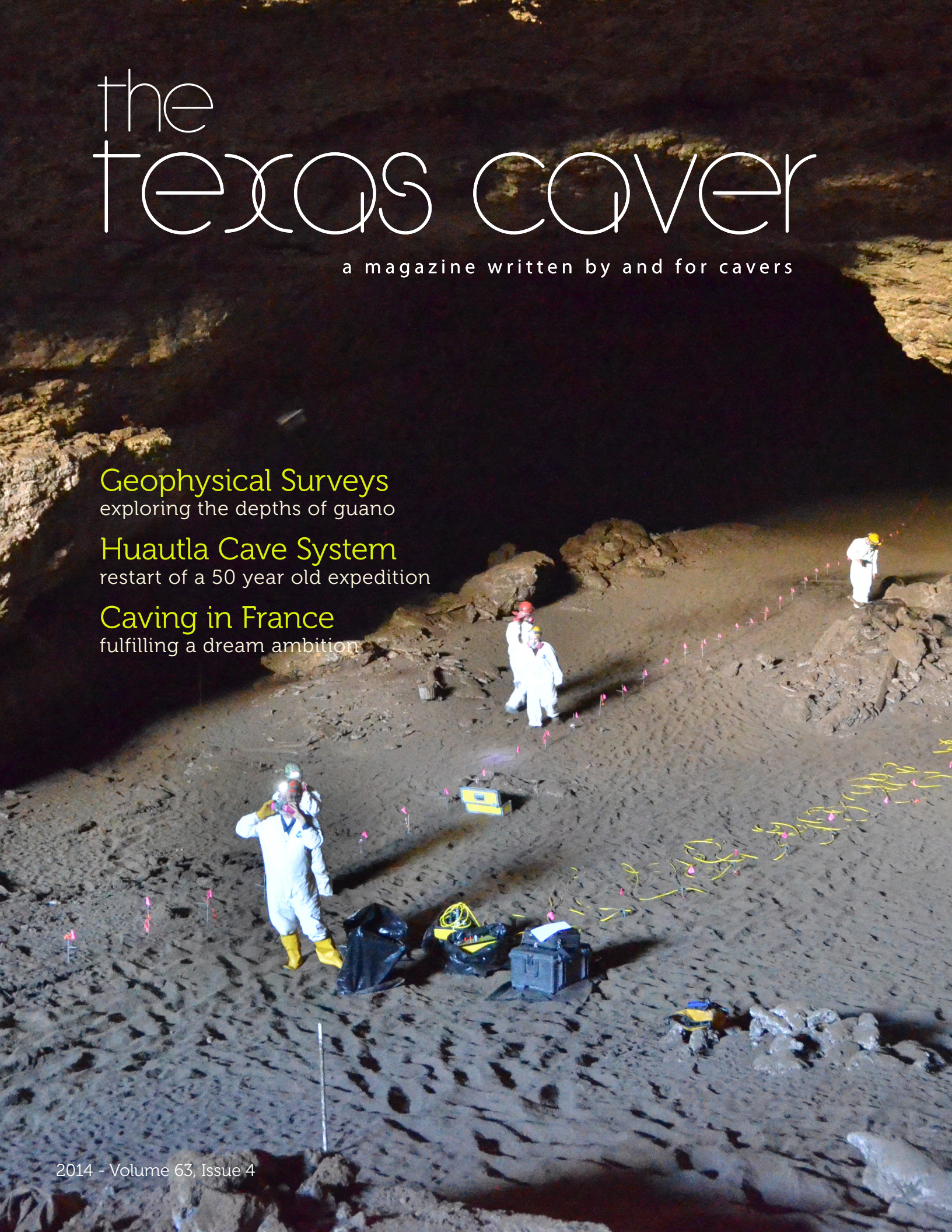
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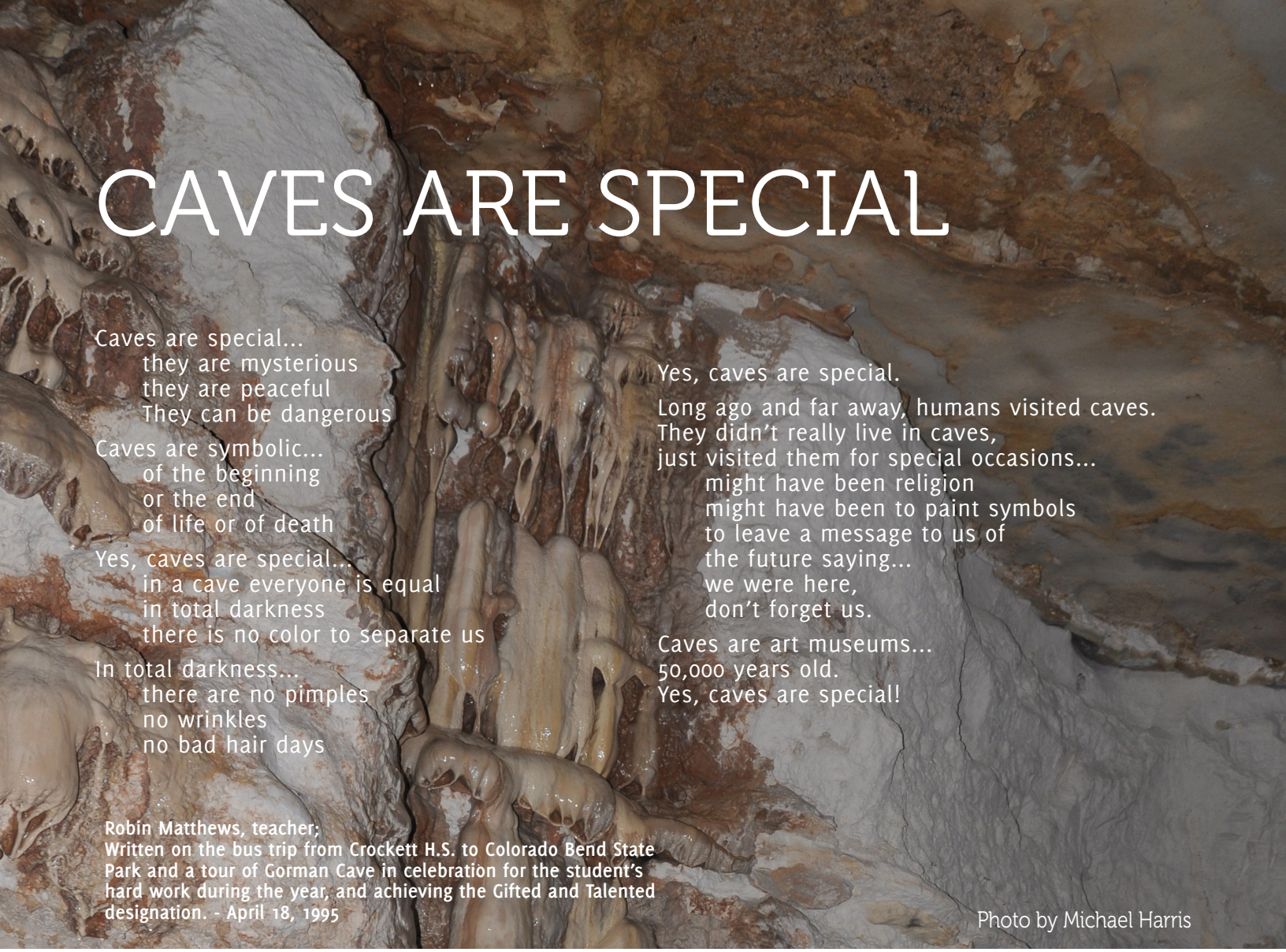


Geophysical Surveys
exploring the depths of guano

Huautla Cave System
restart of a 50 year old expedition

Caving in France
fulfilling a dream ambition

2014 - Volume 63, Issue 4



CAVES ARE SPECIAL

Caves are special...
they are mysterious
they are peaceful
They can be dangerous

Caves are symbolic...
of the beginning
or the end
of life or of death

Yes, caves are special...
in a cave everyone is equal
in total darkness
there is no color to separate us

In total darkness...
there are no pimples
no wrinkles
no bad hair days

Yes, caves are special.

Long ago and far away, humans visited caves.
They didn't really live in caves,
just visited them for special occasions...
might have been religion
might have been to paint symbols
to leave a message to us of
the future saying...
we were here,
don't forget us.

Caves are art museums...
50,000 years old.
Yes, caves are special!

Robin Matthews, teacher;
Written on the bus trip from Crockett H.S. to Colorado Bend State Park and a tour of Gorman Cave in celebration for the student's hard work during the year, and achieving the Gifted and Talented designation. - April 18, 1995

Photo by Michael Harris

TSS SURVEY CONTEST RESULTS

David Ochel

The Survey Contest at the 2014 Texas Cavers Reunion saw nine teams expertly complete the ten-shot course, which this year featured the hot tub and a short stint through the river.

Dale Barnard and Tone Garot won the first prize, a set of Suunto survey instruments donated by the Texas Speleological Survey (TSS), with a calculated loop closure error of 0.37 meters.

Anna Klis and Matt Zapitello made 2nd, with an error of 1.41 meters, and won the two survey pouches donated by Gonzo Guano Gear. They were followed by Team Sexy Power Horse (Drew Thompson and Saj Zapitello) with an error of 2.11 meters, earning them the two station lights donated by Inner Mountain Outfitters.

In addition to the donors of our prizes, special thanks go to: Aimee and Geoff for setting up the course on Friday; to Dale for helping me crunch the numbers; and to Jonathan for announcing the winners Saturday night!

And of course, thank you to everybody who participated!

Remember to submit your surveys to the TSS!

the texas caver

The Texas Caver is a quarterly publication of the Texas Speleological Association, an internal organization of the National Speleological Society.
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Articles, announcements, artwork, photos, and material for publication are ALWAYS welcome and may be sent at anytime to the Editor.

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The editor reserves the right to edit inappropriate material, errors in spelling, grammar, or punctuation, and to edit for clarity. In the event of significant changes the author will be given an opportunity to review the changes prior to publication.

SUBMISSION DEADLINES

While submissions are welcome anytime, deadlines for consideration in upcoming issues are:

1st Quarter	February 15
2nd Quarter	May 15
3rd Quarter	August 15
4th Quarter	November 15

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PLEASE RECYCLE

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ALLAN COBB

BACK COVER

ALLAN COBB

FROM THE EDITOR

From the controversy about the Texas Caver, something did stick in my mind. It was the comment about all the trip reports and lack of technical articles. So what is the Texas Caver? The TC is diverse and there have been many excellent articles regarding technique, survey projects, vertical technique, cave photography, and helpful gear. But the TC is also a great source to learn about new caves, obscure caves, and survey projects, even international trips (and not just mine). These are part of caving history and it's important to record them.

EMERGENCIES

FOR CAVE ASSISTANCE, CALL THE CLOSEST COUNTY NUMBER:

BEXAR	210.865.2061
COLLIN	214.202.6611
HAYS	512.557.7965
MIDLAND	432.438.5076
SUTTON	325.450.3905
TRAVIS	512.663.2287

FOR LIFE THREATENING EMERGENCY: 911

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texas caver

THE BEST CAVERS' MAGAZINE IN TEXAS

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Texas Speleological Association is a nonprofit, internal organization of the National Speleological Society and represents the greater caving community in Texas.

The TSA is comprised of both independent members and local grottos, and supports cave exploration and studies in and around the state of Texas.

The organization holds business meetings three times per year, organizes an annual spring convention for Texas cavers, and sponsors caving projects and events throughout the state.

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TEXAS CAVERS, ELLIE & GALEN'S WEDDING

Photos by Michael Harris

Ceremony officiated by Bill Steele, Minister

The bride and groom with attendants: Mike Robichaux, Joey Fannin,Sarah McCrary, and Deitra Roberts-Biely

Grooms Cake by Saj Zappitello (Honey Creek Cave, where they met)













EARLY, VERY EARLY CAVER TRAINING

Joe Camp Pearce



In early 1953, my neighbor, R. T. (Scotty) Scott would drive in Sunday afternoon, all muddy, red faced and with a jack-ass eating cactus grin on his face. He had been caving all weekend. Seemed like fun, so I asked if I could join him sometime. It seems I had to undergo some kind of training, trial, initiation or whatever to join the group. I agreed.

A couple of days later, he took me to the local Academy Army surplus where I bought used army fatigues, boots, and a hard-liner to a WWII helmet. Also a flashlight with lots of batteries and - oh yes, candles and waterproof matches. Three sources of light, and a carbide lantern which somehow we attached to the helmet. I was prepared.

The next Saturday, he took me to the McNeil limestone plant about twenty miles northwest of Austin. Driving way to the back, we got out and approached what he called Rail Road Cave. In a small hill, there was a hole just about large enough to hunker in if you stooped and duck walked. He took the lead and I followed. We finally had to stop hunkering and had to start crawling. It was new sensation, but it didn't get to me and I thought, if he can do it, I can.

We crawled and wiggled for probably about twenty or thirty feet and came to a somewhat circular room where we could semi-stand. Total darkness. My first.

I loved it. We sat and sat and sat. Finally, I asked what next. When do we leave? He said, "We're waiting". Soon I felt a kind of vibration, then a rumble. It increased to huge proportions. Dirt began to fall around us. My instinct was to dash out, but if he didn't move, neither was I. It seems there was a train above us, moving cars. I don't know how many feet above us, but I don't think it was too much.

After the train had passed, Scotty led me out and congratulated me on not panicking. It seems I passed the first test. He didn't take into account the fact that I was probably partially frozen with fear.

But all was not over. Much remains. The next weekend, we returned somewhat to the same area to Mural Cave. This was a much larger cave with a sinkhole entrance. Probably about twenty feet from the surface to the floor. Seems like I went down a rope, sliding and braking with gloves.

Mural was, or had been a pretty little cave. Circular and thirty feet or so in circumference, it had a few formations that had not been destroyed. Yet. I was held in fascination. This was it. I was in love. I wanted more. After an hour or so, a cable ladder was lowed. You newbies do know what a cable ladder is, don't you? It took a little practice for me to get the hang of it, but I did get the feel and clambered up to the surface. What exhilaration!! I was hooked. Bring on the next cave. Let's go to Carlsbad.

Actually, we did go several years later for a fantastic trip. But I left Scotty in Mural coming up the ladder. He was about four feet from the surface when he stopped. Actually, he froze. In a small whole in the wall, there was a copperhead facing him about fifteen inches away. Scotty had a bad leg, so he didn't want to turn loose and drop. It was a waiting game. The snake gave up and backed out - and Scotty zoomed out!

I had passed. I could go with the big boys...and I did - almost every weekend to the chagrin of my wife and two daughters. There was still a lot to learn and I hope I did. We later formed the Balcones Grotto and started the Texas Caver. We all became members of the NSS and had

the Balcones Grotto officially recognized. I printed the Texas Caver in my home on a mimeograph machine. Yep... cranked them right out on colored sheets. Stapled them together and mailed them out for two dollars a year. What a bargain. We were dumb lucky enough to have Bill Helmer as our cartoonist. He was later to become a senior editor for Playboy magazine. His drawings are classic. See them in early preserved Caver copies on file at the TSS in Austin. Maybe the current "Caver" will reprint some of them.

We didn't do deep vertical or underwater. Just didn't have the means. But we, Benny Pierson and I, often looked longingly over the Rio Grande and said someday, we're going over there. Benny knew that was a fertile area for caving. But we had enough caves in our own back yard to look for and explore. It was a hoot!!!

Joe Camp Pearce (NSS #2903) was born in Collinsville, Grayson County Texas in January, 1927. Graduated Terrell Texas public schools and served in the US Navy for WW11. He married Sue Dickey Pearce 1948 and has two grown daughters, one son,and two beautiful granddaughters. Joe was director of Rehabilitation Therapies, mental hospital for thirty-one years and has been retired for thirty-four years. He says "the people at the retirement office have given up on me..decided I am a loss for them". Joe is now living in Cedar Park, Texas with his cat "Pushycat". They talk to each other. He has an active social life with his friends, church, senior center and family. Life is good.. "I follow Texcave faithfully...once a caver, always a..."

IN MEMORIAM OF KATHERINE GOODBAR

Katherine Goodbar (NSS #5538) passed away peacefully at her home in Dallas, Texas in her 94th year on July 18th, the last day of the NSS Convention. She was preceded by her husband Blair (NSS #5537) who died in 1966 and survived by her three children: Nancy (NSS #7816), Ellen (NSS #9395), and Jim (NSS #9715). She and Blair joined the Dallas-Ft. Worth Grotto as founding members in 1961.

Always one to be involved, Katherine was the Grotto secretary in 1961 and 1962 and again from 1965 to 1967. She also served three consecutive terms as the Secretary/Treasurer for the TSA from 1963-1965. Her fellow officers during those years were Chuck Larsen, Orion Knox, Pete Lindsley, and Carl Kunath. All of them had the highest respect for her as a person and for the faultless performance of her duties as a TSA officer.

When cave safety education was becoming a national issue, Katherine volunteered to play the part of Horace Stumblefoot in a DFWG Caving Safety slide presentation made available by the NSS. Her early years of caving were on survey and photography trips into Mayfield Cave which later became the Caverns of Sonora, and Laubach Cave that was subsequently developed as Inner Space Caverns. The Goodbars were regular participants in all Texas caving activities including the survey of Powell's Cave and the lower stream passage of Cave-Without-A-Name.

Katherine earned her masters degree in Earth Science Education at Texas A&M University in 1974. Upon her retirement as an earth science teacher in 1986 she traveled to Spain for the 9th International Congress of Speleology in Barcelona. Later that year she joined an Earth Watch expedition to Natural Trap Cave near Armpit, Wyoming where she rappeled the 90 feet into the cave every day despite the availability of a scaffolding with stairs. Katherine always maintained her interest in the caving world and followed the latest exploration and scientific discoveries with delight. She continued caving into her 70's.

Her love of the earth and all natural things led her into many associated areas. In the 1970's she formed the Richardson Environmental Action League that spearheaded the recycling program which is still active today. She was awarded the Outstanding Earth Science Teacher in Texas in 1982 by the National Association of Geology Teachers. She worked with the Texas Nature Conservancy as the director of their Land Stewardship program where she evaluated land acquisitions and wrote management plans for the properties they managed and recruited stewards for them. She received the Chevron award for environmental preservation and was interviewed by the Conservation History Association of Texas for her work.

She was an inspiration to all for what could be and for the protection of those natural landscapes that held special values both on the surface and inside earth.

GUANO, DEEP, AND PUNKIN: A WEEK OF GEOPHYSICAL SURVEYS

George Veni

I COULD ARGUE THAT THIS PROJECT STARTED DURING MY FIRST TRIP TO BRACKEN CAVE IN 1976. THAT'S WHEN I FIRST ASKED MYSELF, "HOW DEEP IS IT?" AND I ASKED IT TWICE. I LATER DISCOVERED THAT MOST PEOPLE WHO VISIT THIS BAT-FILLED CAVE HAVE THE SAME DUAL QUERY.

Deep Guano

First-time visitors arrive excited and anxious for the bats to emerge. While waiting, they focus on the dark maw of the cave's entrance and wonder how deep it extends into the earth. The question fades when the cyclone of bats begins to whirl up from the cave and into the sky. As the initial awe subsides, the trip leader will discuss how many tons of insects those millions of bats will eat each night and how the cave's immense mounds of guano were once mined for fertilizer and (during the Civil War) for saltpeter to make gunpowder.

It is usually then, as a pungent odor drifts up from the cave, that people ask, "How deep is it?"

The answer: No one knows. Stories from long-ago guano miners suggest the back end of the cave was dug down 9-18 meters without reaching the bottom of the guano. Non-cavers often exaggerate the sizes and depth of caves. Was that the case here? I never imagined on my first visit that 38 years later I would organize a project to find out.

Mylea Bayless, BCI's Conservation Programs Director, contacted me to ask about "coring" the guano—using a hollow drill to extract an intact column of material from top to bottom. The scientific benefits of analyzing such a column would be many and important. She wondered, for instance, if we could use radiocarbon dating to establish the age of the oldest layers, which could reach back centuries or even millennia. Could DNA analysis identify any bat species that might have preceded today's Mexican free-tailed bats? And what insects were earlier bats eating?

Mylea contacted me because I am a longtime BCI member, a geologist who has studied the cave, and especially because I'm the Executive Director of the National Cave and Karst Research Institute (NCKRI) in Carlsbad, New Mexico. Mylea and I had worked together to make NCKRI Headquarters the world's first building designed to include a bat roost. Now we would work together on the world's first geophysical survey of bat guano.

The entrance to Bracken Cave formed by an ancient, enormous collapse along a cave passage. Guano-covered breakdown is obvious in much of the cave. Before coring the guano, we had to find where the guano was deepest and without buried rocks that would block the coring equipment. NCKRI often uses electrical resistivity (ER) equipment to detect subsurface changes in geology, especially cavities such as cave passages, so I took the gear to Bracken.

ER works by placing stainless steel electrodes into the ground, applying voltage through a couple of electrodes, measuring it at a couple of others, then calculating the electrical resistivity between them. Electrode pairs that are close together measure resistivity at shallow depths,

while those that are further apart measure greater depths. Resistivity reflects how easily electrical current can pass through different materials in the ground: bedrock, clay, soil, guano, etc. By taking measurements between dozens of combinations of electrodes, computer analysis produces a profile of resistivity—like a slice through the ground—beneath the line of electrodes.

Work at NCKRI has me living in Carlsbad, New Mexico. However, family, friends, and business seems to bring me back to San Antonio about once or twice a year, so it was easy to plan at trip where I could bring NCKRI's ER gear.

The best part of the trip was working and caving with many old friends from Bexar Grotto. The trip "started" by coordinating the project with BCI Bracken Cave Preserve Manager and Bexar Grotto member Fran Hutchins. We scheduled the ER study for January 2014, when most of the bats would be at their winter homes in Mexico.

Sunday, January 12th, was our first day. Fran and I worked with Allan Cobb and Rick Corbell to set up four ER arrays: two of them 56 meters long, one along the cave's west wall and the other down the middle of the cave. A third array stretched 80 meters along the east wall. The fourth formed a 20 meters square grid at the back of the cave. The lateral and middle surveys would produce two-dimensional profiles, while the grid was designed for a three-dimensional resistivity image. The arrays were delineated by numbered pink pin flags that marked where each electrode would be inserted into the guano floor.

Three days later we returned to the cave with more Bexar Grotto members (by the end of the project I'd been helped by grotto members Jennifer Adkins, Allan Cobb, Rick Corbell, Kurt Menking, Dr. Evelynn Mitchell, Jill Orr, Linda Palit, and Zach Schudrowitz). We ran the two 56 meters long surveys and the next day we ran the 80 meters long survey with the help of Michal Birt, Brian Bower, Robert Garner, Peter Hayes and Monika Libson, a crew from Research Wild.com who videoed the action and also helped haul, place, and collect the heavy cables and other equipment.

This was far from a typical ER survey. We were all dressed in coveralls and respirators, and the electronic gear was bagged for greater protection. Unlike at many bat caves, the guano in Bracken is dusty and floats through the air, invading noses, lungs, clothes and electrical connections.

We took a weekend break from Bracken, but not from resistivity, and returned on Monday the 20th for the 3D ER array at the back of the cave. Due to some weekend cable damage we had to rearrange



LEFT: George Veni connects two resistivity cables in Bracken Cave. Photo by Allan Cobb.



With the help of surface support (Fran Hutchins and Steve Gutting), the team gears up in preparation for entering Bracken Bat Cave. Photo by Allan Cobb.



Evelynn Mitchell (left, green helmet) and Linda Palit (right, yellow helmet) carry heavy resistivity cables into Bracken Cave. Photo by Allan Cobb.



Evelynn Mitchell (left) and Linda Palit (right) carefully lay the delicate resistivity cables in the guano. Photo by Allan Cobb.

and shrink the grid to 14 x12 m. We also conducted a detailed survey of the electrode positions.

When NCKRI does ER surveys on the surface, we use high-precision GPS equipment to get coordinates for each electrode, accurate to less than a centimeter. At Bracken we established a benchmark station on the surface for future reference, then another high precision coordinate at the cave's entrance from which Evelynn, Jennifer, Jill and I used standard cave surveying techniques to survey-in the beginning and end points of the 2D arrays and the four corners of the 3D array. Linda Palit and Zach Schudrowitz then joined us for a water level survey that gave us high-precision elevations for each of the 248 electrode positions. These elevations were important in processing the ER data for the most realistic results.

As we worked on the surveys, everyone else toted the ER gear out of the cave for decontamination. BCI tests in the cave have found no evidence of the *Pseudogymnoascus destructans fungus* that causes White-nose Syndrome, but to ensure safety, we cleaned all 666 meters of cable, 112 electrodes, the resistivity meter, and other equipment that entered the cave.

After returning to Carlsbad, NCKRI's hydrogeologist Lewis Land reprocessed and fine-tuned the ER data for optimum results. I had suspected the middle of the passage wouldn't be good for coring, and the ER results confirmed it. There is too much breakdown mixed with the guano. The three areas with the least buried breakdown were found under



Two car batteries power the SuperSting meter (on the right in front of Jennifer Adkins - right) which connects to the cables through the switchbox (on the left in front of Jill Orr - left). A black carrying case is in the right foreground. The meter and switchbox sit inside construction-grade black plastic bags to limit contact with the guano. Photo by George Veni.

the ER lines along the cave's east and west walls and below the 3D array.

So how deep is it?

At least 18 meters. ER surveying requires a trade-off between depth and detail. We focused on detail—spotting small rocks that could block the coring equipment—so we spaced our electrodes only about 1 meter apart and never saw the bottom of the guano.

Deep and Punkin Caves

The survey at Bracken took longer than planned. I had intended on finishing it during the week, then go to Deep and Punkin caves and then drive straight back to Carlsbad. Instead I went to these TCMA-owned caves then returned to Bracken as reported above.

Since I had the ER equipment with me, it made sense to use it on another interesting Texas cave project. I need to point out that NCKRI's equipment isn't available for my pet projects and favorite caving areas. Maintenance and repair is expensive, so we need to maximize the value of its use. NCKRI focuses on conducting research and other programs where the results might be useful nationally and internationally. NCKRI's ER research currently involves collecting data from a variety of geologic settings, especially where such research hasn't been previously conducted, and the cumulative data will later be analyzed to see if and how the ER method might be improved.

The Bracken ER survey was the first in bat guano and one of the few conducted in a cave. Deep and Punkin offered the chance to geophysically survey hypogenic and highly three-dimensionally complex caves—another first to the best of my knowledge.

I proposed an ER study to TCMA and suggested starting big with one long 2D line of 666 meters that extended across both caves. It would see to a depth of about 133 meters and show not only the two caves, but if the surveyed "bottoms" of the caves were truly their maximum depths and if any passages extended between them for a possible connection. I wasn't expecting to see a connection. The caves' hypogenic origin indicates they formed by rising water and didn't have much lateral extent. The cold temperatures in Punkin also indicate a lack of a connection to Deep. The survey would also show if future mapping in the caves is likely to extend much beyond their current boundaries which contain a tightly-packed set of passages.

The really hard work for the project happened before I arrived. As I was wrapping up at Bracken on Thursday, January 16th, Don Arburn, Allan Cobb, Gill Ediger, Galen Falgout, and Linda Palit converged at the TCMA preserve and the next day began hacking and chain-sawing to clear a long straight path between and past the two caves based on coordinates I'd given them. This was needed in order to lay out the ER cables and electrodes effectively.

When I arrived that afternoon, they had just finished for the day, exhausted and frustrated. The path led straight to the huge entrance of Punkin, and electrodes and cable don't work when hanging in space. Galen mustered the energy to show me the problem and we worked until nearly dark to adjust the path, extending that end through that area between Punkin's large and small entrances.

During the night, the rest of team arrived. Andrea Croskrey,



Don Arburn and Gill Ediger clear a path through the cedars to make way for the resistivity equipment. Photo by George Veni.

David Ochel, and Matt and Saj Zappitello came from Austin. Evelynn Mitchell, along with Melissa Karlin, brought Harold Campbell, Chisara Iwuchukwu, Christina Morgan, Obed Rodriguez, and Nancy Urbano, their students from St. Mary's University in San Antonio to learn some field geophysical and GPS techniques.

One of the things I love about cavers is that they are often able to quickly grasp a concept of what is needed and effectively execute the work. This was one of those great teams; the students watched these role models, quickly learned, and performed brilliantly. We got an early start on Saturday, expecting to need most of the daylight hours for setting up, running, and dismantling the survey. We also had extra work to do because the end of the path still needed clearing. By the end of the day we had finished early. Unfortunately, while we did a great job on timing, we didn't get useable results.

Everything started well and everyone divided into teams. One group cleared the rest of the path. Another measured the 6 meters electrode spacings and placed pin flags to mark the locations. They were followed by a couple of cavers who either hammered the 46-cm long stainless steel electrodes into the ground or, where the ground was solid limestone, used cordless hammer-drills to drill holes into which the electrodes were seated. Next came the group unspooling the big, heavy coils of yellow resistivity cable, followed by a couple who attached the cables to the electrodes and poured salt water around the electrodes to maximize the electrical connection with the ground. Meanwhile, I sat in the middle of the line setting up the meter and making sure all of the software settings were correct.

Soon after I wrapped up my job, someone came up to me quietly, but clearly embarrassed and frustrated. In an effort to make sure the path was clear and safe to walk, a small stump was noticed, the chainsaw fired up, and the swiping movement went too far and grazed the resistivity cable. I could see copper wires exposed but not cut, and we did what we could with electrical tape to repair the damage. I briefed the team on what had happened and we all agreed to go ahead and try the survey anyway since everything was set up.

I set the meter, an Advanced Geosciences Inc. SuperSting R8/IP, to conduct a connectivity test. This standard test is run before an ER survey to make sure the electrodes are connected properly and have a good electrical contact with the ground. As the results clicked past the monitor, the 14 electrode positions that were part of the damaged section of cable were all bad (the "cable" is actually a series of connected cables, each of which connect to 14 electrodes). I later learned that the cable is specially designed and the cut allowed electrons to leak from the individually sheathed wires within the cable and corrupt their signals.

Once the test went past that cable section, I started getting errors from other electrodes. A few days later, as I detoured on my way back to Carlsbad, I dropped off the entire ER system for cleaning and repair at the manufacturer who happens to be in Austin. This was the first time they would clean guano from one of their units. They found that the additional errors were the result of guano that drifted through the air into the cable connectors. These damaged cable sections resulted in



Gill Ediger and David Ochel drill into the bedrock to set an electrode. Photo by George Veni.



St. Mary's University student Nancy Urbano connects the resistivity cable to an electrode. Photo by George Veni.

having less working cable available for Bracken, which is why Bracken's 3D survey was smaller than originally planned. Guano does happen!

But the weekend at Deep and Punkin wasn't a total loss. The path cleared for the ER survey created a great and easy path between the caves, making the trip faster, and less likely for tired cavers to get lost at night. Also, in case of a rescue, a 4x4 can now be driven without much effort fairly close to Deep. And lastly, there was one more ER survey.

Don told me that Lee Jay Graves, dedicated checker of every little hole he can find, noticed not too long ago a small hole near the cabin with occasional airflow. Cobbling together the still working parts of the ER system, Allan, Don, Gill, Linda, and I stayed late at the cabin on Sunday and decided to do a couple of ER surveys. We set up the first array… and I couldn't get it to work! Now here is an unabashed and much deserved plug for Advanced Geosciences Inc. Their customer support has always been superb and they've told me to call any time. So I did, at 11 a.m. on a Sunday. The tech had just finished his morning bike ride and then cheerily explained how I needed to reconfigure the system to work since it wasn't in its normal set-up.

With the SuperSting running, we GPSed the electrodes' positions and the results suggests a cave is present not too far from the hole. The ER survey was not set up to see very deeply, but the possible cave is at least 6 meters deep.

What's Next?

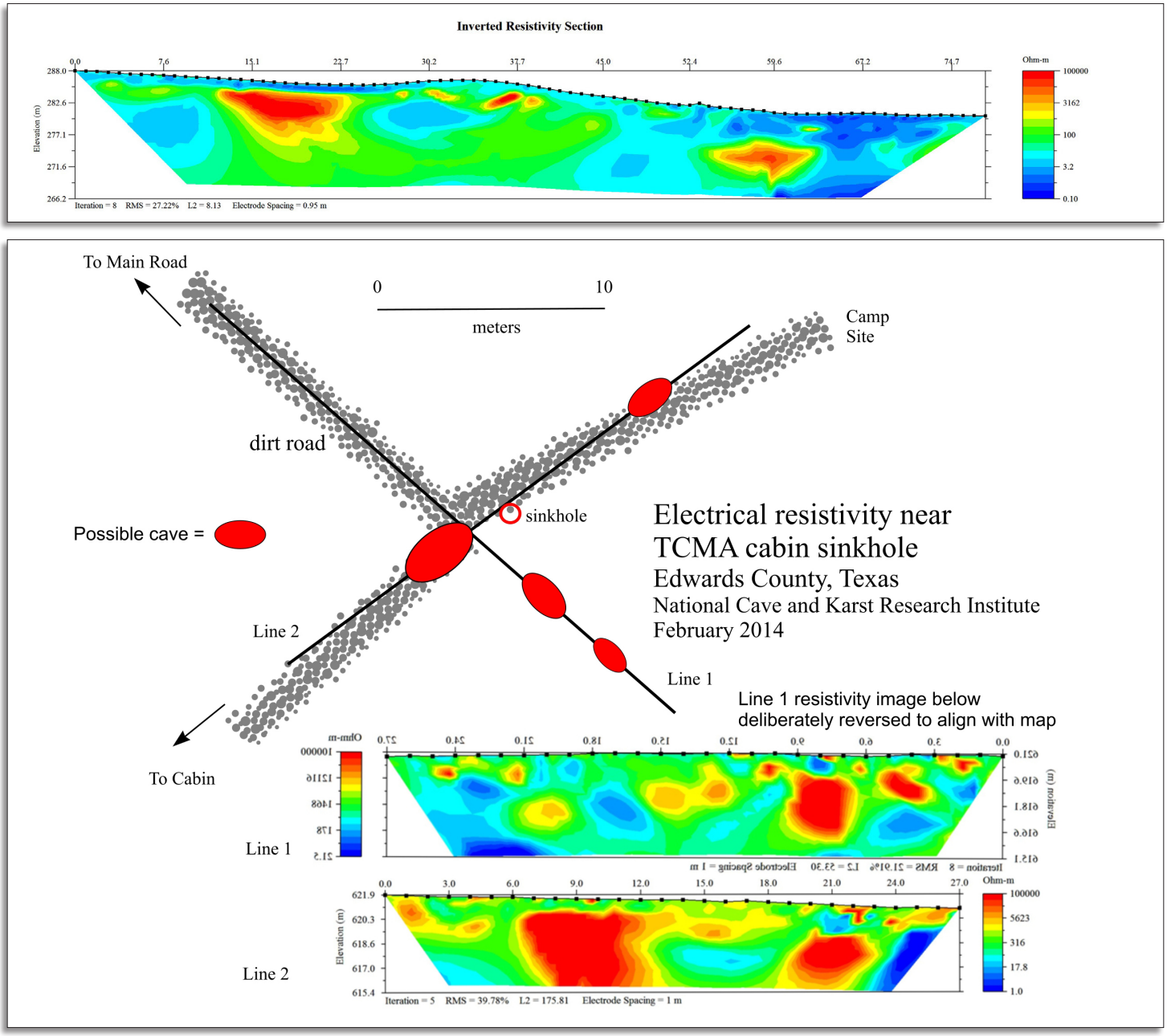
As I type this, earlier today I began coordinating a return trip to Bracken, probably for January or February 2015. I want to see how much deeper the guano goes. Here is what I think I'll find.

Bracken Cave is located near Natural Bridge Caverns, and the two share a similar origin. Both formed as large passages that dissolved the limestone, followed by the collapse of part of the passage. In Natural Bridge, you can follow the tour trail down to the original passage, roughly 45-64 meters below the elevation of the entrance.

Bracken starts out 6 meters higher than Natural Bridge and extends to a depth of 36 meters before access to any deeper passages is filled with guano. Assuming the two caves formed in the same strata and at similar elevations, Bracken's guano may extend about another 10 meters deeper, but this may be difficult to see with resistivity surveys.

My goal for the next ER survey is to reach greater depths to locate the bottom of the guano and the buried bedrock of the cave floor. However, the guano compacts and becomes more moist and clay-like with increasing depth. The lowest elevations in the ER surveys show very low resistivities, which could signal moist and compacted guano, or perhaps moist clay that predates the bats' arrival. The answer to that puzzle cannot be found in our initial data. But we may soon find out.

Another part of the planning for 2015 is to begin coring the guano. This will happen with a multidisciplinary partnership from BCI, NCKRI, the Mammoth Cave International Center for Science and Learning in Kentucky,



Resistivity profile along the east wall of Bracken Cave. Red and orange areas of higher resistivity indicate breakdown buried in the guano. The low resistivity blue area at the lower (south) end of the cave is below the mine shaft entrance and appears to confirm old reports of guano having been mined there to depths of 9-18 meters.

Southwest Research Institute in San Antonio, and the University of South Florida in Tampa. No one has ever cored guano as deeply as needed to get the bottom of it in Bracken, and there are some technical challenges to overcome. It may take multiple attempts, but I hope we can core through the guano to verify or refine our interpretation of the resistivity data as well as for all of the other great information it would tell us.

Coordinating the return to Bracken will be complicated because of the many and distant partners. But once that date is set, I'll check with Don to see if we can also arrange another trip to Deep and Punkin while I'm in the area again with the ER equipment. At a minimum, I'd like to repeat (but successfully this time!) the long survey between the two caves. If time allows, maybe we'll do more detailed surveys over one or both caves, and the possible cave near the cabin.

If you're interested in helping out at Bracken and/or Deep and Punkin, let me know and I'll keep you posted as plans gel: gveni@nckri.org.

Author's note: This article is adapted and expanded from my 2014 report: *Geophysics and bat guano: probing the depths of Bracken Cave*. Bats, 32(2): 12-14; available online at http://www.batcon.org/)



Photo by Kasia Biernacka

HUAUTLA REVISITED

Bill Steele

The 50th anniversary of the 1965 discovery of the Huautla, Oaxaca, Mexico area caves by cavers is in 2015. Bill Russell, who's still around the Texas caving scene, was one of three cavers who drove a Corvair up the newly built road into the area and found the largest entrances of what 25 years later was named Sistema Huautla.

This year was my 19th expedition to the Sistema since my first in 1977. I had joined the 2013 British Huautla expedition shortly before it ended. Virginia caver Tommy Shifflett was also there and we decided that we like the place so much, and that there is so much remaining potential, we would revive the project with a new name and new objectives.

The goals of the new project, Proyecto Espeleologico Sistema Huautla are to:

- Explore, survey, and conduct a comprehensive speleological study of the Sistema Huautla area caves.
- Conduct speleological studies comprised of exploration and mapping, cartography, geology, hydrology, biology, paleontology, and archaeology.







PREVIOUS PAGE: Rebelay in Sotano Bazofina. CLOCKWISE: Re-directional in the new section of Sistema Huautla found this year. Gilly Elor in the new section of Sistema Huautla. Yvonne Droms models a balaclava donated to the project by Whole Earth Provision Co.

- Conduct annual, month-long expeditions in April for 10 years (2014-2023).
- Keep survey data current.
- Reach 100 km in length.
- Reach 1,610 meters in depth (5,280 ft: one vertical mile).
- Publish all results.

All of this is easy to say, but if we're going to plan annual month-long expeditions for ten years, it was very important that the first one was a success. We counted it successful on several fronts. Of primary importance, diplomacy at the state, municipio, and agencia levels was for the most part profitable as permission was granted to cave in the area for three years. One area remains a challenge, and a plan has been formulated to work it out.

The area to the east of the known passages of Sistema Huautla, in the Plan Carlota agencia, was our first targeted area, and 20 new pits and caves were explored and mapped, without anything going very well. More promising are two caves with strong airflow in the San Agustin agencia, southeast of the known cave in the system, which will be pushed in 2015.

Biologists from UNAM in Mexico City spent four days with the expedition and collected three new species of tarantula, two new species of harvestmen spiders, and one new species of scorpion. A potentially important paleontological site was also found in one of the caves.

About 3.5 km of new passages were discovered and mapped in the La Grieta section of Sistema Huautla, by Kasia Biernacka, Gilly Elor, Corey Hackley, John Harman, and Bill Stone. Three members of the team camped underground for seven days and two members for nine days. Their most significant discovery was a passage extending over 1.5 km to the north, directly toward the highest topography in the area.

They turned around in a 20x20 meters borehole passage.



Nine day underground camp in the La Grieta section of Sistema Huautla



Gilly Elor in the new section of Sistema Huautla.





Two new species of tarantula collected this year.



Bill Stone keeps book in the new section of Sistema Huautla.



Group photo of some of the expedition members with flag of The Explorers Club.



The 20 meter diameter passage where exploration halted in 2014. It goes!

Expedition participants - 29 cavers participated on the expedition: 18 from the USA, seven from Mexico, one from Tasmania, one from Canada, one from Switzerland, and one from Poland.

Yaz Avila	Mexico/TX	Dr. Oscar Franke	Mexico	Jorge Mendoza	Mexico
Kasia Biernacka	Poland	Ernie Garza	USA/TX	VA Price	USA/ME
Don Broussard	USA/TX	Ali Guzman	Mexico	Ron Rutherford	USA/TX
Geraldo Contrerus	Mexico	Dr. Cristina Estrada	Mexico/NY	Tommy Shifflett	USA/VA
Jesus Cruz	Mexico	John Harman	USA/WV	Jim Smith	USA/GA
Steph Davlantes	USA/FL	Aubri Jenson	USA/TX	Bill Steele	USA/TX
VA del Rosario	USA/MD	Jim Kennedy	USA/TX	Dr. Bill Stone	USA/TX/MI
Yvonne Droms	Switzerland/USA	Corey Hackley	USA/VA	Scott Wahlquist	USA/VA
Colin Dunn	USA/MD	Andreas Klocker	Australia	Peter Zabrok	Canada
Gilly Elor	USA/MA	Zeb Lilly	USA/VA		

IT ALL STARTED WITH GEARY

A DETERIORATING TRIP TO 0-9 WELL, JUNE 13–15, 2014

Bennett Lee

It began as a relatively normal caving trip, but quickly deteriorated. And it all started with Geary.

I set up a Bexar Grotto trip to 0-9 Well in the middle of a hot Texas summer. Most of us left Friday evening after work. I drove from San Antonio with Pam Campbell, and following us was were Wade McDaniel, Tom Rogers, and Gary Donham. Wade's truck made it without any blowouts, unlike the two separate blowouts and flat spare he had during a single trip to Deep Cave, but that's another story.

Somewhere along the way, Pam and I realized that we left without insect repellent. We stopped in Ozona for some, but the only insect repellent in Ozona's tiny grocery store contained DEET. I don't like spraying myself with a carcinogen that dissolves synthetic clothing, so I skipped it. After all, the other time I was at 0-9 Well, we didn't need insect repellent at all. Sure, that trip was in the middle of the winter and so brutally cold that our group's 7 seven gallon water jugs froze solid overnight, but how different could summer fauna be? Vastly different, as we soon discovered.

The West Texas desert around 0-9 Well has been in severe drought for a few years, but it had rained recently. It looked like it might even rain again that night. We found the windmill that marked our road and turned off the highway. The dirt road is well maintained, but soon we came upon a huge depression in the road that was filled with water. I hesitated, not knowing how deep the water was and afraid that my little (but awesome) Honda Element might get stuck. But I take my low-clearance, car-framed mini-SUV places most people don't take their towering pickups, so I plowed through.

Muddy water splashed up around the vehicle. The world disappeared behind a brown veil of viscous grainy liquid, spotted with large chucks of mud. OK, I'm exaggerating a bit. I don't really drive that fast through unknown water puddles, but it was a tense moment, not knowing how deep it was, if the bottom was solid or gooey mud, if we'd get stuck in the middle of the muck, how steep the sides were, or how slick the mud was. All that uncertainty hung in the air for an intense two seconds until we emerged out the other side. Oh…that was easy. The road was littered with these mud holes, but with my new-found confidence, I blazed onward.

The Jail

Geary Schindel and Rob Bisset were also driving up together from San Antonio. I don't know if you've been to Ozona, Texas, but it's a flat, barren land. You can see for miles and miles. And that makes thunderstorms particularly spectacular.

Enter Geary. He worries about everything. Off in the distance, possibly as far off as Arizona (that's an exaggeration…it was probably only in New Mexico), Geary watched a storm rolling in. It was twilight, so each bolt of lightning shone brightly, illuminating layer upon layer of dark clouds.

I should mention that Geary has been struck by lightning before, so nature's amazing light show that night stirred up a crippling terror for Geary. He grew concerned about staying at 0-9 Well, sleeping next to a metal windmill. Where, oh where, would lightning strike amongst this flat wasteland of shrubs and a towering metal windmill?

OK, that's a pretty valid concern, but Geary is still a worrywart. That's also why I like having him around—no



one can think of everything that could possibly go wrong like Geary can. He's a great resource in that regard.

So as he's approaching Ozona with a thunderstorm looming on the horizon, Geary calls his wife back in civilization (i.e., Internet access) and asks her to start looking up hotels in Ozona. There aren't a lot of hotels in Ozona, and most of them are occupied en masse by the oil industry because of the area's recent oil boom. Geary and Rob pull into a hotel, and as Geary's waiting in line at the front desk, he hears the hotel attendant direct the couple in front of him to another hotel with "the last vacant room in town".

Most people at this point would give up and just camp at the cave, but not Geary. His worrying makes him quite resourceful. Where else in town could he possibly stay? The jail, of course. Yes, the jail. Like I said, it all started with Geary.

So here's Geary, late at night, beating on the door to the jail. Some leery officers open the door to Geary's beaming smile, who asks if he and some friends can sleep in the jail tonight. There's a short exchange as Geary explains his dilemma, but the officers explain that it's Friday night in the oil fields and they're expecting a full house. However, there's always the church.

Apparently, Ozona has a non-denominational church that the congregation opens up to wayward souls, hitchhikers, vagabonds, etc., so cavers would fit right in. The officers gave Geary the number to the church's minister. Geary called, and the minister said he's at a baseball game at a town about an hour away but agrees to head to Ozona to open the church to these cavers (vagabonds).

The Mosquitoes

Right about that time, my group had just arrived at camp. The first thing I did was setup my canopy because it looked like it might rain. And that's when we heard it…this high-pitched whine.

Suddenly, we were attacked by a swarm of mosquitoes. Third worst mosquito swarm I've ever experienced (the worst was in the Alaska tundra in the summer, and second worst was at Goose Island, Texas). They swarmed you in the open, they swarmed you in the cars. Someone pulled out a can of DEET and I bathed in it lavishly. But even as my clothes melted away and cancerous lesions formed on my skin, the little bastards were not deterred. It was a maddening, unrelenting onslaught.

Right at that moment, Geary called, telling us he had a place for

us to stay in town. A church. But we're already at the cave, setting up camp just 50 feet away from the entrance. Why would we ever want to drive all the way back into town, through all the mud holes and down the long, desolate highway, just to drive all the way back a few hours later in the morning?

Mosquitoes. LOTS of mosquitoes. For such a tiny creature, they can be a huge motivating factor. We abandoned my canopy and jumped in our cars. Drivers navigated the mud holes while their copilots tried to kill the numerous mosquitoes that had invaded in the cars. Pam smacked one on my ceiling that had apparently feasted heartily on one of us already because it left a huge red smear on my headliner. Little bastards.

The Milkshake

Back in town, Geary and Rob needed a place to hang out while waiting on the minister. They headed for the icon of any small Texas town, Dairy Queen.

It was a rough night for that particular Dairy Queen. Not only was it a late Friday night in an oil town where the jail was expected to fill up soon, but one of the six DQ employees called in sick. Later that same shift, another employee quit. Thus, on one of their busiest and rowdiest nights, the DQ was down one third of their staff.

Orders were delayed. Tables weren't getting bussed. People were so frustrated with the service that all night they had been taking their delicious Blizzards and ice cream cones and mustardy hamburgers and plopping them upside-down on the tables in protest. Or maybe that's just what rowdy oil field workers normally do and why the jail fills up.

Regardless, by the time Geary and Rob walked through the door at DQ, there wasn't a clean table anywhere. Rather than stand around waiting, Geary decided to put his Master's degree in hydrogeology to work and offered to clean the dining room for a milkshake. The staff gladly handed him a broom. I've got photographic proof.

The Church/Mortuary

By the time the rest of us got back to town, Geary was sucking down a milkshake and told us to meet him at the volunteer fire department behind the park in the center of town. We pulled up and Geary and Rob were standing with someone in a sports jersey. When the sports jersey guy saw my long hair, he exclaimed "Rocker!" while holding up his fist with index finger and pinky extended and banging his head back and forth. Turns out he's the minister. "Oh, it's one of those churches," I thought.

The local law enforcement showed up shortly thereafter to run our IDs at the minister's request. He just needed to be sure we weren't mass murderers before letting us stay unattended in his church. An understandable precaution, especially considering that the insides of our cars were speckled with fresh blood stains from the mosquito invasion. Geary and Rob checked out OK, and they vouched for the rest of us. Probably helped that Geary had local employment, too.

The church was a house just a few blocks away, tucked away in a residential neighborhood. The main room was large with a dozen rows of chairs and a stage with an electric guitar and keyboard. Just as I suspected—one of those "progressive" churches. As the minister showed us around, he explained that it used to be a mortuary that they converted to a church, which explained the faint odor of embalming fluid. Or hopefully did. Hey, did anyone check the ID of this "minister"?

Cavers started claiming aisles. Geary offered me the last of his hard-earned milkshake—it was delicious. Pam and I claimed one of the small side rooms and laid out our sleeping bags. As we settled in for the night, I noticed the lights in the ceiling were pointing directly at our sleeping spot, and I realized that we were sleeping right where the corpses were on display. Creepy, but not as creepy as the following day when Tom Rogers asked if we felt like someone was watching us, and then confessed that he was standing at the doorway watching us for several hours that night. I think he was joking, but with Tom, it's hard to tell.

The 12-Year-Old Girls

The next morning we cleaned up the church (after Dairy Queen, Geary was a pro) and left a donation for the church's generosity. We decided to stop for breakfast tacos at a local dive. Chris Lafferty and Wes Rosenstein were driving in that morning, so I called to tell them that we were in town having breakfast. Unfortunately, they had just passed



through town 15 minutes earlier, so they decided to continue to the cave.

Shortly thereafter, Chris called back and asked if we had been down the dirt road that morning. Suddenly over the phone I hear a splash and what sounded like a bunch of 12-year-old girls at a Justin Bieber concert. Chris excitedly gets back on the phone and says the roads are really bad. He's not sure we can make it. There's another splash and more 12-year-old Belieber screams.

Now I'm kinda nervous. The road was already bad yesterday, and now with last night's thunderstorm, there's no telling what the roads are like. When we got back to the dirt road, all I can say is that Wes and Chris might both have fancy four-wheel drive SUVs, but apparently neither of them have ever been off-road. The road was exactly the same as the night before, and under my guidance my little (but awesome) Honda Element made it just fine again. City folk. Sheesh.

The Descent

We arrived to discover that my canopy survived the night. The storm that drove Geary to seek shelter in town turned out to be nothing more than a light drizzle. We set up camp and started rigging the 127 foot entrance drop while Rob took a "managerial position" in his hammock. I went down first to rig a rebelay and redirectional around the well pipe, but Geary worried about the added complexity for the newer vertical cavers. So I abandoned it in favor of a straight drop through the skinny pinch next to the pipe.

Next, I headed downstream over the rimstone dams to rig the second drop as the rest of the group came down the entrance drop. The rimstone dams get progressively deeper and deeper, and by the time you get to the second drop, you're plunging into small pools that are over your head. Most people wear wetsuits in the cave, but I was wearing only running tights and a quick-dry shirt. I always run hot, and the cold water felt good to me. Refreshing. Then there's Wade…

Jumping Jacks

I rigged the second drop on the new bolts high on the wall and rappel down the 55 foot drop alongside a waterfall that splashes onto beautiful flowstone at the bottom. Chris and

Wes follow me down the narrow water channel to the next minor drop, a 10-foot-high rimstone dam. We rigged a hand line, and I climbed down. Pam made it down fine, too, but Geary was concerned some people (who squeal like 12-year-old girls) might have trouble on the hand line, so we undid the butterfly knots and used our vertical gear.

Just a few feet away is the next drop down a picturesque 38-foot-high flowstone. As we're rigging it, Wade shows up next to us and starts doing jumping jacks. We're out of the water at this point, and he has a wetsuit on, but he's still freezing.

It's not the only time Wade has been cold in a cave. I had to rescue him from Spring Creek Cave when his lips turned blue from hypothermia. He also didn't help on a few tank hauls because he was afraid he'd get too cold in his wetsuit while hauling massive amounts of gear. (These are the same tank hauls where I wear running tights and a t-shirt and still overheat.) I didn't think this cave would be a problem for him because we're barely in the water at all, but I underestimated just how delicate Wade is. I guess that's what he gets for being so muscular and lean. Maybe he should put on a thick layer of insulating fat like the rest of us, and then he wouldn't get so cold all the time.



The Waterfall

While Wade is doing jumping jacks, we finish rigging the rope. It's a spectacular drop over the gorgeous flowstone with water flowing down it nearly four stories, splashing into a pristine pool at the bottom. I stop on the way down to place some new photography toys I made (Cree LEDs) into nooks and crannies so I can do some extended exposures of the falls.

While I was busy taking photos at the flowstone, the rest of the group went down the final descent into the last room to see the sump and infamous dome climb. My flowstone photos turned out OK, but the extreme drought in the area has reduced the water so much that the flowing water barely shows in the long exposure shots. Frankly, the better photos are the flash shots when everyone was climbing back up. And the best shots are when someone "augments" the waterfall by forcing water over the upstream 10-foot-high

rimstone dam, preferably while some poor sap is ascending the rope.

Like Chris Lafferty, the poor sap. I have a photo of him desperately clinging to the side to keep the deluge from drenching him (if only I had taken video, then you could have heard him screaming like a 12-year-old girl yet again). However, that was nothing compared to the waterfall to which they treated me. I was the last one up, so no one was below to witness, and my camera was packed away, so I have no pictures of the event. But take my word, I was over to the side where Chris cowered, and I was still being pummeled by a massive onslaught of water. Water just kept coming down and down for what seemed like an eternity. OK, it was probably only two seconds, but it was way more intense than those two seconds driving through that mud puddle the night before.

When I finally got to the top, the guys were squealing with glee at their triumphant little flood. Wes stuck around to help me de-rig the climb, and the others went upstream to start on the 55 foot ascent up the previous waterfall.

That previous waterfall is quite gorgeous, too, so I pulled out my camera again to snap a few photos there. Try as I might, I could not convince Wes to strip down for some calendar shots, so I took some calendar selfies. (I'll probably include one in the next Texas Cave Calendar. Contact me to reserve your copy now!)

The Pig

After my fantastic calendar selfies, I started packing up my camera gear. My typical setup is two large foam-lined Pelican Storm cases crammed with all my photography gear: camera, flashes, remotes, Cree LEDs, extra batteries, extra memory cards, cleaning cloth, cords, snouts, grids…the list goes on and on. I take those two Pelican cases and put them in a massive, bright red Gonzo Guano Gear PEP pack. Along with a full-size tripod. Plus all my normal caving gear. And about a gallon of fluids because I run hot and sweat a lot. Once done, my pack is nearly as tall as me and weighs about 100 pounds. OK, slight exaggeration again—it's only about four feet tall. Seriously. Geary aptly nicknamed it the "pig".

I hauled the pig up the 55 foot ascent, de-rigged the climb, then headed toward the entrance, carrying the massive pig over the flowstone dams. I set the pig at the bottom of the entrance climb and went back to the dams to soak, hoping to cool off and get slightly hypothermic before hauling the pig up 127 feet.

I came back a little later to find my pig being tied to the bottom of the rope. Apparently, Geary had decided to do a little vertical training on the surface and teach everyone about hauling systems. After carrying my monstrous pack through that cave (like I do through most caves, in fact), I can't say I minded.

The surface crew starts pulling up the slack, and as soon as the rope is tight, we get a call down from the surface, "It's stuck!" No, that's my pack. You're just now lifting it off the floor. That's right. Five guys with a haul system had trouble lifting what I carry through nearly every cave. Yeah, I'm a bad ass. Or an idiot. But an idiot with a passion for cave photography.

After much struggling, they eventually haul out the pig. Chris and Wes head up. I come up last. By the time I get to the surface, I've been in the cave about 10 hours. Some people have been on the surface for quite a while (because they're so delicate and cold), so I'm expecting they've cooked supper and maybe made some margaritas. But when I surface, I notice my canopy is no longer up. Neither are anyone's tents. There are no chairs, no food, and worst of all, no margaritas. Everything is packed up—even Rob's managerial hammock. That's when they tell me about the gnats.

The Gnats

Now, I can only relay what they told me because when I got to the top there were no gnats. But "supposedly" from the time the first person surfaced to just minutes before I surfaced, there were massive swarms of gnats. The gnats were so bad that everyone had to cover their faces with bandanas and shirts just to breath. And despite the facial covering, the gnats were so thick that they were still slipping through and flying into everyone's mouth and nose.

Supposedly. Like I said, when I made it to the surface, there were no gnats at all. No mosquitos. No looming thunderstorm. In fact, it was a very pleasant evening. I don't know what they were complaining about. But my group had mutinied and told me that everyone was heading home that night because of

the alleged gnat problem. Everything was already packed and they were just waiting for me to surface so they could flee the area, like the cowardly little mutineers they were.

Really, I think everyone was secretly terrified of staying for their own reasons and invented the gnat excuse. Just like the night before, I'm sure it all started with Geary. He probably had some binoculars and saw a storm way off in Arizona, and says, "Hey, guys, look at these three gnats. They sure are annoying." Wade, Tom, Gary, and Pam were probably still traumatized by last night's mosquitos, afraid they would reappear tonight, and respond, "Yeah, those three gnats are buzzing all around us." Plus, Wade was probably worried that the temperature might drop below 90 and he would get a slight chill, which made him gasp slightly and inhale a gnat, "Ew! I think one just flew in my mouth!" And I bet Wes and Chris were still quaking from the mud puddles, and shriek, "Aaaahhh! I can't take it! I can't breathe! And it's because of these THREE gnats! Well, two now that Wade ate one… but yeah, the gnats! Let's tell Bennett about this horrible swarm of gnats and how they're flying in our mouths and noses! We gotta get outta here!"

The Fire

Despite the breakdown of their psyche, I managed to calm them down and convinced the mutineers to stop in Ozona for food. They were all hungry, despite the amount of gnats they claimed to have inhaled and swallowed.

We decided to stop at the park in front of the volunteer fire station and have our supper there. It was late when we arrived and the night was dark. Fortunately, the park was well lit by the big city lights of Ozona. People started pulling food out of coolers, discussing which flavor of Gatorade goes best with all the gnats they supposedly swallowed. Someone lit a campstove. Then suddenly a car whipped around the corner with lights flashing and sirens blazing.

I should be clear and say that WE didn't start the fire. In fact, we never even saw the fire, but apparently there was a fire somewhere around Ozona that night. For about the next 15 minutes, we watched as car after car raced to the volunteer fire station behind us, engines revving as they navigated the 11 blocks that make up the entirety of Ozona. Some had sirens, some had lights, some had way too many sirens and lights, obviously overcompensating for something. Eventually a small fire truck arrived. I think that's something they should keep that at the actual fire station—maybe Geary can mention that at the next town meeting since he's locally employed. A few minutes later they all departed. Shortly thereafter another fire truck appeared and raced away in the same direction. Better late than never.

And so the show ended. All the chaos just moments earlier was now nothing more than sirens fading in the distance. A quiet fell over the town and over our group. It was as if the sirens carried away our individual cares and worries, and we were at peace…except me. We said our melancholy farewells and departed, but inside I was pissed that after caving all day, I had to leave a perfectly good campsite, a hot meal, and margaritas to drive all the way home at midnight because of a bunch of gnats. *Alleged* gnats. For the record, even if there were some gnats—and I'm not saying there were!—I think the "massive swarms" were highly exaggerated, unlike everything else presented here, which is completely accurate.

So as I'm driving home in the early morning hours, down long stretches of desert roads, I begin to think wistfully about sitting around the campfire, the playful firelight merging with the glow of my laptop screen, highlighting the intensity on my face as I feverishly try to sort and post-process the trip photos before my battery runs out. Meanwhile, other cavers laugh and relive the day's events and tell tales of past adventures between swigs from the bottle(s) of whiskey circling the group—horrific tales of mud and tight squeezes, boastful tales of rocking someone's pack, wishful tales of flatrocking my dad to put us (and presumably him) out of our misery. And, as always, we make fun of Wade for drinking Coors Light. Those nights around the campfire are one of the reasons I love caving. The dark pangs of longing slowly crept through me. I wonder why we didn't have that fireside comradery this trip…but I already know why. It began as a relatively normal caving trip, but quickly deteriorated. And it all started with Geary.

1ST TEXAS HYDRO-GEO WORKSHOP

THE TEXAS HYDRO-GEO WORKSHOP WAS CREATED TO BRING STUDENTS AND PROFESSIONALS TOGETHER IN A FIELD SETTING AS A HANDS-ON LEARNING EXPERIENCE. PARTICIPANTS HAD THE OPPORTUNITY TO EXPLORE MANY DIFFERENT TECHNIQUES FOR COLLECTING DATA FROM SOIL, ROCK, AND WATER MEDIA. THE WORKSHOP WAS STRUCTURED TO PROVIDE PARTICIPANTS WITH THE OPPORTUNITY TO WORK WITH LEADING RESEARCHERS AND PRACTITIONERS FROM ACROSS THE STATE IN THE COLLECTION, PROCESSING, AND ANALYSIS OF FIELD DATA.

AN ATTENDEES REMINISCENCE

Alex Velasco

"Hey James, do you think I should take my rain coat?"

"Nah I think it will be ok."

Wrong I was to not verify that with a weather report.

The rainy weekend of September 27th, I attended the Texas Hydrogeo Workshop hosted by the Bexar Grotto at the gorgeous Cave Without a Name property. It was chiefly organized by caveterans Geary Schindel P.G., and Gregg Williams, chairman of the Bexar Grotto. They were able to amass a number of interesting modules to be presented by professionals in the geophysical realm. The final count of attendees was around 220 people from various universities and backgrounds.

We had a game plan of arriving early for the sole intention of signing up for the "Cave Mapping" module, as they only had room for 10 people. However, with rain traffic we arrived just in time to see the food truck pack up for the night and the gates close. I made a B-line for the sign-up sheets as James went to the registration table.

"I can't believe we got the last two spots!!" James would continue to repeat all weekend.

We selected a few other modules to attend and then proceeded to set up our tent in the rain. A gushy fun mess it was indeed. I kept hoping these students were getting a kick out of the "real world" field environments that we were going to experience that weekend.

Saturday morning gracious volunteers were serving breakfast tacos and coffee. The rain stopped for a few moments as everyone attempted to eat under the same pavilion. Opening remarks were given by Geary and Gregg and we were set to split up into our modules.

James and I attended the "Surface Geophysics" module from 9-12. Here we learned about the three most prominent surface techniques used in finding cave, karst, and archaeological features. First was a presentation by Ron Green of the Southwest Research Institute on Electrical Resistivity. It allows one to create a rough 2D and/or 3D map of the subsurface via geoelectrical variations recorded as current is sent underground through steel rods and response is measured by a voltmeter back at the surface. By adjusting the spacing of the rods, one can fine tune for depth by placing them further apart; or for resolution by placing them closer together. Next was caveteran Evelynn Mitchell, a professor from St. Mary's University, presenting on Ground Penetrating Radar (GPR). GPR sends out electromagnetic waves and in return measures the reflection and refraction of these waves. Small inconsistencies beneath the surface can

be readily identified, and categorized as a void or as something buried. Interpretation of data is gained with experience and can be vague, therefore using GPR in conjunction with another method is recommended. She was followed by Dr. Mustafa Saribudak of Environmental Geophysical Associates who chatted about the Natural Potential (NP) method. As the name suggests, this method uses the earth's natural electrical field to detect caves, conduits, voids, and faults. The area being surveyed will likely have an average potential and if there is an outlier measured, or an anomaly, this is likely indicative of subsurface interruptions. It is a time and energy consuming process that should be used in conjunction with another method, as it does not give depth information and is subject to interpretation. Each presenter had a hands-on demonstration of their method that allowed students to become more familiar with related equipment and with general interpretation of data.

A tasty lunch of loaded salad and grilled cheese sammies was prepared by noon and the morning's on and off drizzle was back on again. At 1pm, James and I attended the "Cave Safety" module being covered by Bexar grotto caveteran Tom Florer with assistance from Bennett Lee. "Caving 101", as they lovingly called it, was a basic summary of rules, common sense, and good practice that all cavers should be aware of before they venture into a cave. They covered landowner relations, bat precautions, and most importantly rules of three. James and I might have been the only ones that had been inside a non-commercial cave, so we would interject a "yep" when something of utmost importance was mentioned. Many scribbled down notes, but the rain started to pick up again towards the end of this module so their intentions proved futile.

Following "Caving 101" was our most anticipated module, "Cave Mapping" with members of the Texas Speleological Survey. Once inside Cave Without a Name, caveterans Joe Mitchell and Rob Bisset demonstrated the most common technique used to map caves via measuring tape, compass, and inclinometer. They had set up six points for us to use as "shots" to map out the entrance room and we split up into teams to take measurements. After James and I took turns acquiring the analog data, Joe showed us how a computer program named Walls Project Editor takes this data to produce a basic line map. (James and I had the best data compared to the other teams and were the closest to closing the loop.) From here he talked about other techniques and programs used and how that data can help render a 3d map of the cave. He graciously showed us a few other maps he had previously worked on and talked about the general set up/protocol for surveying teams. We are set to map some caves!

We met with Jim "Crash" Kennedy of the TSA and preordered a book on caves and karst in Texas. As dinner was being prepared, Geary and Gregg announced the raffle drawing winners. "Flex Velasco… is there a Flex?" Geary said. Gregg looked over his shoulder and read "It's Alex." Of course by this time, James was already chanting out "Go Flex!" as I walked up to pick out a prize. Dinner was then served and James and I learned the real meaning of "generational gaps" while we attempted to relate to some of the students.

Then the group traveled into the cave and there we had our keynote address delivered by Dr. Bob Brinkman of Hofstra University on sustainability in our modern times. He called the students to action and motivated them to use their geophysical fields of study to view the future instead of just the past. Following his talk there was a yodeling contest where the good ol' Texas university rivalries were matched. Before closing, Chris Webb, a manager at Cave Without a Name, gave tours of the rest of the show cave. It is truly breathtaking and worth the trip. Saturday ended with a bonfire near the campsites and lightning lectures given by several presenters under the pavilion. We met Tom Summers, the owner of the property, and found out that he used to be a member of our very own Greater Houston Grotto.

Sunday morning the rain had finally ceased and breakfast was served. After everyone ate, Geary gave closing remarks and several rounds of applause were given to all those that helped put this fun and educational weekend together. Bexar Grotto truly stepped up to the plate with this workshop and the delicious food! James and I packed up, cleared the area, said goodbye to new friends, and started the drive back to Houston. We learned a great deal and we both wish we could have attended more modules. I hope this event sees growth in future years and I am excited to see what next year has in store!

OÙ EST LE KARST?

Jill Orr

CAVING IN EUROPE. IT WAS SOMETHING I THOUGHT ABOUT ALMOST AS SOON AS I BECAME A CAVER. STILL, IT WAS A DIFFICULT STEP TO TAKE.

Not closing up my condo and storing everything I own. Not leaving my friends behind temporarily. Not even telling people what I was intending to do – though if I didn't do it once I began talking about it, I would look foolish. The hardest part was turning in notice to my landlord. Once I did that, not only would I be committed, I'd be technically homeless. I was less nervous dropping 400 feet in TAG.

Getting here. It started with an unexpected experience in Florida while waiting with my sister for the ship. In our hotel, we started noticing more and more women and men walking around in the kinkiest, risqué outfits and make-up. You might expect this in a Motel 6 in Las Vegas, but not a Marriott. I finally had to ask the concierge what was going on and learned there was a porno convention being held at the convention center across the street. Hah! That totally changed my outlook on it. It now became an amusement, and I stayed up late to watch the people parading around the lobby and bar. My sister, being 'born again', didn't see the humor in it and went up to the room. I stayed up till two. Some caver's may appreciate that the TCR costume parade could give them a run for their money – half dressed with bits hanging out! I thought two weeks at sea would be a bore after that, but we had a little excitement from the hard-up dude at the hot tub who hit on us for a threesome. Good lord! He knew we were sisters, and my sister was a holy roller! I blame it on the darkness and his desperation. Then I had to listen to my sister lecture him on his evil ways and the risks he was taking. This time I went to bed early. To help pass the time, we made a game of spying on him after that, watching his attempts at further conquests.

Jump ahead to here I am. I arrived in France in May after crossing the Atlantic with the intention of studying



The little study is the coziest of my suite of rooms. I spent two weeks cleaning them and rooting through unused portions of the house picking out furnishings before moving upstairs from my first apartment.





LEFT: One of the many stunning countryside views. RIGHT: Our walking path along the River L'Adour.



My gracious hosts, Helen & David Barter.

the language and getting acclimated before contacting the caving community. I knew it wouldn't be a problem finding a club, there are over 400 caving clubs in France! But would they let me participate with the language barrier?

Living in Europe. It's something I've wanted to do for years. I'm in the small town of Maubourguet, in the Haute Pyrenees, population 6000 and about 30 miles from the mountains. My home is in a 200 year old town house, but the oldest part of the house was built in the 15th century. The present day complex was once a farm house, city municipal office, and hardware store. On the third floor, evidence survives that show servants once lived there in the most appalling conditions.

There are more than 50 rooms and areas in the three story house, of which I have five, with a private entrance and access to the large garden, with all of its fruits and flowers when they were in season. My rooms are French shabby chic with the accent on French shabby. But it feels like a mini-chateau. Inviting, cozy, and homey.

I have dinner every night with my landlords, a very sweet English couple who have been here for over eight years. We loosely take turns and host each other. They are delightful, considerate and entertaining. David has given me a car to use while I'm here. It's a 1984 Renault 4 with the manual gear shift mounted in the dash, and a manual choke that needs manipulation in cold weather untill the engine warms up. It is like the comic relief for Bourne Identity Paris car-chase scene. It's fun to drive and I pay for the gas.

David and Helen have been married 32 years and are still very much in love. Amazing. They have a rescue dog fittingly named Scruff who hangs out in my house when they are napping or out. David is 71, and having had owned a hotel in England for 20 years, has a rapier-quick British wit and stories that can compete with the best caver stories. Helen is in a rapidly advancing middle stage of Alzheimer's. Witnessing the decline of a brilliant mind and vivacious personality has been one of the most horrifying things I've ever witnessed, one can't be unaffected by it. In the short time I've known her, Helen is not the person I met in May. She's only 67.

Mais que dire du karst?

At the end of July I wrote to two local grottos. I used Google to translate my letter to French, and told them I could not converse in French but I was studying. I also included a complimentary issue of the Texas Caver.

Three weeks and no reply. Was it because I'm American? Couldn't speak enough French to safely cave?

I didn't want to be pushy but a second letter went out to both groups asking if the language barrier is a problem, and that I am passionate about caving. Finally a reply! I was invited to go canyoneering and was offered a Neoprene suit for a weekend in the Pyrenees. However, it was for the upcoming weekend and I wasn't prepared for my first trip to be so hard core, so regrettably I felt it was best to turn down.



Back patio at a bistro in the nearby town of Marciac where we have an occasional coffee.

Then a second reply! I was invited to meet with this group at a national sport fete. This is an annual convention that takes place at parks all over the country the first weekend of September. Dozens of organized sporting organizations setup booths and trial areas to recruit new members by letting them try out the sport







on site. Everything from kayaking to karate to caving. But I had to wait four more weeks. I went and finally met the French cavers for the first time. The caving group had set up a belly crawl of simulated cave passage made from a black plastic and wood frame about 15 meters long, and had lights for the kids to use. I introduced myself and after a little conversation, (with some help of a friend who is fluent in French) I was invited to go on an open cave day for new cavers, but it was a month away. Arrgh! Really? Another month of waiting?!

I continued working during the week, hiking around the town and on the local GR trail, visiting new English friends, and studying French in class and with a tutor. I spent a week house sitting for another English couple who run a B&B in town. The house is very grand and has quite a colorful history. Catherine, the owner, told me that there had been a suspected murder (ruled suicide) in the house sometime after the war. When she tried to learn more details, she was 'gently warned' to stop asking questions. The house is late 18th century and the grounds started out as a stable for Napoleonic soldiers. During WWII Nazi's took over the house as a local headquarters, and the SS were bivouacked in the cellar. Today it is overrun by 2 cats, 5 kittens, 3 dogs, 1 rabbit, 9 chickens and a cockerel.

On Sundays we have a routine of visiting all the local vide greniers (flea markets). All over France, every Sunday the vides take place, usually in the city market square. Everything is for sale: live chickens and geese (they will even ring its neck for you),





fresh eggs, second hand kitchen utensils, furniture, linens and clothes. Bargains like a copper fry pan for €1, €4 for a quilted Rip Curl coat, €5 for a canvas duffel bag for cave gear and €1 for china with prerequisite chips. Old world and new collide. Next to the willow tree brooms they have been making for hundreds of years, a solar charged battery is displayed. The French embrace technology and France is rapidly changing. The supermarkets and ultra-modern, high-tech McDonalds are destroying the culture. This is not the France of 20 years ago. Except for in the large cities, supermarkets have caused almost all of the individual shops to close. There are still three boulangerie and one charcuterie in town. 90% of the old shops are either empty or converted into homes. I drive past



LEFT PAGE: Around the town of Maubourguet, and a fruit tree in Helen's garden. ABOVE: New caving friends: Jean-Claude is far left rear, and Caroline and Sandrine are to my left. Laurent, in front, reminds me of Joe Ray from Arkansas.

McDonalds on Sunday nights. The parking lot is full and the drive-thru has a line of cars. I've been inside. We stopped for a coffee on the way back from Toulouse once, but I refuse to eat there. Orders and payment are made at an electronic kiosk with picture menus, and picked up at the counter.

Aside from that, things move at a slower pace here. The old ladies gather on benches outside their homes to gossip on warm evenings. Walking down the street I am greeted and reply in kind, "bonjour madame, monsieur." Every Sunday morning, there is a line in the boulangerie because it closes at noon and the French still require their daily fresh bread. France is a secular country, but everything is closed on Sunday – and Monday in the smaller towns and villages. Sunday is for family.

Two rivers meet in the town of Maubourguet. Streets and rivers are lined with plane trees that must have been saplings during the revolution. Plane trees have unbelievable character. Canals crisscross through the town, weaving alongside and under houses. This is Gascony. Corn is the main crop of the region, followed by Fois Gras and sunflowers.

There are stunning views, fresh air coming down from the mountains, arrow straight Roman roads, the scent of bread baking in the morning, extremely drinkable wine at insanely low prices, and of course cheese. France is still a country rich in the things that matter.





LEFT: Jean-Claude describes rappel technique to new cavers. In vain, I tried to translate to him that he is a badass caver. RIGHT: A typical traverse with permanent rigging.







ABOVE: Pretty of decorations have been concentrated in most of the caves I've seen. Mainly flowstone and pockets of miniature stalagmites and stalactites. LEFT: 40 meter sink hole near the top of the mountain. BELOW: The group discusses the day's caving while the sun sets behind the mountains.

Écrire sur le karst déjà

Yes this is supposed to be about caving. Finally the first day of caving arrived. This was an introduction day for new cavers. The meeting town was Saint Pé de Bigorre, only about 30 miles away but an hour drive through country villages in the foot hills of the Pyrenees. I have a GPS so it was easy to get there. With the sunrise to the east and the mountains in front, it is a spectacular drive.

The club I joined is the Aquaterrestres Lavedan. Here it is required to have caving insurance and a certificate. Other than that, its just like us. We meet at a convenient location at 9 AM, consolidate equipment and cars, and caravan and hike to the cave. When I arrived there were about 20 cavers present. The location was a football stade where the group has a large storage unit for club-owned caving gear. The location also has a two-room dormitory with bathrooms and a fully outfitted kitchen rentable for overnight events.

I was introduced to Sandrine and Jean-Claude. Sandrine speaks fairly good English and Jean-Claude is the senior caver and president, but speaks no English.

A few of the guys wanted to see my vertical gear. They laughed and made fun of my racks, pretending to tumble backwards, (but Laurent requested to try them some time), and were very interested in my Sten and rope walker.

The French vertical system is as light weight as possible. Only one handled ascender, cows tails (called longes) are used to double clip in for rebelays and traverses, foot loops are made from rope. The seat harness doesn't have rope clips and there is no loop on the back. The chest harness is put on like a jacket. I like that. Jean-Claude eyed my bungie harness with skepticism but allowed it, however, he lent me a Petzl Stop descender. In all the trips I've been on so far, no one wants to let me use my rack.



La première expérience de spéléologie en France

The walk from the parked cars up the mountain was eerily similar to TAG. Dazzling views, thick forest, carpeted with leaves, and steep, ancient trails. We stopped to look in at a small vertical entrance to a cave on the way up called Bon 109. Sandrine told me we would do that next trip. Continuing up another 15 minutes we arrived at Grotte Bouhadere. I was given a quick lesson on the descender, and how to tie it off. The descender, which is a double bobbin, is lighter and easier to use than a rack and, I think safer. As I waited my turn to descend, I took some photos. Jean-Claude oversaw the descent of each person and if a new caver was a little slow on going over the edge, he gave them a push.

There are too many words for how it felt when it was my turn finally, and I didn't need a push. The entrance was tight and the drop was about 15 meters. The way the descender is loaded and my weight had me bouncing down the rope. I had to feed it at first, but half way down it was finally smooth. They don't announce when on rope, but they do shout "Libre" when off. We began making our way through the passage. There was very little decoration, only in the large rooms and mostly near the ceilings. The lead group saw one bat (chauve-souris), but it was gone by the time I got there. Most of the passages were very tall, narrow canyons, with only a couple of crawls. We made several more short drops of 3-4 meters, and several traverses which required clipping on to rope, and several breakdown climbs. The French are much safer than we are about traverses. They leave bolts with rope permanently set up along the hairy canyon walls.

Like in the US, most new cavers are one-time cavers. Caroline, who has been caving for three years, brought her husband on this trip. He was clearly having trouble with



Only the leaves were moss-free in this part of the forest.

the small spaces and became vocal and grumpy about it. He took an easy exit out and I haven't seen him since!

After exiting the first cave we went back down the mountain and to the cars. I had just taken off my coveralls and changed boots when I was invited to go into another cave with a different group. Of course Yes!

So higher back up the mountain to the second cave. The forest alone at this height was worth the climb. Moss quilted every rock and tree 2 meters up as far as the eye could see. Rich, green and lush, it was like an enchanted forest in every direction with a cool damp breeze caressing bare skin.

My English speaking partner for this cave was Isabel, who told me it was only a small cave, so I decided to leave my pack behind. If I wanted it I would just run back out and get it. Every time I have ever done that I have been sorry, and this time was no different. My camera was in my pack, and the cave was not small - at least by Texas standards.

I expected something with a couple of large rooms, but no, this was about 1½ hours each way to a large room with a beautiful formation from ceiling to floor. There was a French version of daddy long legs, but they





LEFT: The group lunch on my 1st rope technique RIGHT: The 2nd day was quite different. In the cold and rain, we huddled under an outcrop for lunch. Les garçons ate in the car.







didn't clump en-masse as in Texas. Deep in the cave the passage floors were covered with multi colored stones. We had large breakdown piles to climb, but very little crawling and no vertical drops. There were several large shallow pools of water with tiny cave adapted shrimp.

After we left the second cave, they took me even further up the mountain to show me a huge sinkhole with a 50 meter drop. This area too was covered with moss.

The day had been amazing. I was made to feel welcome; if they couldn't speak English, people smiled. I practiced as much French as I could. It hurts my ears to hear my accent, but I've been assured they don't mind. We compared names of equipment in French and English. They were surprised we call ourselves 'cavers' instead of the English 'pot-holers', and were interested in Texas caves.



Left and above: Technique practice.

La journée de formation technique

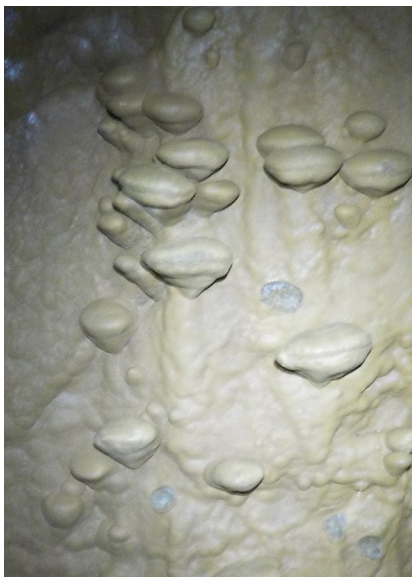
My next speleo experiences were two technical training days. Unlike in the US, the training days here are training DAYS. All day. I was asked to bring 'the end of a sausage' for barbecue, and a salad. I brought a tomato caprice salad, some cheese, and stopped at a boulangerie for a fresh baguette (still warm!). We met at a bottom of a cliff outside of the village of Pouez at 9:30. This mini park is reserved for wall climbing practice. There were several people with two children who were also learning vertical technique. Up a trail is the practice cliff. We concentrated only on descending and crossing traverses on the cliff side from only four meters up taking turns over and over again. When we broke for lunch I laughed out loud when I saw the bottle of wine on the picnic table! We had a pot luck lunch with gorgeous weather and magnificent views. I thought we were done after lunch. The wine (one small glass), heat, and food made me a bit lethargic, but back we went to practice! All I wanted was a nap at that point, but I did the right thing, show them that Americans can take their wine and rock climb too. We practiced for three more hours before calling it a day.

The second rope practice a few weeks later was almost cancelled. It should have been because of









the cold and rain. Only Sandrine, Caroline and myself showed up, and three 13-year old boys who had been on the last trip and sorely tried Jean-Claude's patience were brought by one of their mothers. While waiting their turn on rope, they sat in the car! I don't think they would have gotten away with that in Texas. Except for the wind, the conditions were relatively close to French cave conditions and we put in a full day.

Une fois, deux fois, trois fois la spéléologie

The groups have excursions twice a month. The next trip was back to Saint Pe di Bigorre, and up the mountain again to another cave. This was to Bon 109 and was another new caver introduction day. Jean-Claude and Sandrine were there again, and I was warmly greeted by the group. Bon 109 is about 50 meter deep, but the drops are separate and roughly 10-15 meters each. The second drop required two deviations to keep the rope from rubbing the cave ledge. They call deviations a Frac (short for fractionation), but with the southern French accent, it sounded like something that can't be repeated in print.

There was a lot of bottle necking in this cave due to the newness of most of the cavers on this trip. Jean-Claude controlled the descent and ascents and stayed at the ledge incase instruction was needed. As in the other two caves, there was very little decoration here. At the bottom of the third drop there was a large candle stick column on the wall about 15 feet above our heads. A tempting traverse continued on, but because of the time it had taken to get there, we turned around almost immediately.

In this cave, I took my time with photos and got some critters, including a frog, huge black slug, spider, centipede, copper beetle and an unusual a white slug. There are no snakes in French caves. Back at the cars we picnicked and talked and finally said à bientôt.

I must have proven myself worthy. I've been invited to a dig, explore, and survey in Titouanouk cave. This one is with the big boys – and blasting French style!

As of publication time, there have been several more fantastic excursions, in truly amazing caves. À suivre.







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