

NSS NEWS

February 2006



CALENDAR

USA

February 5, 2006—CDS Fund Raiser Cruise "Cruisin' for Caves" The CDS will be cruising to Cozumel, Belize, Roatan and Cayman. Please support this fund-raising effort by coming along. Details on price, itinerary and registration can be found on the Section website at www.nsscds.org. For additional questions or to register contact Eleanore Willis at eleanore@nesstravel.com or 570.223-8300. We have blocked a limited number of staterooms so don't wait. \$60. per person deposit required to hold your spot.

February 18, 2006—SERA winter business meeting will take place on Saturday at Otey Hall in Sewanee, Tennessee. This year's SERA WBM is being hosted by the Central Alabama Grotto. A dinner with guest speaker will follow that evening. Camping will be made available for free nearby or hotels are also nearby at a SERA WBM discount! For more information log on to: www.caves.org/grotto/cag or call 256-223-2228.

March 11-12, 2006—The Central Region of the NCRC is hosting an Orientation to Cave Rescue in Bloomington, Indiana. Contact person is Jessica Deli, 1610 S. Dorchester Dr., Apt. 9, Bloomington, IN 47401 email: scramblerhv@gmail.com home phone: (812) 331-2305

March 24-26, 2006—Spring Board of Governors Meeting to be held in Irving, Texas, which is adjacent to Dallas. Activities will include two caver parties on Friday and Saturday nights, an all day BOG meeting, and on Sunday a possible wetsuit caving trip in Oklahoma, sewerlinking in huge storm sewers, and visits to the world-class museums in Dallas and Ft. Worth. Sponsored by the D/FW and Maverick Grottos. See: www.maverickgrotto.org/nssbog

March 25, 2006—NSS BOG meeting in Irving, Texas, near Dallas. <http://nssbog.maverickgrotto.org/>

April 8-15, 2006—The National Cave Rescue Commission will hold its 2006 National Cave Rescue Management & Operations Seminar in Aguadilla, Puerto Rico. Seminar details and registration information are available at ncrc.info or by contacting the registrar at 2006registrar@ncrc.info. Registration ends March 22, 2006.

April 28-30, 2006—Spring VAR Field meet at Grand Caverns in Grottoes VA. Contact Carol Tiderman for information ctider@us.ibm.com

May 26-29, 2006—Cave Diving Section Workshop: the annual "convention" of the Cave Diving Section. The theme this year is "The History of Cave Diving". Please register at <http://www.nsscds.org>

May 26-29, 2006—Speleofest 2006 at the Lone Star Preserve in Upton, Kentucky. This premier caving event will feature a variety of cave trips including both verticle and horizontal caving trips, guest speaker, annual banquet hosted by Caver Catering, and caving door prizes. For more information contact Shelly Wolf (chairperson) at Cavewolf@hotmail.com or Ted Burke at Tedburke1@aol.com

June 1-4, 2006—55th annual SERA summer cave carnival Buck's Pocket State Park, Alabama—near Scottsboro, Alabama Hosted by the Central Alabama Grotto, NSS Pre-Reg forms and other SERA 2006 information are available

at the CAG web site at: www.caves.org/grotto/cag. Some improved campsites are available while they last Call Michael Gilbert—SERA 2006 Chairman @ 256-223-2228 or e-mail him at UAcaver@aol.com to reserve your site today! Send reservation forms to: Central Alabama Grotto, SERA2006 c/o Richard Sims 3207 6th avenue north, Pell City, Alabama 35125

July 14-16, 2006—Annual Karst-O-Rama event held at Great Saltpetre Cave Preserve, Mount Vernon, Kentucky. Come join us in Rockcastle County for caving, hiking and socializing. Guided cave trips available as well as self-led trips. Sponsored by The Greater Cincinnati Grotto. Contact Dennis Wortman 513-851-2493 or denny1@prodigy.net

July 29-August 5, 2006—British Columbia Cave Rescue Training Seminar in Cave Rescue Organization and Techniques, Gold River (Vancouver Island), British Columbia, Canada. Covers subjects comparable to NCRC Levels 1 & 2 and would make a convenient and beneficial pre-Convention trip. Details and registration information are available from the BCCR Training website, <http://cancaver.ca/bccr/BCCRtrain.htm>, or through Phil Whitfield (NSS 12901) at pwhitfield@telus.net. Participation is limited to 30 and early registration is recommended

August 7-11, 2006—NSS Convention in Bellingham, Washington, hosted by Cascade Grotto, on the campus of Western Washington University. Chairman: Michael McCormack.

September 8-10, 2006—42nd Annual Hodag Hunt sponsored by the Wisconsin Speleological Society. Held at the Ledge View Nature Center, Chilton, Calumet County, Wisconsin. The event includes nature center cave displays, a 60 foot

high observation tower, guided wild cave trips to both Montgomery Cave and the Carolyn's Caverns System on the property, and to the Cherney Maribel Caves County Park caves and others in Manitowoc County. Breakfast and dinner on Saturday, musical entertainment, a guest speaker, a fund raising cavers auction, and door prizes. A printable pre-registration form can be found on the WSS web site at www.CAVES.ORG/GROTTO/WSS/ For more information please contact Gary K. Soule at garyksoule@hotmail.com, or 920-743-6488.

Dates TBD, 2007—NSS Convention in Marengo, Indiana, co-hosted by 8 Indiana grottos. Chairman: Dave Haun

INTERNATIONAL

April 8-12, 2006—1st Central American Congress of Speleology in Catacamas Honduras, hosted by Anthros Costa Rica Grotto, NSS. More information on the web at www.anthros.org or www.talgua2006.blogspot.com. Contact: Gustavo Quesada gquesada@anthros.org

May 26-29, 2006—IVth International Conference on Climate Change: The Karst Record, Baile Herculane, Romania. Sponsored by the Romanian Karst and Cave Society and the Karst Waters Institute. Details at www.karst.ro

July 3-8, 2006—XII International Symposium on Vulcanospeleology, Tepoztlán, Mexico (just south of Mexico City) sponsored by the UIS Commission on Volcanic Caves. Features three days of field trips with Dr. Ramón Espinasa, including a visit to the longest lava tube in America (Iglesia Cave, notable for its pristine features) and a post-symposium trip to Veracruz. Hotels and camping available. See www.saudicaves.com

2006 Karst Field Studies



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Cave Archaeology	June 19-24	Dr. Darlene Applegate Dr. George Crothers
Karst GIS	TBA	Dr. Aaron Addison
Cave and Karst Stewardship	TBA	Dr. Rickard Toomey Dr. Patricia Seiser
Digital Cave Photography in Mammoth Cave	TBA	Dr. David Bunnell

**For program
 information
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 Applied Research and Technology Program of Distinction
 Department of Geography and Geology
 Western Kentucky University
 270-745-3252 / 270-745-3961
<http://caveandkarst.wku.edu>

Please e-mail information on upcoming events to dbunnell@calteI.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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Please include "NSS News" in your subject line when e-mailing material to help me sort it from the spam. Thanks!

Questions about submitting features and photos? Please see the style and submission guidelines on the NSS web site:

www.caves.org/pub/nssnews/style.html

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February 2006

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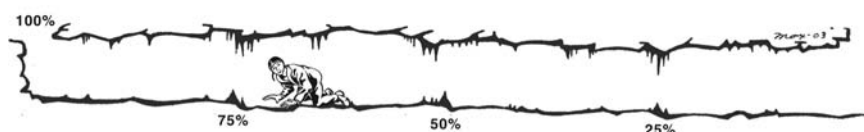
Front cover: This image of Topless Dome was taken by Huntsville caver Nathan Williams in Tumbling Rock Cave, Alabama. He illuminated the 396-foot high dome with a set of 3 high-power spotlights at ISO 200 for 28 seconds at f/3.5, using a digital SLR. Another version of this image won an Honorable Mention in the 2005 Slide Salon. For more information see Nathan's article in this issue.

Back cover, top: Tom Duselis stares up at the protruding, chert cannonballs in the ceiling of Boone-Cannonball Cave. Photo by Brian Killingbeck.

Back cover, left: "Loren's Light" was also taken by Nathan Williams in Tumbling Rock Cave, Alabama. For this one a fluorescent light was shined through a small hole leading to the base of Topless Dome. Exposure was 1 second at f/5.6 at a setting of ISO 200 on a digital SLR.

Back cover, right: Necklace parts made from sea shells and copper found in the bottom of a 130-foot pit in Peru (see article by Steve Knutson). Photo by David Cole

Repaying Great X: we're 73% there!



As we go to press on December 30, the NSS has collected or had pledged \$148,561.68 towards our purchase of Great X Cave in Wyoming. Let's make 2006 the year we pay it all off! To make a contribution, please go to www.caves.org/greatx/

A Cave Exploring Culture from Antiquity

Steve Knutson



Ancient wall just inside the entrance to Cueva Atumpapa

Steve Knutson

THE MYSTERIOUS CHACHAPOYA

About 800 years ago a culture called the Wauri (or Hauri) created by conquest an empire that spanned the Andes from Chile to Ecuador in South America. They had begun this expansion from a home area in southern Peru. This empire seemed complete except for a still unconquered culture living east of the great canyon of the Marañon River in extreme northern Peru. The main town of this area now is named Chachapoyas. What this culture called themselves is not known, but they have come to be called the Chachapoya.

When the Wauri advanced on the Chachapoya, they discovered the defenders had built a huge fortress on a ridge top high above the Utcubamba River. This was called Cuelape (now Kuelap) and John Hemming (*The Conquest of the Incas*) calls it "...the most spectacularly defended, the strongest by European standards of military fortification." The estimated volume of this great stonework is some 40 million cubic feet, greater than the Great Pyramid of Giza in Egypt, and the largest structure known from ancient times in Peru. It sits at an altitude of about 10,000 feet, is nearly a half-mile long, and on three sides the land falls away precipitously to deep valleys. The outer walls are as much as 50 feet high, and only an easily defended, narrow cleft allows access to the interior.

It appears that here the Wauri were defeated, and their 300-year span of empire began to unravel. The Wauri declined, and the Incas took their place. A shorter period of conquest brought the Inca to empire and they managed to conquer the Chachapoya. This occurred in the 1400s, our calendar. The Inca found these people difficult to know, much less control, and referred to them as the cloud people. They were said to be tall and fair skinned.

Apparently one of the policies of the Inca, for especially truculent cultures, was to relocate many of them and bring in folks of

other cultures, to dilute the resistance.

When in late 1526 Francisco Pizarro of Spain headed a sea-born expedition from Panama that encountered the Inca culture, there began a period of Spanish conquest that ultimately dissected and subdued this far-flung empire. Kuelap was offered by the Chachapoya as a site for defense for one of the Inca rulers but he never reached it. The Chachapoya were then conquered for a second time by the Spaniards.

The Spaniards also practiced relocation and colonization for war-like cultures and so the Chachapoya were quietly removed, diluted and absorbed. Today, almost nothing is known of their mythology, their ways, or even their original appearance.

This land, east of the Marañon, is a broad mountainous region that butts on the Amazon Basin and little of it is above the tree (vegetation) line. Dense jungle occurs to over 13,000 feet elevation. The prevailing winds bring the moist Amazon air up into these mountains and the land is often shrouded in clouds. Some of the topographic maps of this

THE ARCHEOLOGICAL BACKGROUND

In Peru there is an overabundance of ancient cultures. The Inca are generally and popularly given credit for most of what occurs as ruins and constructions, but this is a false notion—the Inca only existed in their empire phase for about 150 years. Most of the constructions and "highways" had been built long before the Incas. Indeed, some cultures flourished long before the Inca even existed.

The result of this overabundance of cultural antiquity is that archeology can only deal with a small part of it, and the popular cultures like the Inca, dominate funding. Cultures like the Chachapoya receive little attention.

This has attracted amateur archeologists like Gene Savoy, who has been traveling the Chachapoyan wilderness for many decades and has discovered whole ruined cities in the mountain jungles. Keith Muscutt also studies the Chachapoya and has written a book, *Warriors of the Clouds*, which gives a good feeling for the place. Muscutt was

Chachapoya area

region have blank areas, where there are almost always clouds. Vast areas are roadless—there was no vehicle road out to the Pacific coast until 1961. Much of it is still as mysterious as the people who once lived there.

We are discovering that the Chachapoya were cave explorers of some ability.



quick to realize there are many burial sites, in sheltered areas under overhanging cliffs, and at cave entrances. Videographer John Armstrong filmed a special for the History Channel called "Cliff Mummies of the Andes," showing Muscutt and his cohorts scaling and rappelling down cliffs to reach unlooted burials in shallow caves on cliffs north of Uchumarca.

Some of the burials were placed in cave entrances high on sheer cliffs, and it is clear that the Chachapoya went to huge efforts to do this—not only were the mummies put there, but usually the opening was walled in with heavy cut stones. The engineering of this had to be formidable.

Peter Lerche is an anthropologist living in Chachapoyas who has appeared in National Geographic specials on Peru. He has studied the Chachapoya for many years.

A few years ago there was a sizable effort to preserve some of the Chachapoya heritage, and an expedition under the Ministry of Culture of Peru went to Lago de los Condores, a day's travel by mule from the nearest road, and secured a collection of about 180 mummies from shelter caves there, which were being hacked up by looters. A museum was built at Leymebamba, south of Chachapoyas, to house these mummies and let the public view them and other artifacts.

In the History Channel special Muscutt and other authorities state that the mummies are always in a dry, sheltered place with a view, and they were placed there so they could look out on the world. I have heard many times from both local residents and the few experts that the mummies were in fact placed so that they could be visited by the descendents. I have even heard they would sometimes be brought back to a village to enjoy a celebration.

What we are finding in some of the caves seems to fly in the face of such notions.

OUR CAVING EXPEDITIONS

We began our caving expeditions to Peru in 1996, hoping the very high elevation limestone would yield deep caves of world class. A lot of our work to date was summarized in an *NSS News* article in the February 2005 issue. In the mountains north of Bolivar we found an area with many pit entrances, and some of these shafts were very deep. As we explored these we came to have the opinion that the Chachapoya did not use them for any purpose that left visible traces. We never saw signs of entry or of modification of the lip for ceremonial purposes nor any artifacts at the bottom to show ceremonial use like the Maya of Central America might have done.

The few horizontal caves we found also

showed no signs of use. It seemed to be as Muscutt and the authorities on his special said: mummies were placed in daylight, in dry sheltered places to aid preservation, so they could look out on the world.

In 2002 John Schwartz and I went tracking a lead from Nick Hawkes, a British caver working as a mining engineer in Peru, near the town of Nueva Cajamarca, out in the start of the Amazon basin, east of Chiclayo in extreme northern Peru. On the way we stopped at Pedro Ruiz Gallo (PRG), a road junction town in the mountains, north of Chachapoyas. We had never really read up on the old culture of that region, the Chachapoyan, though we knew they had built some very large and significant structures, like the ruin Kuelap.

Above Pedro Ruiz, to the east, is a mountain plateau, and the topo showed the Tingoyacu, a stream going underground—a "tragadero" as such are known in Peru. We went to San Carlos, above PRG, a tiny town at roads end. There we found a guide, Hugo Tuesta, who knew the mountain, and could get us up the trail to the *tragadero*. The next day we went up.

That stream sank in a meadow, in a forbidding rock jumble, and we must have looked disappointed, because Hugo offered to take us to a cave, with mummies. I had never actually seen such, so we said ok. An hour later we arrived at the cave entrance, a collapse pile in front of a large room. The map said the place was called Atumpampa (big meadow, in Quechua). We got out lights and headed in.

Immediately we began finding obviously human bones and skulls... not mummies, but very spooky nonetheless. These were scattered about, and a short wall with an opening

in it ran from one side of the passage to the other. Clearly folks had been interred here, but it had been disturbed, ravaged even, and the remains were now scattered all over the place. We continued in for about 300 meters, still finding occasional bones. But at that point we were just scooping and without mapping gear to justify going further, we left.

NEW DISCOVERIES

In the course of our expeditions to the Chachapoya region in '04 and '05 we have come to realize that any notion that cultures from antiquity used only the entrance or twilight portion of caves for burials is completely false. I am sure we are just beginning to get a real picture of what the old cultures of this area did with caves and how far they were willing to go, but so far we have seen burials as far in as the end of one cave, 1.3 km from the entrance, and hundreds of meters into a *tragadero*, a cave taking a flowing stream. We found burials in another shorter stream cave and evidence that a reed torch explorer had passed through a nasty, soupy-mud crawl a few hundred meters in, to check out what lay beyond.

It was already known that these ancients scaled tall cliffs to place burials in cave entrances on the cliff face. Now we have found that at least in one case they used their rope work expertise to place burials at the bottom of a 40m pit.

Let's have a look at the evidence so far.

THE BOLIVAR BURIAL: POZO DEL TUMI

At around 13,000 feet elevation (nearly 4000m) on an unremarkable, small bench, on the side of the Yonan Valley, is a similarly

Heather Levy at the Pozo del Tumi, at an elevation of over 13,000 feet



Steve Knutson

POZO del TUMI

DEPT OF SAN MARTIN, PERU

DRAFTED BY HEATHER LEVY

SURVEY JULY 20-21 2005

MIKE GREEN, HEATHER LEVY

VIEW LOOKING SOUTH
PROFILE ALONG 270-90 DEG AXIS

10

METERS

0

2 SKULLS, BONES
CONCH HORN, TUMI
COPPER BEADS FOR NECKLACE
STONE TUMI, SEA SHELL,
CONCH SHELL HORN

SKULL, STONE NECLACE
IN FLOWSTONE

3 OR MORE SKULLS
2 STONE TUMI
CALCIFIED BONES
WHITE POTTERY

SKULL AND BONES
STONE BEADS NECKLACE



Calcite-encrusted skull in Pozo del Tumi

Steve Knutson

The other fork of the pit led a few meters deeper, but ended in a pool of water.

This was an unusual and extraordinary find. In no other pit in the area did we have any recognizable evidence of ancient human activity.

Were these just humans who perhaps fell into the pit, were thrown in, or what? The configuration of the pit seems to rule out anything but that someone was lowered down on a rope, and placed these folks there. The first chamber had a fairly flat floor, and only one remains. If you were tossing bodies or wrapped mummies into this pit, for every one that continued down the rift in the floor of that chamber, several would stay there. The same was true for the next chamber, where there were only two individuals. Yet the greatest number of remains was at the bottom. They had to have been maneuvered along, to get all the way to the bottom.

unremarkable pit, one of many such in this area. It is nestled right at the back of the step up to the next bench, and there is a small alcove that shelters it to some extent.

In 2004 we were camped on the side of this valley, exploring the many pits, in hopes of finding ones that would continue.

David Cole was nearly finished for the day— after nightfall it got hard to find a route back to camp and got bitterly cold as well. Rigging the small opening, he rappelled in. It quickly belled out and about 12 meters down was a visible floor. When he landed, he turned around and was shocked to see a human skull, gazing at him with empty eye sockets. A pile of bones showed that someone had either fallen in, or ...what?

A small rift in the floor continued down, so he passed the rope thru and descended. Thirteen meters down was another chamber—and more bones. Two skulls were in evidence. A look showed there were some artifacts as well: what appeared to be a stone Tumi (a ceremonial cutting device), a

conch-shell horn, and small, greenish lumps that might be corroded copper beads from a necklace.

Another tiny rift continued, but was blocked by a rock. David was able to move this and continue down. Nine meters further was a split in the pit. On the shelf was a fourth set of remains, partly covered with flowstone. One fork went down another seven meters, where it was plugged by a flowstone accumulation. Several more remains could be discerned in the flowstone. Were there more that could not be seen, completely covered? He could see a couple more Tumi, conch shells, and some small ceramic vessels as well, with a strange conical shape, the point at the bottom.



Human remains on a ledge 60 feet down in Pozo del Tumi, most likely placed in situ rather than thrown in

David Cole



David Cole

Pottery at the bottom of the 130-foot pit



David Cole

Conch shell with a hole drilled in it to use as a high-pitched signal in the mountains

Moreover, the bones observed are lying in a pile, indicating that the body interred was probably a wrapped mummy, since these are always bundled with the body in the fetal position. The artifacts show this was a ceremonial, honored interment. The wetness of the pit had presumably destroyed all organic material. The necklace beads were lying unstrung.

Was this a Chachapoyan burial? It looks very old. Much of the visible material has calcite on it, and this is an area where there is not much calcite deposition in caves. Muscutt offered the opinion that the Chachapoya didn't use Tumi. A Tumi is a ceremonial cutting tool, with a curved blade that is rocked over a surface by a handle that sticks vertically above the blade. They are common in some of the old cultures in Peru but seem to always be made from metal, which is very common and available in Peru. Peter Lerche, an anthropologist in Chachapoyas, said he had never seen one made of stone.

The Tumi in this pit were very well made, about 22 cm long, and had a decoration of what appeared to be two birds facing each other on top. The beaks had a carved line for a mouth and an indented dot for an eye. Forming such a device from stone had to have been very painstaking—they are only about 1 cm thick and very smoothly finished. The rock would be brittle to work with so their manufacture had to be difficult. There were three visible in the pit.

The ceramic vessels are curious. They would have to be carried or hung in a net carrier of some kind. Bonnie Crystal expressed the idea that a person hunting with poison arrows or blowgun darts might use such a vessel to carry the poison—a quick dip with the tip of the dart and it would be ready to use.

ATUMPAMPA CAVE

Now we move on, to the north of Chachapoyas, to the 2600 meter high

plateau above the town of San Carlos, that Schwartz and I visited in '02. We had a much better look in '04 and '05.

The Atumpampa Cave proved to be an easy one to explore. It is a single large passage from the spacious entrance to the breakdown choke that is its end. The floor has a shallow V cross-section, but the bottom of the V is never narrow and difficult to negotiate, nor are there areas of breakdown boulders to make the going hard. A tiny flow of water appears in places and forms shallow pools behind beautiful rimstone dams. Still, one would have trouble making their way with their eyes closed. And with a dim light the wide spacious passage might seem confusing. This passage is often 30 meters wide and 10 high.

At the entrance is a descent of ten meters or so, where the passage had collapsed in the distant past. From the top edge of this descent one can clearly see a low, manmade wall stretching from side to side. This is composed of the natural limestone slabs that litter the floor, and no mortar was used, nor are the stones altered to fit. In the middle of this there is a wide gap allowing access to the rest of the cave. The wall is not high,

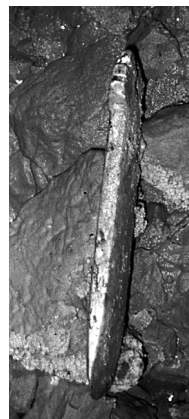
only a couple meters, and is about that in width. It seems to be ceremonial, presumably announcing that this cave contains burials. Most caves that have burials seem to have a similar wall.

An anonymous report from the 70s found in the files of the South American Explorers Club, "The Ruins of Curibamba" (Curibamba in Quechua means plain or place of gold), describes a visit to the Atumpampa cave in the 60s. It says near this wall were "several tombs on platforms of rough rock. Each is separate and 1.5 m high. As one advances, the air becomes rare or stuffy and it is not possible to continue."

There is now no evidence of the platforms of rock, but all about the floor in this part of the cave are scattered human bones. The platforms are presumed destroyed.

This has been a well-known cave for a long time, in the current era, as evidenced in the extensive disturbance of the many burials. One torch found was a stick with a rag on the end, held by wire—perhaps a visitor before the use of flashlights?

Bones are scattered all through the cave, but are concentrated in the areas where the burials apparently occurred. When looters

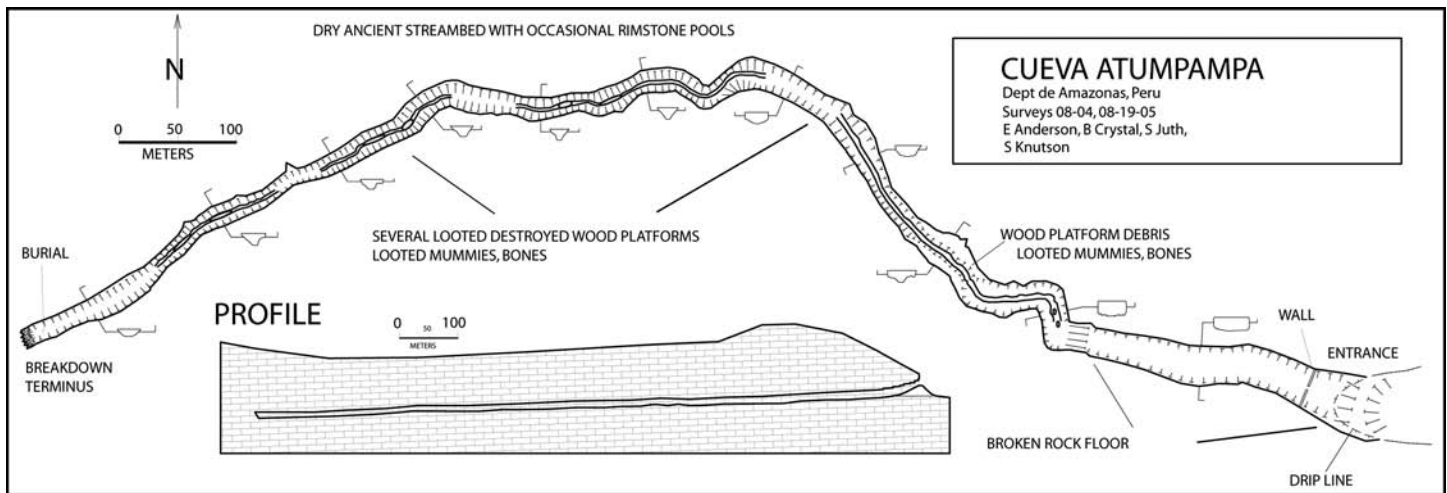


Steve Knutson

Two views of a stone tumi from Pozo del Tumi



David Cole



were in action, which seems to be a period from the recent past, they hacked open the burial wrappings looking for valuables and removed a lot of the mummies. Apparently some of the mummies themselves were carried off, as one often finds an empty, split wrapping and no bones right there.

The large passage, with sometimes high, sloping ledges of debris on either side, continues to a breakdown blockage about 1.3 km from the entrance. Almost right at the end there is a shallow, dug hole and a mummy wrapping, clearly showing a burial site. The locals have a story that up to ten years ago there was a way to get thru the breakdown and that there were further burials on the far side, where the cave continued.

In the middle part of the cave, and well into total darkness, is a series of places where platforms, made of poles of 5-10 cm in diameter, had been constructed and on which mummies had been placed. These platforms were either destroyed by looters, or deteriorated through wood rot, and are now just areas of debris. The mummies were hacked open and some carried off. Many of these are still in evidence, and are in a state of partial preservation, with tissue and carti-

laginous material still keeping some remains partly articulated.

Most wrappings seem to be a woven rope affair, of layed (twisted), natural fiber. One was seen that was woven from rope but the rope was itself woven or braided, and of very fine quality. Also, it seemed to have been bleached, as it was almost white in color.

One lower leg bone was found to have experienced a diagonal break, which had healed, and must have been splinted.

One mummy was found that had been placed behind a boulder, and was intact except for a missing head. It was sitting upright, had no wrapping at all but had four vertical slabs of flat rock forming a box around it. It had presumably been treated for preservation, as the skin was largely intact. It was sitting upright, in essentially a fetal position, the typical mummy configuration. It was a very small individual, either a small woman or child. The chest cavity was full of grass or herbs.

To review, there were burials all through this cave, up to 1.3 km from the entrance. Some had been on platforms. One was in a box of rock with no wrapping. The rest appear to at least have a wrapping of woven

rope. A number had been buried in the scree debris of the side ledges. And we have the ones on rock platforms near the entrance from the "Curibamba" report.

CURIBAMBA CAVE

In the Curibamba report it further says:

"...toward the north is found another cave, SAUCO, 15 m wide at the entrance, and which we could not determine the length of, though we traveled more than 2 km without finding an end. On the floor runs a small stream of crystal-clear water. Also encountered are stalactites and stalagmites, which make us believe the passage leads toward another entrance. To the side at the entrance are some mummies. In the hand of one was the skeleton of a bird; this mummy was given to the Colegio Nacional de Parones San Juan de la Libertad (in Chachapoyas). Several separate skulls show holes indicating death from fighting. The school in San Carlos has skulls that are trepanned."

I think this might refer to the cave we came to call Curibamba.

The entrance to the Curibamba Cave lies in a large deep sinkhole in a meadow area between jungle areas on the same plateau as the Atumpampa Cave. A short climbdown just before the dripline gains the streambed, and 50 meters further, just at the edge of the twilight zone, there is the manmade wall that seems to signal that there are burials inside. It comes from the walls on either side to embrace the streambed with a walk-through opening.

The passage is spacious but much smaller than Atumpampa, about 10 meters in width and the same in height. Fifty meters past the wall the stream cuts thru floor debris, creating a steep-walled canyon four or five meters deep. At the top edge of this are flat ledges that end at the wall. On the right hand side, behind a large boulder, we see our first burial, a mass of bones and cut-open rope wrappings.



Steve Knutson

The people who live in this area now seem to uniformly show and profess no connection in terms of spiritual ties or ancestry to the burials in the caves.

The condition of the burials in the much-traveled Cueva Atumpampa raises a lot of questions. There appears to have been a period of time in recent decades when it was thought that there were valuables—jewelry or precious metals—in the burials, or that the mummified remains themselves were worth taking. Peter Lerche told us that a complete mummy, in a good, intact wrapping, is worth tens of thousands of dollars on the black market to collectors. When we first arrived in Bolivar, in '96, we said we were interested in caves and folks there immediately exclaimed that we had come to buy mummies. Some of them even ran home to bring back desiccated remains they had probably obtained from some local shelter cave.

It may also be that the culture doing the burials had enemies who would occasionally gain ascendancy and would vandalize the burials to show their disdain or enmity. Perhaps a study would shed light on this. At least some of the disturbance of the burials seems to be from antiquity—there are isolated bones in rimstone pools with a little calcite deposition on them.

Happily, this disturbance seems to have ended. Perhaps no valuables were found, and the unwrapped remains carried off didn't sell.

It also seems that not every cave was deemed suitable. Some fairly obvious entrances have no visible remains. Certainly, so far, the pit burial is a very small percentage of the pits available. Of course some of those were perhaps too deep to allow descent with

the ropes and techniques they used. We presume they lowered workers on a rope, and then lowered the burials to be placed.

The lack of information is in fact one reason for publishing this article. Perhaps there is knowledge that will come to us, from a reader.

THE STYLE OF THE BURIALS

A typical mummy, one might say, is in a seated, fetal position, legs drawn in, knees at face level, arms wrapped around the front, hands also at head level, or on the shoulders.

But some are wrapped in material; some are not. Some apparently were wrapped in a woven covering made of layed, fiber rope. Some have multiple layers of cloth, with a simple, stylized face painted on the outside. One covering we found was of a very fine, braided rope. Some have been found in stylized human-figure sarcophagi—solid containers with a mummy inside.

Some mummies are on platforms of wood, apparently seated there. Some are buried, and the rock coverings are just small talus, so that the result is not even noticeable. Erosion from the side has exposed some of these; you can see that they are there, but from the top, uneroded, you can't tell. Some remains were laid out, with the body at full length. One fetal position mummy was found behind a boulder, encased only in a "box" of four thin slabs of rock, with no wrapping.

The skin and tissue is preserved in many of these, so was a preservative method in use? One we saw had the head removed (looking for valuables, most likely) and the body cavity was full of grass and herbs—presumably it had been prepared that way.

Perhaps more importantly, they are in almost every conceivable location, and situation. They are at the ends of horizontal caves, 1.3 km in. They are in caves high on sheer cliffs, at least two hundred feet above the base and below the top. They are down pits at least 120 feet in depth that require a rope to negotiate. They are in caves that have streams going in, presenting an additional hazard.

At some caves there is a wall inside, projecting from each side near the entrance. This seems to signify a burial site. But some are walled all across, with a doorway. One was just walled all across, no opening. Two, side by side, had a small window in the enclosing wall of one, while the other had a doorway.

CONCLUSIONS

This has all been a big surprise. I believed the words of the experts, who of course were giving the best opinion they could. Many folks do not wish to enter a cave even when engaged in serious cultural studies.

The pit burial was a surprise because we had explored so many of them, not seeing much of anything. Now we have to wonder what might be down the next one.

There are so many styles and modes of cave burial, how can they come from just one culture? We didn't go to Peru for any purpose but simple cave exploration, but now we want to know more about this mysterious cave exploring culture.

Of course this must be kept in perspective. The Chachapoyan culture was just one of many in ancient Peru, and their burial practices were just a small aspect of their life. And it seems we have just magnified the mystery surrounding this great culture. We have no idea why the Chachapoya went to such efforts to place their dead in caves.

Anyone having information to add, or any inquiry, please contact Steve Knutson at sssknutson@aol.com, or 503-695-6552. We are planning further sessions in the summer of '06 so if you are interested, please inquire.

ACKNOWLEDGEMENTS

I want to thank **Inner Mountain Outfitters** for a generous rope discount. The sessions that pursued the investigation of the caves Atumpampa and Curibamba were manned by Evan Anderson, Stephanie Juth, Bonnie Crystal, John Schwartz, Mark Harder and I, in 2002, 2004 and 2005.



Mummies suffering the ravages of time in a cave above Montevideo

Steve Knutson

Unconventional Lighting for Capturing Those Special Images

photos and text by Nathan L. Williams, NSS #52960

Cave photography has always fascinated me. When I first started exploring the underground realms 15 years ago I felt a need to show others the beauty below. It was not until about three years ago that I started to take cave photography seriously. I bought a secondhand Pentax K1000 and a small electronic flash and headed out to shoot the most amazing pictures anyone had ever seen. The reality of cave photography quickly put me in my place and I began the grueling task of learning techniques that would yield acceptable and unique photos. In a way I am wired a little different than most folks. It was in a cave that I first learned to use a camera. Prior to that, I had very little knowledge on the subject. As I learned tricks of the trade, I felt the need to get creative so that I could have my own, original shots. I started to think of new ways of lighting a scene and tried to steer clear of conventional techniques. One cave that I visited a lot offered me my first challenge of nonconventional lighting. The cave was Tumbling Rock and the subject would be none other than the Topless Dome, a 396 foot dome with a waterfall. I had visited the dome many times and was well acquainted with lighting it for the groups to see. One day it hit me, why not try to capture this place on film?

I began pushing my limited knowledge about as far as it would go as I set out to capture the mighty dome. My trick lay in the massive spotlights I used to illuminate the dome on previous trips. These are rechargeable three and ten million candle power spotlights. I had tried using the spotlights in other photos, but always seemed to end in total failure as the print would have

a nasty hotspot in it. The secret was the moisture from the waterfall. If the moisture could diffract enough light then maybe the hotspot would not be as noticeable. Also, since the hotspot of the light had to travel almost 400 feet before striking anything then maybe it would be diffused enough to yield an acceptable image.

For my first attempt I set up the camera and got the shot framed up. Two three million candlepower lights were placed on the ground in the waterfall pointing straight up. I took a deep breath, collected my thoughts, and told myself that I was going to do this as I signaled for the lights to be turned on. There before me lay an awe inspiring sight. A 396 foot shaft with all its detail was there for me to capture and keep forever. I started shooting and counting. I had absolutely no idea of how long to expose the film so I figured I would shoot several and see what worked. In my haste I had forgotten to bring a watch. So there I was kneeling beside my camera, shutter release cable in hand, counting off the seconds the best I could. 33-34-35-36 CLICK! 36 seconds. I shot several more. Some with more exposure time, some with less.

Two weeks was the turnaround time on the slides. I called to see if they were ready and raced to pick them up. The lady at the camera store looked at me funny as I held up the sheet of slides and began to grin. Even though the slide was small, I could make out the Topless Dome. I remember how excited I was as I drove home so anxious to put the slide in the projector and really get a good look at it. I had failed with the lights before, would this time be no different? I got the slide in the projector and turned it on. As I focused it you would have thought I was a kid in a candy store. I was so happy. There it was, the Topless Dome of Tumbling Rock. The lights had worked just the way I had hoped. There was virtually no nasty hotspot and you could see clearly all the way to the top. For me that shot was a turning point. I thought maybe I have something to offer the caving community with these photos. I started shooting the place more and more, trying to hone my skills a little more each time. Later on I would return and shoot the same scene using two of the three million candle power spots and a single 10 million candlepower spot. In all it was a total output of 16 million candle power. The 10 million candle power light cost about \$30 and is available from Costco under the brand name Thor. They are bright and have a one hour runtime. However, you should be warned, they are very heavy and use a sealed lead



Danielle Nuding carrying a load of photo gear

acid battery that is difficult to replace.

The spotlights were great for the domes but now a new challenge loomed over me. I had the desire to create "what if" images that depicted light with the tone of sunlight to be cast in places where the sun does not shine. On past trips to the local hardware store, I remembered seeing compact fluorescent lighting that was about the same color temp as sunlight. I have seen fluorescent lighting used in cave photography before but those were mostly small battery operated units and were the wrong color temperature for my application. The compact fluorescent lights that I ended up using were Sylvania 42 watt that emitted 2600 lumens at a color temperature of 5100 Kelvin (which is close to the color of light coming from the sun at



Compact fluorescent tube used for in-cave lighting of photographs



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high noon). These lights would require an 110VAC power source. I had two options; I could either piece together over a mile of extension cord (I laughed as I tried to picture that) or I could build a portable power system to run the lights. Essentially I ended up gutting three devices (an old 12 volt spotlight for the battery, a 400 watt inverter, and a 12 volt battery charger) and using parts from them to build the 110VAC power supply. Mounting all the components into a pelican case made the package very portable and durable. The box has a display showing how many watts are being used and how much power is in the battery. It will auto shut down if the voltages drops below the acceptable range to run the equipment.

I finished the project the Friday night before the cave trip on Saturday. I have a bad habit of doing that. Testing time was here and the place would be Tumbling Rock. Yes, I like that cave. Here is an interesting side story. Friday night before the trip I dreamed that there was a light shining down through the hole in the ceiling leading to the Topless Dome. There was someone standing under it and it looked amazing. When I woke up to go caving I told my wife Joy that I knew exactly where in Tumbling Rock I was going to test the new lighting system. When we got there I shot some more pictures of the Topless

Dome (know anyone who needs one? I have plenty now). Now it was time to see if I could make my dream the night before become a real image. We carefully set up the equipment and placed the lighting. I was down at the camera and gave the instructions to turn on the lights. The box chirped, the cooling fan sped up, and the light started doing the fluorescent flicker as it sprung to life. There it was, the image in real life, just as I had seen in my dream. It was so unique that I just sat there for a moment trying to take it in. The power box was working, the light was working, the color was right, the scene looked good. It was time to grab something I could hold on to so I placed my model and started snapping away. After shooting 39 images we decided to power down, pack up, and head out.

When I got home I transferred the pictures to the computer and sorted through them. Picture number 39 was the one. That picture became known as *Loren's Light*. It was neat to imagine that the Topless Dome had collapsed, allowing sunlight to shine down. With this alternative lighting I was able to capture both my imagination and my dream. Some of my caving buddies who saw the picture requested that I shoot the same scene with them as the model and I have done so on a couple occasions.



Spotlights used in the Topless Dome photo

My short time in photography has taught me some valuable lessons. There are rules that can be followed and there are rules that can be broken. New tricks can be learned and dreams can end up as a framed print on your wall. Lighting for your shots does not always have to come from a strobe, bulb, or the Sun. You might be able to capture your image with those sources, but always feel free to step out of the norm and try something different. You will capture a place where few have been and many will never see.

Special thanks to members of the Huntsville Grotto for their support with these photos, to Danielle Nuding who sherpas, models, and helps me test new lighting tricks, and to Loren Marino who was the model for *Loren's Light*.

[Editor's note: When working with these kinds of unconventional light sources, for which the exposure is quite unpredictable, digital cameras really prove their worth. Not only does it preclude having to shoot lots of different exposures (bracketing, as Nathan describes), but one can also use the white balance settings to get truer color from a variety of different light sources. Automatic settings may work just fine, but many cameras also allow the user to choose from various presets on a menu, such as for incandescent and fluorescent sources, or better yet, to enter an actual Kelvin value.]

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Let's Bring Active Cavers into the Society

Membership in the Society provides a connection to cavers in grottos across the country. It also means a voice of thousands for conservation, exploration, and science. Maintaining a strong national organization is important to each of us in our own caving area. So how do we spread the message?

As I got out of my car at the local hardware store, a man came up to me and asked about my bat sticker. I replied that it was a caver thing. He then told me he had been to the crawl-a-thon at Carter Cave State Park, Kentucky. He also visited some caves in southern Indiana, but not often. How many cavers are out there, going caving on occasion, and not members of the Society? It was my chance to direct him to the grotto.

Unfortunately, I didn't have an NSS membership application to give him.

And just last month, I sat at our grotto meeting next to an active, experienced NSS caver. He asked me for an NSS application for a friend. I didn't have an application in my pocket, but this time I got one from the grotto. He could always get one from the web at caves.org or by writing to the office. But somehow it just seems best to strike while the iron was hot. Eric Weaver, Membership Committee Chairman, gave out membership packets at the Huntsville Convention Congress of Grottos. He would be happy to send a packet to your grotto. Applications are also available from the office along with several conservation/education brochures.

It is important for the caves and caving to bring these active cavers into the Society.

The best mechanism is involvement through our grottos. By including these non-organized cavers, we spread the message about cave conservation and safety. It is interesting to note that since this past summer, the society has added 4 new grottos. That is unusual, but a good sign that we are doing things right.

On another note, the International Congress of Speleology will be held in Kerrville, Texas in July 2009. The Congress is similar to the NSS Convention but with an international audience. At the fall board of governors meeting, the Society decided to combine the 2009 NSS Convention with the Congress. The NSS functions will be integrated with the Congress activities. It will be an exciting year for the Society.

Teens and Caving

BACKGROUND

I shared my daughter's school essay with our local grotto, which encouraged me to pass it on to the NSS. My older intellectual, non-athletic son became interested in caving at age 15 so I became involved as his "driver." Caving gave him the self-esteem and confidence to explore his current passion, climbing. He now leads caving and climbing trips for a university. As a junior high science teacher for 20 years, I found caving the perfect opportunity to take a few shy, "invisible" kids and expose them to their own challenges and strengths. Caving has been a gift to my entire family in ways perhaps my daughter expresses best in her essay.

Environment Essay by Whitney Reynolds (Age 15)

To the eye alone, this small hole in the ground is a black abyss, a meaningless pit of nothingness. If light is shed on it, however, it is transformed into a glittering world of wonder. I hang, tiny and insignificant, in this great hall of giants and wonder to myself, "why in the world am I doing this?"

Four years ago, in a southern area of Texas, I was at my cousin's ranch for Thanksgiving. Hiking in the beautiful hill country, I and a few family members stumbled upon a neat little cave. Ever since then, I have been a member of the National Speleological Society and the Lubbock

Area Grotto, a local caving club. When most people think of caves, they imagine caves such as Carlsbad Caverns, Mammoth Cave, or other "show caves." Real caving, though, is much different. The only light is that which you bring with you and neat little paths are non-existent. Albino crickets, myotis bats and sometimes daddy-long-leg spiders huddle together on walls. The flash of a camera is swallowed in the darkness and the possibilities of where to go or what to see are endless; much like my curiosity and hunger for adventure. It gives me goose bumps to rappel fifty feet down a rope into an underground cavern with hundreds of dripping pools of pure, clear water. My heart races when I hike for miles around glistening twenty foot pure white formations. My favorite caves, actually, are those that are muddy and maze-like. Crevices only tall enough to slither through on my stomach and holes only wide enough to slip into without a helmet beckon to me. Scrapes and bruises are no match for the thrill I get from venturing into this labyrinth. These are the caverns where I can explore and lose myself in the rare opportunity that only a handful of people get to experience.

Not only has spelunking improved my self-image, it has created an understanding of a world completely different than that which I experience everyday. While the daily hustle and bustle rushes me through life, my time in a cave makes me appreciate the calm serenity. Modern technology makes it nearly

impossible to find even a moment of peace, but underground, it's easy to discover hours of tranquil silence. I have found that caving takes me away from the complicated modern world and all of its judgments and takes me back to nature where I can appreciate life and its simplicities.

As I hang here in what many people assume is a frightening gorge of eternal darkness, I know it's a peaceful get-away, a million years in the making. Caving is more than just a hobby to me; it's an inspiration in life.



Whitney descending a pit

Submission Guidelines for the 2006 NSS Salons

General Information

The purpose of the salons is to promote cave-related art and to recognize excellence. NSS salons are open to everyone; those who enter need not be members of the NSS. The best of the entries for each salon will be exhibited August 7-11, 2006 at the NSS convention in Bellingham, Washington; some of the award winners may be represented on the NSS Cave Arts & Music Salons web site and/or in the *NSS News*. The top award for each salon will be presented during the convention's Thursday evening salon program. Self-portraits of entrants who receive the top awards will be projected, if provided by the entrant with their entry.

Entries

Each artist may submit as many entries as they wish, although each salon has an entry fee scheme. Various forms of an entry may be entered in several salons; for example, a photograph may be entered as a slide (or as a projected digital image), 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, or promote practices which are unsafe, flagrantly in violation of NSS conservation policy, or would be detrimental to good land-owner relations will not be accepted for judging. Entries that have been exhibited in past salons cannot be entered again in those salons.

Information To Be Included With Entry

Enclose a sheet of paper with your entries that includes
A) Your name and mail address,
B) A list of your entries each identified by an entry number (assigned consecutively starting with "1"), title, and the entry's salon category.
C) If you have e-mail, please provide your e-mail address.
D) For all but the cartographic and video salons, 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

Entries will be judged on the basis of artistic and technical merit, impact, and "caver appeal." Criteria for each salon are described at the NSS Salons web site. Some salons are judged prior to the convention, some are judged at convention. Further clarification can be obtained from the Salon Chair for each Salon.

Return Of Entries After Salon

Entries will be returned if requested at time of entry, unless specified otherwise in the Salon description. Entrants are encouraged to donate their entries to the NSS so the cave art 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 your entries 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 or other special fees (registered post, insurance, etc.).

Reproduction

Participation in a 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.

Specific Salon Guidelines

CARTOGRAPHIC SALON

ENTRIES - 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. All entries must be mailed to Jim "Crash" Kennedy, 3406 Catalina Dr., Austin, TX 78741-7041, postmarked no later than July 1, 2006, or delivered to the Cartographic Salon exhibition area at the NSS Convention by noon Monday, August 7, 2006. Maps may be displayed in the salon, but not judged at the entrant's option.

ENTRY FEE - There is no entry fee. Entries are considered to have been donated to the NSS unless picked up by the cartographer on the afternoon of Friday, August 11, 2006, or otherwise specified when submitted. If you wish your entry returned by mail, please provide postage cost. If you want someone else to pick up your entry, please specify this in writing when the entry is submitted.

CATEGORIES - Entries will be divided into three categories: Apprentice, Experienced, and Master-Professional.

JUDGING - Judging will occur at

convention.

RELEASE - No cave map will be reproduced by the NSS without the owner's explicit permission, except for display during the convention.

FURTHER INFORMATION - More information about the Cartographic Salon (including judging criteria) 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 Crash at 512-663-2287 or email him at jkennedy@batcon.org

CAVE BALLAD SALON

All entries must be sent to Barbara am Ende no later than May 15, 2006. Include a self-portrait, preferably in digital form, but slides or prints are fine. There is no entry fee - all entries are considered 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 entries will 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 email).

Judging will occur prior to convention. If you wish a 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.

COVER ARTS SALON

All entries must be mailed to Aaron Atz (2517 Glenwood Court, New Albany, IN 47150-1589), postmarked no later than March 15th, 2006. The entry fee is \$6.00 per entrant, regardless of the number of covers submitted. Separate awards will be made to the editor and artist/photographer of each winning entry (see entry information below).

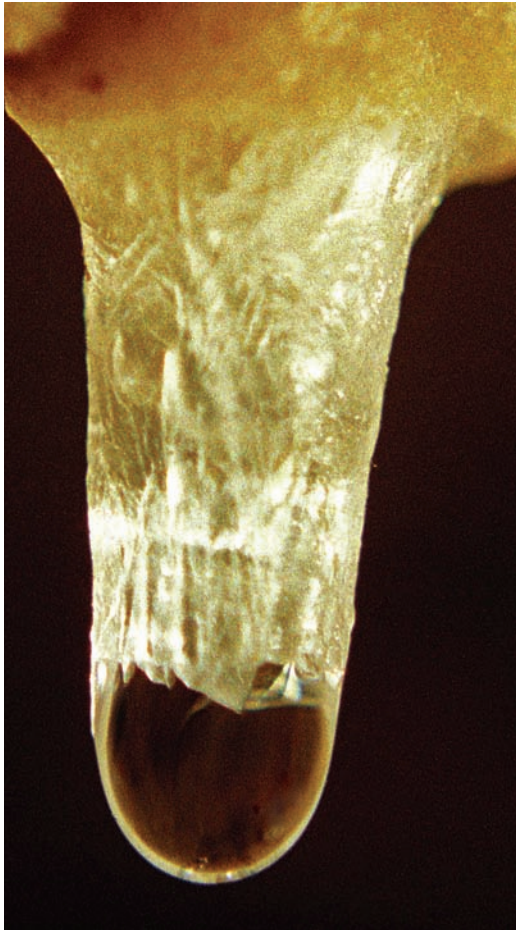
Due to a typographical error in last year's salon announcement, any covers distributed in 2003-2005 but never before entered in this salon will be accepted for the 2006 salon.

Covers must be from newsletters or



Here, some images submitted by members for the NSS News which did not accompany an article. We typically save these images for the occasional Members' Gallery such as this. Above, Ellie Hanlon examining the "Skeleton" of Western Ukraine's Krystalnaya cave (13 + miles) during UAYCEF's 11th Annual Ukraine Expedition in August. The "Skeleton" are the remains of one of the original explorers of the cave, who became lost in the early 1900s. Also pictured, in background: Chris Nicola, along with local cavers Svetlana Plaskon and Kosta Parin. Photo by Steve Duncan.

Below left: soda straw close-up from Dreen Cave, WV, by Wayne Russell; center, formation in Discovery Cave, AZ taken by the cave's discoverer, Kyle Voyles; right, formations in Silent Splendor, Cave of the Winds, CO, taken by Jeremy Anderson.



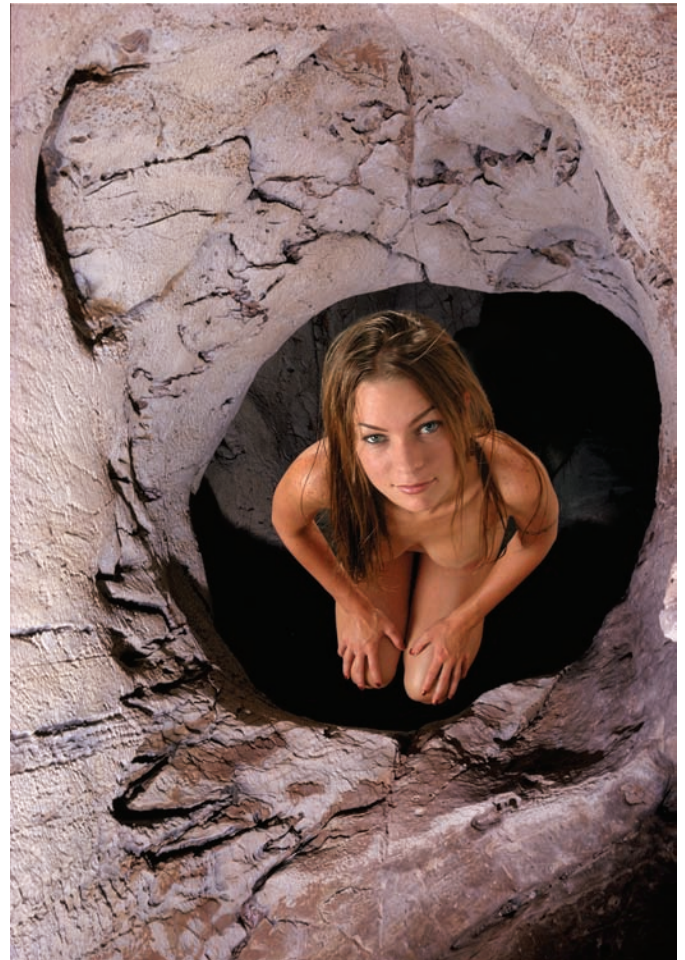


SALON GALLERY

Presenting the remaining ribbon winners from the 2005 Slide and Digital Image Salon. All received Honorable Mentions (green ribbons) except the first, which received a Merit Award (blue ribbon).

They are, clockwise from lower right:

1. *Sabrina Framed Phreatically*, by Dave Bunnell
2. *Spar Ramparts*, by Dave Bunnell
3. *Rays Frozen in Time*, by Nathan Williams
4. *Diggin Diggings* by James Loftin
5. *Classic Mother Lode Pit*, by Dave Bunnell
6. *So What if its a Railroad Tunnel?*, by Keith Christenson



Cave Photographer Spotlight

Elliot Stahl

Photo captions (clockwise from below:)

1. Crayfish in Breathing Hole Cave, Indiana
2. Sam Frushour in Wyandotte Cave, Indiana
3. Cave cricket in Mcfuds Cave, Tennessee
4. Ron Adams in Pipeside Pit, Alabama
5. Ty Spatta in Shiloh Cave, Indiana
6. Dave Stahl in the entrance passage of Patton Cave



other publications of NSS-affiliated organizations which were distributed in 2003, 2004, or 2005 and never before entered in this salon. If a cover is not dated from these years, please include with the entry a statement that the newsletter was distributed in 2003, 2004, or 2005. 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. Entries will be considered for publication in the 2007 Member's Manual.

Covers will be judged in one of three categories: (1) Photographic, (2) Non-photographic, (3) Online or Computer Enhanced. Please note on the back of each cover in which of the three categories you wish the entry to be judged. The "Online or Computer Enhanced" category includes: (1) covers that were only distributed in an online format instead of the traditional paper format, and (2) cover photos that were obviously manipulated by computer from the way they were originally printed or shot.

Example: If one creates a cover image by computer that didn't otherwise previously exist. Digital composites of multiple images also fall into this category. Covers with regular/non-manipulated digital images shall be submitted into the Photographic or Non-Photographic categories.

Furthermore, 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 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 the layout/design of the cover was a group effort, 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, for EACH entry. The card will 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

FINE ARTS SALON

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

ENTRIES - 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, 2004. 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 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.

CATEGORIES - Black and White, Abstract, Realist, Computer Generated, 3d, Amateur, Youth. Winners will be selected in each category and a "Best in Show" in each division.

FEES - Entry fees are per person: \$10 for adults and \$5 for youth (12 and under). Make checks for entry fees payable to the NSS. Number of entries is limited to 6 per person. Applications will be screened and artists will be notified by mail or email. 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 piece, category to be judged in (if judging is desired) and medium.

JUDGING - Judging will occur at the Convention. Judging for the Amateur and Youth Divisions will be by caver ballot.

FURTHER INFORMATION - Questions may be referred to Carolina Shrewsbury 6300 Jan Lane Drive Harrison, TN 37341-4916 phone (423) 326-3316 or e-mail speleoart@bigfoot.com.

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

MULTI-IMAGE PROGRAM SALON

DESCRIPTION - Exhibition of multi-projector programs and multiple image computer [for example *Slide Show To Go*, or *PowerPoint*] programs less than fifteen minutes in length.

ENTRIES - All entries must be delivered to Dave Bunnell at the NSS convention by Monday morning August 7, 2006 or shipped to Dave Bunnell, P.O. Box 879, Angels Camp, CA 95222 postmarked no later than July 1, 2006. Include a self-portrait

preferably as a digital image but a slide is acceptable. 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.

TECHNICAL DETAILS - The salon uses digital projectors, and Windows-based computers hosting *PowerPoint* and *Slide Show To Go*. If you use other software, you'll need to provide a run-time player or bring your own laptop with the software needed to run the show. If you plan to enter or have questions contact Dave Bunnell at dbunnell@caltel.com.

JUDGING - Judging will occur Monday afternoon at convention. If you wish to project your own program during the judging, contact Dave Bunnell before the entry deadline to arrange to show it for the judges. 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 a another time during convention.

FURTHER INFORMATION - Judging criteria are displayed on the NSS Salons web site.

PRINT SALON

ENTRIES - All entries must be delivered to Ann Bosted on Sunday, August 6th, 2006, between 10 am and noon at the NSS Convention Print Salon exhibition area, or mailed to Jim Borden, 2032 NE Katsura Street, Issaquah, WA 08029, postmarked no later than July 28, 2006. Please include a head-and-shoulders self-portrait, preferably as a digital image, if you wish it shown at the awards ceremony. No entrant may enter more than ten prints total, of which no more than eight may be in the digital category. 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, please 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.

Prints depicting nudes will not be accepted for display or judging. 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.

CATEGORIES - 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 - Judging will occur at convention on Monday morning.

FURTHER INFORMATION - If you have questions e-mail Ann at bosted@earthlink.net or call 757-249-2819.

SLIDE SALON

ENTRIES - All entries must be mailed to Cady Soukup Box 600, Flint Hill, VA 22627-0600 postmarked no later than April 15, 2006. Include a self-portrait slide or digital image. Please provide a list of all entries with each entry described by its entry number, title, photographer(s), classification category (A, B, C or D) and a short description of the image (location, participants, unusual stories associated with the picture), in a neatly handwritten list, a typed list, or in spreadsheet format.

ENTRY FEE - The entry fee is \$2.00 for entry of 1-3 film slides or up to 10 digital images. Add \$2.00 for each additional 1-3 film slides or 10 digital images. There is no fee if the film slide or digital image is donated to the NSS, but there is a limit of 50 slides or digital images per photographer. If you wish your entry returned by mail provide postage cost. A single story series is considered as one entry.

FILM SLIDES - Slides must be mounted in 2 x 2 inch mounts of 35 mm or super-slides. 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 - Digital images submitted for judging should be submitted on a CD or DVD in standard file format (TIFF, JPG, PDF - check for other image file types) in 3 resolutions: 1. **LOW-RESOLUTION** image suitable for web display (200 x 300 pixels), 2. **JUDGING/PROJECTION RESOLUTION** for judging (no larger than 1440 x 1080 pixels), 3. **FULL RESOLUTION** for possible print-

ing in the *NSS News* or other NSS print media.

ENTRY INFORMATION - 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 (or lighting / digital techniques) used to create an unusual photograph is appreciated.

CATEGORIES - Classification letters are: **A Story Series** (maximum of 20 slides, include a caption for each slide in the series); **B Scenes from Nature**, including closeups and images whether taken with single or multiple flash, or in natural light (each of these was a separate category in the past). **C Enhanced & Surreal Imagery**, including non-standard lighting, film processing, gels, computer enhancement, unusual subjects for a cave setting such as models in atypical attire, **D Humor**. Humor images are scored by the judges, but selected for show by the Slide Salon Co-Chairmen. If you have a slide that may not be up to full artistic standards, but is a crowd-pleaser for its humor, please consider entering it.

JUDGING - Judging criteria are displayed on the NSS Salons web site. Each classification of slides is judged separately with a single "Best of Show" award covering ALL entry classifications. Judging occurs prior to convention.

FURTHER INFORMATION - If you have questions e-mail Ray Cole at K4GAA@arrl.net.

SYMBOLIC EMBLEM & T-SHIRT SALONS

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

ENTRIES - All entries must be mailed to Kim Fleischmann (115 Stoneleigh Road, Bel Air, MD 21014) postmarked no later than July 29, 2006 or delivered to Kim at the Western Gallery by noon Monday, August 7, 2006. 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 a self-portrait preferably as a digital image [a slide is acceptable] if you wish it shown at the awards ceremony.

ENTRY FEES - 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.

RELEASE - 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 - Judging will occur at convention. T-Shirts and symbolic emblems may be displayed in the salons, but not judged at the entrant's option.

FURTHER INFORMATION - If you have questions, send e-mail to kfleisch@juno.com or call 410-838-4308.

VIDEO SALON

DESCRIPTION - Video entries will be accepted in any NTSC format; S-VHS is preferred.

ENTRIES - All entries must be mailed to Alex Sproul (5715 Lee-Jackson Highway, Greenville, VA 24440-1852) postmarked no later than July 15, 2006. 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. Include a self-portrait preferably as a digital image [a slide is acceptable] if you wish it shown at the awards ceremony.

CATEGORIES - 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 - Judging will occur prior to convention.

FURTHER INFORMATION - If you have questions, e-mail Alex at imo@caves.org or call 540-377-6364.

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CONSERVATION

Four local men were arrested and charged with criminal mischief and first degree criminal trespassing after illegally entering **Carpenter Cave**, a maternity cave for federally endangered gray bats (*Myotis grisescens*). Landowner John Newman called authorities after the alarm in his home alerted him to trespassers in the cave. Conservation officers from the Kentucky Department of Fish and Wildlife Resources responded to the call and went into the cave with Newman to catch the intruders. The Fall 2005 issue of *Naturally Kentucky*, a quarterly publication of the Kentucky State Nature Preserves Commission, states Newman, a retired electrical engineer, designed a voice warning system that tells intruders to vacate the cave and trips an alarm that sounds in his home. Both are activated by light. The defendants could have faced federal charges had there been proof of harm to any of the bats. The defendants were charged \$1,000 restitution for the alarm they destroyed and given three-month jail terms, probated for two years.

The **Jiyer Caves**, containing some of the oldest Aboriginal paintings in the world, has received a third tier of protection by the Environmental Protection Agency. The caves, located in Wooroonooran National Park in north Queensland, have been declared a restricted access area. (November 16, 2005 *ABC News*)

Carlos Camp, a biology professor at Piedmont College, is one of the few to visit a pristine northwest Georgia cave. He has been returning to the cave for six years to count the salamanders that live there. Allen Padgett, a retired wildlife technician, Camp, and state biologist John Jensen, were on this trip searching for the rare Pigeon Mountain salamander (*Plethodon petraeus*), which exists only in a 6-mile zone on one side of Pigeon Mountain. Nearby sets **Pettyjohns Cave**, one of the most popular caves in the southeast. The opening is smooth, like a flume, sanded down by the thousands of scout groups and adventurers who visit the cave each year. Once inside, the cave opens into enormous passage, marred by fading spray-painted graffiti, scattered litter, and the smoldering remains of an illegal fire pit, banned in the cave for both safety and aesthetic concerns. The fragile ecosystem needed by the Pigeon Mountain salamander would not survive the continuous traffic of Pettyjohns. Padgett hopes to protect the salamanders and their home by keeping the cave unknown and less traveled to all but

a few dedicated scientists. (November 13, 2005 *Ledger-Enquirer*)

BATS

Since Ebola was discovered in 1976, researchers have been seeking the natural reservoir of the virus. New research suggest bats, known to be reservoirs for several viruses including rabies, Nipah, Hendra, and SARS, may also be carriers of Ebola hemorrhagic fever. An international team of scientists has discovered evidence of symptomless Ebola infection in three species of fruit bats, the Hammer-headed bat (*Hypsignathus monstrosus*), Franquet's epauletted bat (*Epomops franqueti*), and the flying fox (*Myonycteris torquata*). Scientists have found either evidence of the immune globulin (G) protein specific to Ebola virus in the blood, or fragments of the virus in the liver or spleen, of all three species. Although earlier studies indicated that bats could be experimentally infected with Ebola virus, suggesting that they might be carriers, the new findings show that bats may play a role in transmitting the virus to primates and people. The report is published in the December 1, 2005 issue of the journal *Nature*.

As if being the suspected hosts of the Ebola virus was not bad enough, an article in the December 7, 2005 edition of the *Times Online* (United Kingdom) strips bats of any remaining vestige of dignity. A team led by Scott Pitnick, of Syracuse University, compared testicle and brain size in 334 different species of bat, and reached the conclusion that male bats grow large testicles at the expense of small brains. The results, published in the journal *Proceedings of the Royal Society*, indicate that bats might be evolving according to an "expensive tissue" hypothesis in which scarce energy is invested in either brains or testicles according to which confers the greater adaptive advantage.

CAVERS

Microbiologist Hazel Barton is one of nine scientists featured in an article on outstanding field researchers in the October 2005 issue of the *National Geographic Adventure Magazine*. Her exploration of hydrothermal spring caves and Colorado's **Glenwood Caverns** has led to the discovery of unique microbial ecosystems within the caves. On a related note, the December 2005 issue of *Outside Magazine* lists Barton as one of the top 25 visionaries in exploration, science, technology, and volunteerism. Each of these scientists is blaz-

ing a new trail in their field of expertise on a quest to provide solutions for the future. Barton's microbiological research, conducted in locations from Central America to the Appalachian Mountains, for microorganisms armed with antibiotic weapons earns her the title of "Medicine Hunter" and is the focus of the recent segment. Barton's endeavors have already led to her renowned status in the scientific field as well as acclaim in caving circles. Both articles feature images by cave photographer Dave Bunnell.

John Ackerman, a long time NSS member and caver who has discovered and owns 29 caves on his 500-acre Minnesota Karst Preserve, is recognized as one of the National Geographic "Iconoclasts Adventurer of The Year." The article, in the December 2005/January 2006 issue of *National Geographic Adventurer*, features the year's best athletes and explorers in their chosen field. Ackerman is already well known within the caving community for his success in discovering and opening caves. Although his methods have occasionally elicited criticism from caving purists, his passion for discovering and preserving caves is not disputed.

THE SOCIETY

The Timpanogos Grotto received accolades in the December 3, 2005 edition of the *Daily Herald* (Utah) for offering an alternative to closing **Nutty Putty Cave**. The grotto has offered to take over management of the popular cave that state officials have considered sealing shut to avoid accidents. The cave, located on the property of the Utah School and Institutional Trust Lands Administration, has been the site of a number of rescues in recent years, drawing more attention to the cave than usual.

The December 8, 2005 edition of the *Asheville Citizen-Times* highlights the Flittermouse Grotto's recent exploration trip to **Worley's Cave**, also known as **Morrell's Cave**. In addition to exploration, conservation is key to the grotto's mission, as well as proper safety and vertical caving instruction, led by grotto member Dan Henry. The Asheville-based grotto was founded in the early 1970s by Cato Holler, who began caving as a hobby, but later became interested in cave biology. Holler, his wife Susan and their children, including daughter Nancy Holler Aulenbach, a nationally known cave rescue instructor who starred in the 2001 IMAX movie, "Journey into Amazing Caves," have made caving a lifetime avocation.

SHOW CAVES

Historical researcher William Milhorn has been working at **Appalachian Caverns** (Tennessee) to uncover the human history of use in and above the cave. Milhorn, and site curator Roger Hartley, have found hard evidence while excavating an old cabin on the property that may date a Colonial presence on the land as early as the 1760s. Within weeks, they hope to have dozens of artifacts on display in the caverns' gift shop. (November 27, 2005 *Kingsport Times-News*)

Cave Diving

The NSS Cave Diving Section has been monitoring development above caves across Florida because of the potential to pollute groundwater, which then flows through the water-filled caves located within the state. The impending development of a Wal-Mart Supercenter above the **Mill Creek Sink** Nature Preserve has cave divers concerned that not only will the water be impacted, but that sections of the cave itself will be adversely affected. An article in the November 26, 2005 edition of the *Gainesville Sun* focuses on the efforts of Cindy Butler, Gene Melton, and a team of other cave divers researching the ground above the cave. The group will present their findings to Wal-Mart as the company moves forward with plans to build a store on the 31-acre property. Butler, a certified cave-diving guide who leads expeditions into the nearby Mill Creek Sink, believes the fragile cave system could be damaged by development, especially a fissure located in the rock below the proposed site.

A coroner has called for safety measures to be reviewed after a March 2005 cave diving death while exploring a cave in the Yorkshire Dales. Experienced cave diver Colin Pryer died in **Low Birkwith Cave** after becoming entangled in loose line left by another diver during the 1970s. Pryer had been cave diving as a hobby for four years and he had qualified as a cave diver six months before his death. Cave diving expert Brian Schofield, from the Cave Diving Group, told the inquest that Pryer did all the right things to sort out the tangle, including trying to cut the tangled line with a knife and taking off his empty oxygen tank, which was found discarded. The incident was ruled an accidental death. (December 9, 2005 *Yorkshire Post*)

SPELEOLOGY

Bill Halliday, though a medical doctor by profession, is an acknowledged expert in the field of speleology and Honorary President of the Commission on Volcanic Caves of the International Union of Speleology. He has been studying caves, especially lava-formed

caves, for half a century. Along with local cavers and the blessing of the National Park Service (NPS), Halliday has been engaged in the first project to systematically locate, map, and scientifically investigate lava caves in the Kilauea Caldera. After eleven years of effort, the almost completed project is at a standstill due to high levels of carbon dioxide (CO₂) detected by Hawai'i Volcanoes Observatory seismology instruments. The findings prompted the decision by NPS to temporarily close all caldera caves and rescind cave and research permits until it is determined that the emission rate of carbon dioxide has returned to acceptable levels. The directive has Halliday and his team fuming. Halliday has his own documentation and research data, which indicates that the Park's directive is based on faulty science: that not all of the caldera is releasing gases such as CO₂ and conditions in the seismometer vault were not the same as in natural caves. Other veterans of the speleological study, Ole Fulks, Harry Schick, Lynne Brauher, and Jack Russell Brauher tend to validate Halliday's claims. The article, "Exploring Pele's Vaults," can be found in the October 17, 2005 edition of *Hawaii Island Journal*.

ANTHROPOLOGY/ARCHAEOLOGY

The study of deviant burials in ancient societies is the focus of an article in the October 28, 2005 issue of *Science Magazine* (Volume 310). Researchers have long analyzed elite burials, marked by opulent grave goods and dramatic monuments. At the opposite end of the spectrum, in many societies, special burials also given to outcasts and certain classes of people, including criminals, women who died during childbirth, people with disabilities, and unbaptized children. Deviant burials often took place in isolated, unconsecrated burial grounds. Investigation into the practice of deviant burials can give insight into the broader social and religious beliefs of a society.

An in-depth profile of Phillip Tobias, emeritus director of the University of the Witwatersrand Sterkfontein Research Unit, is found in the same issue of *Science Magazine*. During eight decades of scientific pursuit, Tobias has emerged as a key figure in paleoanthropology, between early visionary pioneers to today's more systematic practitioners. Tobias' career has crossed many disciplines, from caves to chromosomes, studies of human growth, to detailed analyses of fossil skulls. He has authored 1,130 publications, including landmark studies of the *Australopithecus* ape-man and the early human *Homo habilis*. Tobias is perhaps South Africa's most honored living scientist.

Increasing evidence from archaeological excavations and new analyses of prehistoric human migrations is testing the once widely accepted view that early man crossed a land bridge from Siberia into Alaska as the last ice age was ending 13,000 years ago. According to an article in the November 14, 2005 edition of the *Atlanta Journal-Constitution* a wave of archaeological revisionism, fueled in part by unfolding discoveries in South Carolina, is challenging long-held views about the first Americans.

The Winter 2005 issue of *Expedition Magazine* (Volume 47, Number 3) is a special issue featuring cave archaeology. The issue includes articles, from experts in the field, on caves around the world.

BIOSPELEOLOGY

A species of blind, cave-dwelling salamander in Oklahoma feeds on bat guano, according to research published in *Proceedings of the Royal Society B1* and the November 16, 2005 online version of *Nature*. A population of grotto salamanders (*Eurycea spelaeus*) that lives in **January-Stansbury Cave** has apparently changed its diet, which normally consists of small insects, to take advantage of large concentrations of protein-rich bat droppings. The study, lead by Danté Fenolio, a herpetologist from the University of Oklahoma, found that guano from the cave's population of 15,000 gray bats (*Myotis grisescens*) is quite nutritious. Fungi, bacteria, and crustaceans have long been known to feed on bat droppings, however this study marks the first observation of amphibians feeding on the food source. William Elliott, a cave biologist with the Missouri Department of Conservation, believes finding the links between endangered species and their role in the caves' ecosystem will help us to conserve them.

Funded by a small grant from Southeast Missouri State University, Bruce Moyers, graduate student at the University of Central Arkansas, and Brad Pobst, a fisheries management biologist, began research on grotto sculpin in July 2005. About once a month Pobst, Moyers, and a research crew tag as many cave-dwelling grotto sculpin as they can catch. Their intent is to shed light on the mystery of a three-inch fish that dwells exclusively in six caves in Perry County, which contains more than 650 known caves. Moyers will spend two years in the field to study the movement, population size, growth rate, and lifespan of the sculpin. (December 2, 2005 *Southeast Missourian*)

A team of researchers from the University of Alabama (UA) recently discov-

ered what is believed to be a rare Alabama cave shrimp (*Palaemonias Alabamae*) in **Muddy Cave**. If genetic tests prove the researchers right, the obscure cave would become one of just four places in the world, all in Madison County, where the tiny, blind crustaceans are known to exist. An endangered species since 1988, the shrimp were thought to inhabit a single cave on Redstone Arsenal and two others near Gurley. The December 04, 2005 edition of the *Huntsville Times* reports Dr. Bernie Kuhajda, who manages the UA biology department's fish collection, received permission from the Fish & Wildlife Service to catch the shrimp for genetic testing. Randall Blackwood, a Grissom High School science teacher, said the Alabama cave shrimp disappeared from nearby **Shelta Cave** decades ago when homebuilders started spraying for termites in the area. While the nation's small fraternity of cave-shrimp experts celebrates the November 2005 discovery, it promises to complicate plans for Huntsville's \$500 million Southern Bypass, which may have to alter the proposed route to protect the species.

CAVE RESCUE

A 2-year-old hunting dog trapped 70 feet underground in **Panther Cave**, near the boundary of Great Smoky Mountains National Park, became the subject of a technical rescue by ranger Rick Brown after campers heard barking from a hole in the ground. The article, in the November 17, 2005 edition of *The Daily Times* (Tennessee), reports the dog is recuperating at the veterinarian and his prognosis is excellent, despite the fact he had not eaten for 16 days.

CAVE DEATHS

A 14-year-old youth drowned when water blown out of a reservoir in a sudden gale caused flash flooding in **Manchester Hole**. The November 17, 2005 edition of *ITN News* (United Kingdom) reported that the victim, Joe Lister, was part of a group learning the basic principles of caving in North Yorkshire. The fatality happened on the first day of an annual school trip.

TECHNOLOGY

A technological innovation project, a collaboration between Dr. Penelope Boston and Dr. Steven Dubowsky to develop "hopping microbots" capable of exploring hazardous terrain, including caves, was one of only a handful of projects to receive Phase II funding earlier this year. If the project pans out, hopping microbots may some day be sent to search for life below the surface of Mars. Phase II funding allows the research to continue from the concept phase to the crude prototype stage. Funding was provided by the NASA Institute for Advanced Concept. (December 8, 2005 *Astrobiology Magazine*)

This month's contributors: Jerry Atkin, Bill "Bighorn" Broeckel, Dave Bunnell, Russ Carter, Allan Cobb, Ernie Coffman, Tom Cravens, David Gerboth, William R. Halliday, Cindy Heazlit, Don Hediger, Cheryl Jones, David Locklear, John Lovaas, Lynn Roebuck, Dirk Siron, Gary K. Soule, Jack Thomison, Bill Torode, Roy Vanhoozer, George Veni, Jim Wilbanks.



ALEX GOES UNDERGROUND

JEFF & NINA ASCEND



The time has come for me to retire and follow the dream of grandkids, travel, and more caving. It has been my pleasure to serve you for 22 years; I look forward to continuing to see you at Conventions and events. Please welcome the new owners of **IMO**, Jeff & Nina Martin, who will serve you with distinction!

Alex Sproul

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Please note the new address and phone

RD Millhollin and Marvin Miller announce the opening of the Government Canyon State Natural Area in the November issue of *Cowtown Underground* (Cowtown Grotto, Fort Worth, Texas). The establishment of the natural area marked the culmination of a 12-year campaign by cavers and non-cavers alike. The 8,622-acre site is located only 16 miles from downtown San Antonio, and its establishment ensures its preservation from development activities. The canyon is a major recharge area for the Edwards Aquifer which supplies San Antonio's drinking water. The area is also home to the **Government Canyon Bat Cave** spider, and the endangered golden-cheeked warbler.

Cavers have been active at the canyon since the initial purchase of several parcels of land in 1993. That catalyzed a project to survey and inventory karst features in the area. At the start of the project the only known cave was Government Canyon Bat Cave which contains a single large chamber measuring 100 meters long, 12 to 20 meters wide, and 10 meters high—the largest in Bexar County. Since then cavers have discovered 38 more caves, including 5 which contain endangered species. The longest cave found to date is **Lithic Ridge Cave** which has a surveyed length of 169 meters. **10K Cave** is currently the deepest at 19.4 meters. Millhollin and Miller note that there's lots more potential for new finds, with only about half of the natural area having been systematically ridgewalked, meaning there's over 4,000 acres that hasn't been looked at yet. Trips occur monthly, with announcements in various grotto newsletters and on the Texas Cavers e-mail list.

The 12th annual Trout Rock Conser-Vacation is summarized by Bob Hoke in the August issue of the *D.C. Speleograph* (D.C. Grotto). The name "Conser-Vacation" was attached to the event several years ago, and it has stuck ever since. This year's annual cleanup at the NSS-owned **Trout Rock Caves** property was hosted by Pauline Appling and drew 15 cavers. The crew focused on **Trout Cave**, which sucks in the most visitors to the property, which also includes **Hamilton Cave**. Though Trout was in pretty bad shape with lots of graffiti when the Conser-Vacations started, the first few trips managed to get the cave back into reasonably pristine condition. Since then each year brings only a few arrows and initials, not bad considering all the traffic the cave attracts. This year was no exception, and the crew was able to make short work of what little graffiti and trash they found.

A report and map of **Kristes Cave**, Orange County, Indiana, is found in the October issue of the *CIG Newsletter* (Central Indiana Grotto). The cave was surveyed by Jeff Frazier and Jerry Litaker in June, and Frazier provides the report, with Litaker delivering the map. The cave's entrance is a small pit, which leads to a tight squeeze-slide of about 5 feet to a 90-degree bend, before opening into a small room 3 feet high and 15 to 18 feet across. From here a passage continues as a crawlway before pinching, though Frazier notes that there's probably more cave to survey for someone smaller and younger. The entrance is located just above a large spring which discharges vigorously during wet weather, and the cave is known to flood to the gills from time to time. The cave survey totaled 220 feet, with a vertical extent of 9 feet.

Elsewhere in the issue Ty Spatta and Dave Everton add separate articles that recollect the history of the Redhills area in Monroe County, and summarize recent survey activities there. In June, Spatta, Everton, Rance Fawbush, and Mike Drake headed out to Redhills and bagged the survey of three caves. The first cave surveyed was **Stench of Death Pit**, a 64-foot deep, dead bottom pit. The next cave surveyed was **Frog Den Cave**, 46 feet long and 27 feet deep, which hadn't previously been recorded in the Indiana cave files. The third cave and the largest was **The Slot**, which taped out at a length of 224 feet and vertical extent of 33 feet, and has some nice formations. Everton notes that there's lots more potential in the Redhills area, but logging operations in the 1990s have allowed a lot of vegetation to take over, making finding new caves more difficult.

Dave Everton, Scott Fee, and Ty Spatta tick off another cave survey from the Indiana cave files in the November issue with a report and map of **Clarkson Cave**, Owen County. The cave survey was started by Fee and Everton in September of 2002, but Fee managed to aggravate an old injury during the survey, forcing the two to retreat. The survey was left hanging for years, as other projects beckoned, until Everton returned with Spatta to finish it off in July 2005. The entrance is a scenic, 27-foot wide by 9-foot-high opening located at the head of a ravine, but a short distance inside the passage pinches down to 2 feet high, with 6 inches of water flowing out along the floor. The cave eventually comes to a Y, with the left side continuing tight and low for about 25 feet. The right side is more sporting, with an active wall-to-wall stream, an ear-dunker, and two

domes before reaching a sump. The cave was surveyed to a length of 251 feet.

Also in the November issue, Dave Everton and Mike Drake report on **Ellett Cave** and **Ellett Pit Cave**, both in Monroe County. The caves were surveyed by Everton, Drake, Ty Spatta, and Jerry Litaker over two trips in March and May of 2005.

The former cave seems to have been well known to locals, as evidenced by scrawls found near the entrance and elsewhere in the cave, but never made the Indiana Cave Survey files. The 1.5 by 3 foot entrance is located in the bottom of a 100-foot diameter sinkhole, which opens up immediately into a standing-height passage measuring 40 feet wide in spots. The cave was surveyed to a length of 118 feet.

Ellett Pit Cave is a 21-foot drop into a narrow canyon, with passage dead-ending after 50 feet in one direction, and pinching out after 25 feet in the other direction. Drake figures this passage drains into nearby Ellett Cave.

Steve Peerman describes an accident he had while digging in **Big Manhole Cave** in the September-October issue of *Southwestern Cavers* (Southwestern Region). Peerman had been working away at freeing a large rock, the subject of digging over two trips, when it broke loose. Though he'd prepared for the fall, the rock pivoted awkwardly after it popped out, and rotated over Peerman's foot as it hit the floor. Peerman was able to extricate his foot from under the suitcase-sized rock, but noticed immediately that it "didn't feel right." Peerman managed to negotiate the climb out of the cave despite his discomfort, and a visit to a doctor later revealed that the rock had broken his foot.

John Ganter delivers his map and a description of **Broken Back Cave**, Socorro County, New Mexico, first noted by New Mexico Tech Caving Club members Nat Holland and Nate Dale on November 22, 2003. The gypsum cave is located in a basalt-rimmed sink measuring 300 feet by 150 feet and 25 feet deep, and was surveyed to a length of 250 feet and depth of 96 feet in April, 2004. The cave is a significant Townsend's Western Big-eared bat hibernaculum, with 155 bats present during a BLM requested bat count in March, 2004.

The cover of the October issue of *The Alaskan Caver* (Glacier Grotto) features an impressive Ella Fish photo of her husband David descending into the depths of **Starlight Cave** on Prince of Wales Island.

Inside, Kevin Casey delivers his report on the 2003 Prince of Wales expedition, and publishes maps of several new discoveries.

Constantine's Cave was discovered by Casey and Sarah Cervone while walking a muskeg of several acres, which drains to a single stream which flows into the cave's entrance. Several hundred feet of dipping vadose passage inside the entrance led to a room, and then to where the passage fell down a series of waterfalls and cascades. With rigging help from Pete Smith, the survey continued down the first drop and stopped when the crew reached the end of the rope. Returning again, this time with Marcel LaPerriere, surveying continued down another sportingly wet 100-foot pit before time ran out. The cave was bottomed after one more trip, yielding a length of 1,234 feet and depth of 424 feet. Casey also includes maps of two more Prince of Wales Island caves: **Joachim Cave** (221 feet long, 71 feet deep) and **Elusive Cave** (254 feet long, 68 feet deep).

Chris Woodley's photo of Alex Dymerski admiring formations in the newly discovered **Sustained Orgasm Cave** is featured on the front cover of the November issue of *The Highlander* (Virginia Highlands Grotto). In April, 2004, Woodley, Larry Baer, and Brien Ferris stumbled upon a small hole oddly located up on a ridge between two drainages. The hole's position was noted, and Baer returned with Tim Grimm and Rick Wagner to dig it in June, 2004. Their efforts reached the top of a tight vertical slot, which was enlarged on a return visit the following month by Baer, Dymerski, Jim Coble, and Barry Horner. Finally, in October, 2004, Horner, Rick Lambert, and Jonathan Helta managed to enter the cave and began surveying, grabbing 149 feet that first day before stopping partway down a challenging pit they named Bad Omen Pit.

In November, and with additional webbing and cable ladders, Horner and Lambert returned, rigged Bad Omen Pit, and added another 168 feet of survey in several leads off the pit, and succeeded in bottoming the drop, pushing the depth of the cave to 131 feet. Finally, in December, Woodley, Dymerski, and Scott Wahlquist finished the survey. The cave survey totals 418 feet in length, with a depth of 131 feet.

"The Original Hyper-Bar" is the title of John Woods' article appearing in the November issue of *The Explorer* (Southern California Grotto). Woods describes a technique of adding a "hyperbiner" to a standard 6-bar rack to achieve the same friction advantage and lock-off ease of the newer mini racks which include an extra long "hyper-bar" top bar. With a 6-bar rack,

simply add a non-locking carabiner around the frame above the top bar. When you want to lock off your rack, just pull the rope up and clip it through the carabiner, and then run the rope back under the rack (Woods suggests that heavier cavers may like a second run of the rope around and under the rack) then just tie it off above the rack. The loops take the load of the tie-off knot, and it can be easily undone with one hand while the other holds the loaded rope for safety. Getting the rope out of the carabiner is the hardest part, but it also can be done with one hand. Woods' article includes photos which diagram the steps.

After the cave cleanup, what do you do with all that interesting stuff you found? Get rid of it at the Grotto auction is the innovative answer offered in the November issue of the *San Francisco Bay Chapter Newsletter*. The front cover is a Bill Frantz photo showing cavers Peri Frantz and Elizabeth Covington digging out broken glass from the clay floor of California's **Empire Cave**. Inside Bill and Peri review the annual cleanup project of the heavily used and abused party cave. One of the items the cleanup crew found was a large suitcase containing a "number of items which would be useful for an in-cave party." It seemed that the suitcase had been placed there recently, so what to do with the suitcase full of fun? Apparently the items will be featured at an upcoming Grotto auction. During the cleanup, members noted having shortness of breath in one of the rooms at the rear of the cave. A bic lighter test showed a 3/4 inch gap between the lighter and the flame, indicating high carbon dioxide levels, and cutting short an otherwise successful cleanup.

Ray Keeler recounts the discovery of a couple of Arizona caves in the November issue of the *Cave Crawler's Gazette* (Central Arizona Grotto). In the spring of 1992 Keeler went to follow up on a report of a 150-foot deep pit given him by Rob Beery, a local search and rescue team member and fire fighter. When Keeler took a group of cavers out to check the report, they couldn't find the pit Beery had told them of, but instead found an empty cattle pond with a small hole in the bottom and a nearby sinkhole. Deciding to dig in the cattle pond, the group opened up **Strawbones Cave**, which they kept secret. After checking directions to the reported pit again with Beery, they decided that Strawbones Cave was not the pit Beery had talked about, but that the pit was likely in the sinkhole. In the meanwhile, Beery got interested enough to go back to the site again, and found the newly uncovered Strawbones Cave entrance. He told a local newspaper, and took a reporter to the cave,

and soon word was out about the newly opened cave and significant damage was occurring. The cave was gated, but the gate would be torn off at least eight times in the ensuing thirteen years. The follow-up trip to the sinkhole yielded **False Hope Cave**, a single room with about 100 feet of passage. The elusive pit may still be there, plugged by debris in the sink. Keeler hopes that the sink will eventually flush out.

Elsewhere in the issue Keeler adds a report and map of **Grey Mountain Airstrip Cave**. As the name suggests, it's found literally in the runway of a small plane landing strip. Keeler and Paul Jorgenson went to check out the rumors of a cave there in August and found a 55-foot deep pit that pinches out to 9 to 10 inches, but has strong airflow. Keeler suggests that a small, thin person should be able to squeeze on further to see where the air is coming from.

Wrapping up the issue, Keeler adds yet another cave report and map, this one of **Twisted Stick Cave** in Gila County. The cave was dug open by cavers in the mid-1990s during a flurry of activity in the area, and was mapped by Keeler, Bryan Doty, and Taran Doty on May 26, 2001. The cave currently stands at 137 feet in length, but Keeler notes that a diggable, dirt-floored passage at the rear of the cave might go.



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FROM BAT SONAR TO CANES FOR THE BLIND (2006) by Toney Allman. KidHaven Press/Thomson Gale. New York. Hardcover, 32 pages, 7¼" x 9¼" format, ISBN 0-7377-3191-5. \$23.70.

This intriguing book is part of Thomson Gale's *Imitating Nature* series, which strives to show how scientists and inventors are imitating nature in their quest to discover new ways to improve human lives. Other titles in the series include *From Barbs on a Weed to Velcro*, *From Bug Legs to Walking Robots*, *From Spider Webs to Man-Made Silk*, and *From Penguin Wings to Boat Flippers*

From Bat Sonar to Canes for the Blind follows the vision of Dean Waters, a professor of biology at Leeds University in England who is interested in bats. After years of studying these marvelously adapted, night-flying animals, Waters wondered if humans could process sound information in a manner similar to that of echolocating bats. If they could, Waters reasoned, this might open up an entirely new avenue of research, one with the principal benefit of providing a technology of practical value in helping blind people.

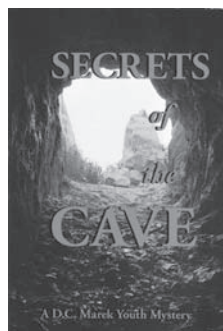
In this well-written and nicely illustrated book, Toney Allman presents an interesting discussion of bat echolocation and then follows Waters as he recruits various experts to help him devise a sonar-based cane of potential use to the blind. The first UltraCanes, as they came to be called, were ready for testing in 2002. After sending out a succession of acoustic signals in all directions, a built-in detector/transducer then translates the returning echoes into vibrations that can be felt along a series of buttons in contact with the user's fingers. Information about objects in one's path is signaled to the user by the speed and intensity of vibration. The location of an object is signaled by the particular button vibrating. In testing, the UltraCanes proved to be quite useful, providing users with significantly more information than could be obtained from traditional—and considerably more limited—canes currently used by the blind.

Primarily aimed at children 8 to 12

years of age, this interesting book is sure to stimulate a world of ideas. An index, list of suitable references and websites, and a short glossary of terms increase the book's usefulness.

As we gaze in amazement at the natural world around us, it remains to be seen what other interesting technologies will ultimately be developed based on ideas garnered from the animal world. What thoughts do you have in this regard?

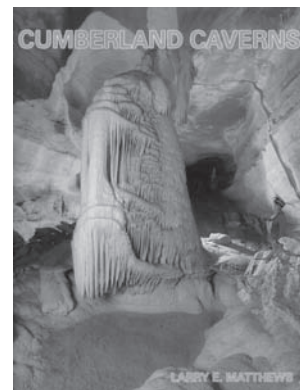
Danny A. Brass



SECRETS OF THE CAVE (2005) by D.C. Marek. AuthorHouse, Bloomington IN. Paperback, 98 pages, 6" x 9" format, ISBN 1-4208-7277-X. \$11.95 For readers aged eight and up.

Ten-year-old Jimmy Pittenger was not particularly happy about his family moving from Indiana to Connecticut. Nor was he looking forward to being the new kid in a school full of strangers. However, all that changed the day he met his new neighbor, Mike. The same age as Jimmy, they quickly became the best of friends. While out exploring one day, the boys discover a cave located high on the wall of a cliff that overlooks the sea. Despite its seeming inaccessible location, they were determined to find a way to explore it. Gathering the supplies they might need, Jimmy and Mike slip away in the middle of the night, bound for an adventure neither of them could possibly have foreseen, or even imagined. Their encounter with the unexpected secrets within the seaside cave turns out to be the stuff of dreams—and of nightmares. To be sure, their discovery will be a tale well worth telling, if only they can escape with their lives. Although variations of Marek's plot have been widely used in literature, the author presents an interesting tale that is sure to strike a sympathetic chord in adventurous youngsters. However, in touching on aspects of friendship, acceptance, trust, and family values, *Secrets of the Cave* is far more than just a simple adventure story.

Danny A. Brass



CUMBERLAND CAVERNS Larry E. Matthews. Greyhound Press, Cloverdale, Indiana; 2005. ISBN 978-0-9663547-2-0. 8.5 by 11 inches, 188 pages, softbound. \$18.

Cumberland Caverns was known as Higgenbotham and Henshaw caves during most of its history, before it was turned into a Tennessee show cave by Roy Davis and Tank Gorin in 1955 and 1956. Similar in style and content to Matthews' recent book on Dunbar Cave, this book is a nice account of the history of Cumberland Caverns, which began in the pioneer days and continued, as far as significant events go, up to the completion of the current map in 1978, at 27.6 miles. Among the appendixes are a nice gazetteer and a chronological summary. Roughly half the entries in the chronology, if one ignores trivial things like forty-four entries for the annual Cumberland Caverns Christmas parties, are from the nineteenth century. There is also a poem that was apparently inspired by Higgenbotham Cave in 1880. It has over four hundred lines of the good old-fashioned sort that actually rhyme and scan.

This is a slightly revised and updated second edition of a book that was originally published by the NSS in 1989. It has been reformatted to a larger page size, and the photographs, many of which are new to this edition, are much better reproduced. (A number of photographs in the first edition could not be reprinted, though, so that edition may still be of interest to serious historians.) There are many nicely drafted maps, in the style of the 1970s, of parts of the cave, but the small scale required for even parts of such a long cave would not have permitted much floor detail anyway.

Cumberland Caverns was one of the most exciting cave exploration stories during the 1950s and 1960s, and cavers as well as speleo-historians will enjoy this book.

Bill Mixon

Most cavers dream of discovering a new cave, and maybe even a new caving area. As with other years, February being the month of love, a caving couple has been interviewed. This couple not only found a new caving area, they found that a whole country had caves that were unknown, which has led to speleology expanding throughout the Middle East.

John Pint

NSS #19504

Susy Pint

NSS #35329

You're back living in Jalisco, Mexico again, after twelve years in Saudi Arabia, exploring caves under the desert. Whatever inspired you to go to Saudi Arabia in the first place?

JOHN: Living in France.

What?

JOHN: Yes, it rained every day for months... we were waterlogged! Then along came a letter from a friend teaching English in Saudi Arabia. We were desperate for sunshine—what could we do?

And they actually invited you to go there and explore caves?

SUSY: No way. John got a job teaching English at a Saudi University and I gave private lessons in Spanish. Caving was John's hobby, but it eventually became mine too... after he discovered the biggest cave in Saudi Arabia.

How did this happen?

JOHN: Well, we found an old, wrinkled map in the glove compartment of a Land Cruiser we bought. At that time, such maps were top secret. This one showed an unusual concentration of natural water wells around a little village in the middle of nowhere. I figured there had to be limestone there. It took us six months just to find this place, but once we got there, it turned out that we were right: most of those wells were entrances to labyrinths under the hard-pan—the most desolate, flat desert you could ever imagine.

Did you really think there would be decent caving in Saudi Arabia?

JOHN: Ha! We didn't even bother to bring a helmet along the first time we went there—we figured it was one big sandbox. But when we got to Dhahran, we found NSS cavers Bruce and Anna Davis and Frank Binney looking for "voids beneath the dunes" as Bruce put it. But



it took us a couple years to find a cave with formations. Our first important cave, Dahl Sultan, was underneath a small hole the size of a dinner plate. Warm, moist air was blowing out of it, so we knew there had to be a big cave system down below. We used a chisel to enlarge the hole so we could just squeeze through and we dropped into a maze of passageways decorated with beautiful stalactites, stalagmites, and helictites. But pretty formations weren't really the big attraction. It was the fact that—as we soon realized—there was no other entrance. We had chiseled our way into a virgin cave in this ancient land and every time we turned a corner, we knew we were the first persons in history ever to see it.

Why have you left Arabia, then? You're giving up a lot.

SUSY: Foreigners were being beheaded or shot and bombs were going off... Things changed after the invasion of Iraq. I tried to dress my Gringo up in a ghutra (Saudi headdress) but not even a blind man would ever take him for an Arab!

What about caving in Arabia from a woman's point of view?

SUSY: I wasn't interested in crawling into those holes, but John and his friends would come out with eyes bulging, telling me about the incredible things they were

finding and I just couldn't resist going down to have a look for myself. You know, back in those days, the geology books said there were no caves with speleothems in Saudi Arabia. But John is a stubborn guy and he proved them all wrong.

Susy, how do you feel about having explored all those caves with John in Saudi Arabia?"

SUSY: I feel privileged to know I was the main companion of a man who did so much for that country. John, in fact, is (or was?) considered by many as one of the great explorers of Arabia. It's fantastic for me to remember how stubborn and determined he was every time he took a task in his hands. His Saudi colleagues called him *Abu Dahal*, which means "the father of caves," and I think they were right.

What did the Saudis think of a female caver?

SUSY: At the beginning, the Saudi geologists that John was training were not exactly crazy about my joining them, but they took it in stride and after a while I was just another member of the team.

JOHN: Actually, having Susy along was a big help to me because she would go marching straight into some dangerous-looking opening that smelled of wolves and bats and the Saudis were obliged to follow her. Machismo is pretty much the same in

Arabia as in Mexico.

SUSY: And I'm proud to say I shamed those geologists into leaving their campsites nice and clean!

JOHN: Yes, the Bedu tradition was to toss the garbage out of the tent and just leave it there. But by the time Susy got done with them, they were cleaning up everything, even when she wasn't along.

How was the air quality in the caves there?

JOHN: During twelve years of exploring in Saudi Arabia, we never ran into a "bad air" problem. Now, if you had asked the same question about Mexican caves...

Bad air in Mexico, tell me about it.

JOHN: I had my first experience in a place they call *Las Tierras Huecas* (The Hollow Land). We had found a pit that was only two or three meters wide, but a good 40 meters deep... actually, we never got a chance to measure it. Well, I rappelled into that hole first and at some point on the way down, my carbide lamp suddenly went out. "I'll clean out the tip when I get to the bottom," I thought, and just kept going. But as I went down, I found myself starting to pant. Well, I couldn't figure out why I was feeling so tired and I figured I'd take a nice rest when I got to the bottom. But when I finally reached the floor of the cave, I was huffing and puffing like crazy and it suddenly dawned on me that my light had gone out because there was no oxygen down there, and I recalled an interview we had conducted with the famous bat photographer Merlin Tuttle, who told us that you have about two minutes to live when you find yourself sunk in a lake of carbon dioxide.

Well, I pulled out my whistle and blew three miserably wimpy "blasts" to warn the people up above not to come down. Then I think I broke every world record for changing from descending to ascending gear and up the rope I went, still wheezing like a leaky bellows. I had no trouble telling when I broke out of the CO₂ because it felt exactly like lifting my head out of a pool of water. Suddenly I could breathe again! I found a little shelf and just sat there a while, enjoying the pleasure of breathing and then slowly made my way back up to the surface. That's one pit nobody has ever wanted to finish exploring.

John, please tell me about being lost in Windsor Cave, Jamaica.

JOHN: That was the first large cave I ever explored, back when I was in the Peace Corps in 1968. I went in with another volunteer and we had no idea how big this cave was. Just beyond the entrance, there's a huge room nearly filled with a great mound of rocks covered with bat guano. You have

to climb up and over it to get into the rest of the cave. Of course, millions of bats are whirring all around you and the air is filled with so many little bugs you can hardly breathe without swallowing a few. Well, once out of this place, we wandered around in the rest of the cave for hours. It was a great experience but when we decided to head out, we couldn't find the entrance room—it was gone! At least that's what we thought for quite a while until it occurred to me to look at my watch. We had been inside for nine hours and I finally realized that it must be dark outside. The room we were trying to find looked completely different with no light streaming through the entrance and it even sounded different with no bats in it. That was the first of many lessons I learned by making a mistake in a cave: don't use daylight as a landmark for finding the way back out.

How did Susy get started in caving?

JOHN: Well, all the time we lived in Korea, Spain, and France, you couldn't even drag Susy into a cave...

SUSY: Especially in France, where they seem to specialize in cold, wet, muddy caves. But even in Saudi Arabia—where most caves are warm and dry—I wasn't interested in caving until we found Dahl Sultan. John and Dave Peters would disappear down this little hole and hours later they'd come back out all excited, trying to describe the marvelous things they'd seen. Finally, I couldn't stand it; I had to see for myself. I told them I wanted to learn how to do vertical caving. After that, I was hooked. I especially love to rappel.

Isn't your maiden name Cortes, and you are a descendant of Hernán Cortes, the Spanish conquistador?

SUSY: On my father's side I'm an Ibarra—that's an old Basque name. My mother is a Cortés alright, which means I'm probably related to Hernán.

Please tell me about what you call your most disgusting cave.

SUSY: Altalte Cave, about an hour from the Pacific Coast in Mexico. There's a big balcony inside that's filled with a thick guano soup. You have to crawl through it to get into a side passage, and there are long white millipedes swimming around in it.

JOHN: OK, but at least millipedes don't bite. In a cave only a half hour from Guadalajara, there's a place we call the Pool of Putrefaction. It contains a disgusting mixture of bat urine, water, and guano, and above it the air is full of tiny flies we called "eyeball biters"—and they do bite. We made several attempts to get around this deep pool or over it, with no luck. But we needed to find out whether this cave was connected to another one at a lower level, so Jesús

Moreno and I finally decided just to jump in and cross it. The day we did it, there was a dead rat floating on top of the pool. I guess he didn't survive the crossing, but we did.

What about the skulls, bones and mummies in Murubbeh Cave, Arabia?

JOHN: Now that wasn't disgusting. It was really exciting to find this big room full of animal bones and horns all covered with a thick layer of ancient dust. We eventually found two human skulls among them and a number of artifacts.

SUSY: And the mummy was actually cute, a naturally preserved, beautiful Arabian fox that was carbon-dated at 2,000 years old.

JOHN: There's a story about the fox. Our colleague Mahmoud put it in his tent the first night for safe keeping. Around 3:00 a.m., a strange sound from this mummy woke him up. He flicked on a flashlight and actually saw the mummy moving! He nearly had a heart attack until he discovered there was a big black beetle under the carcass, trying to haul the thing away.

John, weren't you poisoned in a French Cave?

JOHN: I went on a trip with this French caving club which used to put one person in charge of buying food for the entire group. Well, we went into a cave in the Jura Mountains and down one rappel after another until we reached the end of the cave. Then the food person broke out a "snack." Believe it or not, this consisted of sweetened condensed milk (in tubes) and some kind of tinned fish from Russia. "*Trés bizarre*," I thought, but I ate it along with everyone else. Then I went up the rope to head back out, because I was the least experienced guy there. Well, two of us reached the top of the pitch when we heard a big commotion down below. Everybody was puking! "Call *les pompiers!*" they shouted to us. Apparently in France you call the fire department instead of the NCRC. Nobody down there had the strength to get up that rope and in the Jura, if you don't keep moving in a cave, you're dead because it's so cold.

Well, my stomach was OK, but the poor guy I was with started vomiting, which made it really difficult for me to follow him on the up climbs. I was also impressed to see how easily a strong person could be turned into a weakling, just due to a stomach problem. Well, we finally got outside and he went for the firemen. But they never showed up. Meanwhile, the whole gang eventually got better and climbed out on their own. I felt fine, but the next morning I was sicker than a dog!

What's the story of the never-ending

crawl of Pourpevelle Cave, France?

JOHN: This was another caving rule I learned the hard way: never walk away from your cave pack. Pourpevelle is a popular cave, so the club I was with decided we'd explore it at night and thus avoid rubbing shoulders with crowds of Belgians and Brits. On this trip we had a new guy along, a mountain-climber who had never gone caving before. Well, we rappelled in at midnight and then spent a long time slogging along, waist-deep in a nearly freezing river. Then our leader showed us a hole which was the start of a passage which supposedly led to "a room full of beautiful formations." That sounded great to me as I had never seen anything you could call beautiful in a French cave up until then and, of course, the new guy was delighted to get out of the river. "We'll leave our packs here so we can travel faster," said our leader. Well, the ceiling was never more than two feet high, so we had to sideslip along through what seemed like an endless series of very cold mud puddles. Then our headlamps started going out, one by one. "We're not going to make it," our leader finally conceded and we all turned around and wriggled back to our packs. Now that passage was only supposed to be 50 meters long but we must have taken a wrong turn because it seemed like we did a good kilometer of mud-sliding. At the end, we exited the cave without ever having seen that beautiful room. When we got up to the surface, the mountain climber spat on the ground and said, "Merde! Zat was my first cave, mes amis, and I assure you it was also my last!"

And what about getting to the bottom of the Dharb Al Najem, which at -100 meters, is the deepest cave in Arabia?

JOHN: That was a funny trip. A geologist told us about a pit near Majma'ah into which he had dropped a Pepsi can full of stones. He claimed it took 16 seconds for the can to hit bottom, so we had to check it out, even though we didn't believe the 16-second bit. Our guide was a student of mine from an influential family, so we really got the royal treatment. The mayor met us and loaded our truck with food, and the chief of police took us to the hole and actually sat on our rope to make sure nobody touched it while we were at the bottom. It turned out to be a strange cave, a single room about 100 meters high, wide, and long. The entrance was a square hole about 12 meters wide and it was really impressive when I got down to where I could see the whole room below me, lit up by a shaft of sunlight which reflected off the wings of hundreds of rock doves flying through it, not too happy to have their sanctuary invaded, maybe for the

first time ever. On the bottom, my partner Ron Kummerfeldt and I noted that this was not a limestone cave and that thick layers of the dome-like ceiling were unpeeling, like sections of an onion. So, we didn't stay very long. As I exited, I was amazed to see Susy hanging over the lip taking photos. She was supposed to be afraid of heights!

SUSY: Before that day, I was. But I lost my fear at the Dharb Al Najem. By the way, that night we got hit by the worst desert storm we ever saw. Our tents got flooded and collapsed and we had to abandon ship and drive all night long to get back home.

And you lost your tents on one of your trips in the desert? Where did they go?

SUSY: We learned a lot about Bedouins on that trip. We had crawled out of Dahl Sultan in the dark and then spent hours driving all along the edge of the Dahna dunes trying to find our camp. We finally gave up and drove to the nearest Bedu tent. We walked up to this guy we had never seen before in our lives and said, "Wain baitna?" (Where's our house, since house=tent in Arabic). Well, the Bedu nodded, jumped into his Nissan pickup and raced up a steep dune. We followed and had a hard time keeping up in our 4WD. We went over dune after dune in the dark and twenty minutes later pulled up in front of our tents. These Bedouin are incredible!

What's the story of the mysterious howling in Teapot cave, Arabia?

JOHN: A lot of the entrances to these desert caves are pretty small holes, but the Teapot was the tightest of them all. Below the entrance there's a bell-shaped room about ten meters high. I was halfway down the cable ladder when suddenly I heard this eerie wailing sound coming from somewhere below me. Well, I never heard anything like that in any cave before and I couldn't help remembering all the bedu tales about *jinn* (genies) living in caves. When I got to the bottom, the howling continued and I followed the sound right to the end of the cave (only about 35 meters) where I found wind whistling through a little hole in the wall. We actually tunneled under that wall but never reached the source of the airflow.

SUSY: But the most interesting thing about that cave was how we got out of it. The ceiling is about two meters thick and it's impossible to lift your leg to climb the cable ladder. When John discovered this the first time, we had some Bedouin onlookers and they just reached down and pulled him out by one arm, like a cork out of a bottle.

JOHN: Later we rigged a pulley system we called "Dave's Autohaul" after mountain climber Dave Black.

John, what about the Mexican cave that turned out to be a Persian qanat? What's that about?

JOHN: That was a very curious system not far from where we live in Mexico. It was some eight kms of long, straight passages about 15 meters high and around a meter wide. The strange thing was that we counted at least 75 entrances in the roof, all of them holes just big enough for a person to fit and all of them about 12 meters apart. We brought caver friends and geologists in there but nobody could figure how this cave was formed...

SUSY: ...until we took two archeologists in to see it and they told us it wasn't a cave at all, but a man-made, underground aqueduct called a *qanat* in Arabic. The complete story is on our website. [Ed. Also in the October, 1996 NSS News].

You've got a lot of these stories at www.saudicaves.com. How did your web site come about?

JOHN: Well, after observing the caving situation in Saudi Arabia over about 15 years, we came to the conclusion that most of the exploration was being done by foreigners, who came and went. The same cave would be "rediscovered" several times because the data wasn't being recorded in any one place. So we started Saudicaves.com—actually before the Internet was even allowed in Saudi Arabia—so cavers arriving there would know what was done before them. The site has a good bibliography as well as some pretty wild caving stories.

It says on your web site that you do lectures and speaking engagements on Saudi Arabia and Western Mexico. That must be fun to do.

SUSY: We alternated between living in Saudi Arabia and Mexico over the last twenty years, so we have some nice slide and Powerpoint shows about both countries. We also have a book called *Outdoors in Western Mexico* that describes out-of-the-way places that even Lonely Planet.com doesn't know about.

Are you two involved in organizing the XII International Symposium on Vulcanospeleology in Mexico, July 2006? Please tell me about that.

JOHN: We attended the last symposium in the Azores and we had an absolutely fantastic time. Now we're helping Ramón Espinasa organize this one. He's been exploring lava tubes near Cuernavaca for umpteen years and has picked out some really cool places for people to visit this summer. Some of these are pristine caves that look like they were formed yesterday, and, of course, he's got the longest lava tube in the Americas over there. I think this is

going to be a really unusual event and a lot of fun. There's a link to the symposium page on our Saudicaves.com web site.

So, what's next in life for you two world adventurers? You've mentioned lava tubes as a new caving frontier in Arabia, with its archaeology and other things of interest. Do you think you'll ever live there again? Where are you headed from here?

JOHN: We really hope the Saudi government as well as the world community will support cave studies in Saudi's 89,000 square kilometers of lava fields. Ancient man, ancient tribes like the Nabateans and countless camel caravans have traveled through these lava fields over many millennia. We think wonderful things will be found in these caves (no excavations have ever been carried out in any of them) and, of course, we hope we will be involved. Meanwhile, we're happy to be back in Mexico again where we can go out every weekend and find some new lake, volcano or cave to explore and write about.

SOCIETY NEWS

CHECK OUT THE NSS FORUM

The official online discussion board of the NSS now has more than 500 registered members since it went back online in September.

The forum hosts all sorts of interesting caving discussions, including the best headlamps, how many calories you burn caving, a whole section of posts on cave conservation and even a section of the current caving articles in the news, with links to the actual articles.

You can read the latest trip reports and discuss cave photography, cave diving, and vertical caving.

The NSS discussion board also has an online speleo-marketplace, where you can buy and sell caving equipment, and a section where you can read official NSS announcements or discuss NSS issues.

Wondering about where you can buy a particular product? Post your question on the discussion board and, chances are, another member will have the answer.

We've also got a section for non-caving discussions for a change of pace and, of course, the joke section.

New in this version is an interactive

posting section where you can post your thoughts for everyone to read or where you can have a quick chat in almost real time with other cavers.

The membership is made up of NSS members from across the U.S. and the world, recreational cavers, and people who are just interested in caving but haven't done it yet. With all the forum choices, you're sure to find something that interests you.

If you haven't dropped by, or haven't been by in quite a while, why not pay us a visit? Just go to caves.org and click on the link to the Discussion Board, or go to cave-chat.org and that will take you directly to the NSS discussion board.

Wayne Harrison

Administrator, NSS Discussion Board

WANTED: A FEW GOOD CAVERS

The Society is in need of four chairmen for positions of the utmost importance. The Fund Raising Chairman is responsible for communicating with the NSS Credit Card company, Car Rental, and other corporate funding sources. The Committee is responsible for all fundraising activities.

The Society also is looking toward



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grants as a source to fund future projects. The Grants Executive Steering Committee chairman will locate areas for possible grant income. The chairman of this committee needs a broad knowledge of the Society and of potential grant sources. The Committee will have a minimum of two board members.

The Grants Committee also needs a volunteer. This committee is responsible for the actual grant writing. An experienced grant writer would be great, but experience is not required.

The Planning Committee is also in need of leadership. This committee is charged with developing a long-term plan for the Society. The chairman of the committee needs to look at the Society in 10 to 20 years. What will the NSS look like? What goals and strategies must be set today.

Each of these positions requires good communication skills and a willingness to work for the Society. Contact Bill Tozer, NSS President, at President@caves.org

Bill Tozer

NSS BIENNIAL REPORT CHAIRMAN NEEDED

Biennial Report Committee Chairman Bert Ashbrook did an outstanding job producing the last two editions of our corporate report, which succinctly put a face on the Society and recorded our accomplishments and programs. Regrettably, Bert has decided to step down, and move on to other projects. I want to thank him for his time, talent, and effort.

The Biennial Report presents the Society's goals, accomplishments, activities, and most recent audited financial statements. The audience includes federal and state agencies, grant awarding foundations, and other conservation and scientific organizations, as well as NSS members and non-members. A sample can be viewed at: www.caves.org/brochure/biennialreport.shtml

I am searching for a new Chairman for the NSS Biennial Report Committee. The Chairman, who reports directly to the NSS Executive Vice President, will be responsible for the complete production process for the Society's 2004-2005 Biennial Report, including: gathering the text, photos, and information; editing material; completing the layout and design, and liaising with the NSS Special Publications Committee who will handle printing. He/she may solicit and arrange committee members to assist with the project as required. He/she will write a short status report on the committee's activities three times a year for inclusion in the Executive Vice President's report to the Board.

The candidate needs to be self-motivated and a good communicator, and be able to work independently, lead a committee of volunteers, organize tasks, take initiative, and

work towards goals.

We need your help! Please contact Gordon Birkhimer at evp@caves.org for a detailed job description and to apply for this important position.

NSS MEMBERS MANUAL COMMITTEE CHAIRMAN NEEDED

NSS members value the *NSS Members Manual* as one of the Society's most important publications. After producing the last three issues I have decided to step down. I want to thank my fellow committee members, as well as all of the NSS members who submitted information or assisted in any way with each issue, for their hard work, participation, and assistance.

I am searching for a Chairman for the NSS Members Manual Committee, to serve as Editor beginning with the 2006 issue. The Chairman, who reports directly to the NSS Executive Vice President, will be respon-

NEWS AND NOTES

LOST RIVER CAVE SYSTEM NOW 20 MILES

The survey of the Lost River Cave System, located in Orange County, Indiana, reached 20 miles on October 28, 2005. A survey party of 14 cavers from the St. Joseph Valley Grotto gathered at the cave to ceremoniously survey the last 32.4 feet needed to put it over the 20-mile mark. Over 260 feet was surveyed that day, setting the current length of the cave at 20.05 miles.

Members of the SJVG have been surveying the cave since 1997. There have been eighty-nine surveyors involved with the project. Eighteen of them have surveyed over one mile of the cave. Lost River is a maze of numerous walking borehole passages connected by miles of low, wet, and muddy crawlways. Over 280 leads remain.

Mark Deebel
NSS #37025

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sible for the complete production process, including: gathering the text, photos, and information; editing material; completing the layout and design, and arranging the printing and shipping. Experienced assistants are available to continue serving on the committee, and the chairman may solicit and arrange additional members to assist with the project as required.

The chairman will write a short status report on the committee's activities three times a year for inclusion in the Executive Vice President's report to the Board.

The candidate needs to be self-motivated, a good communicator, and be able to work independently, lead a committee of volunteers, organize tasks, take initiative, and work towards goals.

We need your help! Please contact Gordon Birkhimer at evp@caves.org for a detailed job description and to apply for this important position.

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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.

