracle.com

Boone Karst Rep – Cat Whitney - Bond_girl@hotmail.com

Youth Committee Chair-Roland Snow-
snowpeople@ameritech.net

List Server – cog@ontosystems.com

The C.O.G. Squeaks

The C.O.G. Squeaks is the official newsletter of the Central Ohio Grotto. Articles regarding cave exploration and study, cave trips, cave fiction, cave poetry, cave-related cartoons, cave art or photographs are always welcome. Please note that we have a 35mm film scanner and a flat bed scanner. I can handle negatives up to 4 X 5 inches. So, please send your photos, negatives, or slides for inclusion in the Squeaks. Material may be submitted via mail, e-mail, disk, fax, or even dictation to Bill Walden.

The C.O.G. Squeaks is mailed to dues paying members and to grottos with which the COG exchanges newsletters. The C.O.G. Squeaks is also available by E-mail as an Adobe Acrobat file (PDF) or Word Document. Please notify Bill Walden or Andy Franklin if you would like a file of the Squeaks to reprint. The Squeaks is available as a PDF at:

<http://www.tuningoracle.com/cog>:

NSS organizations have permission to reprint material from the C.O.G. Squeaks so long as the author and Squeaks are given credit, unless otherwise stated.

New Meeting location for the next 3 months, Westerville Library fourth Tuesdays at 7 P.M.

KARST CALENDAR

Sep 28, 2004 COG Meeting at the Westerville Public Library. 7 P.M. Program on the salt mine beneath Lake Erie just off shore from Cleveland. **New meeting location: Westerville Public Library on State Route 3.** Karen Walden reports construction in front of the library so watch closely for the library sign. Turn east on the side street just before the library for the parking lot behind the library.

Oct 2, 2004 Halloween-O-Roast hosted by Jim Blankenship at his home in Circleville. Bring a dish to share and a beverage of your choice. Jim will provide the meat and the grille. Expect to do some star gazing and enjoy some cave shows. Plan to arrive mid-afternoon. The Halloween-O-Roast continues in memory of the late Jake Elberfeld.

Oct 7-10, 2004 27th annual TAG Fall Cave In hosted by the Dogwood City Grotto. See www.tagfallcavein.org for information.

Oct 26, 2004 October COG meeting at the Westerville Public Library, 7 PM.

Oct 30, 2004 Mock Cave rescue and Halloween party at GPS. Contact Lacie for info.

Nov 23, 2004 November COG Meeting at the Westerville Public Library, 7 PM.

Nov 25-28 Thanksgiving in Kentucky. Look for the annual Thanksgiving for cavers hosted by Tom Crockett.

Dec 4, 2004 DUG Christmas party.

Dec 11, 2004 COG Christmas party at PJ's in Sunbury, Ohio starting at 6 PM. Start planning your devious gifts now. Don't need to spend much, humor is the focus! Mark you calendars now.

July 4-8, 2005 - **NSS Convention** - Huntsville, Alabama. See the Convention website at www.nss2005.com for online registration and information or contact Jim Hall jimehall2@cs.com (256-772-9829) or Charles Lundquist lundquc@email.uah.edu (256-824-2684) for any questions!.

Contents	Page
Subterranean Water Shed Watch – Hilary Lambert	2
Cumberland Gap Project – Mike Crockett	3
Cleveland Salt Mine Tour – Greg Karoly	4
Indian Salts Cave – Bill Walden	5
Gap System Survey – Mike Crockett	10
Home Sweet Home: an Overnight in Jewel Cave	10
Peggy Renwick	
Indian Salts Cave Map – Bill Walden	15

Subterranean Watershed Watch:

Citizen water quality monitoring in Kentucky

By Hilary Lambert

The middle of September 2004 was the time for Watershed Watch volunteers to carry out water quality testing in waterways across Kentucky. Kentuckians who wanted to know more about the water quality of their streams, creeks, licks, and rivers began watershed Watch in 1997. Today, Watershed Watch is a rapidly growing statewide organization with 1000 sampling sites and 2000 trained citizen samplers.

Kentucky's Division of Water (DOW) has in the past used Watershed Watch data as a screening tool to define stream segments that may have potential water quality problems. Thanks to ongoing discussions between the DOW and Watershed Watch leaders, improved training for volunteers will result in their data being more fully used in state water quality assessments.

To date, not many Watershed Watch volunteers have been trained to take samples from cave streams or springs. As a result, Watershed Watch coverage in karst has been minimal, until recently restricted to a few sites in Warren and Hart counties. In spring of 2003, this began to change. For the past two years, cavers in larger numbers have been trained at the American Cave Conservation Association's headquarters in Horse Cave, and have begun sampling three times a year in Carter County (the Carter Caves area); in Pulaski County (there is one sampling site at Sloans Valley Cave, to date – help needed to establish more); in Warren County (several sites in and near the proposed TriModal Transpark); and in Rockcastle County.

On September 18, I took some UK undergraduates down to Rockcastle to watch members of the Greater Cincinnati Grotto and KEEP (Karst Environmental Education & Protection) carry out sampling in the Crooked Creek drainage. Terry Estep, Bob Dobbs, Bill and Nick Addington, Bill Simpson, and Deb Bledsoe all have their regular sampling points in cave streams or at cave

springs. The sampling results, taken three times a season (spring, summer, and fall) are beginning to reveal information about what's in the water that cavers go caving in.



On this particular day, the Subterranean Watershed Watch members were carrying out a state-supported focus study to try to get to the bottom of the diesel fuel pollution that has been stinking up Pine Hill Cave and adjacent above and below-ground streams for the past few years. At least one local family has lost their spring water supply as a result of this ongoing problem.



If you are a regular Kentucky caver and would like to establish a water quality monitoring point in a favorite cave stream or spring, please contact Deb Bledsoe debcares@yahoo.com for information about next spring's training sessions. Deb is the Karst Monitoring Coordinator for the Upper Cumberland River Watershed Watch, and can get you in touch with the right folks across the state. The training is free and the test kit and monitoring are free, but in return you must be willing to give three days a year to take part in this statewide testing process.





At the end of the year, each river basin-based Watershed Watch group holds an annual meeting. Due to the efforts of the cavers over the past two years, the theme of the Upper Cumberland River Watershed Watch's annual meeting is 'karst systems'. The meeting will be held at Cumberland Falls State Park on Saturday December 4. Watershed Watch volunteers' lunch will be paid for; the general public may buy their own lunch (about \$12). For details about this meeting, or to learn more about Watershed Watch and the data-collection efforts in other KY river basins, please go to kywater.org/watch or contact coordinator Ken Cooke at ken.cooke@ky.gov

Cave Research Foundation Cumberland Gap Project

September 2004 Expedition, September 24-26, 2004
Cumberland Mountain Research Center, Lincoln
Memorial University Harrogate, Tennessee

Friday, September 24, 2004 10:30am; Saturday,
September 25, 2004 8:30am; Sunday, September 26,
2004 9:30am

All briefings are in the meeting room of the Cumberland Mountain Research Center.

E-mail mikecrockett@hotmail.com for bunk reservations.
E-mail cavardan@worldnet.att.net as Expedition Leader.

This Expedition promises to have some of the most exciting and rewarding trips ever at Cumberland Gap. Make it if you can.

Twelve cavers were stranded at the Research Center this past weekend. Since we had a permit and keys we went to the cave to survey. The trips went to a high dry easy to reach section of the cave close to the Soldiers entrance. Friday September 17, 2004 Mark Joop, Anne Elmore, and David Pratt worked on the Coke Bottle Room basement. Mark returned on Saturday to the same area with the same team plus new CRF JVs Brian Lloyd, Brandy Daley, and Mike Whidby. They completed the basement section. The new JVs are experienced cavers from the East Tennessee area. They are new to cave survey but very willing to learn. Mark booked about 300 feet of survey during the two trips - the last lead in the anteroom under the Coke Bottle Room. Weaving up thru the breakdown they emerged with another tie line from the anteroom to the Coke Bottle room with about 200 feet of survey.

The completion of the anteroom and basement sections of the Coke Bottle Room means survey efforts in the upper cave can

focus on the Back Left Corner (mazy breakdown probably does not go but has a blowing lead), the NE Wall (mazy breakdown goes), and North into the new discovery (with a capital G). In the lower cave no progress has been made on the stream passage due to very wet weather. Bob Gulden has sent working maps updated thru June that show dozens of question marks along the stream from near the entrances to the up stream extent of the survey. Bob is in Europe but should return to the Gap soon.

Project Regulars Mark Joop, Anne Elmore, and Karen Caldwell will not be available for the September Expedition. Mike Crockett is leaving Saturday morning for a visit to the west coast. Ken Storey is planning a photo trip into the new discovery north of the Coke Bottle Room. Cavers are needed to support the survey and photo trips. Regardless of where you go these will NOT be boring trips. Bring two pairs of aqua socks if you can. Please exercise individual responsibility at the Cumberland Mountain Research Center and on the Lincoln Memorial University campus. Alcohol is prohibited at the Research Center until further notice. Make sure you keep the main door secured.

Big Salt is closed until May of 2005.

Mike Crockett mikecrockett@hotmail.com, 606-2691977

For more info see page 10.

Cleveland Salt Mine Tour

By Gregory Karoly

Early in the morning of August 22, 2004, I attended a salt mine tour at the Cleveland "Cargill Salt Mine". I have been born and raised in Cleveland and have always heard of the salt mine in Cleveland that goes under Lake Erie. I have always dreamed

of going on a tour of the salt mine, but never thought that it would ever happen. The tour started at the mineshaft about a mile and a half from downtown Cleveland on Whisky Island located between the Cuyahoga River and the shore of Lake Erie.

The Cargill Corporation operates the mine. I am fortunate to be on the first mine tour in approximately 5 years. This tour was open to "Friends and Family" of workers at the mine.

It is a very serious affair to allow tours in the salt mine.

All people attending the tour must follow various federal laws. I was required to attend a safety meeting that detailed mine entry/exit procedures that must be followed. In addition, instruction was given in the use of a respirator type device that must be carried by everyone entering the mine. Forms needed to be signed that were not in triplicate, but in 4 copies. Safety is treated very seriously by Cargill, which is demonstrated by their impressive safety record.

The elevator is a fast moving elevator that takes between four and a half and five minutes to reach the bottom. The bottom of the shaft is 1765 feet below the surface.

After reaching the bottom, an additional safety talk was given before we proceeded farther into the mine.

My first impression was that it was warmer than I had expected. I was told that the temperature stays between 68F and 72F. The humidity was also very low, which kept the equipment from rusting in this very salty environment. The ground looked and felt like beach sand, but was all just very fine salt particles. Air is constantly pumped into the mine and directed to the current mining site and was returned by another route.

Some of the side passageways were blocked to allow the air to travel in the appropriate direction. The two directions of air flow were separated by air lock devices that we need to pass through on the tour. Two pickup truck type vehicles were provided to drive us to the current salt mining area. Each group of five guests plus two guides and a driver were assigned to each vehicle. For safety reasons, we drove quite slowly and reached the current mining site in about twenty minutes. The trip down decades old tunnels was very exciting. It turned out that the current mining site is about three and a half miles North from the shaft under Lake Erie. The salt seam, at this point, is about 30 feet thick, of which about 25 feet is mined. The salt seam is made up of many, many layers of salt. Some of the layers are easily distinguished from others by their color. The salt wall was indeed impressive. I spend

quite some time examining the salt wall. I was also allowed to take back a sample. One sample that I chose shows the layering of the salt nicely.

Large pillars are left in place to hold up the ceiling. In addition, roof bolting is used in a prescribed pattern to help hold up the ceiling. Here we were shown all of the machinery that is used for the mining operation. Some equipment is used to drill holes for blasting relief and drilling roof boltholes. Large scraping machines are used to scrape any loose material from the ceiling to make the area safe for workers to work in after blasting. Huge loading machine scoops were big enough to stand in.

Large and long conveyors are used to transport the salt back to the shaft to the surface. All of this was impressive and interesting. After about 40 minutes at the mining site our transportation drove us back to the shaft to the surface.

The ride up the shaft took just as long as going down but sounds much different. I believe that water was dropping on the roof of the elevator making a sound like hailstones. Upon reaching the surface, safety was the first concern. Everyone was accounted for and equipment was returned.

Upon reaching the surface, I was given a tour of the above ground facilities. Here some of the salt is bagged and some is pressed into blocks for salt licks for cattle. Much of the salt is treated in various ways for various customers. Most of the salt is piled outside in a huge mountain of salt for use on roads during the winter. Salt loading facilities were available for loading trucks, rail cars, and cargo ships. I was impressed by the many ways that this salt is used.

With the tour over, I was treated to some more of Cargill hospitality. A BBQ lunch was provided with all the fixings. I was treated like a real VIP.

The tour was over and it was more than I had ever expected.

I would like to thank the Cargill Company for allowing me to attend this tour. Hopefully another tour could be arranged to allow some other caving Grotto members to gain access to the mine.

I found some additional Ohio salt formation information from a book at the library. The book is "Ohio Fossils by Aurele La Rocque and Mildred Fisher Marple."

The book is put out by the State of Ohio, department of Natural Resources, Division of Geological Survey. I found the following:

"Late in the Silurian time, the sea in the northern part of the state was in particular character, shallow and sometimes cut off from the main body of the sea. Great accumulations of salt were deposited as

seawater evaporated. They were preserved when muds covered them over. There beds of rock salt underlie an area of 9000 square miles in Northeastern Ohio. They vary in thickness from 2 feet to nearly 50 feet and they are separated by beds of dolomite and shale. The uppermost salt bed in the Cleveland area is under about 1300 feet of younger rock; to the south and east it may be as far down as 4767 feet."

Note: Late in the Silurian time would be about 410 million years ago.

August 22, 2004 was indeed a very fine day for me.

Indian Salts Cave

Wayne County, Kentucky

A project cave of:
George M. Crothers, Ph.D.
Director, William S. Webb Museum of Anthropology and Office of State Archaeology
Assistant Professor of Anthropology
University of Kentucky

Text and Photos by Bill Walden

Paul Unger invited me to help with a survey and photography trip to Indian Salts Cave (ISC) in southern Wayne County over the 4th of July weekend. I had just purchased a new digital camera and had yet to really try it in a "wild" cave. This sounded like a great opportunity. So while three survey teams did their job, Cat Whitney and I toured the cave taking photos. I was really glad to have Cat as a helper because she has great patience. The photos are in order as Cat and I went through the cave. The results follow:



Entrance Room to Indian Salts Cave



Entrance to Indian Salts Cave



Council Room



Note trail made by ancient Indians



More passage



Cone between the "Trail Room" and Passage



Hole dug by Indians to get to minerals. Note the charcoal line perpendicular to the tape measure



Passage just past the white cone



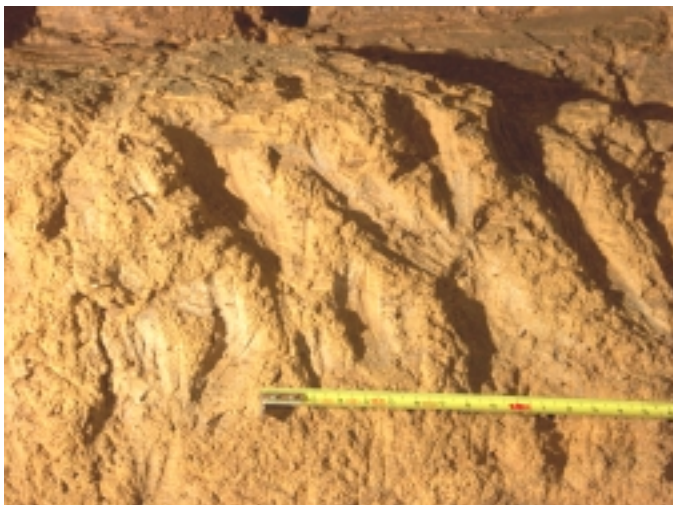
Scratch Marks on the cave wall under a ledge left by Indians



Note the many pits dug by the ancient Indians



Note where the natural cracks in the limestone have been dug out to get at mineral deposits



Dig marks from the Indians. Remarkably these look fresh but are 2500 years old!

More photos taken over Labor Day Weekend

Labor Day Weekend we returned to continue the survey and to take more photos -- this time myself to take photos of the marble passage. The marble passage is a misnomer as the "marbles" are mud balls. None of us have any idea what created these mud balls but they line a passage not far from the entrance.



Pictographs or not? George says not but Cat and I noted that the tracings were grooved as if traced over many times.



Mud Balls in a shallow depression

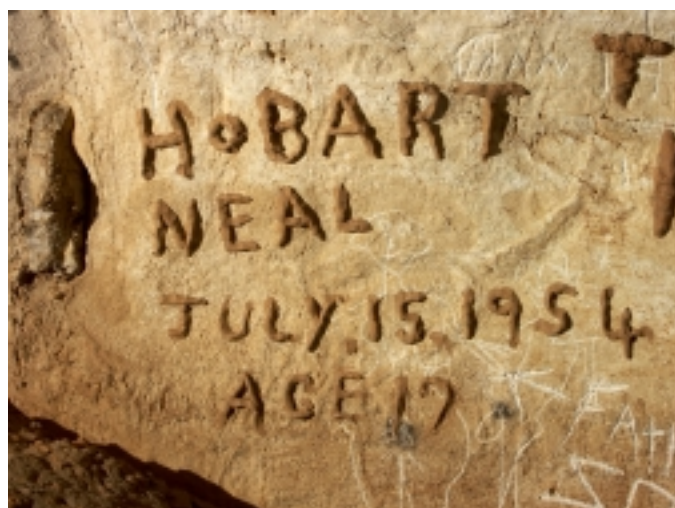


Mud Ball that I broke in half



Bat in ISC

I broke one of the mud balls in half as you can see above. This didn't reveal much to me. The mud balls continue down this passage as far as I could see. I tried pushing the passage because I could feel some slight air movement toward me. It got to tight for me to continue. Paul Unger urged Greg Erisman to push it later in the day. Greg and Kenny Erisman squeezed through Greg commented that he had to compress his chest through some 20 feet. Once past that he was in virgin walking passage! Because only his son Kenny was with him, and because Greg knew none of us could fit through, he didn't push far. Sounds like a survey for thin COG members like Greg and Cat!



ISC is not without Graffiti -- Graffiti Hall



Mud Balls continuing out of sight down the Marble Passage



Graffiti Hall -- at least the Graffiti is almost all in one area.



Looking toward the side passage that has lots of mining pits

E-mail from George Crothers:

I have attached the abstract for Casey and Myrissa's paper on ISC. They are hard at work writing the full paper, which we will get a copy to you and the landowner, Mr. Poore, when it is done. The conference is October 20-23 in St. Louis.

I'm not sure that I updated you on the third radiocarbon date that we obtained; this is a sample of charcoal from the crawlway with mining pits. The date is 2570 +/- 60 years before present, which agrees very well with the two dates we obtained earlier from the main trunk passage (2500 and 2520 b.p.). It appears that the mining activity was probably short lived (in archaeological time, maybe only a few tens of years), but clearly during the Early Woodland period as we expected from similar activity in Mammoth and Salts and other gypsum mining caves. Deb, Myrissa and Casey are preparing a Power Point presentation for the conference, and if they can show an overall map of the cave to indicate where the mining occurred that would be great. It doesn't have to be a final version of the map, but something that shows the main trunk passage and crawlway with the mining pits. They have drafted up detailed maps of the mining areas. -- George Crothers

Abstract

**Joint Meeting of the Midwest Archaeological Conference and Southeastern Archaeological Conference
St. Louis, Missouri
20-23 October 2004**

Symposium: Cave Archaeology in the Eastern Woodlands: Papers in Honor of Patty Jo Watson

**Gypsum Mining at Indian Salts Cave:
An Examination of Prehistoric Subterranean Mineral Extraction.**

By Casey R. Barrier and Myrissa K. Byrd
University of Kentucky

Prehistoric gypsum mining, which occurred predominately during the Early Woodland Period, has been documented in only two caves in Tennessee and in the Mammoth Cave system. Recently discovered undisturbed Early Woodland gypsum mining features, including pits, at Indian Salts Cave in south central Kentucky further indicates this activity was more widespread than previously thought. In this regard, the importance of Indian Salts Cave is not as a self-contained site, but as an aid in understanding Early Woodland subterranean mineral exploitation as a social activity.

Paul and I thought the Labor Day weekend trip would be the last to this interesting cave. However, with the discovery of virgin passage and the fact that one survey is not tied into the rest of the survey, at least one more trip is required to wrap this project up. You thin cavers should contact either Paul Unger or Greg Erisman to help survey the Marble Passage. We will need Pat Erisman's help to tie in the loose piece of survey of the lower level.



Mushrooms at the Entrance to Indian Salts Cave

Surveyors:

Debbie Moore	Rick Gordon
Paul Unger	Todd Jordan
Dale Andreatta	Harry Goepel
Bruce Warthman	Brenda Mitchel
Buddy Gibson	Pat Erisman
Greg Erisman	Kenny Erisman
Angela Erisman	Stacey Erisman

Please see shadowbox projection map of Indian Salts Cave on page 15 (rear cover). Map produced using Compass Software.

Indian Salts Cave is closed to casual visitors. Cave is for study purposes only.

CRF Cumberland Gap Gap Cave System Survey

Chief Cartographer Bob Gulden has compiled stats thru June 2004. Here are the top 15 surveyors.

Richard Knapp with 7198.3 feet
Dan Henry
Mark Joop
Karen Caldwell
Mike Crockett
Cheryl Pratt
Jimbo Helton
Andy Messer
Bob Alderson
Anne Elmore
Richard Hand
Mike Stanfill
Bob Gulden
Dusty Gulden
Stuart Daw

Not listed above: Ken Storey has made 9 Expeditions and Lisa has made 7. They have made more than a dozen trips into the cave. Photo trips do not count in the survey footage but they count in every other way. Jim West has also made 7 Expeditions but his footage is low because he works small difficult areas and often trains new JVs.

Honorable mention goes to Jeremy Napier and brother Jason. I suspect there is some confusion between the brothers in the stats. Jason has made some tough trips. Jeremy has taken on some of the most unpleasant tasks with a smile.

Students, led by Patrick Fowler and Ricardo Rodriguez, made a notable contribution during the school year thanks to Andy Messer, Director of the Union College Outdoors program. Others not named here have made substantial contributions so thanks also to the Unnamed Cavers too.

These numbers don't really tell the whole story but they reveal an important ingredient to success: SHOW UP.

Red Watson probably said, "Ninety percent of cave survey is showing up, the other half is caving and survey skills." (I'll probably get in trouble for making up a quote like that but it sounds right.)

Bob is also compiling stats on MILES TRAVELED. If you get a chance e-mail your travel time and distance to caverbob@aol.com be sure to identify yourself and the CRF Cumberland Gap Project. Bob works on a LOT of stuff.

The surveyed length of the cave is approaching 5 miles.

Expeditions are scheduled the last full weekend of each month.

If you have questions about the CRF Cumberland Gap Project please contact me by e-mail. mikecrockett@hotmail.com

See you in the cave.
Mike Crockett
For more info see page 3.

Home Sweet Home: an Overnight in Jewel Cave

By Peggy Renwick (peggy_r@yahoo.com)

Sunday, September 19, 12 noon. I should probably get up and start my day. "So you're going in on Monday?" my cousin said on the phone last night, "I guess that means you've got about twelve hours of light left, eh?" and here I've already slept away half the day. Plus, it was time for me to start thinking about exciting things like packing, patching my clothes, hydrating and carbo-loading – I had to get ready for my first camp trip in Jewel Cave!

This would be a "work trip"; as the Cave Management Intern at Jewel, I get to go caving on the job, and since July I'd been building up to this trip. First we did a trip through the Miseries and back, and then we went almost to Cloud 9 to repair a ladder. Last week, six of us had gone on a 16-hour day trip out to Seventh Heaven, hauling new sleeping bags towards base camp near the Big Duh. It was high time to switch the bags; the old ones had been there for seven years! All of my previous trips – all work trips – were to various rest

stops along the route to camp, and now I was going to take a plunge and go all the way.

I spent Sunday afternoon calculating *just how small* I could make my pack. Usually I over pack for any trip, but this time I knew exactly what I needed, and I'd caught the bug for super-tiny, lightweight gear. Silk underwear, food, batteries, water, empty pee bottles, and a few odds and ends especially for camping: I wanted *no* extra weight with me while belly crawling through the Miseries. I worried that my arms would get tired from rolling the pack. I wondered what it would be like to cave for two days straight. I hoped I wouldn't get cold at night, and that I wouldn't have to use my burrito bag, and that my slightly-expired freeze-dried dinner wouldn't have any adverse digestive effects. I'd been on long cave trips before, but a camp trip held new dimensions I hadn't ever contemplated.

Monday, September 20, 8:03 a.m. When I arrive in the basement of the Visitor Center, our trip leader Mike Wiles is already dressed, gathering, and packing final items. Before long Rene Ohms arrives, and we each take two packets of desiccant, which we'll pack with the sleeping bags to absorb moisture as they sit at camp. Then the final two-team members arrive: Jason Walz and Seth Spoelman are Cave and Karst Inventory folks from Wind Cave National Park. They were on last week's Seventh Heaven trip, and like me, have never been to base camp. We all start joking and laughing, comparing gear and squishing stuff into our packs. Jason and Seth willingly take three packs of desiccant each, not knowing that they're picking up our slack. They each pick out a freeze-dried meal, sniffing them for mold. We endlessly take turns in the bathroom, since we want to carry out as little waste as possible (and it *all* has to come back out). By 9:00 we're all ready, and I'm in my caving "uniform": camouflage cargo pants, webbing belt, t-shirt, heavy-duty kneepads, elbow pads, bandanna and helmet with two bright LED lights. It's only 49 degrees in the cave, but I'll be toasty warm. The five of us step into the elevator, and 30 seconds later we're in the cool openness of the Target Room, where cave tours begin. Here I don an extra pair of socks and a pair of rubber boots, which I swear by because they help me climb like a monkey. We've got to leave our street shoes waiting for us, to avoid tracking the elevator and basement with manganese. Manganese, along with the calcite spar crystals that line the walls, is a signature item in Jewel Cave: a mineral deposit that coats everything, its consistency is that of mud mixed with dirty motor oil.

"This is crazy," mutters Jason as we slip off the Target Room platform, backwards along the cave's Spelunking Tour route. At last, our camp trip is beginning! We walk and scramble east towards Hurricane Corner, past the hydromagnesite balloons and through the Teleportation Machine – named by explorers Herb and Jan Conn, this passage has an identical twin on the far side of the Miseries. If only we knew which crystal made the machine operate! As I boost myself up into the climbs near Hurricane Corner, I feel an unexpected twinge of pain – great, I've pulled an abdominal muscle already. I do my best to ignore it as we leave the part of the cave seen by visitors, crawling into the Pool Room, climbing down the squeaky ladder in the Cloudy Sky Room and into the AA survey, which continues for over 230 stations, through the Miseries and beyond.

The Miseries are the only known route to the eastern end of Jewel Cave, and they go for over 2000 feet, only to be followed by 700 feet of belly-crawling through the Mini-Miseries. Without ceremony we shove ourselves into the Dugway, and then through the Ugh-Way. We slip through a squeeze that we've named the Flailing J (for Jason), slide through the Humdinger, and begin to crawl. Then come three small pits to climb and cross, and more crawling. Most of the Miseries are hands-and-knees, but let's be realistic – I spend a lot of time dragging myself on one side, already cursing my pack as it blocks the passage ahead. Finally we're to the Calorie Counter: the start of the Mini-Miseries! This is a body-length; 7.5" squeeze through hard mud. Then belly crawling, some stalactites (if you turn your head to the left on the way in), an even tighter pinch, more belly crawling, stalactites, a bit of flowstone to avoid, and finally the Funny Little Hole, an angular yet circular tube. It could be worse, I remind myself – imagine if this were a stream passage!

On the far side of the Funny Little Hole things open up a bit, and I return to my hands and knees. Before long we're climbing and chimneying again – down through tight holes, and then hiking up, up, up a breakdown slope into the chilly grandeur of Metrecal Cavern. We rest happily; it's already after 11:00, but the worst is over – and we don't have to confront it again until tomorrow! Once we've devoured energy bars, rehydrated and adjusted knee and elbow pads, we set off again...down, down, down the far side of Metrecal, through crawls and climbs to the slipperiness of the Slickensides Room and the Wrong Number Room, on our way to the Mindblower. I concentrate on keeping my feet on the trail, practically ignoring the immense spaces we're traversing.

Normally, you see, my trip reports are much livelier than this one. I recall snippets of conversations, the songs we sing, and some sort of a theme runs throughout the trip. But this one is simply *too long* for all that: it's five miles one-way to camp, and the obstacles we encounter are too many to enumerate. Even where a passage (like the Mindblower) is straight or a room is big, cavers work hard. We are constantly climbing, chimneying, boulder-hopping, stretching. Often the trail, slick with manganese, leads atop the spine of a breakdown block or along a sloping wall. Flagging tape marks the way, and it's best to go fast; if you slow down you begin to think about what you and your body are doing, which can be startling at best.

Our second rest stop is among the breakdown at the eastern end of the Mindblower. Here, Mike takes a few pictures with one of our lovely new digital cameras, and then we're off again. The next section is the shortest on our route and can take less than an hour, but it's full of fun obstacles: the Clothesline Climb's hand line is anchored to a pile of loose rocks, and the Slim Chance is the tightest point on our route (the trick is finding the one spot where your helmet fits, and then your body can follow). Jason does not like the Slim Chance. Much of this part is in lovely, lofty passages with elegant domed ceilings, bits of sparkling gypsum, relatively little calcite spar or manganese, and beautiful delicate rims at every twist of the trail. Soon, however, things become cherty and chunky again, and we slide down the A-L climb, and down again to the Stopper. This is a small hole lined with a shaky matrix of mud and rock; we edge along a pit, through the hole, and slither up a muddy chute. At the top, the sketchiness continues on the Slickensides ladder. We chimney up slippery walls without footholds to reach the ladder, while those below stand back to avoid rock fall. One more rush of adrenaline separates us from our next rest stop: the Point of No Return. This is a celebrated spot, where explorers threw caution to the wind by chancing a tricky climb, beckoned by the huge, 60-foot-high passage beyond. Now this spot is rigged with a ladder, but getting on to it requires a bit of aerial acrobatics. Rene, Seth and I all descend, but Mike and Jason stay above to try to re-rig the ladder and make it less death-defying. Down below, we saunter up to the Bar: a large, waist-high rock lined with cubies (quart-sized collapsible jugs). We empty our packs, gather the cubies, and follow a blue-dotted trail to Side Track Tap. Here is a rare sight in Jewel Cave: WATER! Several drips run down a wall of flowstone, and near the ceiling a tarp catches them, funneling water down a hose and into a five-gallon jug. We fill about fifteen cubies and head back to re-stock the Bar. After a lengthy rest stop we get bored with waiting, and go back to await Mike and Jason beneath the ladder. Here, our

conversation goes on a twisted bent, as bodily functions and funky puns take over. We sing about 99 bottles of beer on the wall, but replace the beer with other liquids. Finally Mike and Jason give up on the ladder, descend, and we can continue into Cloud 9.

This is the second-biggest room in the cave. Here, we follow a trail of slippery red mud across white breakdown blocks. The cave stays big for a while: we edge along wide pits, and the average passage size is perhaps 20 feet high by 30 feet wide. In some places the trail crosses a sea of dusty manganese, and rocks are laid along it as stepping-stones. We go into the Loose End, decorated with pink-tinged calcite spar, and then into the Two-Step. Here, brilliant white aragonite frostwork coats every surface, and there are footprints where we must step to minimize the trail. At the Three-Step, one person balances in the footprints to pass packs so that cavers don't scrape the sparkling ceiling or walls. Finally we hit the Conundrum – an incomprehensible scramble through spar-coated breakdown, which rips at my pants and seems to go on forever. Upon emerging from it, we're in Seventh Heaven! Another large chamber, Seventh Heaven's most notable feature are the dried calcite rafts sprinkled everywhere. They tinkle underfoot and crunch like dry leaves when disturbed, snowy white against the tan rock. This was our stopping point on the previous trip, and our sleeping bags await us here. Sadly it is only 6 p.m., and we can't crawl into them here – but these extra packs weigh only a few pounds, and there are no squeezes left before camp.

Off we go, into cave I've never seen before! The trail is flanked on both sides with flagging tape as we tiptoe through the calcite rafts, which resemble either snow or dried mashed potato flakes, depending on how hungry or sweaty you are. Next comes the Land of Milk and Honey, where a vanilla-colored river of flowstone crisscrosses the trail. It's as if the water that formed it was frozen, but could melt and flow again. In some places black stones choke the river, and it reminds me of melted cookies and cream ice cream. Oh, yum! What a fantasyland! We hike on through the easy Volksmarch, and then our progress is put into sharp prospective by the Reality Check. This section reminds us what Jewel Cave is *really* like – ridden with crawls, twists and turns and climbs, and sharp crystals that jab my back. Since this leg of the trip is the last before camp it's longer than the others, and as we emerge into the big ups and downs of the XO Survey I can feel my energy wearing down. I'm too tired to backtrack when Rene points to an enormous nest of gypsum needles. I pull myself up the wide chimney at the Stupid Flower Climb, and plod on – climb, scramble, up, up, up through large breakdown – until I hear exclamations from Jason and Seth above me. Camp, here I come! With a deep breath, I haul myself up the last few feet, and a welcome sight greets my eyes.

Jewel Cave's base camp consists of a huge, almost flat slab of breakdown, and overflows onto the surrounding rocks. The main slab is covered with tarps, and easily sleeps six people and their gear. Several jugs of water await us, filled on the last trip, and a knee-height section of rock is lined with kitchen supplies (pots, alcohol stoves, and a fire extinguisher). Laminated signs greet us: "Home Sweet Home." Camp is very cozy: the solid ceiling is a "normal" height, perhaps 15 feet, and I feel like I'm nestled up high in an attic or castle, tucked away in a safe space. The walls sparkle with flecks of gypsum.

As I dump my pack, chaos erupts. For some reason we have a very hard time figuring out which new sleeping bag should replace which old one (they're all numbered), which two Thermarests are kaput, and how to pack the old ones. Organization is minimal (I think we're tired). I go off to pee, then stand around for a while asking the others what I should do. Eventually I get my "own" sleeping bag replaced, set up my spot, and then take some pictures of the whole scene. The next step is getting out of our dirty cave clothes. We change into warmer things – silk underwear for me! – and clean up with alcohol wipes. I creep into my sleeping bag and wait for water to boil. In the meantime, Rene and Mike play with the laptop that lives at camp: used for plotting survey data on four-day exploration trips, it's ruggedized and waterproof. There are a bunch of fun gadgets at camp!



Camp sleeping bags

Soon we dig into our freeze-dried meals (slightly expired, but provided by the park) – mmm, stroganoff with turkey. Cleanup is minimal, we're all already tucked into our sleeping bags, and by 10 p.m. it's time for lights-out. I start to drift off immediately, to my exhausted pleasure.



Kitchen



Peggy trying to sleep

In the morning we pack up camp, and then climb up and up, spiraling through the breakdown until, much to my surprise, we pop out a small hole in the side of a hill! Jewel Cave has a second entrance?! How come I didn't know about this? I'm glad to be out, but disappointed that after coming all that way, I wasn't in that far into the "wilderness" after all. But then I learn that there's another Visitor Center nearby – and we can all go eat there, and use the bathroom! Hooray! The (silly) downside is that we can't go home above ground; we'll have to go back through the cave. Ah well.

...But then I wake up, for real. The saddest part is not that we're still five miles from the entrance, but that I don't get to use the bathroom. Sigh...back to a chilly sleep I go. I toss and turn, telling myself not to look at my watch, because it won't make the time pass any faster.

Tuesday, September 22, 7:30 a.m. When Mike's alarm goes off, I wait for someone to switch on a light. Thankfully no one does, and we don't move until about 8 a.m. Then Rene gets up to light the stoves, and we pull out Ziplock bags of instant oatmeal. Yum, a hot breakfast! Afterwards I brush my teeth, spitting into the empty oatmeal bag, and begin to pack from inside my sleeping bag. Sadly I reach a point where the bag itself must be packed, so I crawl out again and stuff it into a double layer of trash bags, with three dessicants, a pillow, a Thermarest, and knot it all. That goes inside a blue nylon bag labeled "#2". Next come my caving clothes – still damp, manganesey, and stinky. While Mike cleans up camp, the rest of us fetch water at a nearby drip site, on the far side of the Big Duh. This is the largest room in the cave, roughly 400 feet long by 200 feet wide and 30 feet high. We ogle as we hike up into it. The water collector is a minor engineering feat – a tarp collects drips, funnels them into a five gallon jug, and when this fills a tube carries excess water into three other jugs below. This supplies six people with water for four days on exploration trips.

At 10:15 a.m. we finally leave camp. We've packed the old sleeping bags away and they're much smaller than the new ones, so we can redistribute our own gear. Instead of two backpacks, I now have a backpack and a convenient side pack that I can leave on through most tight spots. Down the Stupid Flower Climb, through the XO Survey and the Reality Check,

onward through the Volksmarch and the fantasyland near Seventh Heaven. Our conversations grow continuously more strange and fanciful, as far from *reality* as possible, centering mostly on bodily fluids. At the Bar we take a turn for the absurd: for days Jason has joked about the dangerous combination of MANGanese with WOMANGanese, that produces baby manganese. Now Seth adds, "Yeah, the mangaKNEES are dangerous, but it's those manganELBOWS you really have to look out for!" We howl with laughter.

Jason climbs the Point of No Return Ladder first – brave soul – and then Mike climbs up and wedges himself in position to take pictures while Rene and I climb. As cavers slide headfirst out of the Stopper, someone waits to grab their packs, saving them from sliding into the pit. We all squeeze back through the Slim Chance, and I even make it up the foothold-less Clothesline without assistance. Back in the Mindblower we chow down – oh, I'm getting *so* sick of energy bars!



Jason on the ladder

The Mindblower is a fun romp up and down along a passage that runs straight east-west for several thousand feet. It is noteworthy not only because it's straight, but also because it carries a good deal of air. Since Jewel only has one natural entrance, it "breathes" a lot, seeking to equalize inside air pressure with the barometric pressure outside. The cave's breeze is what pulled explorers onward, leading them out through the Miseries all the way to Metrecal Cavern. On our way in there was little air movement, but since this morning we've noticed a stiff breeze blowing in our faces, meaning pressure was rising outside.



Peggy on the ladder

As we scramble through the Mindblower, I'm behind Seth and ahead of Rene. Suddenly a fresh tune pops into my blank, delirious brain: "Guys, guess what song I just thought of!" I cry. "'Burning Ring of Fire'?" replies Rene, since that's a caving standard of ours. "Nope – 'Bitchin' Camaro'!" Simultaneously the three of us break into a rousing chorus of the Dead Milkmen, and get from the Mindblower nearly to Metrecal by reliving their hysterical monologues, moving onto Mojo Nixon and They Might Be Giants for more sing-a-longs. Man, does that help me up the breakdown mountains of the Wrong Number Room! At last we scramble – stumble – up to the rest stop in Metrecal Caver, where we contemplate the Miseries and psych ourselves up to get as far as the Calorie Counter. I feel like I'm moving at a snail's pace through the climbs and crawls up to the Funny Little Hole; trapped in thin rubber boots, my feet ache. "Hey, who the hell tricked us into bringing these sleeping bags all the way out?" I say to Rene. "Yeah – we were gonna dump them somewhere!" she agrees. But we've got our own gear packed away with them, and plus, it's better to drag it all out now than to come back in through the Miseries for a bunch of moldy sleeping bags.



Peggy in the Calorie Counter

As he oozes toward the Calorie Counter, Seth attaches a pack to his foot and drags it. He likes that technique so much that he almost does the same with his second pack. Rene, meanwhile, counts down the crawls to the end of the Mini-Miseries, and the breeze keeps us from even breaking a sweat. "Thar she blows!" I cry, approaching the tiny tunnel. I call to Mike and Seth on the far side and they pull my packs out ahead of me, so I don't push them with my helmet. Mike snaps a picture as I lift my head into the Miseries. I pop a packet of energy gel, and head towards the three pits, the Humdinger, and the Flailing J. As we wait for its namesake to squirm through, I notice a growing wet stain on the outside of my backpack. It can only be one thing. "Oh no! Problem! Not good problem!" I tear at the straps. "No problem is ever good," Mike remarks dryly. I haul out my full – well, *almost* full – pee bottle, which has started to leak. Thankfully it's only come a bit unscrewed, and doesn't have a hole in it. I pack it all back up and crawl onward, with just enough energy for a final joke: "When I get out of the cave, I'm going to blow my mangaNOSE." "Yeah, or you'll have to mangaSNEEZE!" quips someone else. We decide that of all our newly invented words, *womanganelbows* is the strangest combination yet. Behind me, Jason measures his energy by estimating how many pushups he could still do. At last we arrive at the Ugh-way, and slither out the Dugway into the Delicate Arch Room. The Miseries are done!!

...We still have a good bit of cave to go, but it gets easier, bigger, and more familiar as we near the Target Room. I follow at Mike's heels, ducking under him as he climbs the Diving Board, and then claw my way up to the top of the slope where my shoes and a bottle of Gatorade await me. By 8:30 p.m. we're all assembled in the shadow of the elevator – exhausted, filthy, hungry, and elated after a **GOOD CAVE TRIP**.



Peggy Renwick

