TSA Activities Newsletter

Volume 10, Issue 1 January 2006

News & Notes

TSA Affairs:

TSA Winter Business Meeting

The TSA Winter Business meeting will be held on Saturday, January 21st, 2006 at the offices of the Texas Speleological Survey in Austin, Texas at 10:30 AM. As this will be the first TSA meeting of the year, our newly elected officers will be handed the reins of power. It will also be a good opportunity for cavers to visit the TSS facilities and peruse the files and library. Tours will given to those interested.

The TSS office is in Building 18-A at the Pickle Research Center (PRC) in Austin. PRC is between Highway 183 (Research Blvd.) and Braker, and between Mopac and Burnet. If coming north on Mopac, take the Braker exit. If coming west on Research (183), take the Burnet Road exit. A detailed map to PRC can be found at *<http://www.utexas.edu/maps/prc/>*. On the PRC map 2 ("NW Area") 18-A is the little building just above the "*ra*" in "Granberry". Park in the PETEX lot across the street (Read Granberry Trail) from building 18-A. Once inside 18-A, follow the stairs up to the 3rd floor. If you get lost call the office at 512-475-8802

As security at the Pickle Research Center has been increased in the aftermath of 9/11, all those wishing to attend the meeting need to send an email to Jim Kennedy <jkennedy@batcon.org> or Ron Ralph <*ronralph@austin.rr.com*>.

TSS Affairs

TSS Board Meeting

The TSS will be holding their first Board meeting of the year on Saturday, January 14th, 2006 at the TSS office in Austin, Texas at 10:30 AM, and all interested parties are welcome. If you haven't been to the TSS office before, this would be a good time to get familiar with the data available in the TSS files. Tours of the facility will be given after the meeting. For directions, see the instructions for the TSA Winter Business Meeting above. As a reminder, security at the Pickle Research Center has been increased in the aftermath of 9/11, and all those wishing to attend the meeting need to send an email to Jim Kennedy <jkennedy@batcon.org> or Ron Ralph <*ronralph@austin.rr.com*>.

TCMA Affairs

The TCMA is now selling the Barbara McCleod musical CD recorded at the 2004 TSA Convention in Burnet, Texas. All proceeds will go to the TCMA. Please contact Linda Palit for details. Cost of CD is $14 plus $2 shipping.

NSS Affairs

2009 International Congress of Speleology

It is now official that the ICS and the NSS convention will be combined in 2009. Estimated attendance is expected to be between 1500-2500 people. Anyone who wants to present a paper at the Congress must pre-register. There will be a combined NSS board meeting and ICS planning meeting in March 2006 in Irving, Texas.

George Veni

Cave Archeology

The Winter 2005 issue (Vol. 47, no. 3) of *Expedition Magazine* is focused on cave archeology and includes articles from luminaries in the field on caves around the globe. The issue costs $9.95 or about $13 with shipping in the US. *Expedition* is published three times a year by the University of Pennsylvania Museum of Archaeology and Anthropology. For details, check out the website: *<http://www.museum. upenn.edu/new/Zine/index.shtml>*.

George Veni.

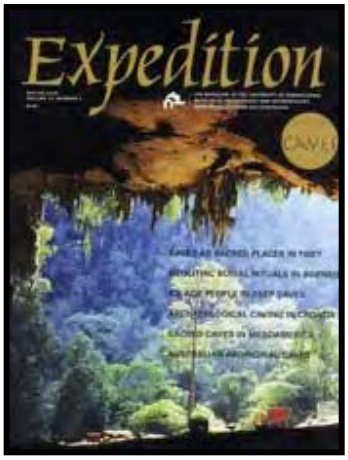


Table of Contents for Winter 2005 Issue of *Expedition*:

Caves as Sacred Places on the Tibetan Plateau—Mark Aldenderfer

Burial Rituals of Prehistoric Forager-Farmers in Borneo--The Neolithic Cemeteries of Niah Cave, Sarawak—Graeme Barker

What Did Ice Age People Do in the Deep Caves?—Jean Clottes

Archaeological Caving in Croatia--The Illyrian Rituals of Nakovana Cave—Timothy Kaiser and Staso Forenbaher

The Heart of Creation, the Heart of Darkness--Sacred Caves in Mesoamerica—Holley Moyes and James E. Brady

The World of Ancient Ancestors--Australian Aboriginal Caves and Other Realms within Rock—Paul S. C. Tacon.

Cave Biology

Bats Use Touch Receptors On Wings To Fly, Catch Prey

Bats have an "ear" for flying in the dark because of a remarkable auditory talent that allows them to determine their physical environment by listening to echoes. But an Ohio University neurobiology professor says bats have a "feel" for it, too.

John Zook's studies of bat flight suggest that touch-sensitive receptors on bats' wings help them maintain altitude and catch insects in midair. His preliminary findings, presented at the recent Society for Neuroscience meeting, revive part of a long-forgotten theory that bats use their sense of touch for nighttime navigation and hunting.

The theory that bats fly by feel was first proposed in the 1780s by French biologist Georges Cuvier, but faded in the 1930s when researchers discovered echolocation, a kind of biological sonar found in bats, dolphins and a few other animals. Bats use echolocation to identify and navigate their environment by emitting calls and listening to the echoes that return from various objects.

Zook believes the touch-sensitive receptors on bats' wings work in conjunction with echolocation to make bats better, more accurate nocturnal hunters. Echolocation helps bats detect their surroundings, while the touch-sensitive receptors help them maintain their flight path and snag their prey.

Touch receptors take the form of tiny bumps, or raised domes, along the surface of bats' wings. The domes contain Merkel cells, a type of "touch" cell common in bumps on the skin of most mammals, including humans. Bat touch domes are different, however, because they feature a tiny hair poking out of the center.

When Zook recorded the electrical activity of the Merkel cells, he found they were sensitive to air flowing across the wing. These cells were most active when airflow – particularly turbulent airflow – stimulates the hair. When a bat's wing isn't properly angled or curved during flight, air passing next to the wing can become turbulent. Merkel cells help bats stay aerodynamically sound by alerting them when their wing position or curve is incorrect, preventing the creatures from stalling in midair.

"It's like a sail or a plane. When you change the curve of a wing a little bit, you get improved lift. But if you curve it too much, the bat – or plane – may suddenly lose lift, hitting a stall point and falling out of the air. These receptor cells give bats constant feedback about their wing positions," said Zook, who has studied bats for more than 30 years, focusing on echolocation and the bat auditory system. The bat's sense of touch has been a side interest since the early 1980s.

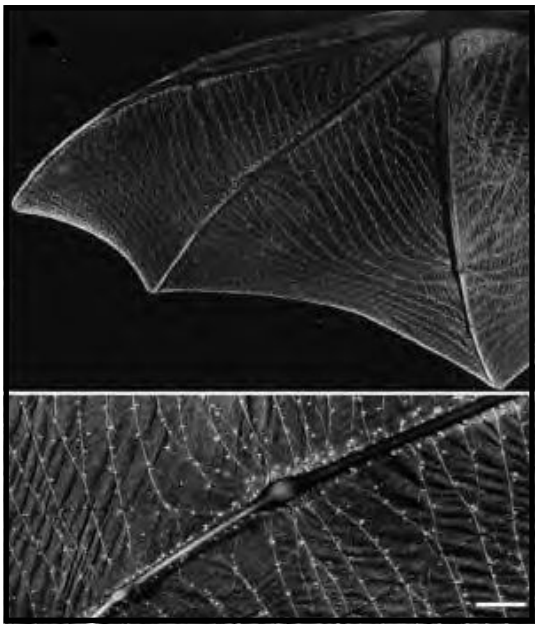
To test his hypothesis, Zook removed the delicate hairs from bats' wings with a hair removal cream. Then he let them fly. The bats appeared to fly normally when following a straight path, but when they'd try to take a sharp turn, such as at the corner of a room, they would drop or even jump in altitude, sometimes erratically. When the hairs grew back, the bats resumed making turns normally.

"It was obvious they had trouble maintaining elevation on a turn," he said. "Without the hairs, the bats were increasing the curve of their wings too much or not enough."

The bats' flight behavior also changed based on the area of the wing where the hairs were removed. For example, when Zook removed hairs along the trailing edge of the wings and on the membrane between the legs, the bats were able to fly and turn effectively, but they tended to pitch forward because they couldn't control their in-flight balance.

Zook's research also points to the importance of a second type of receptor cell in the membranous part of bats' wings. Nerve recordings revealed that these receptors respond when the membrane stretches. Zook calls areas on the wing where these stretch-sensitive cells overlap "sweet spots" because they are where bats like to snag their prey. In the lab, Zook shot mealworms covered with flour into the air and recorded how the bats caught them. He could tell from the flour imprints on the wings that the bats caught their prey almost exclusively in the stretch-sensitive sweet spots.

Melissa Calhoun. 2005. <*http://news.research.ohiou.edu/news/index.php?item=257*>.



Cave Conservation

Wimberley Valley Watershed Association Purchases Jacob's Well - Spring to Become Jacob's Well Natural Area

The Wimberley Valley Watershed Association (WVWA) has purchased Jacob's Well, one of the outstanding natural springs in the Texas Hill Country and entire nation. The WVWA in unifying the properties around the spring has christened it the Jacob's Well Natural Area. Jacob's Well is believed to be the longest underwater cave in Texas and the primary source of water to the Cypress Creek which flows downstream through the city of Woodcreek and Wimberley, through the famous Blue Hole swimming area and into the Blanco River.

"This is the first time since the 1800s that Jacob's Well and the surrounding properties has been united in one single ownership," Dr. Patrick Cox said, President of the WVWA. "If water is the very life blood of our community then

Jacob's Well is the heart of this entire region," Dr. Cox said. The WVWA will begin working immediately to restore and protect the site. "Jacob's Well Natural Area will be utilized for research and environmental education and to serve as a model for how to protect environmentally sensitive areas in the Edwards Aquifer Region," Dr. Cox said.

"The WVWA appreciates the help of the members of our organization, our local partners and the Greater Edwards Aquifer Alliance members who have helped us accomplish this acquisition," Dr. Cox stated.

The land acquisition is a result of a multi-year effort by the WVWA to protect and consolidate dozens of parcels previous owned privately. Now the unified fifty-acre parcel know as the Jacob's Well Natural Area will be managed and restored as a nature preserve by the Wimberley Valley Watershed Association.

In order to purchase the land, the WVWA obtained a $2 million loan from a private, conservation-minded lender to purchase the properties. Within the next two years the goal of the WVWA is to repay the loan and raise additional funds for the management and restoration of Jacob's Well Natural Area. The total current appraised value of WVWA's land is over $3 million.

Jacob's Well is a karst spring very similar to Barton Springs or San Marcos Springs and is a perfect place to study and research the health of the aquifer. The WVWA has already established a water quality monitoring station managed by the United States Geological Survey at the spring to study the water quality and quantity of the aquifer. Realtime water quality data from Jacob's Well can be viewed on the web at <*http://tx.usgs.gov/aquifer/projects/jacobswell.htm*>.

To make a financial contribution to help save Jacob's Well Spring, contact the Wimberley Valley Watershed Association at 512-847-1582 or online at <*http://visitwimberley.com/water/join.shtml*>. To send a tax-deductible contribution directly to WVWA, mail to WVWA P.O. Box 2534, Wimberley, Texas, 78676.

*(*Excerpted from:<*http://visitwimberley.com/articles/jacobsWell.shtml*>*)*

Jacob's Well, Hays Co., Texas

Equipment and Techniques

Animated Knots Website

Ever get frustrated trying to tie a knot using a picture from a book? Try using the *Animated Knots by Grog* website at <*http://www.animatedknots.com/index.php?LogoImage=LogoGrog.jpg*>. Each knot has a separate page which points out uses and derivations while an animated gif at the top illustrates step-by-step instructions for tying it. Over 60 different knots are shown including the favorites used by cavers. Very instructive website.

Urine-Powered Battery

In their quest to develop a smaller, cheaper battery for medical test kits - like those used to detect diabetes by analyzing a person's urine - scientists in Singapore had a eureka moment of sorts when they realized that the very urine being tested could also serve as a power source.

In the September issue of The Journal of Micromechanics and Microengineering, Ki Bang Lee described how he and his team of researchers created "the first urine-activated paper battery" by soaking a piece of paper in a solution of copper chloride, sandwiching it between strips of magnesium and copper and then laminating the paper battery between two sheets of plastic. In this setup, the magnesium layer serves as the battery's anode (the negatively charged terminal) and the copper chloride as the cathode (the positively charged terminal). An electricity-producing chemical reaction takes place when a drop of urine, which contains many electrically charged atoms, is introduced to the paper through a small opening in the plastic.

The scientists' largest prototype battery generated a maximum of roughly 1.5 volts, the equivalent of an AA battery, and sustained an average of about 1 volt for about 90 minutes. Lee explains that its uses could extend to any device that consumes a small amount of electricity. "For instance," he says, "we could integrate a small disposable cellphone and our battery on a plastic card, for use in an emergency. And we are continuing to develop batteries that could power regular cellphones, MP3 players and laptop computers." While Lee emphasizes that urine is the biofluid of choice (since "everybody produces large amounts of it"), he notes that other bodily fluids - blood, tears, semen and saliva - will work in a pinch.

(Excerpted from: Joel Lovell. 2005. <*http://www.nytimes.com/2005/12/11/magazine/11ideas_section4-14.html*>)

Tales of the Sinkhole:

Cave Crime Doesn't Pay

Hartsville, Tenn. — Investigators from the 15th Judicial District Drug Task Force found a mother lode of marijuana in the unlikeliest of places — a cave. Beneath a stylish A-frame home on Dixon Springs Road in eastern Trousdale County, three men allegedly set up a sophisticated operation to grow as much as 100 pounds of marijuana every eight weeks.

"It's pretty amazing what they had under there — water for irrigation, special lighting, devices to keep the humidity

just right. These guys were professionals. They knew what they were doing," said District Attorney General Tommy Thompson of Hartsville. "They could grow in 60 days what it would take four and a half months to grow outside."

According to the district attorney general, the investigation into the operation began about five years ago when a home was built above the cave, but it never appeared anyone lived there. "The front of the cave used to be a hole that you'd crawl into, and it opened up into a pretty big room that was 20-feet high. They cut the side of the hill so you could just drive right into the cave," Thompson said.

The cave, reached from the house via secret entrances, is said to be about two miles long, but the marijuana operation was located about 100 yards inside. Thompson said the other end of the cave had been blocked to keep trespassers out. According to the prosecutor, the men told locals they were going to be mining statuary rock.

In another suspicious incident, the local electric company was asked to install a larger transformer than usually required by a residence. But apparently that was not enough electrical power to operate the grow lamps required to raise 800 marijuana plants at a time. Instead of asking the electric company for more power, the men spliced into the Tri-County Electric line and were stealing electricity, Thompson said. "They had the operation set up so that one person could operate it during the growing season," he noted.

To harvest the illegal crop, Thompson said the men would hire a half-dozen Hispanic workers in Arizona and drive them to Tennessee. For part of the journey the windows on the van would be covered so the workers did not know where they were. "They would drive right into the cave and let them out to begin working," the prosecutor said. "It's just unbelievable what they've done. It's like something out of a James Bond movie."

(Excerpted from : Leon Alligood. 2005.<http://tennessean.com/apps/pbcs.dll/article?AID=/20051218/NEWS01/512180362/1007/ARCHIVES>)

Wall-Mart's Fortunes Sinking

Alachua, FL. Preliminary work on the site of a Wal-Mart distribution center here was interrupted earlier this week when a sinkhole opened on the site. The sinkhole at the site on County Road 235A will not prevent the development from moving forward, Wal-Mart spokesman Keith Morris said. "We are still committed to the project; that hasn't changed," Morris said. Morris and Alachua City Manager Clovis Watson said Friday they were uncertain of the size of the sinkhole, its location on the property or the damage it may have caused. The plans submitted by Wal-Mart for the site included details about how the company would handle sinkholes that developed on the site to ensure the area's water supply is unaffected, Watson said. Submitted in 2004, the site plan listed 10 locations on the property as "sinkhole areas." "The plan already defines what is required of a developer if a sinkhole opens," Watson said. "We have to make sure we protect our aquifer."

(Excerpted from : Jeff Adelson. 2006. *<http://www.gainesville.com/apps/pbcs.dll/article?AID=/20060107/LOCAL/60107001&SearchID=73231981174570>*)

Chinese Field Collapses Amidst Geyser

Hefei, China - Dec. 15, 2005. More than 130 villagers in the Dingyuan County of eastern Anhui Province had to be be evacuated after about a half hectare of a nearby crop field sank on Wednesday afternoon, according to the local government. No casualties were reported. A huge water column more than 10 meters high roared and spouted out of the field at around 1 PM Wednesday and then the land began to sink according to witnesses.

The cave-in might have been caused by water seeping from a nearby salt mine, said an official with the land resources bureau of Chuzhou City, where the village is located. Experts with the city's geological environment supervision bureau are keeping a close eye on the situation and Dingyuan County also established an emergency work team to investigate the accident.

(Excerpted from: *<http://english.sina.com/china/1/2005/1215/58111.html>*)

Update on Smith County Sinkhole

TXDOT reports that repairs to FM 724 damaged by the sinkhole that suddenly formed in June 2005 in Smith County, Texas, should be reopened by the end of the year. Since mid-June, TXDOT crews have been repairing the forty-foot-wide sinkhole. They peeled back nearly one thousand feet of roadway to repair cracks. They also raised the roadbed and dug better drainage ditches to prevent flooding.

Announcements

2006 Bustamante President's Day Project February 18-20, 2006

The 2006 Bustamante Project will be held on President's Day weekend February 18-20, 2006. Volunteers are still needed for specific tasks. For details, contact Bob (Rune) Burnett *<bburnett1@austin.rr.com>*, (512)-459-0505, or Orion Knox *<Orion-Knox@alumni.utexas.net>*, (512)-453-4070. The official website for this year's project should be up and running sometime soon at *<http://home.austin.rr.com/ojknox/bustainfo.htm>*.

Grotto Events

The **Permian Basin Grotto** plans to schedule their Carlsbad Caverns Rock Haul for Saturday, January 21, 2006.

Caving Calendar

January 11, 2006 : Texas Speleological Survey Work Session (Austin). Held at the TSS office in Austin from 5:00 to 8:00 p.m. Come help with the organization of Texas cave information. **Contacts:** Jim Kennedy (512)-663-2287

<*jkennedy@batcon.org*> or Ron Ralph <*ronralph@austin.rr.com*>.

January 14, 2006 : Texas Speleological Survey Board Meeting (Austin). Held at the TSS office in Austin at 10:30 a.m. Open to anyone interested in Texas cave information, its organization and publication. Work session held after the meeting. **Contacts:** George Veni (210)-558-4403 <*gveni@satx.rr.com*> or Jim Kennedy (512)-663-2287 <*jkennedy@batcon.org*>.

January 14-15, 2006 : Colorado Bend State Park Project. Survey, ridgewalking, and digging activities. Beginners and experienced cavers welcome. **Contacts:** Terry Holsinger (512)-443-4241 <*trhli@sprynet.com*> or Dale Barnard <*Barnarddale@yahoo.com*>.

January 21, 2006 : TSA Winter Business Meeting (Austin). To be held at the TSS office in Austin. For more information, check the TSA website <*http://www.cavetexas.org*> or Jim Kennedy (512)-663-2287 <*jkennedy@batcon.org*>.

January 28-29, 2006 : High Guads Restoration Project (Carlsbad, NM). On-going work amidst spectacular scenery in the beautiful caves of the Lincoln National Forest. Last weekend of the month, permits often include Three Fingers, Virgin, Pink Dragon, Pink Panther, Hidden, Wonderland, and Black Cave. Activities vary from month to month. **Contacts**: Susan Herpin or Jennifer Foote <*highguads@yahoo.com*>.

February 5-12, 2006 : CDS Fund Raiser - Cruisin for Caves (Miami, Cozumel, Belize, Roatan and Cayman). For every ticket purchased the CDS will receive $35.00 and Carnival will match the donation. The CDS will be cruising to Cozumel, Belize, Roatan and Cayman on Feb 5th 2006. Details on price, itinerary and registration can be found on the NSS Section website at <*www.nsscds.org*>.

February 8, 2006 : Texas Speleological Survey Work Session (Austin). Held at the TSS office in Austin from 5:00 to 8:00 p.m. Come help with the organization of Texas cave information. **Contacts:** Jim Kennedy (512)-663-2287 <*jkennedy@batcon.org*> or Ron Ralph <*ronralph@austin.rr.com*>.

February 11-12, 2006 : Colorado Bend State Park Project. Survey, ridgewalking, and digging activities. Beginners and experienced cavers welcome. **Contacts:** Terry Holsinger (512)-443-4241 <*trhli@sprynet.com*> or Dale Barnard <*Barnarddale@yahoo.com*>.

February 18-20, 2006 : Bustamante President's Day Project (Bustamante, Mexico). For details, contact Bob (Rune) Burnett <*bburnett1@austin.rr.com*>, (512)-459-0505, or Orion Knox <*Orion-Knox@alumni.utexas.net*>, (512)-453-4070.

February 18-20, 2006 : Manhole Cave Dig (Carlsbad, NM). Ongoing cave dig in the Guadalupes near Lechuguilla Cave. **Contact:** Steve Fleming <*swcaver@warpdriveonline.com*>.

February 25-26, 2006 : High Guads Restoration Project (Carlsbad, NM). On-going work amidst spectacular scenery in the beautiful caves of the Lincoln National Forest. Last weekend of the month, permits often include Three Fingers, Virgin, Pink Dragon, Pink Panther, Hidden, Wonderland, and Black Cave. Activities vary from month to month. **Contacts**: Susan Herpin or Jennifer Foote <*highguads@yahoo.com*>.

March 24-26, 2006 : NSS Board of Governor's Meeting (Irving, TX). The Metroplex grottos will host the spring meeting of the NSS BOG. Evening parties on Friday and Saturday will be at Bill Steele and Diana Tomchick's house, Saturday meeting and catered lunch at the Irving Garden and Arts Center, and Saturday dinner at the Irving Spring Creek Barbeque. Come on out and meet your elected NSS officials and have a good time, too. **Contact**: Bill Steele <*speleosteele@comcast.net*>.

April 8-9, 2006 : Colorado Bend State Park Project. Survey, ridgewalking, and digging activities. Beginners and experienced cavers welcome. **Contacts:** Terry Holsinger (512)-443-4241 <*trhli@sprynet.com*> or Dale Barnard <*Barnarddale@yahoo.com*>.

April 8-12, 2006 : 1st Central American Speleology Congress (Catacamas, Honduras). Invitation is still open for cavers from all around the world that want to participate in this first Congress. Technical presentations on the caves and karst of Central America with planned field trips to area caves. **Contact:** Gustavo Quesada <*www.anthros.org*> or check website at <*http://www.talgua2006.blogspot.com*>.

July 3-8, 2006 : XII International Symposium on Vulcanospeleology (Tepoztlán, Mexico). Sponsored by the UIS Commission on Volcanic Caves, SMES (Sociedad Mexicana de Exploraciones Subterráneas), and Grupo Espeleológico ZOTZ. Two days of formal presentations and three days of field trips including a trip to the longest lava tube in America (Iglesia Cave at ~6 km). For details, see : <*www.saudicaves.com*>.

August 7-11, 2006 : NSS Convention (Bellingham, Washington). The 2006 NSS Convention will be hosted at beautiful Western Washington University. The university is located between the Puget Sound and the Cascade Mountains, just outside of downtown Bellingham. Situated between Seattle, Washington and Vancouver, British Columbia, the spectacular surroundings of this region will make a stunning backdrop for the convention. For more information, visit the website at <*www.nss2006.org*>. **Contact:** Michael McCormack (Chairman) <*michmcco@exchange.microsoft.com*>.

From the Editor of the TSA Activities Newsletter

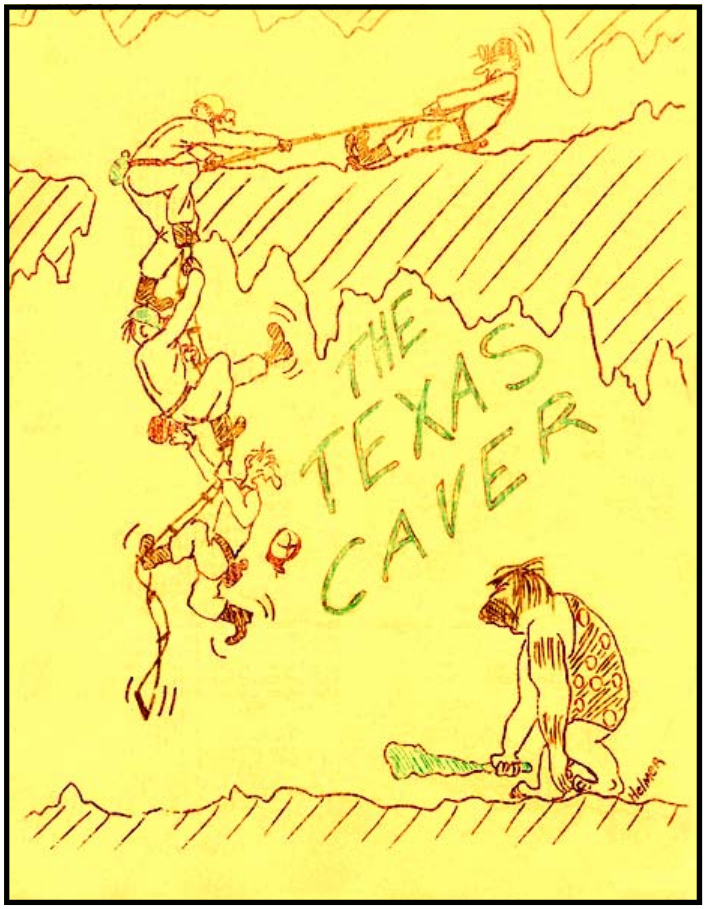
The *TSA Activities Newsletter* is an adjunct publication to the *Texas Caver*, the official publication of the Texas Speleological Association. The ANL's purpose is to provide a timely forum for Texas caving news, events, and announcements that cannot be shared with the general caving community through the *Texas Caver*. The *Texas Caver* is a bi-monthly publication at best, and has a history of dependable tardiness. The intent of the ANL is to fill these communication gaps, but not to replace the *Texas Caver*. The TSA encourages cavers to continue to support the *Texas Caver* by sending in trip reports, articles, and photographs to the *Texas Caver* editor(s) that are not suitable for publication in the ANL.

It is the intent of the editor to post the ANL monthly to the TSA website. Due to the prohibitive cost of printing and mailing a monthly hardcopy publication, the ANL will be distributed to all cavers in a digital pdf format which can be downloaded free-of-charge from the TSA website at <*http://www.cavetexas.org/*>.

As in all endeavors of this sort, a large part of its future success will be based on whether people contribute material. Please send all grotto announcements, calendar events, general caving news and information items that you would like to have included in the ANL to: Jerry Atkinson <*jerryatkin@aol.com*>.

Editor : Jerry Atkinson
Editorial Staff : Carl Kunath

TSA website : <*http://www.cavetexas.org/*>



Cover from the January 1956 issue of the *Texas Caver*. ***Happy New Year everyone*** !