February 2005

NSS News

CALENDAR

USA

March 4–6, 2005—The 2005 Florida Cave Cavort will be hosted by the Florida Speleological Society. Information and registration forms will be available at: http://www.caves.com/fss/cavort.htm

March 5, 2005—Spring Board of Governors Meeting - San Antonio, TX.Will be hosted by the Texas Cave Management Association and Bexar Grotto of the NSS at the Edwards Aquifer Authority located at 1615 N St Mary's St. www.caves.org/nss-business/president/spring2005.pdf

April 29–May 1, 2005—Spring 2005 VAR, hosted by Bubble Cave LLC, will be held at the West Virginia State Fairgrounds located in Fairlea, WV. Come on down to Greenbrier County WV and enjoy the caving on the Greenbrier Valley savannah. At least two major vendors will be attending. For more information, go to www.varegion.org or contact Judy Fisher at PO Box 276, Berkeley Springs WV 25411-0276 or email her at jcF@access.mountain.net.

May 13–15, 2005—The 2005 SERA Summer Cave Carnival will be hosted by the Birmingham Grotto (www.bhamgrotto.org) at Camp Comer in Mentone, Alabama. You can arrive as early as Wednesday, May 11th. Camp Comer has a 1200 acres of wooded camping, a 110 acre lake, a 70 foot climbing tower, never-ending hot water and more! For questions contact Joel McGuire, kaventag@mindspring.com 205-854-CAVE.

May 27–30, 2005—20th Anniversary Ennis Cave Blowout, Mountain View, Arkansas. Check out the website: www.enniscave.net for more details or contact Ron Lather at cavinron@earthlink.net.

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.

October 31–November 4, 2005—National Cave And Karst Management Symposium, Albany, New York. This marks 30 years since the first Symposium was held in Albuquerque, New Mexico. Hosted by The Northeastern Cave Conservancy, Inc., the Symposium will showcase both the accomplishments of decades of cooperative cave and karst management research, and the path towards the future.

INTERNATIONAL

February 8–12, 2005—Congress 65 Anniversary of Cuban Speleological Society, Pinar del Rio, Cuba. Abstracts deadline: October 15th 2004. All the papers will be published on CD. Invited lectures, poster presentations, thematic lectures and field trips. Contact Raudel del Llano email: raudel@pinarte.cult.cu; website: www.sec1940.galeon.com/

August 21–28, 2005—14th International Congress of Speleology, Athens, Greece. Organized by the Hellenic Speleological Society. Contact: Chistos Petreas, ellspe@otenet.gr www.otenet.gr/ellspe

Please e-mail information on upcoming events to dbunnell@caltel.com at least 6 weeks prior to the first issue in which you want it to appear (e.g, by August 15 for the October issue).

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NATIONAL SPELEOLOGICAL SOCIETY, INC. NSS

NSS NEWS

FEBRUARY 2005
VOLUME 63 NUMBER 2

FEATURE ARTICLES

DEPARTMENTS

ABOUT THE COVER

This month's covers feature images from high altitude caving in Peru.

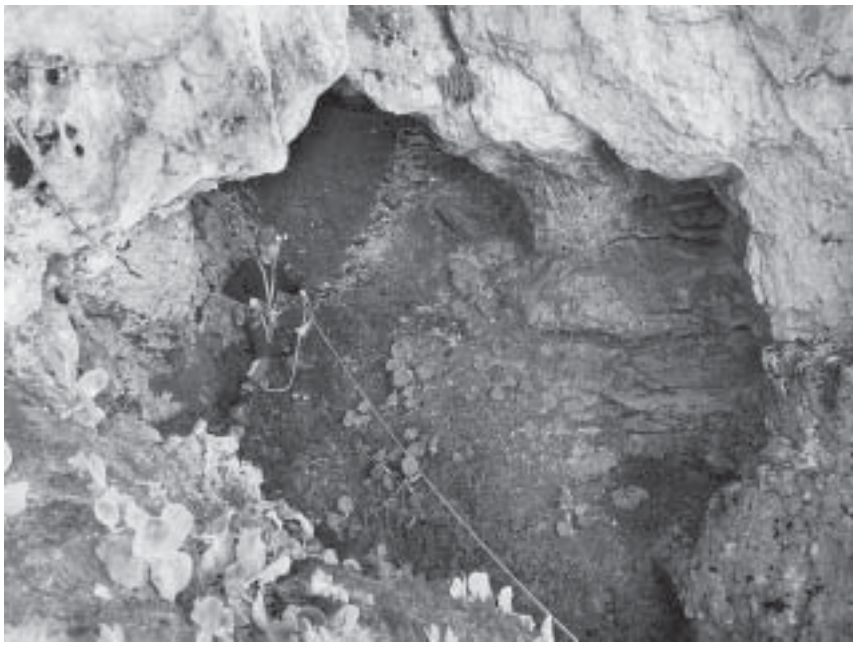
Front cover: David Cole descending a large pit high in the Andes. Photo by Steve Knutson.

Back cover:

Top: Limestone as high as it gets in the Americas—over 18,600 feet. Photo by Steve Knutson.

Right: 1,000 foot rope being carried from Dos Ojos after the bottom was pushed in July 2004. Photo by David Cole.

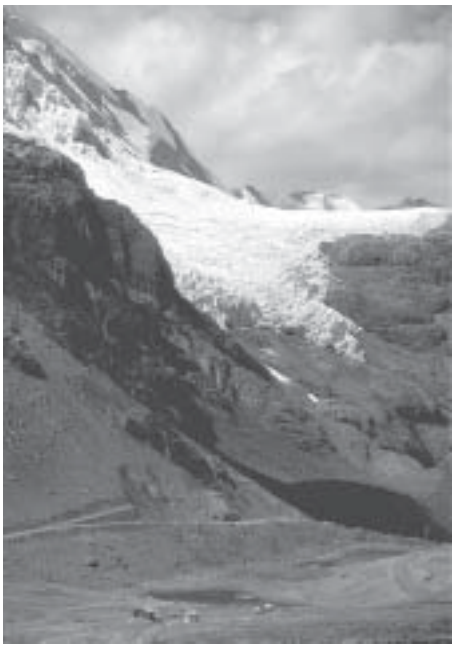
Left: Andy Zellner climbing out of 269-foot-deep Squeaky Pit. Photo by Jeb Blakeley.



John Swartz traverses the top of an 80-foot pit to check a passage on the far side in the Peruvian Andes.

Deep in the Andean Mists: Peruvian caving on the grim side…

Steve Knutson



Steve Knutson

Andean karst scene: A road pass at 15,500, with a glacier on limestone in the background.

…The damn mist rolls in, as it always does, just when I think I might get a fix on something. Can't see anything….just vague shapes…..and as usual, the batteries in my wonderful Garmin GPS have died… Where the hell are we….?

This is a brief look at an extraordinary karst area; it is not ordinary because of the number of very deep pits within a working radius from camp, and for its location in a roadless area of the northern Peruvian Andes at an elevation of around 14,000 feet.

Of the 23 known air-filled limestone pits in South America over 100 meters in depth, 18 are in this area, found and explored by us. We found this area in 1996 and have gone to it nearly every year since…

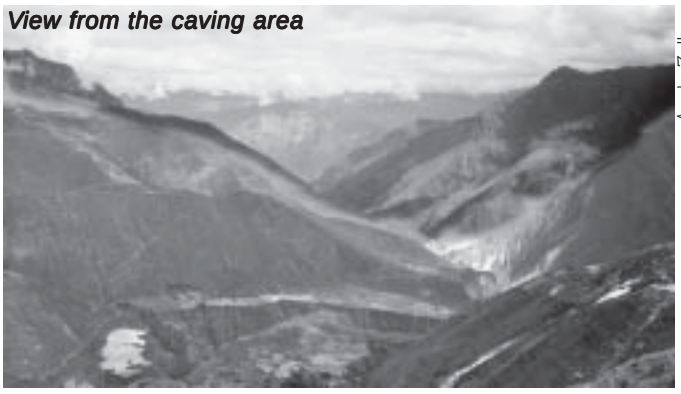
BACKGROUND

The Andes Mountains of South America dominate the west side of the continent and run the length of it, with elevations of over 22,000 feet. Strangely enough, this forbidding landscape of tall, sometimes glacier-shrouded peaks and 8,000-foot-deep canyons was the ancient home of some very advanced but mysterious cultures, of whom the well-known Inca are but minor late-comers. Ruins left by these ancients are still being found in remote areas.

In 1985, '86, and '87, a Colorado caver named James Miller had some interesting rambles in the Andes of northern Peru. He was a mining geologist and was working at a site on the edge of the Amazon Basin. When work left him with free time, he naturally headed for the alpine country, to look for caves. He was usually alone but occasionally found non-caver companions. His load often included a 300-foot rope, vertical gear, helmet and lights. He made use of such and dropped pits even at over 15,000 feet elevation, at least to the extent of his rope. Solo caving at 14-15,000 feet!

I heard of this, and got interested. Back in the 70s I had become intrigued with Peru, both for the ancient cultural aspects, and for the potential for great cave depth. But I was nervous about the machinations of Maoist anarchists, like the Shining Path and the Tupac Amaru. I settled for Mexico and Central America instead.

If I were going to finally go, it would be much better if I had someone to go with, so I talked it up to Jeb Blakeley, from Idaho Falls, Idaho, and his wife, Bitsy, who had been companions on Central American efforts. They thought it was a great idea. Jeb has been a co-leader of the expeditions, ever since. We were going—but exactly where to?



View from the caving area

Andy Zellner

I corresponded with Mark Stock. Some years before, he and Marion Smith had gone to check out a large sink that appeared on a topo map in the Huanuco area but had not found much.

I got out the geologic map of northern Peru that I had got in the 70s and the air navigation topographic map on which I had, for my early fantasies, plotted the extensive limestone bands. These bands run across high altiplano and deep valleys. There was big depth potential everywhere.

Yet there were negative aspects as well. The Andes had been created by rapid mountain uplift, so there may have been little of stable water tables for phreatic development. Indeed, some research showed that previous expeditions had not found anything extraordinary. The longest cave in Peru was only 2.8 km, and the deepest only 407 meters.

To help decide the question, I tracked

Searching for caves while the mist holds back.

Steve Knutson

Cynthia Ream checking out a big pit entrance in the fog

Steve Knutson

Mule train, heading for camp.

Steve Knutson

Mules being unloaded at "Gringobamba," our new home at 14,300 feet. The black bags are full of caving rope.

Andy Zellner

Miller down, and asked him if he wanted to go. He was back in school, now had a wife and child, and was in no position to do so. I asked if he were to go, what would he want to see—what was the area or cave that had seemed most promising? He replied that he had heard of a *tragadero* (the Peruvian word for a *sumidero*, a stream or river submergence) at around 12,000 feet elevation that sounded good, and that he never had a chance to check out.

We figured that we needed one trip just to find out about the relevant aspects, travel, weather, local attitudes and so on, and so we settled on April and May of 1996, April to be spent in Peru and May in Ecuador.

An Education

As our departure time grew near, we agreed to include Matt Oliphant and Nancy Pistole, from California, who would be traveling in Peru at about that time.

As it turned out, April and May are still in the wet season in the Peruvian Andes, and the weather was always bad. Traveling by road we found was very different from that in Mexico or Central America. There are huge roadless areas. Except for the Pan American Highway, which stays on the coastal plain from Lima north to the Ecuadorian border, and one or two highways heading into the mountains, main roads are not paved. No road runs for any distance north and south along the axis of the Andes—they all run mostly west to east, from the coast into the mountains to a particular town and then usually end. Few vehicles traverse what roads exist. If you take transport partway to your destination, you may find yourself stranded for a time. We spent two days in one town, and no vehicles passed through in that time.

At roads' end we were told that the *tragadero*, still over a day away on foot or horse, was not enterable. Damn, all that trouble for nothing? Well, they said, there are some "*Infiernillos*" up on the mountain, above town. But they are just holes in the ground…of little interest…just a local hazard for grazing animals.

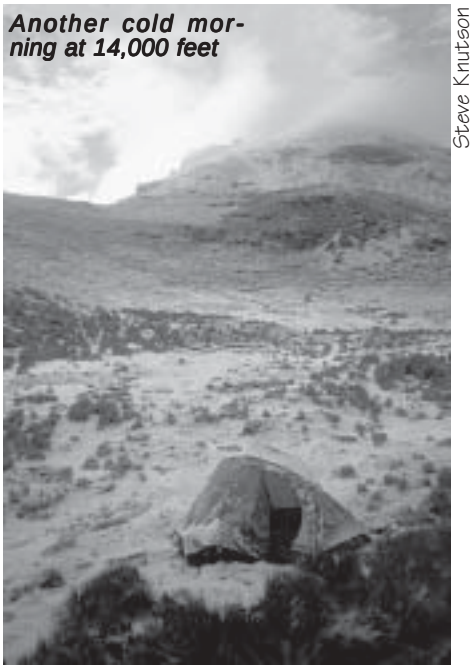
Well, we were there, so what the heck. The plateau in question was at over 14,000 feet, and the town at 10,000, so we arranged for horses and mules to pack our gear up there, and a day or two later, were off.

The horse packer was dubious. Tourists never came to this area. What were these strange-looking folks up to? They hadn't wanted to buy the Chachapoyan mummies that townsfolk offered them. Now they wanted to look at holes in the ground?

So at the breakover at the top he stopped, got off his horse and called us over to a gaping pit just off the trail. Picking up a big rock, he gave it a toss, and then turned with a stern look, to judge our reaction. The rock fell 2 or 3 seconds, hit something, then another interval, hit again, and repeated this until the sounds faded into the depths. Wow! Our looks and exclamations told him enough—these

Matt Covington, the 2004 camp in the background, and bad weather heading our way.

Steve Knutson

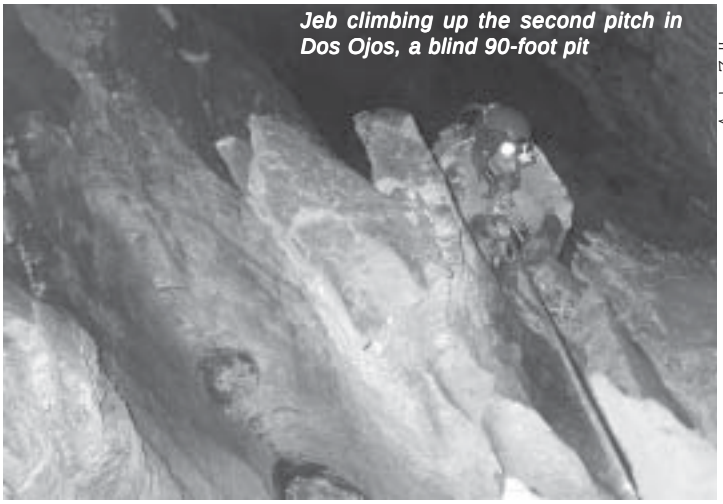


Another cold morning at 14,000 feet

Steve Knutson


Surveying in Conejos

Andy Zellner


Jeb climbing up the second pitch in Dos Ojos, a blind 90-foot pit

Andy Zellner

pendejos locos actually like these deep holes!

We stayed up there for several rainy, snowy days and saw enough—there were several of such pits around—this needed more manpower, more rope, and better weather. We vowed to return in 97!

We have been returning ever since, with no end of deep pits…

Of course, we always hoped for continuing cave, and there are signs that such may be imminent. We will see…

Northern Peruvian Geology/ Geography and Cave Development

The Andes are lowest near the border with Ecuador, and broadest south of Lima and on into Bolivia. The structure seems similar to mountains such as the Klamath and Sierras of the American west, with the volcanism of the Cascades occasionally thrown in.

Structure is aligned north-south. In places there are huge volcanoes, but the volcanism is mainly in Ecuador and Colombia, and then on south of Lima and through Bolivia and Chile/Argentina, but not in northern Peru.

It seems never to be a single mountain ridge. Canyons between ridges are sometimes stupendous, over 8,000 feet in depth. There are several major limestone bands along the axis of the mountains and these cross these canyons in places and provide great depth potential for caves. Indeed, some of the highest limestone in the world is present, and I have seen it up to 18,600 feet.

The downside for cave development is that the uplift, the orogeny, of this range is said to have been rapid. One published opinion said there was a stable period during the uplift but there may have been little chance for ordinary phreatic development. On the positive side there are many sites of great vertical relief, to allow vadose solution, and there could be thermal water development. Also, in such a big area there are bound to be situations of special geology, where water is trapped or concentrated along the structure, and extensive or significant caves are the result.

Examples of this found just recently are the cave above Soloco, near Chachapoyas, which is now the longest in Peru at some 4 km, and the Pumacocha cave, in the Cordillera Yauyos, which is the deepest, at 638 meters. The former is in limestone sitting on an underlying sandstone base, thus trapping the drainage, and the latter is in a narrow band of limestone, catching a surface stream coming off granitic rock, creating a vadose cave. The former was done by French cavers (Jean Loup) and the latter by British (Nick Hawkes).

The thermal water development seems to be a viable idea, as I have seen large travertine deposits at elevations of over 13,000 feet, as well as at lower elevations.

After scouting a number of areas in northern Peru, I must say that in many places development seems to be at an early stage and as predicted for rapid uplift. Drain-holes for lakes and existing *tragaderos* are often small and pinch out after just a short distance. Big expanses of limestone tend to have few good pits, and large closed basins have small drains.

The Project

We found a campsite near a permanent water hole at just about 14,000 feet and have stayed there each trip, until this year. We once jokingly referred to it as "Gringobamba," and the locals liked that, so the name stuck. "*Bamba*" or "*Marca*" apparently means "place of." This site had some pleasant aspects—there were lots of tent sites, a great view, and it was not far from the main trail (a portion of the old


David Cole

Matt Covington at the top of hammered open pit #7, 350 feet deep in Parallel Pit Cave, July 2004.


Garry Petrie

Steve Knutson on rappel

Andy Zellner

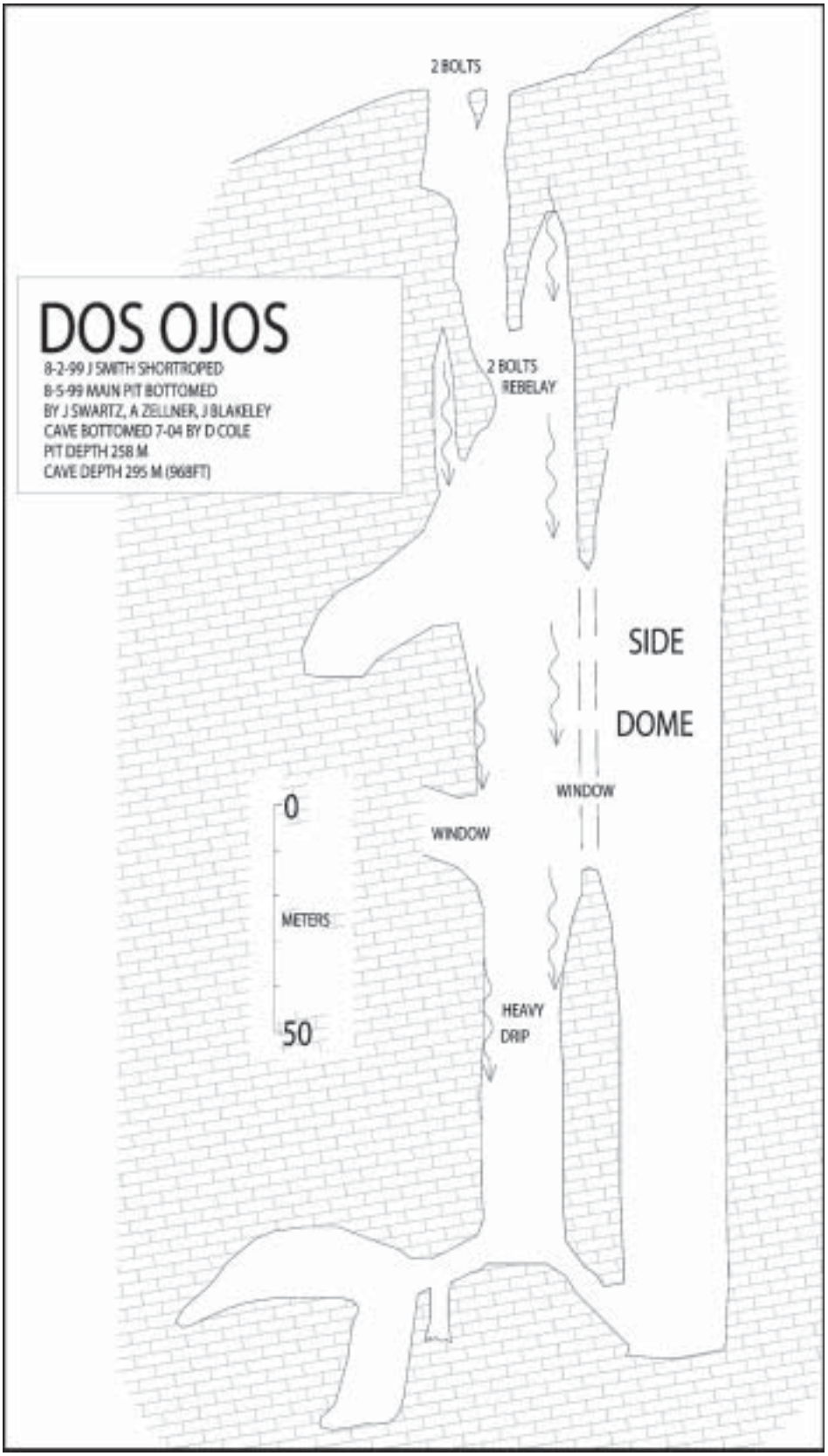
John Swartz drops into Dos Ojos

Inca highway system in fact). But the weather proved to be a monster.

Though it isn't obvious, since there are adjacent mountains as far as the eye can see, our campsite is next to a pass where air from a lower, warmer valley to the east rises, cools, and apparently creates weather when it crosses to the west. Every trip saw occasional but regular bad weather, and almost every time we departed, the mules were loaded in a snowstorm. On one expedition the weather was almost continuously bad and we aborted early.

Jeb Blakeley

Andy Zellner at the top of Dos Ojos



And this is in the "dry" season.

The wind is normally strong. The first large-group cooking tent we brought was destroyed by the trip's end; it only lasted until then by guying it every which way and splicing splintered poles with duct tape and parachute cord. At night you often slept, if you could, to the wind-whapping vibration of your tent walls. If you were awake the worrisome thought might occur to you that you had not spent enough money on that tent.

The site is not all that far from the equator, so there are no glaciers around

Bonnie Crystal begins a descent. Paul Greaves captured the 3 images on this page from a Rich Sundquist video.

and snow never accumulates. But it gets very cold on a clear night. No one has complained of his or her sleeping bag being too warm. And occasionally, on those rare, clear nights, you might be moved to get out and look at the fantastically starry sky and outrageous Milky Way.

We have a group tent, as I have mentioned, and one might think that evenings would be spent in that, in jovial camaraderie, telling stories or playing cards, snacking and enjoying hot drinks. No. We cook in that, and wearing your warmest clothes, and with four stoves going, it stayed warm enough to allow you to eat dinner in relative comfort. But once the stoves are off, it gets cold fast. Then it is off to the individual tents for some reading and diary keeping, and then to sleep, if that is possible. One of the effects of high altitude is insomnia.

And I should also mention that one of the products of the constant acclimatization process seems to be urine production [*ed. note: this diuresis is the body's way of concentrating red blood cells to enhance oxygen-carrying capacity*]. You need to piss during the night, usually more than once. If you didn't have a piss bottle, you have to go outside to do it. It was a cold process even inside your tent, as often it is cold enough in there, to see your breath. I found that a 500cc bottle was too small.

At this site you are impressed at the

Rich Sundquist in Pre-Inca Pit

feeling of isolation. At the town below you are a 14-hour bus ride from the nearest big town, all on a dirt road. At the camp you are a further day's walk, and a 4,000-foot ascent over a rugged trail. Beyond you, to the horizon, are further ranges of mountains, all a vast wilderness.

One of the worst problems is mist. Clouds will roll around you, not above you, and it can suddenly sock in, and visibility can go to a few tens of feet. Since much of the plateau has incised valleys, slopes are common and these are composed of a series of benches separated by short cliff bands. Every bench looks pretty much the same. Anyone going any distance from camp will be going up or down these, and often there is only one place in a given cliff where this can be done. Without good visibility, or a GPS unit, you might be hard pressed to find the way back.

GPS sounds foolproof, but only if you did a constant track, or remembered to take a waypoint at each tricky place. If you run a track, the batteries might give out before the day is over. If you don't, and it gets misty or night comes, you could be in trouble. The GPS, if running, could always tell you in what direction camp was, and how far, but couldn't tell you how to get there.

To help with this, and to provide the possibility of aid in an emergency, Bonnie Crystal got participants to equip with small radios. These only work line-of-sight, so she provided a solar-powered repeater. When this is placed on a high point, it allows radio communication from anywhere within our operational radius. Then she makes connection to the closest radiotelephone office, and sets up a ham radio link to other ham operators in Peru. Thus if something goes wrong in a cave, the cavers could call from the entrance, and she could call to Lima or the local town, to get whatever aid might be available. There is a Peruvian mine rescue capability, presumably equipped with a helicopter, so this was an important step in our safety.

Another problem is altitude sickness. Since the last 4,000 feet on the journey to camp is an abrupt rise, and since we would be at around 14,000 feet for the duration of the session, usually at least a couple weeks, we have to be careful. Pulmonary edema (HAPE) and cerebral edema (HACE) are two extreme forms of altitude sickness and have killed many experienced mountaineers, much less ordinary people. There is no medication that will reverse these conditions. The only known remedy is to remove a victim to lower elevation.

Andy Z. in upper portion of Pre-Inca Pit

We haven't yet had a case of this.

Almost everyone experiences lesser symptoms—loss of appetite, sleeplessness, headaches, sore nasal passages and bronchitis. The latter is especially feared, since to get it means a huge drag on your performance—you will not acclimatize as well, and the coughing will keep you awake at night. This has been experienced once by almost everyone who has gone more than once.

Dos Ojos

August 2 of the 1999 trip dawned normally, with ice on the flys of the tents and on small ponds, the wind gusting fitfully. But the sky was mostly clear. John Swartz, from Atlanta, Georgia was up early as usual, somehow managing to wash dishes in the arctic morning air. In the group tent the MSRs were roaring, the Optimus 00s were smoking, and breakfast somehow got cooked and eaten, perhaps coffee, eggs, bread, maybe potatoes or pasta. Folks teamed up and went off for the day's activities.

Jim Smith (McDonough, Georgia) was suffering from the dread bronchitis but was coughing and hacking his way around anyway. This is dangerous at this elevation, but Jim is a very tough guy. He and Swartz headed back along the trail that the Incas once used, and then traversed to the right, letting their instincts lead them. Very quickly they found a small double pit, with the holes apparently connecting, below. A dropped rock usually hit something a few seconds down, and then eventually made more noise… it sounded deep.

Jim placed a couple bolts, rigged a three hundred and descended to a bulge on one wall, about 67 meters down. The pit, however, clearly continued on down, hugely. The bulge hit the rope, and interrupted the free drop. It was clear that rigging from the other hole would miss it, but the bulge offered a place to rebelay. John came down, and Jim placed two more bolts. They tossed a rock, and it took at least seven seconds to hit. They needed

a long rope.

The next day they returned with a 600—all our rope was 11mm, heavy stuff at 14,000 feet. They got this rigged at the bulge, and Jim headed down. For many minutes a look down just showed the adjacent walls of the 20-meter diameter pit, the rope continuing, and blackness below. Finally he came not to the bottom, but to the knot wagging in empty space at the end of the rope. The bottom was now visible, a ways further down. Short-roped at near 14,000 feet. He changed over and agonizingly made his way back up, doing an imitation of terminal tuberculosis.

The following day, August 5, Jim was a little worse so John went back to the pit with Andy Zellner (Marietta, Georgia) and Jeb Blakeley (Idaho Falls, Idaho). John borrowed a whistle from Jeb, to signal with. At 11:15 he checked his gear several times and started down. A note in one diary said, "John seems scared—that's good!"

He was carrying a 300 to add to the bottom of the 600. He passed the rebelay and got to the end of the rope without incident. After adding the 300, he passed the knot and got to the bottom. The descent took about ½ hour. At noon Zellner went down, and then Swartz ascended. This took 1½ hours. Then it was Jeb's turn to descend.

He had trouble when the spacers separating the top bars of his rack collapsed. Keeping the bars apart by hand started cramping his arm, but he got down.

At the bottom Andy reported there were three leads. They tied the excess rope over a horn of rock, and Jeb went down the biggest one. This went down for 16 meters at a 60 degree angle and then 12 meters vertically to a gravel-floored chamber with no outlet.

Jeb returned to the main pit bottom, and Zellner climbed out in 59 minutes. You couldn't hear signals from the bottom all the way at the top, so when Jeb heard Andy signal at the rebelay, he gave him 20 minutes and went up. He climbed to the knot slowly, without stopping, but by the time he got to the bolts it was 20 steps and 5 rest breaths. Still, it only took him 1 hour and 5 minutes. They got back to camp just as it was really getting dark. As I have mentioned, being out after dark was asking to get lost…

The depth was determined by taping to the rebelay and then taping the rope after derigging—846 feet (258 meters). This made it the deepest pit in Peru, and the deepest limestone pit in South America. The only deeper pits were some in quartzite in Venezuela.

This year, in September, a British expedition led by Nick Hawkes was working in Pumacocha Cave, in the Cordillera Yauyos, already the deepest in Peru, and was able to descend an alternate stream route that had a deeper pit, measured at 925 feet (282 meters). Such is the progress in caving–the deepest gets deeper…

We gradually had to work at a greater radius from camp. Jeb Blakeley describes his first descent of our second deepest pit, Deep Surprise:

Deep Surprise
(narrative by Jeb Blakeley)

"It was a rare day when we could see further than half a mile from our camp. When the fog did clear, we could see a bulge on a distant ridge with a huge black crack that was calling our names. The crack was at over 14,000 feet elevation and just above several other pits, so John Swartz and I decided to check it out. We figured it would take 3-4 hours to get there carrying "minimal packs," with 750 feet of rope, a bolt kit, full vertical caving equipment, and foul weather gear.

"Almost 10 days later we had not yet

Andy Zellner

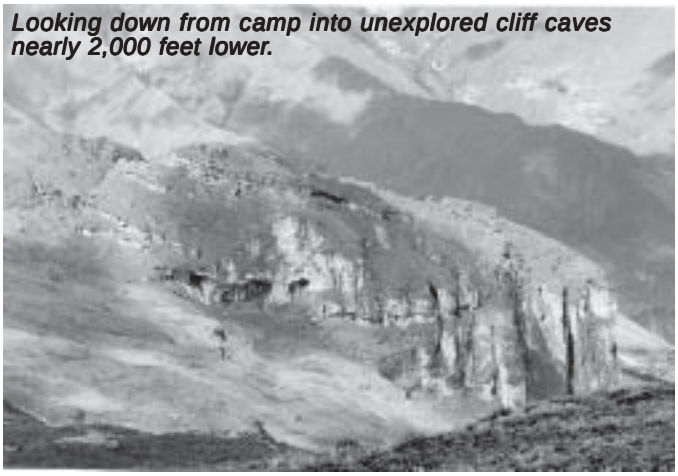
2nd pit in Conejos

reached it. The terrain is rough and steep, covered with cliff bands that can only be crossed in selected areas. Slick muddy cow paths lead from one layer to another but they are so exposed we often wondered if Peruvian cattle could belay each other. Hiking on those cow trails did explain the rawhide-like texture of the "steak" we had for lunch on the trip up.

"We had to sidehill across scree slopes and gain and lose hundreds of feet of elevation on loose footing. In places a misstep might send us sliding out of control towards a cliff band 500 feet below. So we hiked carefully. The weather in 2002 had been worse than normal with rain or snow 3 out of 4 days and lots of wind. Daytime highs on a good day were in the 60s and nighttime lows were in the mid 20s. You could count on fog to roll in almost anytime you needed to see the lay of the land.

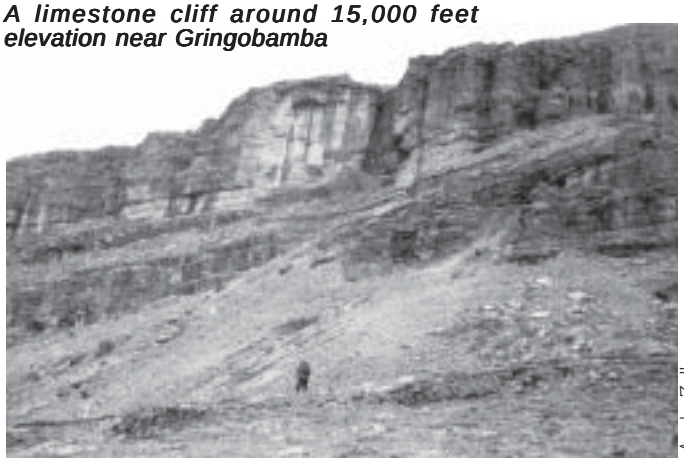
"Challenging as they were, the difficult

Looking down from camp into unexplored cliff caves nearly 2,000 feet lower.

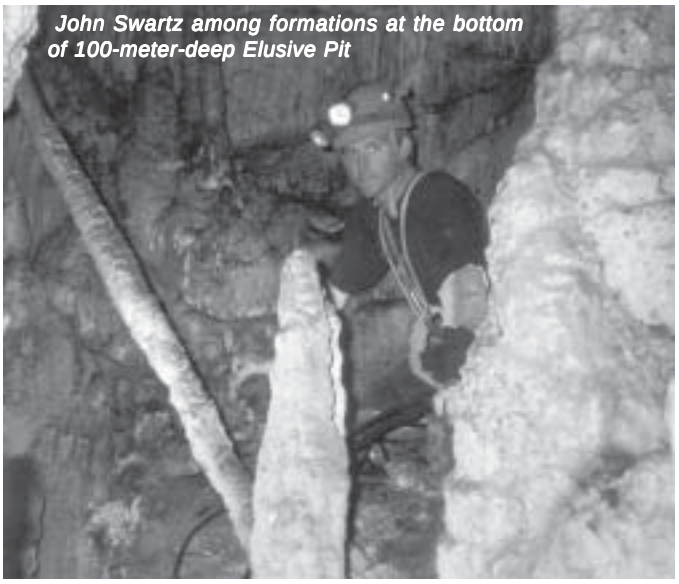


Andy Zellner

A limestone cliff around 15,000 feet elevation near Gringobamba



Andy Zellner


Andy Zellner

John Swartz among formations at the bottom of 100-meter-deep Elusive Pit

terrain and weather are not what kept us from reaching our objective. We just kept getting sidetracked by finding new pits. If they were short, we could drop 2 or 3 a day. The deep ones took longer to rig, drop, measure, and sketch.

"On July 21st we awoke to a cold morning and had to break ice off the watering hole. The thermometer showed 24 °F. We managed an early breakfast of tea, eggs, rolls, and jam in our cramped and soggy group tent. (We always wore our mountain parkas to breakfast so the frost melting off the ceiling wouldn't drip down our necks.) John and I left camp early, hiking past the pits we had finished exploring and continued humping our gear on up towards the ridgetop crack.

"A quarter mile up, we happened upon a funnel-shaped depression in the grassy hillside, about 25 feet in diameter. I tossed a rock that fell 2-3 seconds free, hit a glancing blow, and fell 10-12 seconds more. This one sounded good! We set a couple of bolts on a nearby boulder and rigged the ropes to maximize the length while trying to avoid putting knots in awkward places.

"I dropped along a smooth face past loose clumps of moss, roots and dirt, and into the twilight zone where the vegetation ended. I crossed a bulge and the rappel went free in a straight-walled shaft. Down 210 feet I landed on a steeply sloping, 4-foot-wide ledge where the rope had caught and piled into spaghetti. The drop below swallowed rocks and replied with booming echoes that lasted 12 seconds. It was impossible to tell when the rock fall sounds ended and the echoes started, so the depth was still a mystery.

"After quite a bit of gardening and setting another bolt, I flopped the pile of rope over and fed it down the shaft. I thought 330 feet of rope would make the bottom, but I went prepared for yet another short-rope experience.

"The next 300 feet was a combination of free drop and toes-against-the-wall easy rappelling. Finally, I could see my bottom knot swinging in space maybe 100 feet above the floor. Short-roped again! I switched over and started climbing out. When I could reach the sidewall, I dropped a rock and confirmed that we needed an additional 100+ feet of rope. If we re-rigged to make maximum use of all our rope, we might just make it.

"Back on the surface John and I discussed our options and decided to postpone until the next day. We called the pit Deep Surprise since there were no features in the area to suggest such a deep pit hid below the surface. Hiking towards camp after sunset, I stepped on a "dark spot" in the trail between two large clumps of grass and fell up to my armpits with feet dangling in space. Oops! Shortly after that, the fog rolled in, we got off route, and the batteries in the GPS went dead. As we were wandering around, we saw two glowing eyes in our halogen beam and then a fox appeared out of the gloom. He didn't spook easily and we got a good look at his brown fur and bushy tail with a black tip. We staggered into camp about two hours after dark and devoured two big pots of delicious stew David had made for dinner.

"As we headed out the next morning we carried another 150-foot rope just for insurance. We also carried a second bolt kit so John could bolt his new find while I was working Deep Surprise. No rain the day before helped the hike back to the pit go quickly.

"After a quick re-rig to maximize rope length and two knot-crossings, I landed on a sloping mud and gravel floor. I hurried down the slope hoping for a continuation but was disappointed. The end was typical of our findings in this area, a flat muddy floor under a parallel shaft. There were drip holes several inches deep in the mud, and bones littered the floor. During the rainy season a lake formed as water flooded in faster than it could seep out. Back at the rope, I was surprised to see a tiny speck of daylight directly above me. Pits just don't come more vertical than this.

"Back at the surface, John and I pulled all the rope, measured and re-coiled it. The vertical shaft measured 623 feet and the total depth is 703 feet. John was in a hurry to drop his latest discovery nearby so off we went. We never did make it to that black crack on top of the ridge!"

Horizontal as well

In 2002 we were continuing to produce deep pits, like Deep Surprise, but never saw a base level. All precipitation on the plateau was going underground, and that seemed significant even in the dry season, but we never got down to where there were running streams, where the drainage might lead to integration and give us a continuing cave.

The alternative was that you might descend to a water table and the development continue under that, but we never had a pit end in a lake or sump, either.

One day I decided to see if I could find something like a base level. To that purpose I headed down the side of an incised paleo-glacial valley to see if any holes down there might go horizontally. I was just hiking so I didn't take much with me.

At around 13,000 feet on the side of the valley where the dip all goes into the side, I chose a bench at random, and started looking. Up on a little, steep shelf, I could see an opening, so I climbed up. It was only about 5 x 15 feet, but did go in


Matt Covington

David Cole ready to go deeper in Parallel Pit Cave, July 2004.

horizontally. Still, in all the previous years, everything that seemed to have a horizontal entrance, led right away to a deep pit, so that is what I expected.

I discovered I had brought no lights, except a key-chain red LED squeeze light on a cord around my neck. One of my laws of cave discovery is that the less light you bring, the bigger the cave you will find, but this was ridiculous. My eyes were adjusted to the brightness outside, and so as I headed in, I could see almost nothing. I decided to crawl, so I would be sure to see a drop-off before it was too late.

I had crawled about 50 feet before I realized the ceiling was no longer close above me. I stood up and saw that it was in fact a passage and right there was about 20 feet wide and 25 feet high. Where was the inevitable pit? I continued on, agonizingly slow, because my wonderful high-tech light illuminated only about 4 feet in front of me, and in an unearthly red glow. Finally, I was forced to conclude I had by the strange chance of the cave gods, found what I was fanaticizing about—this thing is horizontal and it goes! It had to be named LED Cave.

I went back with John, Jeb and Andy and we mapped 270 meters into it. That brought us to a dome/pit that had intersected the passage. Andy did a belayed traverse of this, placing several points of protection, and found that the passage continued on the other side, perhaps with a little down-cave airflow. It went horizontally all right, but was clearly a paleo base level, as there was no stream at all. Stalactites had side growths up to 5 inches long pointing toward the entrance, indicating persistent paleo airflow, down cave.

The included map shows how later pit development, so typical of this area, has intersected and passed through this paleo cave. Andy dropped most of the pits in the cave and none were over about 90 foot in depth.

I looked around the valley side in that area, and there is no impenetrable, insoluble layer, as one might expect, to force a water table and help create such a thing. So it must represent an old, stable period. But it is still not the base level we are looking for.

Cyclone Valley

This year we moved our base camp out a ways. Some of us had hiked out there in the past, and there are a couple nice synclines and a moderate dip to the limestone that appeared to have the chance to have focused the drainage and might give us the integrated deep cave we wanted, or indeed just a going cave. The LED Cave was near that new site and might be more accessible as well.

In '02 I had gone out there and found a hanging valley pretty much right at the bottom of a syncline and there was water there and tent sites, all at about 4000 meters. We came to call this Cyclone Valley.

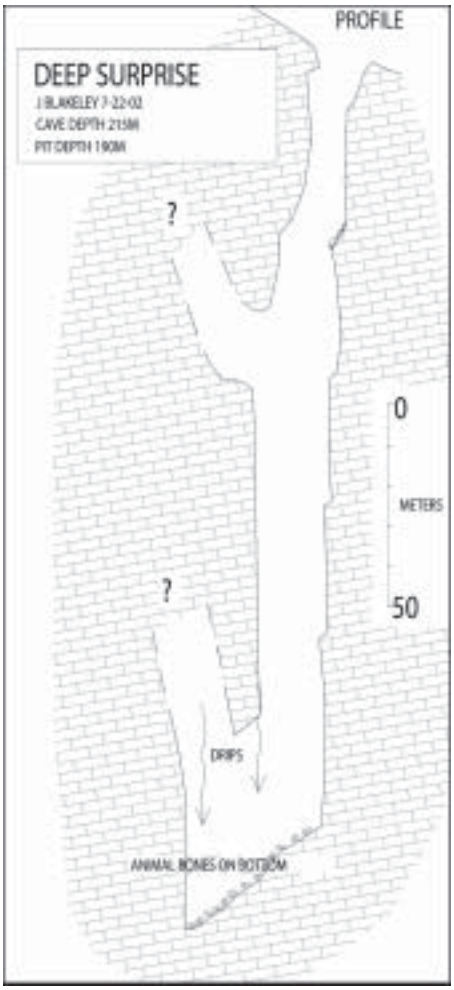
This camp is in the midst of some interesting holes. Once camp was set up we noticed a pit about 6 feet across, only 50 feet from the group tent. Matt Covington (Stanford, California) dropped this and found that it was over 265 feet deep and belled out hugely. One day Bonnie Crystal was watching camp, and napping in her tent, and found she could hear David Cole (Lookout Mountain, Tennessee) and Matt, pounding bolts in a nearby cave, through the rock.

Several caves in this area have yielded continuations, and small streams of water as well as down-cave air flow, indicating we may indeed be on the right track, in choosing this geologic setting. But the wetness of the caves in this area also was a limitation. It proved clear that wetsuits, which we hadn't brought, are now necessary, and several continuations were left for next year. One cave, Windy Rift, was pushed by David and Matt to where it narrowed and was not quite big enough to get through. It was taking water and air at that point, but gave us our deepest yet.

Windy Rift Cave

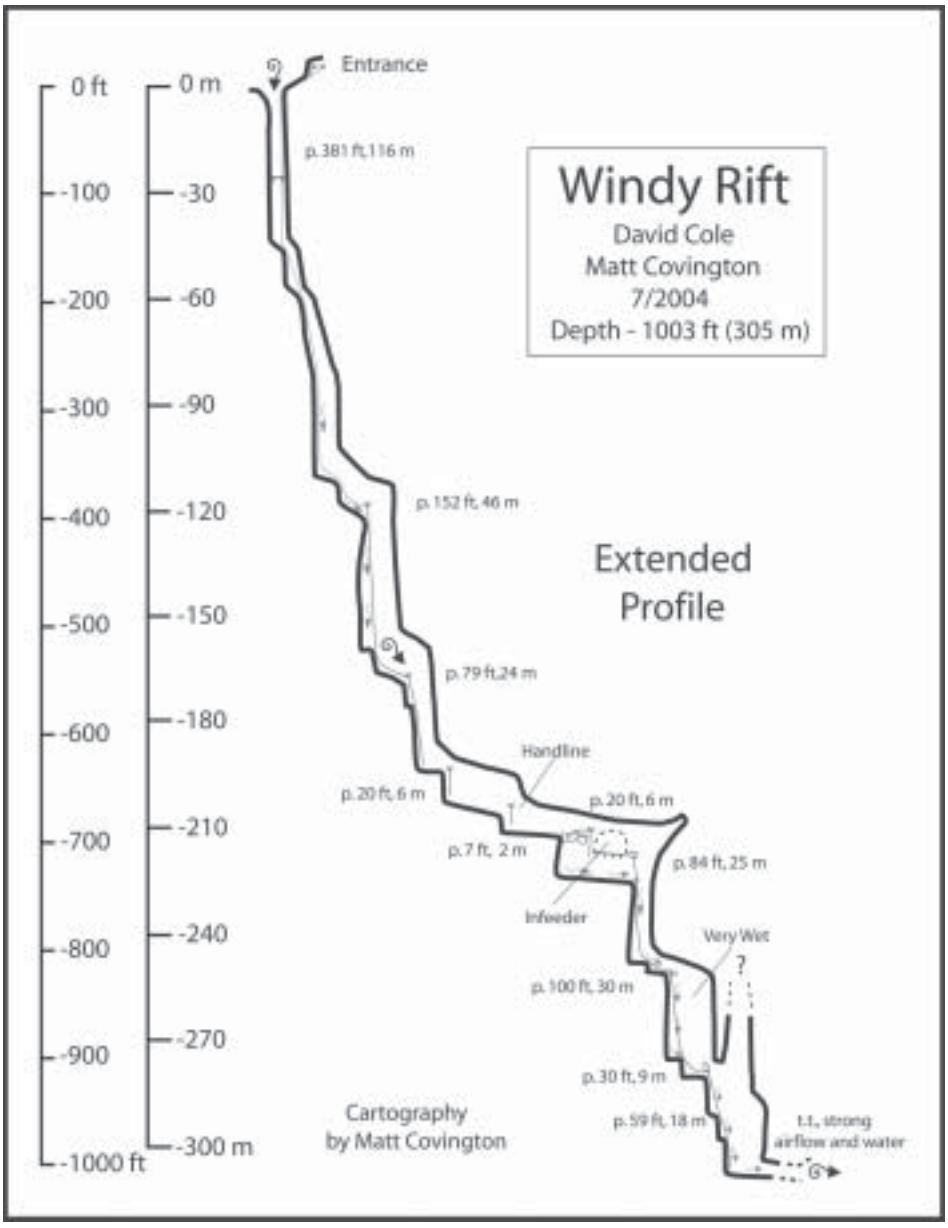
David Cole, sometimes with Ashley Chan (Marietta, Georgia) and Jack Thomison (Knoxville, Tennessee) had started working at the first syncline in 2002, day-hiking there from Gringobamba. They explored a number of pits and multi-drop caves, including 300- and 421-foot pits (Cole), a 257-foot pit (Thomison, Chan), a 502-foot deep cave with pits of 268 and 225 feet (Cole, Chan), and a 545-foot deep cave (Cole, Chan) with some nasty loose rock slopes above the drops.

On July 27 Cole was alone and found a deep pit with a nice 18- to 20-foot-wide surface opening at about 13,800 feet elevation. He placed two bolts for anchors. He had two 300-foot ropes and tied those together, since other pits in the area had been found to be deeper than 300 feet. The shaft proved to be another of those and was later measured at 381 feet. As he descended he got a really positive feeling about this pit, as he could discern a down



John Swartz

Jeb Blakeley dropping into Deep Surprise.



cave breeze, even in the 20-foot diameter shaft. At the bottom he fed the excess rope on down a 40-foot slope and to the top of a second pit. There he placed another bolt and tied the remaining excess entrance rope to it.

The second pit proved to be 152 feet and very drippy. At the bottom was a rift that led on, with strong airflow. This led to a third pit. Below he could hear a running stream. He didn't get a chance to return before the end of the 2002 expedition.

When we got camp set up in 2004, now just 500 feet below the cave, David was chomping at the bit to push Windy Rift. On July 11, before anyone was ready to accompany him, he lugged 900 feet of rope up to it and got down the third pit, a 79-footer. The stream passage at the bottom led right away to a 20-foot drop and on, to where it joined a large dome-pit, with another small stream coming down.

He got really excited, and started to free-climb down, as the bottom was not far below, but then thought better of it and placed a bolt and rigged a piece of rope. A tall stream canyon led on, and he soon came to a 6th drop. That was enough for the day.

Two days later he returned with Matt Covington. Matt provided some narrative beginning with reaching the end of David's push and setting the anchor for the next drop, with his power drill:

Narrative by Matt Covington:

"I straddled the void below me, my feet against one wall and back pressed into the other, and forced the drill bit against the far wall. At almost arm's length, I had to strain to get the drill to bite into the rock. Water rushed under me, shot over the lip, and sprayed into the deep blackness. David looked on impatiently, ready to continue the push into virgin territory. The drill cut into the rock as its loud scream echoed through the cave. Its pitch faltered and then gradually began to lower. It can't be…how could the battery have died so quickly? I yelled back to David."

"What?"

"Yes, it's dead."

"Often caving becomes a struggle between the desire to push on and the appeal of bailing out. For me, this was one of those schizophrenic moments. We were more than 13,000 feet above sea level, a full day's walk from the nearest village, and 800 feet below the surface of the earth. The cave was growing increasingly wet (a situation for which we were not prepared), the altitude slowed any aerobic activity to a snail's pace, and my expensive drill had just failed after an unusually small number of bolts. By the time we could return to the surface it would be dark and below freezing. My battle was not going well, even though there was no doubt that we were exploring an awesome cave.

"Luckily, David held firm. We had no manual backup for bolting, but he began searching for natural anchors. He managed to find a marginal anchor that would suffice as a rebelay to allow us to drop the next pitch. At first, I told him that I preferred to stay up top and let him check it out, but as I watched him go over the lip the excitement of exploration won out, and I decided to follow.

" He ran out of rope on a ledge about 80 feet below. The drop was quite wet, and there was nowhere for him to get out of the water. I quickly lowered the last 300-foot rope to him. Tying a knot at the ledge, he finished the descent to the bottom of the pitch. I followed him down the long wet pitch and another short one.

"At this point we needed more rigging, but we were running quite low on materials. After much debate, David ended up threading his pack tether through a creatively-solutioned hole in a flake. This kept us mostly out of the water for the next pitch. I descended this pitch first. It stair-stepped for about 60 feet before reaching a small gravel-floored chamber at the bottom. The stream and strong airflow were all pouring into a very tight canyon.

"Tight is my specialty, so I removed my harness and attempted to squeeze in. I managed to work my way about a body length into the crack until it was too tight. I could see that it appeared to get a little bigger about another body length ahead, but there was no way to get there. The walls

were quite grabby and it took me a few minutes to extract myself from the passage.

"We began our long ascent out of the cave, derigging as we went. By the time we reached the bottom of the 533-foot, double-entrance drop we were quite cold and tired. We decided to leave the rope there and come to retrieve it later. We knew the final ascent would be slow and that whoever was waiting on the surface would grow increasingly hypothermic. Because I was carrying the drill and bolting gear, I would be slower. Consequently, I went first so that David wouldn't have to wait for me outside where it was even colder.

"Outside, the clouds had cleared off and revealed the most incredible Milky Way I've ever seen, and, indeed, it was below freezing. Nature is a striking mix of incredible beauty and deadly indifference. I donned a trash bag and proceeded to march up and down the slope by the entrance to keep semi-warm while David ascended. After about 12 hours underground, we retreated to camp with a hypothermic stumble. The final depth of the cave was 1003 feet (305 meters), making it the deepest known cave in the area.

"Two days later we returned to retrieve the ropes. We ascended the 533 feet each carrying 600 feet of wet 11 mm rope. Given the elevation, this took about an hour each, but a good time was had by all."

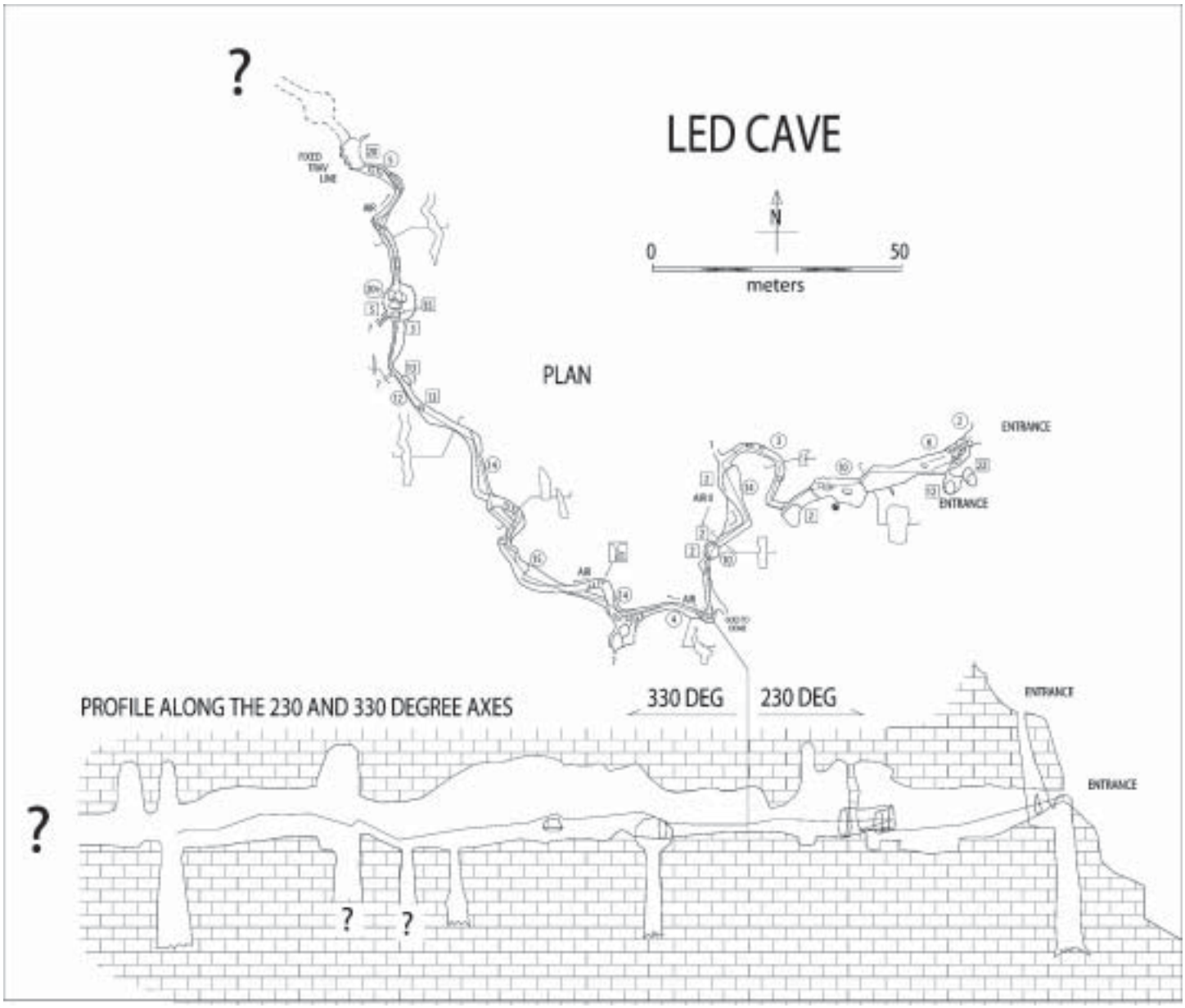
Concluding Remarks

The few caves or pits mentioned here hopefully give an idea of what we are finding. At these high elevations it is a struggle to do even a 200-foot pit and many that deep or deeper have been done. There are lots of hero stories to be had, if we had more space. This is a caving situation that is challenging just for the weather, the altitude and the wilderness setting. The fact that the caves we are finding tend to be vertical and difficult makes this extreme caving, indeed.

Deep Limestone Pits of South America

The list produced below was made by revising the list of Deep Pits of South America by Ian McKenzie, which he put together in the fall of '04. McKenzie may make additions to this but so far has not. I added all the ones in bold print, all from the area described in this article, and dropped the water filled "pit" and the ones in quartzite.

In fact the top five "pits" in South America are mostly oddities—the three in Venezuela are in quartzite and the one in



Andy Zellner

Buena Vista Pit, maybe 100 feet deep.

Brazil is mostly underwater:
1. Sima Aonda (Venezuela) 320m
2. SP1 in Sima Pumacocha (Peru) 282m
3. Lago Azul (Brazil) 279m (274m underwater)
4. Sima Mayor de Sarisarinama (Venezuela) 275m
5. Sima Auyan-tepui Noroeste (Venezuela) 250m (?)

Since cavers have little use for a "pit" that is underwater, and since quartzite is a medium that usually doesn't lend itself to cave development, I think it is fair to generate a list of pits in just limestone, and air-filled. Not trying to start contention, just trying to stick to real caving interest. Pits in limestone could lead to the deepest or biggest cave in the world; a pit in quartzite isn't likely to go anywhere, even considering the article in last months issue.

That is, this is a caving list, not a geomorphic list, shown in the table on the facing page.

Thus of the 23 limestone open-air pits over 100 m in depth in all of South America, 18 are located between 13-14,500 feet elevation and within a few kilometers radius of that mysterious deep-pit mecca, Gringobamba.

Also note that there are not as many deep pits at Gringobamba as may have been talked about, or the ones listed may not be as deep as said previously. That is because many of these and others are multi-drop, and the depth mentioned was for the whole cave, which is a series of drops rather than just a single pit. That has been a point of confusion, but is understandable.

Some of these pits would probably rank high in the whole Southern Hemisphere also, but the Atlas of Great Caves of the World lists only pits over 300 m. As I recall there are two such listed for New Guinea, over 300 meters deep, so presumably there are more deep ones there, over 100 meters. A Southern Hemisphere listing would drop the Venezuelan pits, quartzite or not.

On the Measurement of Depth for a Very Deep Pit

Obviously one cannot simply tape pit depth with a survey tape, usually of 100-foot (30-meter) length. The method often employed in the field is to mark the rope descending the pit at top and bottom, and then to pull (de-rig) it, leaving the knots and markers in place. The portion representing the pit depth is then measured by passing the survey tape along its length, 100 feet at a time, and counting the number of passes and the remainder, at the end.

This doesn't allow for the stretch of the rope, when hung, but with static caving rope the stretch is small. In any case the error is on the side of making the depth measurement a bit shorter than it really is—an error on the short side.

The other likely error would be a tally error, where the measurer forgets a survey tape length, or slips and mentally adds one that actually wasn't used. This always produces an error of +/- 100 feet (30 meters)—usually obvious.

Thus for Dos Ojos, Swartz, Zellner and Blakeley pulled the rope and Swartz passed the metric survey tape along its length to get the depth. This produced a distance of 67 meters from the surface to the rebelay, and 191 meters from there to the pit bottom, for a total of 258 meters. Probably the pit is actually a little deeper than that.

In 2004 we tried a new method. Bonnie Crystal brought a laser rangefinder of appropriate range and with stated accuracy of +/- 1 meter. She descended to the rebelay and shot to a reflector placed on the bottom by David Cole, and then ascended and shot to a reflector at the rebelay. She reports getting a distance of 74 meters from the surface to the rebelay, and 171 meters from the rebelay to the bottom, for a total of 245 meters.

There is a problem here, in that the laser reading, compared to the prior determination, is much greater for the upper portion, and much less for the bottom portion, and neither difference equals a tally error (30m). The difference is also much greater than any normal operator error in taping the rope. My conclusion is that the instrument was malfunctioning at the time and produced anomalous results.

In addition, the 600 that Smith put on the rebelay and got short-roped on, was a new rope, just off the reel, and PMI always tosses in at least a couple extra meters. Thus, if the bottom portion were really 171 meters (561 feet), he would not have got short-roped, and would have got to the bottom with rope to spare. So the 171 meter reading is suspect for that reason also.

We decided to stick with the older determination by the tried-and-true method, which is usually pretty accurate.

Acknowledgements

Thanks to all the cavers who have participated in the expeditions that have gone to Peru. They all helped this happen. All but 1998 and 2001 went to this area.

1996 Jeb Blakeley, Bitsy Blakeley, Steve Knutson, Matt Oliphant and Nancy Pistole.
1997 Jeb Blakeley, Bitsy Blakeley, Steve Knutson, Ken Marsden and Cynthia Ream.
1998 Mark Harder and Steve Knutson.
1999 Jeb Blakeley, Bonnie Crystal, Steve Knutson, Garry Petrie, Cynthia Ream, Jim Smith, Rich Sundquist, John Swartz and Andy Zellner.

Andy Zellner

John Swartz peering into a 100-foot pit (Teardrop Well) found on a ridgewalk. We never got to return and explore it.

2000 Jeb Blakeley, David Cole, Kris Esterton, Stew Evans, Steve Knutson and Jim Smith.
2001 Mark Harder, Steve Knutson and Rich Sundquist
2002 Jeb Blakeley, Ashley Chan, David Cole, Steve Knutson, John Swartz, Jack Thomison and Andy Zellner.
2004 David Cole, Matt Covington, Bonnie Crystal and Steve Knutson. (Chachapoyas area—Evan Anderson, Bonnie Crystal, Stephanie Juth, and Steve Knutson.)

I would like to thank PMI and Bob Liebman, of Bob and Bob Cave Equipment Suppliers, for deals or donation of rope. We thank the Western Region and Dogwood City Grotto for Grants. Thanks to the National Speleological Society for designating the 1996 trip an Expedition of the NSS.

We also owe a big debt of gratitude to Bonnie Crystal (KQ6XA) and Jessica Stevens (KF6WMY), for bringing or loaning a great deal of very expensive and sometimes heavy radio and electronics gear, and for setting this up and maintaining it. On that regard I need to thank Augusto Yipmantin Sosa (OA4CVT) for being our liaison in Lima as well as our radio contact every day during the expedition, for emergency purposes.

I want of course to thank the very nice people at roads end, Zacharias the hospedaje proprietor, Jaime and Carlos, the muleskinners, and all the other nice folks of the town. Their help and hospitality was essential and greatly appreciated.

The Future

We of course plan to return to this area in July of 2005. If you are interested in participating, contact Steve Knutson, 503-695-6552 or sssknutson@aol.com, or Jeb Blakeley, 208-529-1754 or jebb@cableone.net. Don't be put off by the harsh conditions—we started a new area this year, with better weather, lower elevations and interesting, going caves. We plan to return to that in August next summer, also.

Steve Knutson

Matt ascending a typical narrow pit

Deep Limestone Pits of South America

	Pit Name	Depth	Country	Reference
1	SP1 (Pumacocha)	925 (282)	Peru	NHawkes (I McKenzie list)
2	Dos Ojos	846 (258)	Peru	J Swartz/A Zellner/J Blakeley
3	Deep Surprise	623 (190)	Peru	J Blakeley
4	Pre-Inca	611 (186)	Peru	R Sundquist/C Ream
5	Clatter	476 (145)	Peru	J Blakeley/A Zellner
6	Humdinger	450 137	Peru	R Sundquist/C Ream
7	Steve's	450 (137)	Peru	J Blakeley/C Ream
8	Inf Grande del Plano	431 (131)	Peru	R Sundquist
9	Ojo de Conejo	431 (131)	Peru	J Blakeley/J Swartz/A Zellner
10	Andes Surprise	421 (128)	Peru	D Cole
11	Anniversary	413 (126)	Peru	J Blakeley/D Cole
12	Hidden	410 (125)	Peru	D Cole
13	SP3 (Pumacocha)	410 (125)	Peru	N Hawkes (I McKenzie list)
14	Devoid	410 (125)	Peru	J Swartz/A Zellner/D Cole
15	Velozia (Centeranio)	394 (120)	Brazil	I McKenzie List
16	Overlooked	380 (117)	Peru	D Cole/J Blakeley
17	Entrance Pit (Windy Rift)	381 (116)	Peru	D Cole/M Covington
18	Gruta de Bocaina	381 (116)	Brazil	I McKenzie List
19	Skull	376 (115)	Peru	D Cole
20	Friendship Well	375 (115)	Peru	J Swartz
21	Ammonite Shaft (Pumacocha)	371 (113)	Peru	N Hawkes (I McKenzie list)
22	Echo	340 (103)	Peru	D Cole
23	Inf del Condor	339 (103)	Peru	J Smith/J Swartz

The Reference column lists the surveyor and/or those who first bottomed it. Depth in feet (meters). Inf=Infiernillo.

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Bill Farr and Carol Vesely

February is the month for lovers, and this month we interview a couple who met while caving and have made some pretty significant discoveries together.

How did you two first meet?

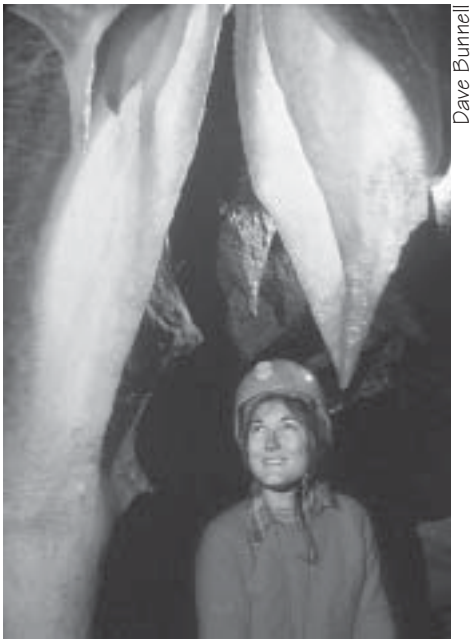
Bill: When I went from high school in Texas to Caltech, I ended up doing a fair amount of caving in California and Mexico, but without a grotto — I'd just drag a couple of fellow students along. I finally looked up the Southern California Grotto to meet women. Compared to Caltech, it was an oasis. Carol was the "cute, bouncy blonde with funny looking glasses." Having a new 4WD truck helped me get on a lot of good (and often secret) trips, and soon we saw each other every weekend.

Carol: We first met at a Southern California Grotto meeting. I had been a caver for several years and when I first saw Bill I thought he was a new caver. He stood up to announce something and I sort of cringed because most new cavers say rather naive and occasionally embarrassing things at their first meeting. But Bill made some intelligent observation about a cave and I was impressed. I was already caving almost every weekend and Bill soon joined our little caving group. He thinks he was welcomed because he had a new 4WD truck. But it was also because he was an enthusiastic and competent caver.

Interestingly, after we got to know each other I realized that I had first been impressed by Bill seven years earlier when I joined the Pittsburgh Grotto. As grotto secretary, I collected all the exchange publications. I remember reading a fascinating article by a skinny caver in Texas who relished pushing tight, difficult passages. Little did I know that some day we would end up pushing virgin passage together.

Where have you two caved both together and separately?

Bill: We have caved together mostly in California and Mexico, plus a few assorted other caves such as Lechuguilla and Lilburn. The thing is, she likes warm caves and I like cold caves. I remember one trip to Belize where I was miserable for almost two weeks. On the other hand, after a trip together to Monster Hole, (1 °C for ten days), only I returned for more snow and ice. Of course, when it comes to cave diving, that's only me.



Dave Bunnell

Carol in California's Lost Soldier Cave

Carol: This is good because one of us had to live. After all, we have a son.

Both Bill and I enjoy exploring and surveying virgin cave, but I enjoy foreign travel more and Bill enjoys pushing the limits more. Together, our caving has included a lot in Mexico, particularly in Cheve and the Purificacion area caves. I had the good fortune to be introduced to cave surveying early on, encouraged by Dave Bunnell to try sketching in Friar's Hole and other eastern caves. Being a sketcher opened many caving doors for me and got me invited on numerous expeditions. Together, Bill and I make a good survey team because he is able to keep the survey moving while pushing new passage as lead tape and I am a relatively fast and tireless sketcher. Some of our best caving trips together were in Mexico, especially the Purificacion trips and cave camps. On one trip to Tecolote with Dale Pate, the three of us surveyed almost a kilometer of new cave in this nasty borehole called the Spine Line. Sharp corroded protrusions of rock would grip and grab on your clothes, packs and survey tape, constantly impeding your progress. Every few shots one or the other of us would get so frustrated we would want to quit. But then, another one of us would renew the group's enthusiasm and we would press on. We took turns pushing on until finally the tape had broken too many times on the projections and we decided to quit.

Carol Vesely

Bill preparing to dive in Lilburn Cave

We've also done a lot of local caving together, particularly in the Sierras. When we were first together we could both squeeze through almost the exact same size passages. (Later, Bill got into climbing and his chest size increased.) This made us a good team for pushing small tight leads in passages such as in Millerton Lakes Cave and Lilburn Cave and to make the connection between Cuates and Puente Natural in Mexico.

Individually, I have been involved in expeditions to Papua New Guinea, China, Borneo, Isla de Mona, Chile, Hawaii and many more trips to Lechuguilla than Bill.

Bill: Yeah, Carol prefers to see new places and peoples. I'd rather just have a tough nut to crack. I think true exploration begins when everyone else has quit. My favorite parts of caves are those parts that only I have ever seen, and in some cases, may be the only person to ever see. Of course, some of those parts no one else would ever want to see!

How did each of you become cavers, where and where have you all caved?

Bill: As a senior in high school in Houston, I had the opportunity to work in a biomedical laboratory in Galveston for the month of January. There I overhead a few co-workers, Tom Iliffe and David McAdoo, talking about caves. "Spelunking," I thought, "neat." The next weekend I went on my first camping trip

ever, to the Little Bend area, and was instantly hooked by the vertical, mud, and water. And I then quickly learned about sleeping pads, camp stoves, and other amenities.

Carol: I began caving with the University of Pittsburgh outing club, called Robin Hood's Merry Band, when I was a junior in college. Although I loved trying all sorts of outdoor activities, caving always seemed the best because of the opportunity for exploration. It was there that I met Brian Kolka, who became my caving mentor and through him, I joined the NSS and the Pittsburgh Grotto. We caved in Pennsylvania and West Virginia. At the Texas convention, I met Dave Bunnell who was already a very active caver. The two of us caved together all over the east coast until we moved to southern California. There we founded the Southern California Sea Cave Survey and did multiple trips to the Channel Islands, as well as documenting coastline caves. Before that, there had not been much systematic surveying of sea caves.

One of my favorite photos in caving is of you, Bill, turning around and looking back at the camera, with a look of utter joy on your face, as you discover the entrance of Cueva Cheve, now Sistema Cheve, the deepest known cave in the Western Hemisphere. Please tell me about that moment.

Bill: Carol and I had set out about a year earlier to find a new "major" cave, and I wanted it to have at least two kilometers of depth potential. We had checked out several other areas before, to no avail, and we were checking out the Papalo area after Peter Sprouse had shown us an enormous sinkhole on a topo map. I liked that you could even see it on a Landsat photo of all of Mexico! Anyway, driving around, we had been getting kind of discouraged by all of the non-karst rock we were seeing, and we couldn't find that huge sinkhole! Finally, we thought "could that valley be a side arm of the sinkhole?" We found the remnants of a logging road which went into the "valley," that was indeed part of the sinkhole. At the bottom, we found karst and several small caves, and then a stream that sank into a decent-looking cave, Cueva de los Bichos, that we explored for about 100 meters.

Carol: At that point, I commented that Bichos was a fine little cave, but I really wanted to find "the big one." I envisioned a stream heading towards a massive limestone cliff and disappearing into a gaping cave entrance: a classic Mexican cave. As we continued down the two-kilometer-long sinkhole, we were a little disappointed when we came to a spring. We followed the water downstream, popped out of the trees and there it was, the entrance to Cheve, every bit as fantastic as I had imagined it! Bill was so excited he wanted to run ahead, but I made him stop for that photo.

Bill: I knew we had our deep cave, and minutes later we were standing in an entrance 50 meters wide by 10 high, watching the water disappear, listening to the wind blow past our ears. We followed the stream across the 200-meter-long room and down to the first drop, and then continued ridgewalking above the headwall, since we had minimal gear with us.

Carol: We returned the next day and began surveying the cave. We only had time to spend one more day there, but knew we could return in two and a half months, so we keep our discovery to ourselves. When the two of us returned in March, we spent three more days descending multiple drops and exploring and surveying side passages together. After that, it became obvious that a much larger team would be needed to explore the cave.

Bill: One interesting thing that most people don't realize is that the cave was not originally called "Cheve" by the locals. On our first trip, the locals simply referred to it as "the cave at Llano Cheve." In other words, the llano had a name, but not the cave itself. When Carol asked what "Cheve" meant no one could agree. Some of the answers we got included: cave, devil, beer, and "I don't know."

What were the challenges in starting Proyecto Cheve?

Bill: All of the big egos we suddenly had to deal with (you all know who you are!). Discover a deep cave and you instantly become popular. The only real problem was that it was Carol's and my first big "deep" cave, and we were behind on the learning curve when it came to rigging and whitewater and such. But once you have done a little of that, it's both easy and so much fun.

Weren't you amazed when you found the AS initials in Lower Cheve? Please tell me that story.

Bill: Yeah, that was cool. Before that it had the lame name of "Terrapin Tunnel" for the borehole. I had missed that on my solo exploration of the borehole when I discovered it. I had managed to break out right through the floor into the middle of the borehole after following air and moving rocks by myself for about two hours while the rest of the crew sat shivering at the start of the breakdown pile. After that much work and no help, I figured I was entitled to "check the passage out" for 800 meters or so. We found the letters the next trip on the survey. Andy Grubbs noticed them first, I think. Especially cool was Don Coons launching flares down the borehole.

In the late 80s you guys went caving in Europe and learned rebelay rope techniques before they were commonplace on this side of the world. What was that like?

Bill: I guess that had its start when Carol, Dave Bunnell, and I were caving in Mexico. We started fiddling with redirectionals, and then Carol and I first ran head-long into rebelays in the 1985 Tlamaya expedition, when the cave was also being dropped by a group of Brits at the time. As a side trip we rented a long rope (9 or 10 mm) from the Brits to drop Golondrinas. When we arrived there, we met a couple of German cavers, Michael Denneborg and Andrew Emonts-pohl, who had been camped there for over a week waiting for someone to let them go down a rope. Several groups had come and gone without offering. We were happy to oblige. That was the first time I saw a frog system, when Michael climbed out in less than 45 minutes. The Germans invited us to visit them at their project cave in Austria, Monster Hole. Carol and I took them up on that the next summer. That was an epic trip. Our first warning, which we were oblivious to, was when we kept asking "how long is the hike to the cave?" The answer was always "four to six hours," never a distance. After arriving in Germany, they rigged a rebelay off of an apartment balcony, and gave us one chance each to try the frog and crossing a rebelay. We both used racks for this. Then we went off to get food for the trip, month old dark bread (since it had not gone bad, it would surely be good for another week or two!), dried out cheese, chocolate, dextrose tablets, and tomato paste. Yuk! We later wished we had brought some of our own food. Anyway, a days drive, and the next morning we saw why they never said how long it was to the cave: it was

(continued on page 29)

Entry Information for the 2005 NSS SALONS

NSS salons are open to everyone; those entering need not be members of the NSS. The purpose of the salons is to promote cave-related art and to recognize excellence. The best of the entries for each salon will be exhibited July 4 to 8, 2005 at the NSS convention in Huntsville, Alabama. The top award of each salon will be presented during the convention's Thursday evening salon program and self-portraits of entrants who receive the top awards will be projected, if provided by the entrant with their entry. The "Best of Show" entries will be displayed on the NSS Cave Art web site.

General Information

Each entrant may enter as many entries as they wish, although some individual salons limit the number of entries. Various forms of an entry may be entered in several salons; for example, a photograph may by entered as a slide, as a color print, as a black-and-white print, and as a newsletter cover. Entries must be the original work of the entrant and must relate to caves or caving. Entries that incorporate the work of others without their permission, promote practices which are unsafe, flagrantly violate the NSS conservation policy, or would be detrimental to good landowner relations will not be accepted for judging. Entries exhibited in past salons cannot be entered again in those salons. Entries will be judged on the basis of artistic and technical merit, impact, and "caver appeal." Judging criteria are described on the NSS Cave Art web site.

What to Include with your entry

Enclose a sheet of paper with your entries that includes your name, mailing address, and a list of your entries each identified by an entry number (assigned consecutively starting with " 1"), title, and salon category. If you have e-mail, please provide your e-mail address.

Cartographic Salon

- Exhibition of cave and karst-related maps.

All entries must be mailed to Jim "Crash" Kennedy (3406 Catalina Drive, Austin, TX, 78741-7041, Cell:512-663-2287, jkennedy@batcon.org) postmarked no later than June 20, 2005, or delivered to Jim in the Cartographic Salon exhibition area at the NSS Convention by noon Monday, July 4, 2005.

There is no entry fee. Entries will be considered to have been donated to the NSS unless picked up by the cartographer on the afternoon of Friday, July 8, 2005, or otherwise specified when submitted. If you wish your entry returned by mail, please provide $5 postage cost. If you want someone else to pick up your entry, please specify this in writing when the entry is submitted.

Entries must be representations of caves or karst-related features. Enter copies of maps rather than originals. There is no restriction on method of presentation and innovative techniques are encouraged. Entries will be divided into three categories: Apprentice, Experienced, and Master-Professional. Judging will occur at convention. Include a self-portrait, preferably as a digital image [a slide is acceptable] if you wish it shown at the awards ceremony. Maps may be displayed in the salon, but not judged at the entrant's option. No cave map will be reproduced by the NSS without the owner's explicit permission, except for display during the convention.

More information about the Cartographic Salon (including judging criterica) can be found on the Surveying and Cartography Section's website at http://caves.org/section/sacs/salons. If you have any questions, please contact Jim at 512-663-2287(cell) or jkennedy@batcon.org.

Cave Ballad Salon

All entries must be sent to Barbara am Ende (43465 Laidlow Street, South Riding, VA 20152) no later than May 1, 2005. Entries may also be e-mailed in MP3 format to Barabara at helictite@deepcaves.net. Include a self-portrait, preferrably in digital form, but slides or prints are fine. There is no entry fee and all entries are considered to have been donated to the NSS. Entries must be submitted on a single cassette tape or CD marked with the name of the ballad and its salon category. Digital enteries will also be accepted in standard formats. There are three categories: 1) Traditional entry: new words written to an existing song, 2) Original entry: completely original words and music, and 3) Avant-garde entry: non-standard. For each entry provide the name of the singers, musicians, and author of the lyrics along with a copy of the words. Discuss the source of the tune, date and location it was written, and any background comments you feel appropriate (preferably in electronic form,

e.g., on disk or by e-mail). Include the following statement with your signature: "I grant to the NSS the right to reproduce these entries in NSS exhibits, web sites, catalogues, publications, recordings, and audio/visual programs." Judging will occur prior to convention. If you wish a tape/CD of all of this year's Cave Ballad Salon entries mailed to you, send $5.00. Don't forget to follow the general instructions for all salon entries. Contact Barbara at helictite@deepcaves.net or (703) 909-6550.

Fine Arts Salon

- Exhibition of drawings, paintings, sculpture, and other art forms not included in the other salons.

All entries must be submitted preferably as digital images, but 35 mm slides are acceptable. No originals please! Mail entries to Carolina Shrewsbury (6300 Jan Lane Drive, Harrison, TN 37341-4916), postmarked no later than May 1, 2005. Include a self-portrait, preferably as a digital image [a slide or print is acceptable] if you wish it shown at the awards ceremony, and include a self-addressed stamped envelope if you want your images returned. Entry fees are per person: $10 for adults and $5 for youth (12 and under). Make checks for entry fees payable to the NSS. The number of entries is limited to 6 per person. Applications will be screened and artists will be notified by mail or e-mail. Additional information will be supplied at time of notification. Each digital image, slide, or photo must be accompanied by the name of artist, dimensions of the piece, category to be judged in (if judging is desired) and

medium. Include the following statement with your signature: "I grant to the NSS the right to reproduce images of these entries in NSS exhibits, web sites, catalogues, publications, recordings, and audio/visual programs." Entry forms are available from Carolina Shrewsbury and on the SpeleoArt website (www.speleoart.net). Entries submitted at the Convention will be accepted only on a space-available basis. The NSS will deduct a 20% commission from all art sold. Art will be judged in 5 categories: Black & White, Abstract, Realist, Computer Generated, and 3D. Winners will be selected in each category and a "Best in Show" in each division. Judging will occur at the Convention. Judging for the Amateur and Youth Divisions will be by caver ballot. Questions may be referred to Carolina Shrewsbury by mail, phone (423) 326-3316, or e-mail speleoart@bigfoot.com.

Publication Cover Art Salon

• Exhibition of printed cave publication covers.

All entries must be mailed to Aaron Atz (1588 Nye Street, Corydon, IN 47112), postmarked no later than March 15th, 2005. The entry fee is $6.00, regardless of the number of issues submitted. If an entrant submits additional publications for judging, a separate $6.00 entry fee sheet must accompany each of the additional publications entered. Separate awards will be made to the editor and artist of each winning entry (see entry information below). The entry fee has been raised to offset this cost increase.

Covers must be from newsletters or other publications of NSS-affiliated organizations which were distributed in 2004 or 2005 and never before entered in this salon. If a cover is not dated "2004" or "2005," please include with the entry a statement that the newsletter was distributed in 2004 or 2005. Please enter the publications covers *as issued*; the camera-ready copy from which it was produced will not be accepted. Entries should be mailed unfolded and unmounted in a large envelope, preferably with a cardboard stiffener. Entries will be considered to have been donated to the NSS and will be retained. Include the following statement: "I grant to the NSS the right to reproduce these entries in NSS exhibits, web sites, catalogues, publications, recordings, and audio/visual programs. Many entries will be considered for publication in the 2006 *Member's Manual*. Covers will be judged in one of three categories: Photographic, Non-photographic and Computer Enhanced/Manipulated. Please note on the back of each cover in which of the three categories you wish the entry to be judged. The Computer Manipulated category includes all cover photos that were manipulated by computer from the way they were originally printed or shot. Example: if a digital photo was manipulated in any way with a program such as Photoshop, then it falls into this category. If one creates or changes an image by computer that didn't otherwise previously exist on its' own, the same applies. Digital composites of multiple images fall into this category. Covers with regular/non-manipulated digital photos should be submitted into the Photographic or Non-Photographic categories. Digitally-enhanced covers involving map placement and other non-photography graphics should be entered into the Computer Enhanced/Manipulated category. However, if a majority of judges feel an entry should be placed in a different category than the one marked, it will be changed. Judging will occur prior to convention. If you have questions, e-mail Aaron at aaronatz@netpointe.com.

Entry and Recognition

It is now required that all submissions include BOTH the name of the person who did the cover design/layout (usually the editor or layout specialist) AND the name of the person who created the artistic piece displayed on the cover (such as a photograph, drawing, cave map, painting, computer manipulated design, or other artistic piece.). If more than one person was involved in the layout/design of the cover, list all names involved. The same applies for the artistic piece displayed on the cover of the submitted publication.

Each entrant must also submit an informational display card no larger than 4x6 inches in size for *each entry*. This must be printed on an unlined white card of suitable quality for NSS Salon display. The card should include four items: 1. The category entered; 2. Name of the artist that produced the artistic piece that appeared on the cover (photo, drawing, etc); 3. The name of the person who did the cover text/layout/etc; and lastly, 4. The name of the publication, month/issue number, and year.

Submit covers for competition exactly as you distributed them to subscribers.

If you distributed the January 2004 issue of your publication to members and it was distributed with a color/matte finish, then a color/matte finish cover must be submitted, not a color/glossy one. The same goes for black and white/color. Do not make changes to "beef up" your submission for competition. If you are otherwise changing or "improving" the cover (different from its distribution state) and then submitting it, this is grounds for possible disqualification from the salon.

Publications that have online-only distribution or online AND traditional (postal/paper) distribution:

If your publication is part of the new trend of online-only publications, you must note this on each entry you submit (this only applies to you if you don't publish ANY paper versions of your publications for distribution). If you do both paper and online distribution, submit the cover EXACTLY as it was originally produced and distributed in paper form. Again, note that you distribute both online AND traditional/paper editions.

Multi-image Program Salon

This salon is for exhibition of multi-projector programs and multiple image computer [for example *Slide Show To Go*, *PowerPoint, ProShow*] programs less than fifteen minutes in length. All entries will be judged but only the best entry will be shown on Salon night. Other entries Accepted for Show will be shown at another time during convention. Judging criteria are displayed on the NSS Cave Art web site.

Computer-based entries on CD or DVD should be sent to Dave Bunnell (at P.O. Box 879, Angels Camp, CA 95222) postmarked no later than June 20, 2005. Include a run-time player so that your show requires no external software to run. If you wish to enter a slide program, notify Dave by the deadline but do not mail the show—bring it to the convention. Include a self-portrait, preferably as a digital image, but a slide is acceptable. Also include the following statement with your signature: "I grant to the NSS the right to reproduce these entries in NSS exhibits, web sites, catalogues, publications, recordings, and audio/visual programs." The entry fee is $3.00 for each entry. There is no fee if the entry is donated to the NSS. If you wish your entry returned by mail provide postage cost. The salon uses Wollensak 3M, Arion or Kodak projector programmers, Kodak projectors, and Windows-based computers hosting *PowerPoint* and *Slide Show To Go*. If other equipment or software is required, it may need to be provided by the entrant.

Judging will occur Monday afternoon at convention. If you wish to project your own program during the judging, meet Dave at the Print Salon area Monday at 1:00 pm. If you plan to enter or have questions e-mail Dave at dbunnell@caltel.com or call 209-736-1689.

Print Salon

• Exhibition of photographic prints.

All entries must be delivered to Ann Bosted on **Sunday**, July 3, 2005, **between 10 am and 1 pm** at the NSS Convention Print Salon exhibition area or mailed to the NSS Office (2813 Cave Avenue, Huntsville, AL 35810-4431) so that they arrive at the office no later than June 24, 2005. Include a self-portrait, preferably as a slide, if you wish it shown at the awards ceremony. No entrant may enter more than 10 prints. The entry fee is $1 per print. There is no fee if the entry is donated to the NSS. If you wish your entry returned by mail, provide postage cost.

Prints must measure at least 8 x 10 inches, but be no larger than 20 x 24 inches. All entries must be mounted, but not framed. The entry title and photographer's name should appear on the front of the mount directly below the lower edge of the print with the title on the left and the photographer's name on the right. In cases where two or more photographers collaborate and use a fictitious name, that name may appear in lieu of their real names, but not in conjunction with those names. The name of the cave where the photo was taken may appear with the title or may appear on a separate card. Do not include any other information on the print or card. Lettering should not exceed 0.25 inch in height. In cases where more information than the title, name of cave and name of the photographer appear, or where the lettering exceeds 0.25 inch in height, the salon chairman may refuse to exhibit the print. The following information must appear on the back of each entry: name and address of the entrant, title, entry category, and entry number assigned by the entrant. There are three entry categories: Photographic Color print, Digital Color print, and Black & White print. Photographic color prints are produced in the traditional way using darkroom techniques. Digital color prints are those which used digital equipment (including, but not limited to digital cameras, computers, printers) at any stage in the production of the print. Black and White prints may be produced either in the darkroom or with digital equipment. Judging will occur at convention on Monday morning. Include the following statement with your signature: "I grant to the NSS the right to reproduce these entries in NSS exhibits, web sites, catalogues, publications, recordings, and audio/visual programs." If you have questions e-mail Ann at bosted@earthlink.net or call (757) 249-2819.

Slide & Digital Image Salon

• Exhibition of photographic slides and, new this year, digital images.

All entries must be mailed to Cady Soukup Box 600, Flint Hill, VA 22627-0600 postmarked no later than March 15, 2005. Include a self-portrait, preferably as a digital image [a slide is acceptable] if you wish it shown at the awards ceremony.The entry fee is $1.00 for entry of 1-3 slides or images. Add $1.00 for each additional 1-3 entries. A single story series is considered as one entry.

Slides must be mounted in 2 x 2 inch mounts of 35 mm or superslides. No glass mounts will be accepted. Cropping is permitted. Place a spot in the lower left corner of the slide mount as it is viewed by the naked eye when properly oriented. Write the photographer's name and a unique entry number on each mount.

Digital images must be submitted in either JPEG (JPG) or TIFF format (without LZW compression), on a CD-ROM. They should be sized at a minimum dimension of 1024 pixels wide x 768 pixels high for projection. They may vary from this exact aspect ratio, but at least one dimension should meet this minimum. Since this size is inadequate for printing winners in the *NSS News*, the editor requests that entrants provide a second copy of the image in the maximum size available. If you have questions about your digital file format or about the best method to convey your images to the salon contact Cady Soukup (cady@mindwrap.com).

Provide a list of all entries with each entry described by its entry number, title, photographer(s), and classification. Classification letters are: Story Series (maximum of 20 slides, include a caption for each slide in the series); B-Scenes from Nature; C-Enhanced & Surreal Imagery (non-standard lighting, film processing, gels, computer enhancement, unusual subjects for a cave setting such as models in atypical attire, etc); and D-Humor. Category B includes close-ups and images whether taken with single or multiple flash, or in natural light. Each of these was a separate category in the past. Any additional information you choose to include about each slide on your entry sheet, such as the name of the cave, general area, state or country where it is located, name of persons in the scene, or process used to create a unusual photograph is appreciated. Include the following statement with your signature: "I grant to the NSS the right to reproduce these entries in NSS exhibits, catalogues, publications, recordings, and audio/visual programs. The NSS may display a low-resolution image of my entry on the NSS web site."

Judging criteria are displayed on the NSS Cave Art web site. Each classification of slides is judged separately with a single "Best of Show" award covering all classifications. Judging will occur prior to convention. If you have questions e-mail Ray Cole at K4GAA@arrl.net."

T-shirt Salon & Symbolic Emblem Salon

• Exhibition of T-shirts and symbolic emblems (patches, decals, pins, etc) related to caves or caving.

All entries must be mailed to Kim Fleischmann (115 Stoneleigh Road, Bel Air, MD 21014) postmarked no later than June 20, 2005 or delivered to Kim at the NSS convention registration area by noon Monday, July 4, 2005. The entry fee is $3.00 for the entrant's first entry and $1.00 for each additional entry. T-shirt Salon entry fees are separate from the Symbolic Emblem Salon entry fees. Two-sided T-shirts may be entered as a single design or as two separate designs. If possible, provide two T-shirts for all two-sided designs. Entries will be considered to have been donated to the NSS Museum unless otherwise specified when submitted. For each entry provide the name of the originator (artist), ordering information if it is available for sale, and any background comments you feel appropriate. Include the following statement with your signature: "I grant to the NSS the right to reproduce these entries in NSS exhibits, web sites, catalogues, publications, recordings, and audio/visual programs." Include a self-portrait as a digital image or slide if you wish it shown at the awards ceremony. Judging will occur at convention. T-Shirts and symbolic emblems may be displayed in the salons, but not judged at the entrant's option. If you have questions, send e-mail to kfleisch@juno.com or call 410-838-4308.

VIDEO SALON

- Exhibition of caving films and videos.

All entries must be mailed to Alex Sproul (5715 Lee-Jackson Highway, Greenville, VA 24440-1852) postmarked no later than April 1, 2004. Include a sheet of paper with the entry that contains 1) your name and address, telephone, and e-mail; 2) the title, length, and producer of each entry; 3) the statement with your signature "I grant to the NSS the right to reproduce these entries in NSS exhibits, catalogues, publications, recordings, and audio/visual programs;" 4) a brief summary of each entry (these will be used to describe the entries in the A/V Library and may be edited for length and content). The entry fee is $5.00 for each entry. If you wish your entry returned by mail provide postage cost. Video entries will be accepted in any NTSC format; S-VHS is preferred. Films and videos will be judged in two categories: Amateur and Professional. Winners will be selected in each category with a single "Best of Show" award covering all categories. Judging will occur prior to convention. If you have questions, e-mail Alex at imo@caves.org or call 540-377-6364.

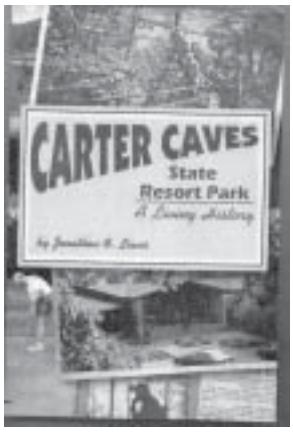
RETURN OF ENTRIES AFTER SALON

Except as specified above, entries will be returned if requested at time of entry. Entrants are encouraged to donate their entries to the NSS so they can be circulated by the A/V Library, catalogued in the Photo Archives or Cave Files, displayed in the traveling NSS Museum, etc. If you wish them returned, you may pick them up Friday afternoon of convention week at the salon exhibit area. Specify in writing if you wish someone else to pick up your entry at convention. If you wish your entry to be returned by mail, send it in reusable package material and include postage cost.

REPRODUCTION

Participation in the Salon constitutes consent for the NSS to reproduce the entry without charge or notice in Society exhibits, catalogues, publications, recordings, and audio/visual programs or display low-resolution images on the NSS web site with credit to the entrant. No cave map will be reproduced by the NSS without the owner's permission except for display during the convention. Entrants retain all other reproduction rights.

READING



CARTER CAVES STATE RESORT PARK

A LIVING HISTORY

Jonathon F. Lewis. 2004. Chapman Printing, West Virginia. 6 by 9 inches, 96 pages, softbound. 95 black & white photos. $15.00, tax included, at Carter Caves State Resort Park, Olive Hill, Kentucky; or by mail from the author for the same price, which includes postage and handling. Order by mail from: Jonathon F. Lewis, 709 Smith Run, Olive Hill, Kentucky 41164-8315. (He will autograph each book sent out.) Also available through speleo-vendors. For questions e-mail the author at: cartercavesbook@earthlink.net

The author's extended family was deeply involved with the early operation of Carter Caves in Carter County in Northeastern Kentucky. This book evolved from a school research project on the Lewis family connections with Carter Caves. A detailed history of how Carter Caves came into being, and later became a state park, is probably the most interesting section of this book.

Jonathon covers the early settlement patterns in general for this area of Kentucky, beginning with the start of recorded history of Carter County. Although the county officially came into existence on May 1, 1838, its recorded history goes back to 1785. Jonathon goes into detail on the names of former owners of what now consists of the Carter Caves State Resort Park property.

Early cave names are also mentioned, such as "Swingle's Cave," (Saltpeter;) and Bat Cave, once called "Crystal Brook Cave."

His extended family involvement with the park came to be on January 16, 1924, when J. F. Lewis of Carter City bought the property for $45,000 from a previous owner. A Carter Caves Company was formed, with two of the stockholders being John F. Lewis and Ollie M. Lewis.

In July of 1930, Mr. J. F. Lewis had both X Cave and Saltpeter Cave illuminated by electric lighting.

The Grayson Rotary Club secured an option in early 1946 towards making the Carter Caves Company property a State Park. They paid $40,000 for this option. On July 31, 1946, the Carter Caves Company sold the land known as the "Carter Caves Property" to the Commonwealth of Kentucky for the use and benefit of the Division of Parks, Department of Conservation. A nearby, privately owned show cave, Cascade Cave, and its surrounding property, were purchased by the Commonwealth of Kentucky in 1959.

The author includes chapters on the natural bridges in the park, the Carter Caves trail system, legends of Carter caves, and life as a state resort park. He shows a massive, bat-friendly gate being constructed at the entrance to Bat Cave. Another photo shows an assortment of the Annual Carter Caves Crawlathon brochures. He concludes the book with apendices on the types of cave entrances, underground features, useful terminology, and other sources of suggested reading. (He writes briefly about the cave entrances and underground features in general terminology, not in terms of specific cave names or locations.)

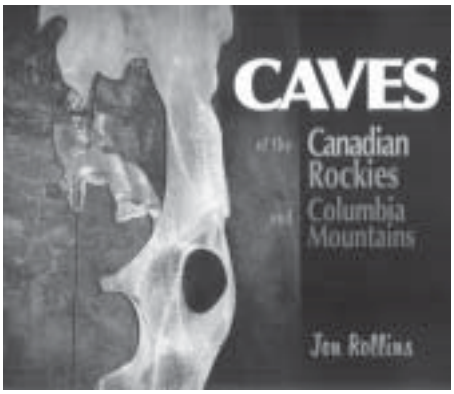
The author, Jonathon F. Lewis, is an NSS member. (NSS 55263) He is a lifelong resident of Carter County, Kentucky.

In summary, the book is factually oriented and extremely historical. It is also well illustrated with some 95 black and white photos, many covering the period before the cave property became a state park. Unfortunately, only about 15 of the photos show cave interiors.

One thing the book lacks is any maps of the caves, or of the park itself. The author focused primarily on the various local residents and family members involved with the property over the years.

But this book is a welcome addition to any show cave lover or speleo historian's library. It covers a cave complex not often covered in real detail, unlike some of the major show caves of the United States.

Gary K. Soule
NSS 11198 LPF



CAVES OF THE CANADIAN ROCKIES AND COLUMBIA MOUNTAINS

Jon Rollins. Rocky Mountain Books, Surrey, British Columbia; 2004. ISBN 0-921102-94-1. 8.5 (high) by 11 inches, 336 pages, softbound. Can$34.95 (in U.S., $24.95).

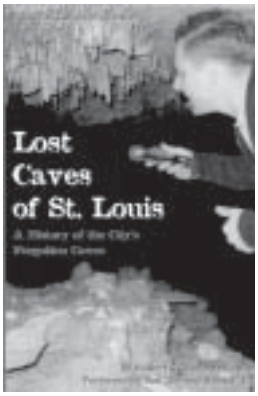
This is a very nice example of the sort of catalog of and guidebook to caves that has fallen out of fashion in North America. Whether this is good or bad is a matter of debate, but anyway I think the most recent similar book, other than things like county surveys published by cavers, is *Caves of Montana*, published in 1978. Rollins's new book is a catalog of some two hundred caves known in the mountains in western Alberta and eastern British Columbia. (The Columbia Mountains is a range just west of the Rockies that includes the Selkirks and the Cariboos.) As in all such catalogs, many of the caves are insignificant, even though the author has ignored a hundred of the blind pits less than thirty meters deep that are common on alpine karst plateaus.

The caves are grouped by area, such as Crowsnest Pass, and each entry includes information on location and access route, history of exploration, and a text description of the cave. Almost all entries include a cave map, which in a few cases extends over several pages. There are area road-maps that show rough locations. For most caves, topographic-map grid locations are given, but Rollins has humored Parks Canada by not publishing exact locations of caves in national parks; those locations are given out with permits. The author warns that many of the grid references are "optimistic," and notes that the odds of finding most of the caves if no one in the party has been there before are less than even. The histories of the caves are covered, extensively for the more important ones. One of the best-known caves in the area is Nakimu, which as a show cave was visited by fifty people a week during the summer of 1906. In recent years, it has been visited only two or three times a year. Glacier National Park has closed, because of some grisly incidents with grizzly bears, the short route that I took to that cave in 1967. Other large or well-known caves are Castleguard Cave, longest in Canada, Yorkshire Pot, and Close to the Edge, with its 255-meter entrance drop.

Introductory information includes advice on hiking and caving in the Rockies and contact information for the various agencies one might have to deal with for permission. Following the cave descriptions, there are chapters on the caves' biology (not much) and regional and cave geology and an alphabetical index to the caves. There is a bibliography, but the cave entries themselves do not cite references, even to the original sources of the maps. The other notable absence is scales on the area maps. There are good conservation notes, both general and pertaining to specific sensitive caves, and the same is true of safety: "Don't have an accident in this cave; it will take all the cavers in Canada just to get your body out." Rollins does, in an appendix, include a short list of caves or parts of caves suitable for novices.

I think this is an important and useful book, and I doubt that many of the caves will see much undesirable traffic. They are cold, vertical, and remote.

Bill Mixon



LOST CAVES OF ST. LOUIS: A HISTORY OF THE CITY'S FORGOTTEN CAVES

***Special Collector's Edition* (2004) by Hubert and Charlotte Rother. Virginia Publishing Company, St. Louis. Paperback, 119 pages, 5½" x 8½" format, ISBN 1-891442-27-9. Available from the publisher for $14.95.**

It's been quite some time since I've been caving in the St. Louis area, but I still have fond memories of the trip. One of my most vivid recollections is that of walking down the streets of the City and peering into the storm drains on street corners. I had been shocked to find myself looking straight down into huge trunk passageway and can remember wondering how I might squeeze through the grating to do a bit of exploring. I can also recall hearing rumors of vast networks of caves beneath the City and of locked doors in the basements of banks and restaurants, nightclubs and shopping centers, beneath which underground St. Louis lay waiting in the dark. With the publication of Hubert and Charlotte Rother's book, *Lost Caves of St. Louis*, these rumors at long last come to life.

St. Louis is, indeed, a city that sits atop a labyrinthine network of caves. Regrettably, a great many of these have long since followed the dodo bird into oblivion: permanently choked with debris, destroyed by surface construction, annihilated by building demolition, irrevocably altered by massive underground renovation, or eternally sealed from prying eyes behind impenetrable barriers. However, in the 1950s and 1960s, this wasn't always the case. At that time, many of the caves were still partially or completely intact. With just a little perseverance, a good story, and a bit of luck, permission could still be secured to investigate them. And this is exactly what the authors did. Armed with some flashlights, a $6.00 camera, a few rolls of black-and-white film, and a burning curiosity about the world beneath their feet, Hubert and Charlotte Rother set out to learn what they could about the old brewery caves of St. Louis and, in the process, bring to light some of the more arcane bits of history that were so much a part of the city in which they once made their home.

The principle—although, by no means, only—use to which the early entrepreneurs of St. Louis put the City's many caves was in the aging and cool storage of lager beers. In an era prior to the advent of modern refrigeration, the caves were a virtual godsend to the brewing industry. For all intents and purposes, when a cave was discovered, a brewery was erected on top of it. And

when a property containing a cave was put on the market, the breweries seemed to fall all over themselves in their headlong rush to purchase it. Some breweries even shared caves, one large cave being jointly used by no less than 14 different breweries. St. Louis was a brewer's dream-come-true and by 1860, the City boasted the presence of some 40 operating breweries. Even the mega giant, Anheuser-Busch, got its start atop a St. Louis cave. Hubert Rother—himself a 4th generation brewer—worked for Anheuser-Busch until his retirement in 1989. No doubt, this is what kindled his initial interest in undertaking this obvious labor of love.

Most of the St. Louis breweries were destined for eventual failure. Prohibition, of course, was an enormous blow to the industry. As the various breweries closed their doors for the last time, many of the underground storage facilities were converted to yet other commercial enterprises, some more successful than others. Indeed, the uses to which the ever-inventive St. Louisans put these caves were legion. In discussing the imaginative entrepreneurial history of these sites, the Rothers paint a portrait of the changing tides of good luck and ill fortune that beset the City and its army of investors.

So, what was it like in the underground catacombs of a once majestic brewery, in the discarded ruins of what was once a newly renovated underground theater where opera singers crooned, or in the heart of a once pristine subterranean wilderness—used, abused, and subsequently left to fester and decay by the unending greed of commercial enterprise? Well, if you really want to know, you'll just have to pick up a copy of *Lost Caves of St. Louis* and find out for yourself.

Danny A. Brass

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CAVING ADVENTURES

(2002) by Anne M. Todd. Capstone High-Interest Books/Capstone Press, Mankato, MN. Hardcover, 48 pages, 6¼" x 8¾" format, ISBN 0-7368-0905-8. Available from the publisher for $16.95.

Every once in a while, I run into a book that I don't know quite what to make of. I think Anne Todd's *Caving Adventures* would fit nicely into that category. *Caving Adventures* is part of Capstone Press' Dangerous Adventures Series. Other adventures in the series include airplane, ballooning, bicycling, deep diving, mountaineering, polar exploration, and sailing. Like many such serials, this one appears to follow a formula: 1) aspects of the sport which tend to lure adventurers, 2) concise discussion of the environment, 3) brief consideration of required equipment and safety concerns, 4) exploits of some historic and modern figures, 5) a timeline containing some notable events, and, of course, 6) a few well-chosen tales of adventure taken to the brink of disaster…or beyond. The book is very well illustrated with an excellent collection of color photographs.

The author takes us on a short tour of cave exploration, concentrating more on the dangerous fringe of caving, rather than on the pleasures of more mundane caving activity. The many dangers inherent in caving—including hypothermia, flooding, falling rocks, broken limbs, decompression sickness, and others—are repeatedly and emphatically stressed. In this regard, her prime focus—although, by no means, her only one—is cave diving. And even here, she concerns herself mainly with the extreme aspects of this already extreme activity: multi-tank stage diving, mixed-gas diving, tight squeezes requiring tank removal, low-on-air emergencies, record-breaking depths and penetration distances, and death. I suppose this is part of the series' appeal. Fortunately, the author also points out that no one should engage in these activities without first receiving proper training.

Make no mistake about it, I certainly did enjoy reading this book and I guess the various other books in the Dangerous Adventures Series will definitely fire the imagination of burgeoning young adrenaline junkies (the publisher describes the series as being geared for the those in 3rd to 9th grade).

Separate lists of words to know, additional reading, select websites of interest, and important contact organizations (including the NSS) are also included. And while mention of the Cave Diving Section of the National Speleological Society (NSS-CDS) is conspicuously absent from the *Useful Addresses* list, concerned parents should have no fear…the address of the highly respected National Association for Cave Diving (NACD) is provided for those nine-years-olds intent on completing their cave-diving certification before the underwater caves are all finally closed to diving.

Danny A. Brass

IN THE MEDIA

by Sharon Faulkner

BATS

The November 13, 2004 issue of *New Scientist* reports that a change to a single gene allowed bats to grow wings and take to the air, a development that may explain why bats appeared so suddenly in the fossil record some 50 million years ago. Without an adequate explanation for their sudden appearance, bats have been an evolutionary enigma. The oldest fossil bats look remarkably like modern ones, each having wings formed from membranes stretched between long fingers, and ear structures designed for echolocation. No fossils of an animal intermediate between bats and their non-flying mammal ancestors have been found. In a bid to understand where bats' specialized finger digits evolved from, Karen Sears, at the University of Colorado Health Sciences Center in Denver, compared their embryological development with that of the finger digits of mice. In both animals, digits form from cartilage cells which divide and mature into bone in regions called growth plates. In bats, a key region of the growth plate called the hypertrophic zone is much larger than in mice, which allows their digits to grow much longer. That difference is controlled by a single gene known as BMP2, one of a family of genes important for limb development in mammals. Sears found that a protein produced by BMP2 is present in the hypertrophic region of bats, but not in mice. When she applied the protein to the digits of mouse embryos growing in the lab they elongated just like bat digits. Sears believes bats began to evolve when this one gene became activated. Although it is a small developmental change, if it allowed the ancestors of bats to grow extended digits it could explain how bats evolved flight so rapidly. Relatively few transitional forms would have existed just briefly before being displaced by more advanced forms. Sears presented her findings at the Society of Vertebrate Paleontology meeting in Denver.

CAVERS

The December 2004 issue of *Wired Magazine* features an in-depth article on Bill Stone. In "To Hell and Back," Stone, chief architect of a next-generation ladar (laser radar) system at the National Institute of Standards and Technology, is helping craft a beer can-sized guidance system for unmanned military vehicles. Another Stone project is DepthX, a NASA-funded project formally known as the Deep Phreatic Thermal Explorer. Already known as a leader in deep cave exploration, the article credits Stone with the invention of innovative diving gear and roving robots that will be used to explore the deepest and deadliest caves on earth. Eventually the robots will be used to map an ocean six miles beneath the frozen surface of Jupiter's moon, Europa, and sniff out microbiological life. The author writes that, with a doctorate in structural engineering and 11 patents to his credit, Stone is the archetypal modern-day explorer, a multidisciplinary maverick constantly inventing tools in the name of discovery lust. In addition to Stone's accomplishments and plans for the future, the 1994 Oaxaca expedition, and death of Ian Rolland while diving a sump, is interwoven throughout the article. The expedition started out normally enough with Stone and a crew of 44 cavers setting out to explore one of the world's deepest cave systems, **Sistema Huautla**, in northeast Mexico. Deep into the cave, Rolland died on the far side of the San Agustin Sump, more than a quarter mile from the team. Stone traversed the sump to retrieve Rolland's body and over the next five days the team hauled the body 4,500 feet to the surface.

Included in the same issue of *Wired Magazine* is a brief article, "Cave New World," by Penny Boston, Director of the Cave and Karst Studies Program at New Mexico Institute of Mining and Technology. Since first suggesting that the underworld was a good Mars analog in 1992, Boston and her team have studied caves filled with microorganisms that eat bedrock and produce unique minerals. They have also dived into hot acidic waters, encountered walls coated with a sticky, acid-soaked, gypsum paste that burns through unprotected skin, and absorbed a toxic load of gases, including hydrogen sulfide, carbon monoxide, and carbon dioxide. They have spent a significant amount of time enduring hazardous, and even life-threatening caves, all in preparation for future exploration. While the debate about whether there actually is life elsewhere in our solar system rages on, Boston and her team are learning to operate in extreme environments and face challenges that may be encountered in caves on other planets.

CAVE DIVING

Specialized equipment will be used early in 2005 to retrieve the remains of Deon Dreyer, who drowned in **Boesmansgat,** or **Bushman's Cave,** 10 years ago during a deep-diving adventure. David Shaw, who discovered the body while setting a dive depth record in October 2004, will tackle the daunting task of retrieving the remains from a depth of 271 meters. Shaw spotted the remains by accident in the beam of his underwater torch at the bottom of the cave last month. Dreyer drowned during a dive in December 1994. (*News24* South Africa, November 19, 2004)

On September 20, 2004 Brazilian cave diver, Gilberto Menezes, accomplished a solo penetration of 6,400 meters in the upstream sump of **Bananeira Cave,** or **Banana Tree Cave**, in Central Brazil. The dive lasted 11 hours, 23 minutes and stopped in going passage. In his longest push two Submerge UV-42 scooters, specially adapted to enable a total range of about 10,000 meters per scooter, were used. The dive used conventional apparatus with a total of 33 tanks either used or in place at the sump during the longest dive. Menezes has now logged 35 solo dives over 150 meters in depth at four Brazilian sites, including a 274-meter-deep dive at the gigantic bell-shaped pit of **Lago Azul** and a 220-meter-deep dive at **Lagoa Misteriosa**. The water in the Bananeira sump comes from neighboring **Padre Cave** and it is estimated that at least one-and-one-half to two kilometers of sump remains until a connection is made. The project will be resumed in 2005. *(Submerge Scooter News)*

WILD CAVES

An article in the November 10, 2004 *Standard-Examiner* reports that Ryan Shurtz may have finally found the "big one." The 25-year-old Shurtz has been working for more than two years on the Tony Grove project, whose goal is to map all of the caves in Utah's most concentrated location. This September, **Main Drain Cave**, for years known as **Deception Pit**, was certified as the deepest cave in Utah.

Main Drain now stands at 1,173-feet deep. According to Jon Jasper, director of the Tony Grove project and Timpanogos Cave National Monument, there is a real possibility that the cave could end up deeper than New Mexico's **Lechuguilla Cave**, currently the deepest cave in the continental United States. Shurtz has made 10 trips to Main Drain exploring and measuring the cave's dimensions. Survey has ended this season, stopped by snow, not by the end of the cave. In fact, if a harsh winter significantly increases the water flow inside the cave, the explorers fear they may never make it to this season's stopping point again. Several other cavers have been involved with the project, including Jasper, Dave Shurtz, photographer Brandon Kowalis, and Thomas Haskett, Deception Pit's first surveyor.

Virginia Tech students had their first taste of the subterranean world via the Venture Out Program. The student's trip to **Starnes Cave** is highlighted in the December 1, 2004 edition of *Collegiate Times*. Nine students participated in Venture Out's beginning caving trip led by members of the VPI Cave Club. After the entrance climbdown the group walked in between and over small boulders, reaching a fork in the cave where the mud path was replaced by a cold-water stream. The group took the right fork and waded between narrow walls and hibernating bats to reach the top of a waterfall, where the spelunker's headlights lit the water as it poured through the hole in the ground and rained down on the dark abyss below. The group then retraced their steps and took the left fork, trudging though the steam, crouching under rocks, and climbing over several obstacles in order to make it to the end of the cave, and the bottom of the waterfall. On the hike back the group explored several side passages, saw more hibernating bats, and ventured down a narrow crack in a wall that proved to be a tight fit for some. At a wide rocky section, the group sat down and had the obligatory lights out to sit in silence. The lights were then switched back on as the cavers made the final ascent. The entrance drop proved to be a challenge for some to climb up, but they eventually made it out and caught their first glimpse of natural light. The spelunkers exited the cave carrying with them more mud, scrapes, and experience than when they had entered. Venture Out is a program of University Unions and Student Activities. Caving is only one of several trips that Venture Out offers. The winter trip schedule includes rock climbing, skiing, horseback riding, hiking and cooking contest, caving, and a wilderness first-aid certification course. Its services are available to students, faculty, and staff of the university.

COMMERCIAL CAVES

The reopening of **Alabaster Caverns** is featured in the November 14, 2004 edition of the *Alva Review Courier*. The cavern reopened with a new, computer-controlled $780,000 lighting system after being closed for five months. Prior to the new system, lighting in the cave consisted of 350 light bulbs ranging from 100 to 150 watts each. The current system uses dimmable fluorescent lights. In one of the highlighted areas, five colors of the alabaster can be seen, including the rare black alabaster found in only two other caves besides Alabaster Caverns. The cave, mined for guano in the 1900s, was purchased by the Oklahoma Parks Department in 1953 and opened as a state park in 1956.

Natural Bridge Caverns (Texas) has recently been placed on the register of national historic sites. Over the past 40 years, cavern workers have been teaching visitors about the geology of the area with little information about its habitation. An excavation in 1964 uncovered the first archaeological artifacts. In the last year, a team from the University of Texas-San Antonio dug deeper and discovered numerous artifacts such as arrowheads, dart points, and hearths that confirm the presence of the hunter/gatherers who once lived there. Matching those pieces found with other archaeological digs and carbon dating, scientists have been able to confirm nomadic tribes settled the area nearly 10,000 years ago. The artifacts are now on display in the visitor's center. (*News 8* Austin, November 16, 2004)

SPELEOLOGY

Raymond Goldstein, a University of Arizona physics professor, Martin Short, a doctoral candidate in physics at University of Arizona, and other scientists have developed a mathematical theory that explains how stalactites get their shape. Stalactites grow when water containing carbon dioxide and calcium carbonate seeps into caves. As the water drips from the ceiling, the carbon dioxide escapes, altering the acidity, or pH, of the water. As a result, the calcium carbonate comes out of solution and is left behind as a tiny bit of solid calcium carbonate. With each successive drip over the mineral deposit, the sequence repeats, ultimately forming a stalactite. Although this chemistry has been known for some time, Goldstein's team devised a mathematical model that describes what they call the "Platonic form," or general shape, of stalactites. When the scientists simulated the process on a computer, they found they got the same intrinsic shape no matter the drip rate or carbonate concentration that they used. The next step was to test their model against the real thing, so the researchers returned to **Kartchner Caverns**. Because cave formations are fragile, the researchers could not measure the stalactites by hand. Instead, they shined two laser beams of a fixed separation on each stalactite, which gave them a scale for figuring out the dimensions in their images. The results, which will be published in an upcoming issue of *Physical Review Letters*, showed that the real stalactites matched the Platonic ideal to within five percent. The Research Corporation and the National Science Foundation funded the research. (*EurekAlert!*, December 6, 2004)

ANTHROPOLOGY/ ARCHAEOLOGY

A team of International divers has discovered several cave sites along the Cape Peninsula coast where lost civilizations could have lived. Their search to identify a number of underwater caves began in November 2004. Dr. Bruno Werz, a marine archaeologist, found a prehistoric axe that could be 1.5 million years old in Table Bay nine years ago. In ancient times, the water levels in the Cape were lower than they are now. Once the sites are identified, Werz can apply for the necessary permits to begin excavations to search for artifacts. Should the caves reveal traces of prehistoric man, scientists will then be able to do further geological and archaeological research at each site. Excavations could take several years. Monty Halls, a former British marine, said the divers, all members of the Scientific Exploration Society, were volunteers who paid to take part in the expedition. (*Cape Argus* South Africa, November 22, 2004)

Gary Hochman, a senior producer at University Television in Lincoln, has been on many archaeological digs. The latest dig he documented was in a cave near the Dead Sea, where 1,900 years ago, Roman soldiers waged a brutal fight to put down a rebellion led by Simon Bar Kokhba, a second-century rebel leader of Israel. The

finished product of the five weeks Hochman spent in Israel over a four-year period is the *NOVA* special "Ancient Refuge in the Holy Land," which aired in November and December. The documentary explores the history of the cave and the people who died in it. Jewish refugees had left Jerusalem to hide in the Judean desert. Their hiding place, an opening high on the face of a sheer cliff, is known as the **Cave of Letters** because of a scroll found there bearing the writings of Bar Kokhba. Israeli archaeologist Yiguel Yadin first explored the Cave of Letters in 1960. He found Bar Kokhba's letters as well as bronze pottery, coins, a child's sandal, and other items dating back 2,000 years. Artifacts discovered in the cave are now on display at the national museum in Israel. (*Daily Nebraskan*, December 3, 2004)

In the December 10, 2004 edition of *Reuters,* The University of Tubingen announced that archaeologists have unearthed a 35,000-year-old flute, made from the ivory tusk of a woolly mammoth. The flute, one of the oldest musical instruments discovered, was pieced together from 31 fragments found in a cave in the Swabian Mountains in southwestern Germany. The mountains have yielded rich pickings in recent years, including ivory figurines, ornaments, and other musical instruments. Archaeologists believe humans camped in the area in winter and spring. Mammoths, now extinct, were large elephant-like creatures with hairy coats and long, up curved tusks. They lived during the Pleistocene period from two million to 11,000 years ago. The university said it planned to put the instrument on display in a museum in Stuttgart.

A Tasmanian cave may hold answers to how Aborigines survived the last Ice Age 20,000 years ago. La Trobe University post-doctoral archaeology researcher, Jillian Garvey, will analyse animal bones from **Kutikina Cave** on the Franklin River to explore the issue. About 250,000 fragments of animal bones and 25,000 stone tools were excavated from the cave site in 1981. Garvey's yearlong study may explain how Aboriginal people lived in temperatures around minus 15 degrees Celsius. (*The Mercury* Australia, December 14, 2004)

GEOLOGY

An article, "A Subterranean Exploration: Caves of the County," in the Fall/Winter issue of *Door County Living* highlights the caves and geology of Door County, Wisconsin. Caves, sinkholes, open joints, and fractures are found in the bedrock, known as the Silurian-aged Niagara Dolomite, of the Door Peninsula. Solution caves, "sea caves," and fault-generated caves formed along the predominantly northeast and southeast oriented joint structures that developed in the Niagara Dolomite, with solution caves being the most common. The best example of a solution cave, **Horseshoe Bay Cave**, with more than a half-mile of passage, may be Wisconsin's longest cave. Though privately owned and with a steel gate at the entrance, cavers, such as Bob Bultman from the Wisconsin Speleological Society, and other lucky visitors on occasion get to view the modest dripstone formations found in the deepest portions of the cave. Many of the solution caves were formed before the great ice age over the past million years. The melting of glaciers flushed tons of sediment into the caves, and has all but filled them up with mud, silt, and gravel. Sea caves, shallow caves that were formed by wave actions dissolving the dolomite along open joints and fractures, are common and exist along the ancient shorelines of Lake Michigan and Green Bay. They were formed during the last glacial epoch between 10,000 and 100,000 years ago. The third type of cave formed through fault activity. These caves are not common and the best example of one is **Dorchester Cave**. The cave was likely formed during an earthquake that caused one of the structural joints to shift, creating a linear cave that was discovered during an excavation project. Gary Soule, an experienced caver, recognized the importance of this discovery in 1973 and convinced the owner to preserve the cave. The walls of the cave have been subjected to slow dissolution following the earthquake, revealing beautiful fossils in the dolomite. Sculpted by groundwater and now mostly buried by sediment, scientists are still learning a lot about the peninsula's underground world. The article includes photographs and maps of Horseshoe Bay cave and Dorchester cave.

CAVE DEATHS

A woman and four of her grandchildren died when the walls of a cave collapsed, trapping all five underneath. The accident, reported in the December 3, 2004 edition of *CNN News,* happened in a hillside cave near the poor farming village of La Cocala, Honduras. A grandson was thrown out of the cave during the landslide and survived. Several village residents rushed to the area using shovels and picks to dig their way into the cave in hopes of rescuing the family. The victims, Epifania Lopez and her granddaughters Rudy, Maudelin, Bessy, and Norma Lopez, were extracting a white soil found inside the caves that residents of the village mix with water and use to paint their houses and kitchens during the Christmas season.

A spontaneous decision to visit a cave during a late night outing ended in a fatal fall for a local Guam resident. Kevin Carolla wanted to show a friend a cave called **Devil's Mouth**, also known as **Devil's Punchbowl**. In an unlit area, Carolla was using a stick to feel his way toward the cave when he fell 50 feet into the gaping hole. The cave, part of the Chamorro Land Trust Commission property, is located in a fenced-in area above a slope.

The gate was not locked when the incident occurred. The incident is under investigation. (*Pacific Daily News* Guam, December 4, 2004)

The December 11, 2004 edition of the *Lancaster New Era* eulogizes NSS members Kent Hirsch and Michael Nast, who died while exploring an underwater cavern on December 9. The two Pennsylvania men, both experienced cave divers, were diving in deep wells, or cenotes, that lead to water-filled caves just west of the Maya ruins at Tulum, about 80 miles south of Cancun. The Mexican newspaper, *Por Esto!*, reported that Hirsh and Nast apparently got lost in the tunnels of the cave. The men were diving with two other divers, also from Pennsylvania, who managed to find their way back to the surface.

MISCELLANEOUS

The November 2004 issue of *National Geographic* contains a short article about ancient Maya rituals and the underworld. Mesoamerican farmers still perform many of the rituals in sacred caves or "portals to the place of fright." In this instance, the author and photographer actually witnessed an outdoor ceremony held near a tiny cave. The article also mentions the Maya myth of Xibalba and includes photos of archaeological caves in the Maya region.

This month's contributors: Kip Baumann, Danny Brass, Russ Carter, Donna K. Cobb, Cheryl Jones, Joel M. Sneed, John Stembel, Jack White.

UNDERGROUND UPDATE

Bernie Szukalski

Jim McConkey reports the discovery of **Mohlers Cave**, Augusta County, Virigina, in the July-August issue of the *D.C. Speleograph* (D.C. Grotto). For the past year members of the Virginia Region (VAR) have been engaged in a major project at Grand Caverns. The primary focus is to resurvey the cave, but another aspect of the project is to catalog and survey all the other caves on Cave Hill. McConkey, who is the surface coordinator for the project, stumbled into a pit while ridgewalking in September, 2003. Solo and lacking vertical gear, the promising lead was left until the following month, when McConkey returned with Kevin Mulligan, Ken Walsh, and Tim Charlton. Using a cable ladder, McConkey was the first to drop the 20-foot pit and found passage 3 feet wide and 4 feet high at the bottom. McConkey declared it big enough to survey, so the entire group entered the cave to find themselves in a triangular-shaped passage 40 to 50 feet high and mostly filled with breakdown. The group focused on the main section of the cave, surveying down to a third large room about 70 feet long and 25 feet high, and full of formations. Another survey trip followed the next day, and by the end of the weekend the cave had yielded 600 feet of survey with a vertical extent of 200 feet, with more leads remaining to be pushed.

Elsewhere in the issue the first **Alpena Cave** through trip is documented by Bob Hoke. Alpena Cave is a 4,000-foot long cave, near Elkins, West Virginia. Though well known, it's not often visited because of a hands and knees stream crawl at the entrance, and a belly crawl in water further into the cave. Shavers Mountain Project cavers have been scouring the limestone near Alpena Cave, and the previous year members dug through rubble in nearby **Alpena Blowhole**, finding 1,000 feet of passage before it ended in breakdown. Looking at the Blowhole survey notes and the existing map of Alpena Cave, it seemed the two caves were close to connecting, and there was lots of air movement in Blowhole to encourage digging. After several trips using hammer drills and other equipment, a hole was finally opened large enough to allow Karen Willmes to push through. Willmes gleefully reported the cave opened up, and everyone assumed a connection had been made, though all work had been done from the Blowhole end. At the Fall VAR, Barry Horner led the first through trip with Hoke and four others, completing the trip in just two hours.

Matt Leissring publishes a very nice fold-out map of **Clay Cave** (also known as **Kiel Cave** and **White's Cave**), Napa County, California, in the Summer issue of the *Valley Caver* (Mother Lode Grotto). Leissring, Dan Snyder, Heather McDonald, and John Hargreaves surveyed and photographed the well-known cave in July of 2004. Leissring writes that the survey team used "every survey trick we could think of" to map the cave, including a tripod to place survey stations in the larger rooms, bamboo cocktail skewers to place stations in just the right spots in the tighter sections, flashing LED reflectors for station markers, and chemical "glow sticks" to illuminate the survey instruments to avoid magnetic fields. Leissring also used a sketching technique whereby all survey legs are drawn vertically on the page to avoid using protractors, a time-saving method that should also reduce errors. The cave survey totaled 750 feet in length, with a vertical extent of 124 feet.

The July, 2004, issue of *The Alaskan Caver* (Glacier Grotto) is a special issue devoted to Tongass Cave Project work on Coronation Island, Tongass National Forest, Alaska. The issue includes write-ups and maps of 22 caves surveyed in April, May, and November of 2002, some of which are littoral caves in Egg Harbor. All cave descriptions are written by Kevin Allred, and contain notes on archaeological, biological, paleontological, and other finds, as well as management recommendations. All maps, striking in their digital penmanship and detail, were crafted by Carlene Allred. Many of the caves are relatively small, though even small caves can be significant in terms of resources, and so are documented as meticulously as any other. Some of the longest caves in the report include **Miner Diversion Cave** (794 feet), **Lost Soles Cave** (427 feet), **His And Hers Cave** (490 feet), and **Colander Cave** (493 feet). Colander Cave was discovered by Steve Lewis in 2001, and was surveyed in April, 2002, by Lewis, Terri Brown, Kevin Casey, Jean Krejca, and Kevin Allred. It's particularly noteworthy since it contains 3,300-year old deer bones, and brown bear bones dating back 11,630 years. The cave also has several species of cave adapted invetebrates.

Passion Pit is the deepest cave in the report, with a depth of 225 feet and length of 437 feet. But perhaps the most enticing is **Lost Cave**, a small and unpromising looking pit discovered by Pete Smith, Steve Lewis, and Tim Heaton in 2001. On the last day of the 2002 expedition its entrance was located again, and Lewis, Jed Smith, and Kina Smith surveyed just 60 feet into the cave before encountering a steep drop requiring rope, which the trio did not have. Rocks dropped down the pit tumbled for a full 9 seconds before stopping, suggesting a deep pit and lots more cave.

The April, 2004, installment is a special issue covering Dall and Forrester Islands. On Forrester Island, Kevin Allred publishes maps and reports for **Red Lichen Cave** (190 feet) and **Soft Shell Cave** (170 feet). Both are littoral caves now raised high above the waterline. On Dall Island, **Abalone Cave** netted 258 feet of survey, and Allred includes a map with his report. But the big find on Dall was **Mossy Abyss**. First discovered by Timothy Heaton on July 17, 2002, the cave is located on a steep mountainside in a dry ravine. The cave entrance is vertical on three sides, with the fourth side consisting of a mossy slope descending steeply to a large, vertical fissure. This marks the beginning of the 505-foot drop to the bottom of the cave, ending in a flat, 40-foot by 60-foot room containing 6-inch-long dogtooth spar. The pit was first bottomed by Steve Lewis and Pete Smith on July 24, 2003. It was surveyed on July 26, 2004, by Lewis and Kevin Allred. Carlene Allred produces the map, using an interesting technique of stacking multi-colored cross sections to show the pit morphology at different depths.

A map of **Red Rock Cave**, Newton County, Missouri, is published in the October, 2004, issue of the *Kansas Kaver* (Kansas Speleological Society). The cave was surveyed by Cory Hiatt and James Potts on March 27. The 5-foot-high entrance provides access to a linear passage, averaging 4 feet high, which ends in a small room 3 feet high and 8 feet in diameter. The total cave length is 95 feet. Elsewhere in the issue Potts adds a brief write-up and map of 46-foot-long **B & J**

Cave, Montgomery County, Kansas. Wrapping up the issue, Janet Williams details a KSS project at **Shermerhorn Park Cave**, located in southeastern Kansas. Project attendees removed graffiti and repaired a gate.

Jim Wolff and Bighorn Broeckel publish separate articles covering some recent lava tube finds in the Shasta-Trinity National Forest, Siskiyou County, California. Swarming bees (actually hornets) guarded several of the entrances, and provided the inspiration for naming the new caves. Collectively known as the Bee-Positive Caves, the largest of the bunch surveyed was **The Beestro**, a little gem of a find yielding 507 feet of survey. Also mapped were **Neubee Cave** (21 feet), **Beebowl Cave** (125 feet), and **Beetween Cave** (70 feet). Maps and more details are found in the September-October, 2004, issue of *Sag Rag* (Shasta Area Grotto).

The "Conservation of Bermuda Caves" is the title of a Thomas M. Iliffe article in the November, 2004, issue of *The Cave Conservationist* (NSS Conservation and Management Section). In February of 2002, a large cave was uncovered by blasting and quarrying activities in Wilkinson Quarry, a privately owned quarry producing limestone for local construction. The quarry is located in the highly cavernous Walsingham limestone, and quarry property also contains **Admiral's Cave**, one of the longest, most historically significant, and well-decorated caves in Bermuda. News of the breakthrough first surfaced when a quarry worker reportedly brought a large and freshly broken stalagmite into a local bar. Word quickly spread, and soon the Government Conservation Officer and Curator of the Natural History Museum were questioning quarry owners. After strenuously arguing their authority to investigate the cave, the quarry operators finally relented, allowing the two a brief recon. They found an exquisitely decorated cave, full of actively growing formations, and a deep pool extending to sea level. Iliffe had spent 11 years in Bermuda investigating the biology of the country's caves, and as a well-known authority was asked to investigate the cave and evaluate its significance. Iliffe spent three days exploring the cave, diving, and collecting biological specimens. Though previously approved, a fourth day of exploration was cancelled when the quarry owners refused Iliffe access to the property. Iliffe's efforts documented a spectacular cave, containing numerous speleothems. Exploratory dives plumbed the pool, and lead to the discovery of a large chamber containing a profusion of soda straws and one wall of helictites reaching 30 cm in length, and described by Iliffe as "the largest, most densely packed, and best preserved display of helictites that I have ever witnessed in any underwater cave in the entire world." The cave also contains at least four species of stygobitic crustaceans on the critically endangered list, and known to be found in only a few caves in the world.

Unfortunately, there has been considerable destruction to the cave. A large number of speleothems had been smashed when the cave was broken into, as large blocks cascaded down the steep entrance slope smashing formations along the way. Additional damage documented in the cave is likely due to quarry blasting. But most disturbing of all is the damage caused by the willful smashing of formations by quarry workers, the worst of which seemed to have occurred between the first and second visits by the Conservation Officer. The quarry owner has asked that quarrying operations be allowed to continue, since the cave is already so badly damaged. Illife worries that this "we damaged it, therefore we should destroy it" philosophy could set a dangerous precedent, and imperil other caves.

Ric Finch warns of the perils of MTR in the November, 2004, issue of *The Tagline* (Chattanooga Grotto). What is MTR? Mountain Top Removal is a relatively new method of coal mining whereby mountain tops are shaved off to get at the underlying coal. Strip mining works basically the same way; overburden is removed to reveal the underlying coal strata. But requirements force strip mining operations to backfill their operations to "restore" the mined areas. A loophole in environmental laws allows MTR operations to avoid any restoration. Instead the overburden is normally piled into nearby stream valleys. The flattened mountain tops and filled-in valleys are suitable for development, and hence "improved," thus avoiding the usual regulations. Finch notes that significant portions of Kentucky and West Virginia either have been, or will be, impacted by MTR. Finch's fear, beyond environmental concerns, is that mountain shaving will fill in limestone valleys below the coal-bearing strata, resulting in the obliteration of both known and as-yet unknown caves.

Lesley Colton laments the closure of several TAG caves due to increased visitation, cavers crossing the owner's property without permission, and caving during hunting season. All these have lead to the closure of Tennessee's **Reams Cave**, **Reams Pit**, and **Reams Spring Cave**. Colton reminds cavers to be considerate, and also to make sure you've obtained permission from the correct landowner.

On a more upbeat note, Lonnie Carr, owner of **Blue Spring Cave**, received the John Van Swearingen IV Stewardship Award. John Hickman summarizes Carr's efforts in balancing protection of the cave, Tennessee's longest, with cavers' desire for continued exploration. The award consists of a one-of-a-kind certificate featuring one of the late JV's photos, a $250 honorarium in the recipients name toward the Southeastern Cave Conservancy, and honorary ownership of a plot on a SCCi cave preserve.

See the Contents page for Bernie's address for snail mail or e-mail newsletters.

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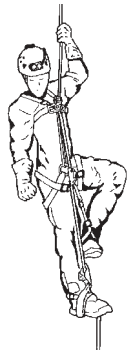

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Spelean Spotlight:
Bill Farr & Carol Vesely
(continued from page 17)

only a few kilometers, but those few kilometers were either (a) straight up rotten dolomite, (b) 45 degrees up slick, grassy meadows, or (c) horizontal traverses on rotten dolomite across the tops of 400 meter high cliff bands. Turns out that about half of the people who see the hike just turn around and go home. No joke.

A few near-death experiences later we made it to the entrance of the cave, which was also our camp, even though it was the lowest entrance and always blowing out 1°C air. The next day I went on my first re-belay trip with Michael and Andrew, a push trip with virgin passage starting at -400 m, shortly after a 177 m shaft with a waterfall entering partway down. Michael and I each carried 200 m of 9mm rope in our packs, while Andrew had lots of rigging gear. Needless to say, by the start of the exploration/survey, I knew how to descend over rebelays. Twelve hours later, almost out of rope, but at a mud sump at -620 m, I finished tying the slings together for my frog system, and ten hours later I knew how to ascend over any kind of rebelay, in or out of 1°C water. Some of my "favorite" rigging was where a belly crawl intersected a domepit. Andrew always put a bolt just outside the crawlway on the wall of the pit. Descending, you'd put on your descender and back out into the first rebelay without really seeing it. Ascending, you had to unclip and worm your way into the hole.

Carol: I was on a different trip in Monsterhole when I encountered my first in-cave rebelay. It had been rigged by our exceptionally tall German friends. (They were 6'1" and 6'9" while I am 5'4"). They were able to stand on a small projection of rock and reach across a deep chasm to grab the rope at the rebelay on the undercut wall on the other side. I couldn't reach it and ended up dangling like a spider under the overhang. They waited patiently while I worked through it. I figured rebelays could only get easier after that.

Bill: After that we started using more and more rebelay techniques in Mexico. Kevin Downey had also picked up techniques in Europe, and started using them in the U.S. and Mexico around then too, I think. At first there was a lot of resistance, but eventually many vertical cavers decided that they had invented it themselves, and started using the techniques. The issue then became how small a rope would you use. I still give that award to the Kiwi who showed me how to use 6 mm "for drops up to 20 m, you just wrap it around the bobbin twice."

Weren't you two active in Lechuguilla during the heyday of its exploration?

Bill: Yes, we got in on that when exploring the Rift was still a big thing. The first few trips, being the new kids on the block, we were given "clean-up" leads to check before they were to "be closed forever." On the second trip, our team discovered the Western Borehole and on the third trip our team discovered the Gulf of California, which eventually led to the Chandelier Ballroom.

Carol: Yes, we both were, and I am still active at Lech. During the late 80s we went on multiple expeditions a year. One of the best ones was when we discovered the ABC's Room and what is now called the Western Borehole.

Bill: That cave is so trashed now, and most people will never know how much. I can think of so many places where cubic meters of crystals have just been obliterated by people who were at the limit of their caving ability. To many people, a camp trip into Lech has been the pinnacle of their caving career, but it is all so relative.

Please tell me about discovering the ABC's Room and what is now called the Western Borehole.

Carol: We discovered the Western Borehole the same year we began exploring Cheve, so that was a great year for us. One of the best parts about the discovery was how truly unexpected it was. As Bill mentioned, we had gone to the Lake Louise area expecting to simply finish a few "mop-up" leads. Steve Sims, Art Wiggins, Bill and I had already been surveying in numerous small, deadend passages for several hours when we headed up a 30 foot-climb that led to several holes through breakdown. Steve and Bill were pushing through the rocks looking for a way on, when Steve popped up into a big room. You could hear the excitement in his voice as it echoed off the walls. The room was so big that at first we weren't sure which way to go or whether there were any passages leading off of it. As sketcher, I insisted that we take multiple shots around the room, not just stretch the tape down the middle. Surveying the room was further complicated by the beauty of the pristine white gypsum floor. The rocks were covered with sparkling gypsum crystals that crunched like crusty snow under your feet. In places the gypsum formed cornices that looked like wind-swept snow. As we surveyed, it soon became obvious that we were not in a room but in a borehole. The urge to run wildly down the huge passage was almost overpowering. But the beauty of the gypsum snow forced us to walk slowly, carefully evaluating each step, in an effort to minimize our impact. We named the passage the Winter Wonderlands, but later people began to refer to it as the Western Borehole. We reeled our shot after shot until my carbide light became too dim for me to sketch. Still, the borehole continued bigger than ever. We had planned for a twelve hour trip and had already been in the cave 15 or 16 hours, so we had to turn around or risk running out of carbide on the way out.

You have been involved in exploring Lilburn Cave for over twenty years. How does that cave hold your interest?

Carol: Lilburn is a wonderfully complex, three-dimensional maze of beautifully-banded marble. It's the kind of cave that even experienced cavers get lost in. Traversing the cave requires a lot of climbing, squeezing and route finding, so there's seldom a dull moment. In addition, the people involved in the project are some of the funnest people to cave with. Since, I became active in the project in 1982, the surveyed cave has grown from about 7 miles to over 22 miles. Just two years ago, we had a major breakthrough, in which a "missing" section of river passage was discovered. I doubt that we will ever be "done" surveying Lilburn.

Bill: Yes, it could still be a long time before Lilburn is "done." Carol and I

CALL FOR ARTICLES

We are now accepting articles for the 2005 Alpine Karst publication. Alpine Karst is an international publication dedicated to the exploration and scientific research of caves located in mountainous regions of the US and the World. Alpine Karst also encourages articles be published on innovative single rope techniques and specialized gear and equipment used to explore alpine caves.

For more information on the publication and submission guidelines please go to: www.alpinekarst.org

Tina Oliphant, Editor

initially had years of fun surveying in first the Attic, then the Attic Attic, then the Penthouse. There is a lot of marble left with no known cave in it, but we know Redwood creek flows through underground. Presently most of the dive sites are pretty filled in with granitic sediments again, after having been flushed clear in 1997. The Upstream Rise dives are among the most demanding I have ever done: tight with razor sharp rock in places, deep (165 feet), silty, and lots of high altitude decompression in cold water. There are still lots of climbs left to find and push, mainly in the south part of the cave. It was one of those that recently led to an extension of the Enchanted River section of the cave.

What has caving in Hawaii been like for you?

Carol: I love the diversity of the lava tubes and sea caves in Hawaii. One of my favorite trips occurred nine years ago when Brian was only 11 months old. I was still nursing him, so I arranged to have my mother-in-law, Mary, fly to Hawaii with me and Brian for the expedition. Every morning, Mary would drop me off at the cave, then I would survey all day with the others while she took Brian to the beach or zoo. Then she would return at the designated time to drive me back to the hotel. This was the expedition when we made the connection establishing Kazamura Cave as the deepest in the US at over a kilometer deep. We decided to do a through trip from the uppermost entrance to the bottom. There were numerous drops and the plan was to take gear into one of the lower entrances and camp about 2/3 of the way through. After about 15 hours of caving we reached camp, but instead of sleeping in the cave, I drove back to the motel to nurse Brian. I thought I'd have time to take a shower but I only managed a few hours sleep before I had to return to join the rest of the team to complete the through trip to the bottom. It was a real classic trip.

Bill, you cracked the Rio Urapan sump in the state of Oaxaca, Mexico. Others had dived it, but you came up into air-filled passage. Please tell me about that dive.

Bill: That was in 1995. After Huautla in 1994, a few of us decided we wanted to just have a "fun" trip, and went looking for new springs to dive in Oaxaca. We were quite successful, finding an average of one new spring a day. Starting at Oaxaca city, Tom Morris, Jim Brown, Paul Smith and I headed north and west, diving all along the way. Driving across to the Presa, we stopped at the Rio Urapan. Jim had notes from Bill Stone. Stone and Noel Sloan dove it first in 1984, I think, using Accurex tanks. Jim said they had done a stage dive (three tanks) and turned around in big going passage. We spent two days there. It had just rained, and the flow was up. It was Jim's turn to dive the first day. He chose to dive 72s. We all schlepped gear up the travertine falls, getting impaled by the jungle on the way. Jim found the old line, tied off the end, and continued on to a bit over 1,200 feet in. He reported a tunnel over 60 feet wide and high, and was generally about 100 feet down, although he came up a couple to times to check out ceiling pockets.

The next day it was my turn. I chose to go with 95s, and I wanted to not go up until the cave forced me up. Tying off to the end of Jim's line, I kept at depth for about another 1,000 feet until the passage started rising and I encountered an underwater natural bridge. At that point, I noticed the ceiling looked very white, almost like marble, and I added some air to my BC to go up. Then I stopped going up — that was weird. I added more air to my BC until it was fully inflated, and still I was not going up. Finally, I grabbed onto the wall and started pulling myself towards the surface. I broke out into frothing white water at the base of a waterfall maybe six meters high. The walls all looked to be overhanging — and I didn't have my bolt kit, of course! Descending was easy, and I surveyed out.

Tired of the thorns, lots of leads we still wanted to check, we packed up and left the next morning, on to, as it turned out, bigger things.

Bill, aren't you cave diving at higher elevations than tables are available for?

There are air tables, but not mixed gas tables. I wrote my own software for that in 1997 when I started doing deep dives in Lilburn Cave. For those dives I printed out tables for my main plan, and various contingencies, such as using different gas mixtures during different aborts, and laminated them. For instance, in diving Big Springs to -248 ft, at over 5,000 feet elevation, my main tables planned for going in on Nitrox 32, switching to a Trimix at -120 feet, then using Nitrox 50, Nitrox 32 and pure O_2 for the decompression (many hours in 45 °F water). The highest cave diving I have done has been around 9,000 feet, but that stuff has just been short and on air.

Is your son Brian a caver?

Bill: He caves, he climbs, he skis. To him it's all just ordinary stuff. We'll see what he sticks with after he starts going out with girls in a few years.

Carol: Actually, sometimes Brian asks us to let him stay home and watch TV (which we don't have) like all his friends. But he's been caving in many places—Mexico, Puerto Rico, Hawaii, Slovenia—and once he gets there, he always has a good time. Now, that he is ten he is able to contribute on a survey team and enjoys reading tape.

What do you two see in your caving futures?

Bill: Cold, wet, and dark. For now, I don't feel like abandoning my son for expeditions, and I have been mostly choosing activities that I can do with him.

Carol: More project caving and more expeditions. I'd like to find a local project that would involve the whole family and increase the number of major expeditions I go on per year, both with and without my family. Brian can keep up with us when ridgewalking now, and help with surveying, and more exploration is possible.

2005 Black Hills Cave Restoration Camp

Wind Cave National Park and Jewel Cave National Monument will host the Black Hills Cave Restoration Camp May 9-13, 2005. You are invited to be one of up to 20 volunteers who will be assisting with this conservation project.

The goal of the project is to restore the cave's natural condition along the public tour routes. This year's camp will focus on removing lint and dust accumulations at both caves.

We are soliciting help from anyone interested in resource protection and restoration. No previous experience is required. There is no registration fee, and housing will be provided. Two days will be spent working at each cave, with Wednesday as a day off for caving and/or sightseeing.

To sign up, or for more details, please contact Marc Ohms at 605-745-1182 or Marc_Ohms@nps.gov. The deadline is Friday April 15, 2005, and spots are available on a first come-first served basis.

SOCIETY NEWS

NSS Conducts Membership Survey

General Eisenhower once said, "I have always found that plans are useless, but planning is indispensable."

The NSS Board of Governors recognizes the value of strategic planning for the future of the Society and has, for the first time in our modern history, moved to make the process of strategic planning an integral part of the Board's deliberation process. The intent is not to produce a fancy, bound plan designed to impress and dazzle while it sits on the shelf and is largely ignored. Rather, the intent is to change our approach to managing the society so that we focus on strengthening our core values and the capabilities of the society.

During the Fall 2004 Board meeting in Birmingham, the Board began the first step in instituting a strategic planning process into their meetings by engaging in a Value Mapping analysis. Value Mapping looks at the activities of an organization and groups those activities with similar activities. Once the grouping has been made, an assessment is made of our ability to perform each activity.

Now that the Value Mapping has been made, it is critical to determine if our membership agrees with the assessment. So, the Board has developed a survey, based in large measure on the Value Mapping. If you are a regular member of the society and you have an e-mail address on file with the Society, you will soon receive an e-mail directing you to the survey website.

When the e-mail arrives, please take the time to log on to the site and complete the survey. It should take less than thirty minutes. Every question has an opportunity for you to provide written comments and the Board has committed to review the results and all the comments you provide.

The Value Mapping and the results of the survey will be published in a future *NSS News* and posted on the NSS Website. (By the way, publishing the Value Mapping study, at this point, may influence the results of the survey.)

If you're a Regular member without an e-mail address, you can participate by requesting a copy of the survey from:

NSS Strategic Planning Committee
C/O Dave Luckins
3683 Oakleaf Drive
West Bloomfield, MI 48324-2545

If you can supply a #9 or #10 self-addressed, stamped, return business envelope, it will help the process flow better and help keep the costs down.

Congress of Grottos 2005

This is the CALL FOR ISSUES for the 2005 Congress of Grottos.

The call for issues for Congress of Grottos has also been transmitted to internal organizations with the e-mail and paper mail instructions for NSS annual reports.

Issues for discussion and possible action at the Congress of Grottos annual meeting should be submitted by March 1, 2005 to allow time for publication to Internal Organizations. Send via e-mail to dshofstall@yahoo.com or by mail to :

Don Shofstall
Vice Chairman, Congress Of Grottos
5004 Bassett Ave
Evansville, IN 47715-1106

Issues to be acted on should be from internal organizations of the NSS (I/Os) or authorized groups (see rules link below) and in the form of a motion, i.e. "Loylahanna Grotto moves...."

Rules of the Congress of Grottos may be viewed at http://caves.org/nss-business/bog/app-q.html

Previous reports of the Congress of Grottos may be viewed at www.caves.org/nss-business/congress.html

A brief summary of supporting information for the motion is useful for those who may not be familiar with the issue.

Items for discussion not requiring a motion may also be accepted, and will be on the agenda following motions.

In order for publication to the NSS membership for consideration prior to convention, issues should be received by March 1, 2005. Issues will be published to I/Os through the e-mail and paper mailing system used by the I/O committee.

If you have an issue you would like to have considered by COG, bring it up to your internal organization; grotto, region, survey, or section.

After March 1, items will be accepted by the Congress of Grottos chairman for inclusion in the agenda with the understanding that there may not be time for publication to the membership prior to convention. Items are generally on the agenda in the order received. Items may be accepted from the floor as time permits.

William N. Jackson
Chairman, Congress of Grottos 2005
kg4pts@comcast.net

NSS Seeks Candidates for President

Scott Fee is not seeking a fourth term as NSS President and so a new president will be elected at the Spring 2005 NSS Board of Governors meeting in San Antonio, Texas. The NSS Executive Search Committee is seeking qualified candidates for this office. Those interested should contact me at mhood@caves.org, or 937-252-2978. Please refer to the Executive Search Committee web page for more information about the office of President (and other NSS officer positions).

Mike Hood

CLASSIFIED ADS

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Dry & Wet Cave Discussions
www.CaveBoard.com

Alpine Karst 2004; $16 (includes shipping). Order at www.alpinekarst.org

Happy Belated Birthday Serena! Sorry that I missed this last year but I was still thinking of you. Time and Tide. Love, Tom 20062

AD RATES: 50 cents per word, with a 10% discount for prepaid ads running three months or longer. The following count as one word each: P.O. box #; street address; city; state & zip; phone number. E-mail or web addresses exceeding 10 characters count as two words. Payment must precede publication, but copy should be e-mailed to dbunnell@caltel.com, to reserve space. Copy should be received six weeks prior to publication date (e.g., by May 15 for July issue). Make checks payable to the National Speleological Society and send to: NSS NEWS, P.O. Box 879, Angels Camp, CA 95222.

This month: High-altitude caving in Peru