CENTRAL OKLAHOMA GROTTO
OF THE NATIONAL SPELEOLOGICAL SOCIETY,INC

C.O.G.nizance

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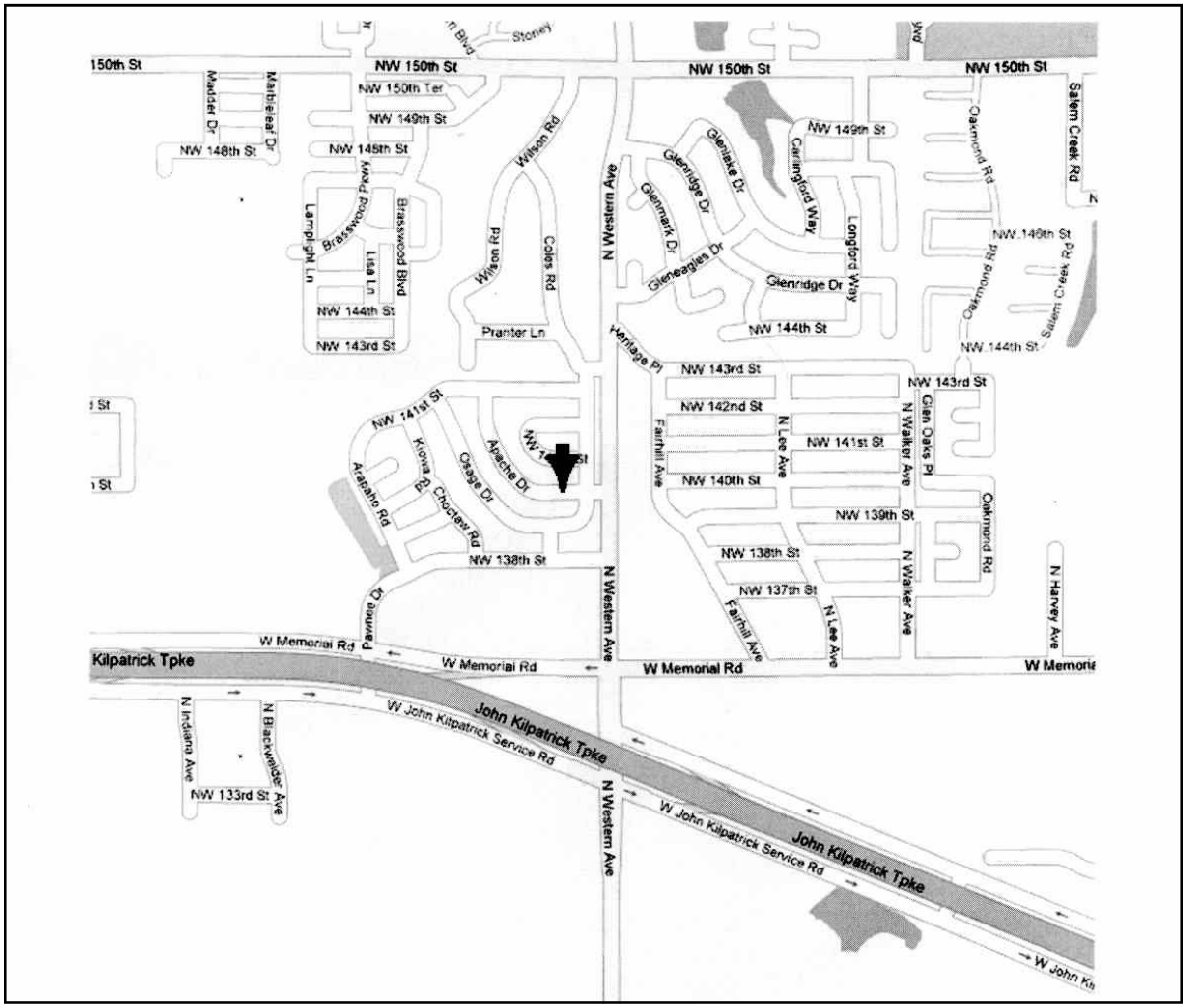
The May meeting of the Central Oklahoma Grotto will be held at 7:30pm, Friday, May 11, 2007 at the home of Mark Miller.
Address: 14029 Apache Drive, Edmond, OK 73013
Home Phone: 405-749-9664

***Directions to* Mark Miller's**: Whatever direction you are coming from, proceed to the intersection of Memorial road (or the Kirlpatrick Turnpike, they parallel one another right there) and Western. From the intersection of Memorial Road and Western, go north on Western about ¼ to ½ mile to the second subdivision on your left (west). It is called Redlands. Look for Apache Drive and turn left (or west) on Apache. Go to the stop sign. Go through the stop sign. We are the eighth house from the intersection on the left (south) side of the street. There will be a Dakota pickup and a Toyota Avalon in the driveway. Bring an appetite!



ANNOUNCEMENTS

*Northwest trips are scheduled the third Saturday of every month. Contract Sue or John Bozeman for details.

*The May meeting will be at 7:30pm, Friday, May 11, at 14029 Apache Dr., Edmond, OK. Phone: 405-749-9664.

MINUTES

CENTRAL OKLAHOMA GROTTO
Minutes of the April 13, 2007 Meeting
Substitute Recording Secretary: Sue Bozeman

Hosted at the Town House in Altus. Delicious refreshments provided by Lil Town and Sharon Fletcher (the spouses of whom were on a bike ride to a motorcycle convention/gathering ex-state!).

Attending members: Dale Amlee, Anne Ault, John and Sue Bozeman, Duane Del Vecchio, Lil Town (hostess), Jon Woltz and guest Kelly Logan (soon to be espoused -- May 17th at 11:30 a.m. in Arapahoe, actually! Congratulations were given by all) and guest/ hostess, Sharon Fletcher.

The meeting was called to order by Steve Beleu via speaker cell phone from Norman and gaveled in at 8:33 p.m.

OLD BUSINESS

The X-Cave trip for the summer should be nixed, agrees Anne Ault. Shant be done as there was no response to our request for access details and member interest has been flagging.

Carlsbad netting project: Dale Amlee brought show and tell materials (2 types) for the proposed new National Geographic Pit screen cover. He also read the proposed letter he planned to include with the samples for the approval of the Carlsbad Management. We made some suggestions and he agreed to make those alterations and send off the letter quickly so we could get and answer prior to our June cleanup trip. The materials looked great!

Carlsbad Cleanup:

Scheduled for June 1-3, the following have committed to going: Dale Amlee, Lil Town, Duane Del Vecchio, Kelly Logan-Woltz, Jon Woltz, John and Sue Bozeman, Anne Ault, Steve Beleu, Mark Miller and Doug Cook. The Los Alamos contingent will join us, but maybe not cave internal -- remains to be seen. The likelihood is that we will spend the day putting the PVC pipe together and attaching the netting at the base of the National Geographic Pit. If more time remains or if not everyone is necessary for the NGP project, we'll avail ourselves for additional duties elsewhere at the Park's discretion. Anyone else wishing to go, please contact Duane Del Vecchio or Dale Amlee.

Boy Scout trip to Jester: Our newest member, Doug Cook, has again requested a trip to Jester in July. We had mentioned that the bats use the cave as a maternity roost and a through trip in the summer is not a possibility. The new landowner constraints have added a new level of complexity and we are suggesting an alternate cave for the trip. We'll let Doug join us at another meeting for further discussion.

NEW BUSINESS

Anne Ault brought the groups attention to several items in the NSS News:
1. The famous 'butterfly' in the Caverns of Sonora was broken, perpetrator still unidentified. A sad day.
2. There is a foldout picture of Lechuguilla that is outstanding.
Anne further brought a printout of an article she found in the Oklahoma History Center where she volunteers. It is printed in this newsletter elsewhere and concerns a December 29, 1894, counterfeiting ring that had used a cave as their base of operations.

Oklahoma Underground Volume 21

Sue Bozeman detailed that things are coming together nicely. Dale Amlee had completed his article on bats and windmills; Duane volunteered that his article on Uses and Abuses of Gypsum was already finished; Anne's article was awaiting final amendment; Dale Town's Monosnorthe update was in the works and that Jon Woltz might consider his Children's Cave Bibliography assignment to be supplanted with something else of a cave-related nature should he wish, while Roy Diehl had promised his part 'when school let out!' and John Bozeman was well aware of his geologic article duties.

Meeting adjourned to repast at 9:38 p.m.

Excellent chili and veggie stew & wonderful devilled eggs by Lil Town; veggie and fruit platter filled to the brim; candies and nuts -- you missed a great treat if you were unable to make it! Thanks, Lil and Sharon!

Beyond the Dimmest Light
S. Beleu, May 1, 2007

However splendid the walls and floors are,
Although the ceiling is a work of art,
We look down the darkest passage and know
We must push on into the dark.

Cave pearls are abundant as fall leaves.
Drapery hangs from the ceiling's every part.
But we keep looking down the passage
That will soon lead us into the dark.

There beyond the dimmest light
Is where we want most to embark.
Lured there by the always unknown
Always on into the dark.

TREASURER'S REPORTS

APRIL, 2007

INCOME

DIVIDEND	$ 6.65
DUES	$ 36.00
PUBLICATION SALES	$ 18.00
TOTAL	**$ 60.65**
CASH ON HAND	$ 46.19
CHECKING	$ 713.71
SAVINGS	$ 2,647.55
UNDEPOSITED FUNDS	$ 24.00

EXPENSES

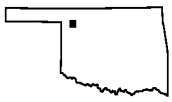
P\OSTAGE	$ 10.92
NET INCOME	$ 49.73

TOTAL FUNDS AS OF 4/05/07 $ 3,431.67

PREPARED BY TREASURER
JOHN TALBOT

TRIP REPORTS

Trip Report: Broken Horn Cave - Oklahoma
C.O.G. Personnel:
Steve Beleu, Dale Amlee, John and Sue Bozeman,
Trip Date: April 14, 2007 Written by Sue Bozman



After everyone finished backing out of the trip, there remained a valiant threesome, tried and true. We had no one to meet and so took our time at everything, including getting up to the Ranch!

The day looked like it might blow up into a storm with winds in the high 30s, but we hadn't worried about rain ... until our dear landowner mentioned some nasty thunderstorms being promised for later that afternoon! Egads. She suggested we come out every once and awhile and check the skies. That is just not easily done, but we thought we'd see what the underworld held for us and then make a decision.

Well. We didn't even get in to the cave. Sitting in the very entrance was a couple inches of water over mud -- that which we would need to slide through before even getting OUT of daylight. Phooey. The men were suggesting reasons for each other to go first -- I suggested we look for the back way in and see if we couldn't avoid the early dunking. THAT suggestion was greeted enthusiastically and off we went.

The wind was high that day, in case you needed to know. The sun was out intermittently, but enough to dehydrate us and burn exposed necks, arms and faces. It was also hot trouping around topside dressed for the netherworld -- silly people. We found what we figured was our back way in -- and it was full of swiftly flowing water. It is usually a mucky crawl! Well, that was a bust. So we went to see what the resurgence(s) looked like. The cave starts breaking down as it approaches the cliff face and it does a couple of in-and-outs until it reaches the final canyon exit. At least we think that's what happens.

In view of the amount of swiftly flowing cave-internal water, we thought we'd do a dye trace and PROVE our theory. Dale took the 4 dye tablets I had in my pack and went to the 'back way in' spot. There he mixed the dye in the water, chasing the tablets as the swift current sucked them downstream! He had never done dye tracing before and was enthused about the instant fluorescent green that appeared as the tablets hit moisture. I'd warned him to use a stick to mix the dye or be branded GREEN for a few days!

He went to the first presumed resurgence to join Steve and wait for the dye to appear. Then they were to join me at the final cliff exit for the finale. No finale. No interim finale either! Either there was such a huge quantity of water between the two entrances that the dye got very diluted or we didn't wait long enough. But it is such a short distance overland that we were puzzled, but reluctant to stay more than the hour we had already.

Next we decided to do an overland from the 'back way in' entrance, which had a beautiful white arrowhead-looking piece of gypsum at its entrance, to Jay's Entrance by the cars, which is our usual way in. This we did in the next 2 hours. The shots were short as the wind continued howling stronger throughout the day, but we terminated at the "tree" at 4:15. Before calling it a day, Dale and I went to both resurgences to see if any trace of the dye came through. Nothing.

Regardless of the failure of the dye trace, we did get something done on the cave, even if it was all external.

FROM THE EDITOR: THIS REPORT HAD BEEN MISPLACED IN THE EDITOR'S COMPUTER, AND IT WAS GRACIOUSLY RESUBMITTED TO BE PUBLISHED! THANKS ANNE!

Trip Report: Broken Horn Cave
Team: Dale Amlee, Anne Ault, Steve Beleu, Roy Diehl.
Date: May 20, 2006
Written by Anne Ault

This trip was to continue the survey that had begun January 22, 2006. Barely a week after that trip, we were all at the hospital in Oklahoma City, chewing the walls, waiting for the neurosurgeon to tell us how the brain surgery he performed on Lil Town had gone.

We all now know it went well and Lil is almost back to 'normal' (remember, she is a blonde!).

Many other events took place during the three months it has taken to return to this cave; such as Nicole and Roy Diehl having a baby boy who will grow up to be a world class caver with his sister, Cassandra.

Anyway! Broken Horn was a bit neglected until now. Seven cavers separated into two groups. Jon Woltz, Sue and John Bozeman returned to where they had stopped their survey in January. Dale Amlee, Anne Ault, Steve Beleu and Roy Diehl scuttled into their passage to continue that survey. Dale was doing book, Roy and Steve doing compass and Anne was in charge of the tape.

There had been several rain storms in the weeks preceding this survey. This part of the country is suffering from a fairly severe drought, so the rain had been most welcome. Although our arm of this cave is a water passage, the water mainly stays in center passage and we can slug and slide on the side mud banks. Thanks to the previous rain, we all realized that we had no interest in being here during a storm. From seeing all the debris still stuck on the ceiling, we know this passage floods from top to bottom.

Thanks to the previous rain, we all realized that we had no interest in being here during a storm. From seeing all the debris still stuck on the ceiling

The survey went quite well. We passed the cave's namesake and patted it solid, unbreakable little head for luck.

Dale was doing an excellent job as "Bookman". Roy and Steve were usually within a degree or right on mark with the compasses. Steve was shooting the back sights. Absolutely no fighting or heated arguments occurred between them. Honestly!

Absolutely no fighting or heated arguments occurred between them. Honestly!

The tape would get so muddy, Anne couldn't read it. Trying to wipe it off was ridiculous, because she had nothing un-muddy to use on it. So she and the tape would have to go for a dunking in the water.

Steve set most of the points for Roy. Only a few required Roy to suspend himself over a ten foot drop into the stream, or lie in sucky-mud. Good times!

We reached a junction in the passage just as it was getting close to time to return to the surface. So we had a really good place to set a permanent marker.

After cleaning up, we went to visit with Betty and Barbara Selman. Betty had made for us, one of the best Angel Food cakes I've ever tasted. It was a big cake, but we ate every crumb! Even with our appetites slightly appeased by the cake, by the time we got to the Fairview Pizza Hut, astonishing amounts of pizza were consumed.

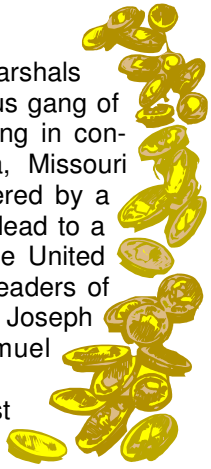
To be continued with the next trip to Broken Horn.

POTPOURRI

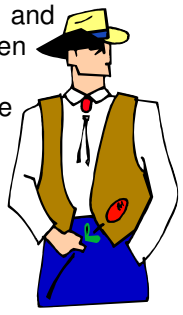
The Medford Journal

December 29, 1894

Article provided by Anne Ault from the Oklahoma History Center, Oklahoma City, OK. Misspellings left 'as are' to enhance reader enjoyment.



-- -- A squad of deputy United States marshals on earth (sic) a powerful and dangerous gang of counterfeiters, who have been operating in connection with Confederates in Indiana, Missouri and other states. A chance word uttered by a member of the gang while intoxicated lead to a raid and the subsequent lodging in the United States jail at Guthrie of the following leaders of the gang: Guy Harper, L. Crawford, Joseph Tillery, Jess Lockett and Samuel Lockett. The capture was made in an underground cavern a few miles east of Perkins, used by the counterfeiters as a meant in general rendezvous. The officers gathered in three buckets full of counterfeit dollars, perfectly made and two tubs full of dimes, quarters and nickels besides a costly assortment of moulds and other paraphernalia. The men have been operating in the cave nearly eight months and much of the spurious coins were boxed and expressed



All the prisoners are educated and well-dressed.

To agents in western states. All the prisoners are educated and well-dressed. Tillery was at one time an employee in the mint at Philadelphia. The Lockett Brothers resided in Perkins, were they were considered exemplary young man.

Professor says Mo. should protect caves

Reprinted from U.S. Cave Forum
Updated: 8:17 a.m. CT March 8, 2007

ST. LOUIS - Save the caves? A Washington University professor in St. Louis warned Wednesday that Missouri, often called the Cave State, is losing too many of its caves to development.

"A lot of caves have been filled in, or entrances blocked, or bulldozed over," said Earth and Planetary Sciences Professor Robert Criss. "As we develop, I just wish we'd give a little more thought to what we're doing to the natural world."

While many of Missouri's best-known caves are protected, there doesn't seem to be any established protocol for protecting hundreds of other caves from development, he said, a sentiment echoed elsewhere in the state.

Many times, "We look at caves as a way to entertain us, and not as a resource that we should protect," said Matt Forir, naturalist for Springfield-Greene County.

Missouri has an international reputation among scientists, caving enthusiasts and tourists.

Consider that Missouri is home to Mark Twain Cave in Hannibal, believed to have provided the inspiration for the cave in the books "The Adventures of Tom Sawyer" and "The Adventures of Huckleberry Finn;" it has Meramec Caverns in Stanton, once used as a hideout for Jesse James, and it also features Bridal Cave outside of Camdenton, where more than 2,000 couples have tied the knot.

Forir is the executive director at Riverbluff Cave on the outskirts of Springfield, an Ice Age cave that is slowly yielding fossil treasures preserved since it was sealed off at least 55,000 years ago. Just Tuesday, he said they found a fossil of a 3-foot-long armadillo that lived an estimated 500,000 years ago.

The well-known caves have protections in place and are not in jeopardy.

But Criss, Washington University geologist G.R. Osburn and graduate students Jennifer Lippmann and Everett Criss, Robert Criss' son, studied many of the 127 reported caves in St. Louis County, an area separate from the city of St. Louis.

While their findings primarily document many of the caves, and are directed toward a scientific audience, they found that more than 10 percent have been altered or obliterated by suburban expansion in the county over time.

Their paper, the Caves of St. Louis County, was recently published in the journal Missouri Speleology. Speleology is the exploration and study of caves.

They located and examined caves in St. Louis County, tried to clear up any discrepancies in historical reports, and entered pre-existing reports into the Missouri Speleological Survey electronic database.

Need protection

Forir said the work the group had done was important to update and add to knowledge about the caves.

He, too, believes more can be done to protect lesser-known caves.

Animals that live in caves are often small and fragile, he said. If caves are destroyed, that can reduce populations of those creatures.

The researchers in St. Louis County said caves are homes to creatures including bats, salamanders, the Ozark cave crayfish and others. Some animals, like raccoons and bears also use caves, they said.

Furthermore, "caves are nothing more than underground pipes that serve for the movement of groundwater," Forir said. In rural areas, many towns have well water or get their water from sources that are spring fed, he said.

He said not all caves carry water, but for those that do, tampering with caves could divert groundwater to a different area, leading to erosion or a sinkhole somewhere else.

Scientists studying pictures from NASA's Odyssey spacecraft have spotted what they think may be seven caves on the surface of Mars.

By Paul.Rincon:Reprinted from -INTERNET@bbc.co.uk

The candidate caves are on the flanks of the Arsia Mons volcano and are of sufficient depth their floors mostly cannot be seen through the opening.

Details were presented here at the Lunar and Planetary Science Conference in Houston, Texas.

Temperature data from Mars Odyssey's Themis instrument support the idea.

The authors say that the possible discovery of caves on the Red Planet is significant.

The caves may be the only natural structures capable of protecting primitive life forms from micrometeoroids, UV radiation, solar flares and high energy particles that bombard the planet's surface.

The spacecraft spotted what seemed to be vertical "skylight" entrances to caves below the surface.

There is a sheer drop of between about 80m and 130m or more to the cave floors below.

'Seven sisters'

During the day, one of the features - nicknamed "Annie" - is warmer than surrounding pits and cooler than sunlit areas.

Night time temperatures are warmer than nearly all surrounding areas.

Co-author Glen Cushing, from the US Geological Survey in Flagstaff, Arizona, said this was exactly what would be expected if the feature were a cave.

"Nothing like these features has been seen elsewhere on Mars," he told BBC News.

The researchers describe the candidate caves as "seven sisters" and have given them all names: Dena, Chloe, Wendy, Annie, Abbey, Nicki and Jeanne.

The cave entrances are between 100m and 252m wide (330-828ft).

Because in most cases the cave floors cannot be seen, only minimum depths are known: the researchers calculated they must extend between 73m and 96m (240-315ft) below the surface.

However, in one image taken of Dena by the Mars Odyssey Camera, a floor can be seen.

Using the data, the authors calculated that this cave must extend 130m (426ft) below the surface.

Mars Odyssey was launched in April 2001 to hunt for past or present water on the Red Planet.

Its Themis (Thermal Emission Imaging System) instrument uses the visible and Infrared part of the electromagnetic spectrum to measure the temperature properties of the Martian surface.

Giant Crystal Cave's Mystery Solved

By Stefan Lovgren
Reprinted for National Geographic News
April 6, 2007
http://news.nationalgeographic.com/news/2007/04/070406-giant-crystals.html

It's "the Sistine Chapel of crystals," says Juan Manuel García-Ruiz.

The geologist announced this week that he and a team of researchers have unlocked the mystery of just how the minerals in Mexico's Cueva de los Cristales (Cave of Crystals) achieved their monumental forms.

Buried a thousand feet (300 meters) below Naica mountain in the Chihuahuan Desert, the cave was discovered by two miners excavating a new tunnel for the Industrias Peñoles company in 2000.

The cave contains some of the largest natural crystals ever found: translucent gypsum beams measuring up to 36 feet (11 meters) long and weighing up to 55 tons.

"It's a natural marvel," said García-Ruiz, of the University of Granada in Spain.

To learn how the crystals grew to such gigantic sizes, García-Ruiz studied tiny pockets of fluid trapped inside.

The crystals, he said, thrived because they were submerged in mineral-rich water with a very narrow, stable temperature range—around 136 degrees Fahrenheit (58 degrees Celsius).

At this temperature the mineral anhydrite, which was abundant in the water, dissolved into gypsum, a soft mineral that can take the form of the crystals in the Naica cave.

The new findings appear in the April issue of the journal Geology.

(Related" "Photo in the News: Giant Crystal-Filled Cave Discovered in California" [September 26, 2006].)

Volcanic Activity

The mining complex in Naica contains some of the world's largest deposits of silver, zinc, and lead.

In 1910 miners discovered another spectacular cavern beneath Naica.

Its walls studded with crystal "daggers," the Cave of Swords is closer to the surface, at a depth of nearly 400 feet (120 meters).

While there are more crystals in the upper cave, they are far smaller, typically about a yard (a meter) long.

Nearly the Size of a Basketball Court

The Cave of Crystals is a horseshoe-shaped cavity in limestone rock about 30 feet (10 meters) wide and 90 feet (30 meters) long.

Its floor is covered in crystalline, perfectly faceted blocks. The huge crystal beams jut out from both the blocks and the floor.

"There is no other place on the planet where the mineral world reveals itself in such beauty," García-Ruiz said.

Volcanic activity that began about 26 million years ago created Naica mountain and filled it with high-temperature anhydrite, which is the anhydrous—lacking water—form of gypsum.

Anhydrite is stable above 136 degrees Fahrenheit (58 degrees Celsius). Below that temperature gypsum is the stable form.

When magma underneath the mountain cooled and the temperature dropped below 58 degrees Celsius, the anhydrite began to dissolve. The anhydrite slowly enriched the waters with sulfate and calcium molecules, which for millions of years have been deposited in the caves in the form of huge selenite gypsum crystals.

"There is no limit to the size a crystal can reach," García-Ruiz said.

But, he said, for the Cave of Crystals to have grown such gigantic crystals, it must have been kept just below the anhydrite-gypsum transition temperature for many hundreds of thousands of years.

In the upper cave, by contrast, this transition temperature may have fallen much more rapidly, leading to the formation of smaller crystals.

To Reflood or Not to Reflood

While the chance of this set of conditions occurring on other places in the world is remote, García-Ruiz expects that there are other caves and caverns at Naica containing similarly large crystals.

"The caves containing larger crystals will be located in deeper levels with temperatures closer to, but no higher than, 58 degrees Celsius," he said.

He has recommended to the mining company that the caves should be preserved.

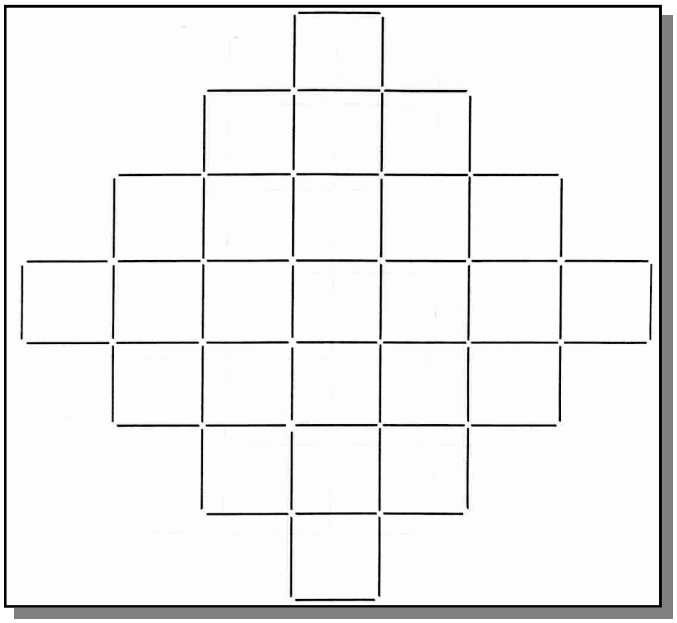
The only reason humans can get into the caves today, however, is because the mining company's pumping operations keep them clear of water. If the pumping is stopped, the caves will again be submerged and the crystals will start growing again, García-Ruiz said.

So what happens if—or when—the mine is closed?

"That's an interesting question," García-Ruiz said.

"Should we continue to pump water to keep the cave available so future generations may admire the crystals? Or should we stop pumping and return the scenario to the natural origin, allowing the crystals to regrow?"

Here is a new toothpick puzzle. This time **TAKE AWAY 32 STICKS TO LEAVE 6 SQUARES!** (Not equal sq. this time!)



Transportation survey to determine what's underneath highway in part of Oklahoma laced with caverns

State hires firm to study sinkhole cause Road construction on hold in Woods and Major counties.

By John Greiner *Capitol Bureau*

Reprinted from Publication: The Oklahoman; Date: 2007 April 29; Section:Capitol; Page Number 6

Highway crews spend most of their time worrying about what's on top of the ground where they want to build a road.

But in Woods and Major counties, they're concerned about what is underneath.

The state has hired a firm to find out just how extensive the caverns are in the area around U.S. 412 where it wants to add two more lanes and on U.S. 64 near Alva, where there's a sinkhole. The state Transportation Department wants to know what's causing the sinkhole.

That area of the state, especially in those counties and neighboring Woodward County, is laced with caverns.

One of the better-known caverns farther north of U.S. 412 is at Alabaster Caverns State Park, but it's not part of the study.

Sen. Owen Laughlin, RWoodward, said there are many other caves across the area.

Spelunkers — people who explore caves — have come into the area often, he said.

"On certain mornings, you can see the steam coming out of the ground," Laughlin said of the area where the two additional lanes are going to be built.

He's seen steam while driving by on U.S. 412. It occurs usually when the ground is warm and there's a chill in the air, he said.

Then you can see columns of vapor rising from the ground where the entrances to the caves are.

At its April meeting, the state Transportation Commission approved a contract with Terracon Consulting Engineers & Scientists to provide geophysical services along two sections of US. 412 and an area of U.S. 64.

The survey area along U.S. 412 will be from the Woodward County line extending east approximately 2 miles and east about 3.6 miles from the U.S. 412-U.S. 281 junction.

The total contract for Terracon cannot exceed $220,000 and will be paid with 80 percent federal money.

The state also wants Terracon to survey an area on U.S. 64 east of Alva where there's a sinkhole, Robert Ward, division engineer, said.

Tim Tegeler, a roadway design engineer for the Transportation Department, said the agency wants to map the area in Major and Woods counties so it will know where and how deep these caverns are near the proposed site of the construction of the additional two lanes.

"We're really trying to get an underground description of this," he said.

What is causing the caves in the area is gypsum formation, Tegeler said.

"We need to know how much ground we would have between the road and the top of the cave," he said of the mapping for the U.S. 412 construction area.

The agency also needs to know how much ground it has between the cave and the highway section.

Ward said the agency just wants to make sure where the caverns are. They are trying to cover all bases and take care of any sink holes or caverns, he said. He, too, has seen the vapor rising from the cave entrances near U.S. 412.

Entrances are big on some of the caverns and not so big on others, he said.

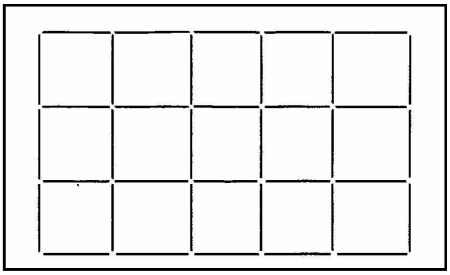
There's a cave entrance north of the U.S. 412 area where you can walk in, Ward said, while some of the caves you have to crawl in.

Mike Homan, engineer in the Terracon office in Tulsa, said the geological formation in the area lends itself to caverns.

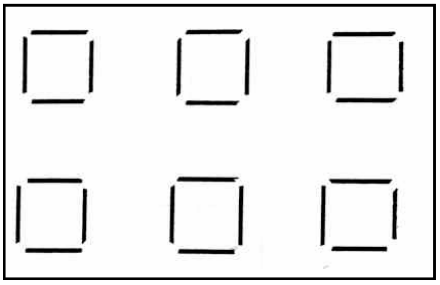
When water runs through the gypsum, it erodes.

The company is going to use geophysical studies and oil borings to locate any caverns in the proposed construction area.

For those who tried this puzzle in the April/March 2007 Newsletter, the directions asked if you could take away 14 sticks to leave 9 equal square! Congratulations if you were able to do this! The Editor apologizes if you tried but got frustrated and couldn't get an answer because she had a moment of dyslexia and typed in ***9 squares*** *but should have typed in* ***6 squares****!*

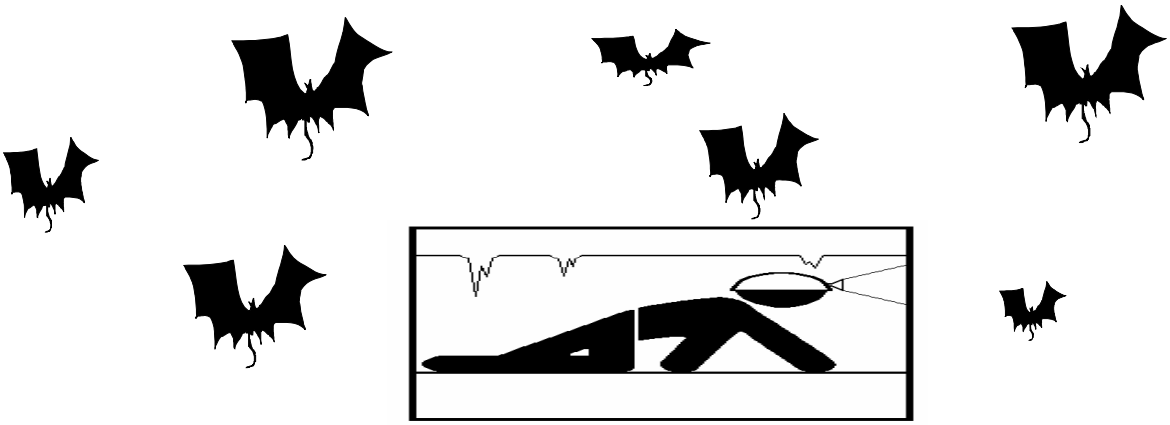


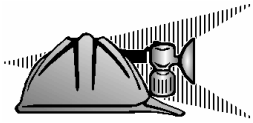
Below is the answer to remove 14 sticks to leave 6 equal squares!



Central Oklahoma Grotto is a non-profit organization and a chapter of the NSS (National Speleological Society), Cave Avenue, Huntsville, AL., 35810. Dedicated to cave conservation and safety, C.O.G. published general information in a monthly newsletter ($6.00/year) and detailed cave surveys and related Speleological items in a yearly publication, *The Oklahoma Underground* ($3-$8/issue) Membership is by sponsor and is $12 per year for adults, $6 for spouses and students, and $3 if under 18. Central Oklahoma Grotto meets once a month on the second Friday of each month. For information, write 3208 Gettysburg Dr., Altus, Oklahoma, 73521. All submissions to the newsletter should be sent to the editor: Lil or Dale Town, 3208 Gettysburg Dr., Altus, OK 73521: Telephone: (580)477-4027: E-mail: oklmt@cableone.net. The deadline for submissions for any particular month's issue is the 20th day of the previous month. If you wish material returned. Please include a SASE with submission. All materials in this newsletter is available for reproduction, provided proper credit is given with the article when you print it. Trade publications are welcomed. *Cave softly and safely!*

Don't forget to come to the May meeting at Mark Miller's, Friday, May 11!





Central Oklahoma Grotto
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