



# the month's

*gleanings*



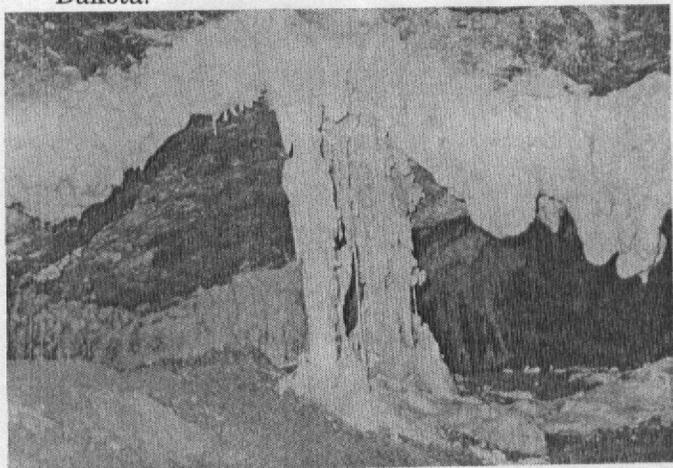
**January 1994**

<i>Mudwamps Explore New Mexico Caves</i>	2
<i>Arkansas Ridgewalking Proves Fruitful</i>	3
<i>Geology Notes: Tunnel Cave</i>	4
<i>Boy Scouts/NSS Caving Guidelines</i>	5
<i>Beware of Hibernating Bats</i>	6
<i>November Minutes/January Ballot</i>	8

## Mudwamps Explore New Mexico Caves

by Kate L. Johnson

The desert heat boiling up from the sand and pounding down from above was a sharp contrast to the continual cloudiness, rain, and flooding that Judy Lemire and I left behind as we began a caving vacation in July from New Mexico to South Dakota.



In Spider Cave toothpaste seems to ooze out of the ceiling, but it is actually gypsum. Many passages have solid walls of gypsum from ceiling to floor

*Photo by Kate Johnson*

Richard Knapp was leading us to Parks' Ranch Cave on July 3, with a moaning Dave Belski who did not favor the idea of the impending cold and wet underground trip. The average cave temperature in the area is 65 degrees but Parks' Ranch is 55. Being accustomed to wet, muddy, 57 degree caves in the Ozarks, Judy and I were anxious to get out of the 104 degree heat. Also in tow was Kathy Ludig of El Paso—a first-time caver.

(Rich, a friend of Ray Keeler's, was a sketcher on the KCAG trip to Lechuguilla. Dave is a newly elected member of the NSS Board of Governors.)

Before going in, Rich explained that we would be in a gypsum cave going through water chin-high. Noting that his chin was over a foot higher than mine, I voiced some concern. He said it didn't matter how tall you were, the only air space above the water was head high. Fortunately, there was a hand line through the water at that point so I didn't have to swim when losing touch with the bottom!

After steaming through a long stretch of marbled tunnel with no speleothems, the water

passage was a welcome relief for some of us. Others yelped and made disparaging comments as the cold water enveloped our bodies. We passed through a section of water called the black lagoon composed of organic material, and the occasional smell of sulfur diminished some of the pleasure.

The purpose of the trip was to continue surveying in the worm hole. Judy and Kathy ran tape while Dave made book and Rich read the instruments until the passage became too narrow to continue. While Dave's teeth were chattering from the cold, I was just beginning to cool down. You can imagine the conversation considering that Judy and Kathy are Army majors caving with two ex-flyboys.

Instead of retracing the mile and a half passage to exit, we chose to belly crawl through a 1,000-foot water passage ending at a small entrance and then hike a half mile to the vehicles. Not only did we encounter more black gunk and sulfur but also great globs of green, icky slime. The air space was so narrow in some places we had to remove helmets. Kathy admitted that if we had gone in that way, she would have refused and missed out on being bitten by the caving bug.

The next day the same crew resurveyed portions of Spider Cave in Carlsbad Park which has ranger-led tours. We went beyond the public areas. After descending a ladder, we rolled on our bellies over a conveyer belt of stones 1 to 3 inches in diameter. Further in the cave opened up into layer upon layer of passages. Rich nimbly made his way through the maze leading us in different ways to the same spot.

The mudwamps had a difficult time adjusting to the dry 65 degrees. Steam rose from sweaty bodies. In narrow passages



Spider Cave is comprised of many layers of maze passages. Richard Knapp straddles one layer while checking out another layer

*Photo by Judy LeMire*

the ceiling crumbled dumping clumps of dirt down necks causing mumbling and epithets. Heat from carbide lamps caused a dusty rain despite a foot or more of headroom.

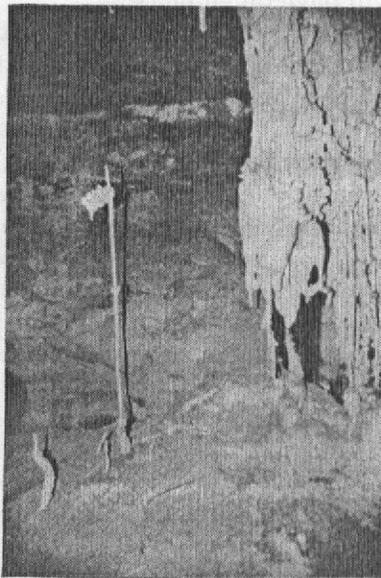
Portions of Spider are decorated with masses of white formations with medusa-like tentacles. Long soda straws with leaf-like extensions on the lower ends look like bean stalks. One soda straw sticks up from the floor with a bulbous growth on the top end. There's a limestone wall with gypsum corrosion that has been whipped into leaf-like structures by past winds. Crystals scattered in the ceiling and walls twinkled in our passing lights.

The eight hours underground seemed like but a moment as Dave taught Kathy to sketch. Judy read instruments with Rich and me on tape. Judy remarked that surveying was her preferred way to see a cave rather than just sprinting through as quickly as possible. After this experience, Kathy and I agreed with her, delighting to take time to see easily missed treasures.

That night at the Belskis, we expanded our caving vocabulary watching *Cave-man* starring Ringo Starr prior to participating in the national caver's toast at 10 p.m.

On July 5, Judy and Kathy dropped the Lechuguilla entrance to help Rich pull up equipment and soil samples taken around some old bones for Pat Jablonski from the Denver Museum of Natural History. (An article in the Sept. *NSS News* said the bones were an extinct Shasta ground sloth from the Pleistocene Era. Accurate carbon dating was impossible due to the bleaching of the bones located near the entrance).

Although caving in New Mexico was a hot



A soda straw seems to sprout from the ground in Spider Cave. The ground is littered with what was probably the section that once came down from the ceiling.

Photo by Kate Johnson

climatic change for the mudwamps, we found the hospitality of the Belskis and all the cavers camped out at their house heartwarming—that kind of heat we can take!!!

**Epilogue:** Judy and I continued northward to South Dakota where we took the “wild” cave tours in Wind and Jewel Caves. We met Pat Jablonsky again at Wind Cave with the Colorado Grotto. We tagged after her and Bill Yett as they measured portions of the trail for a lint study they are conducting. Then we went home by way of Devil's Tower, the Rocky Mountain National Park and the Badlands. Judy is now in Germany looking for caving buddies. Her address is Maj. J. Lemire; HHC, 31D, Unit #26222; APO, AE 09036. She'd love to hear from you!

## Arkansas Ridgewalking Proves Fruitful

by Richard Cindric

We went ridgewalking the weekend of Nov. 20, 1993. By “we”, I mean Emily Frank, Mike Jones, Rodney Tennyson, Jim Terry, Jerry Cindric and myself. The area was east of the Buffalo River, south of Ponca. Oh yeah—Chelsea the dog went along too. She kept up quite well for having 6 inch legs.

Saturday was a very successful day. We found and explored perhaps a dozen pits. None of them were deep nor had much horizontal passage, but the success was the anticipation and excitement that comes from finding new caves.

The deepest pit was found toward the end of the day. Our initial interest in it was, “Is the rope long enough?” Rodney rigged some webbing around a nearby tree, then tied the rope to it to gain a few 5 feet left at the bottom. It's hard to tell these things from the surface. As I told Rodney, “If we were going to find deeper pits, I would have brought a longer rope.”

Rodney said it was about 50 feet deep, about 15 feet in diameter, and made for a nice climb but had no horizontal element.

On Sunday, Mike, Jerry and I walked on the north side of the Buffalo, south of Compton. We found two pits. The first had a short drop and some tight squeezes that yielded very little.

Jerry found the second pit about noon. He discovered it because of the noise it made: The

wind blowing from the entrance made a sound like a freight train. Again, we rigged the 60 foot rope without knowing if it reached the bottom. Jerry went to the end of the rope on a body rappel, but still couldn't see bottom. There were some helectite bushes nearby that he broke off and dropped. They hit bottom in about six seconds. When it came time to exit, he had some trouble climbing hand over hand with that rope (ski rope that we found near Table Rock Lake). It seems the rope had become slick from a pile of fresh Indiana bat guano about half way down. Jerry later said he might not have ever got out if he hadn't used the Mastodon tusks sticking out of the flowstone as footholds. To add insult to injury, he was badly cut near the lip of the pit on some of the Clovis points that stick out there.

Because of the dangers of this cave, we used the dynamite that we always take when we ridgewalk to seal it shut for eternity (we hope!). I'm sure the National Park Service would agree with our decision, should we ever decide to tell them.

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## Geology Notes: Tunnel Cave

by Bob Younger

Tunnel Cave in Pulaski County, Missouri completely perforates Bear Ridge. The eastern intake of the cave is at the bottom of a sink. The western discharge mouth is at the base of a cliff near the Gasconade River. The distance between the two openings is ~ 1,000 feet.

Tunnel Cave is a perfect example of a cave system that has been altered by stream piracy. Stream piracy and its associated rearrangement of drainage systems plays an important role in cave and karst development in karst regions. Stream piracy through cave systems has also proven to be a major contributor to the development of the present topography in these regions (Werner, 1970).

The "Stream Piracy" theory of cave formation given by Woodward, 1961, implies a single stage of cave development in which a sudden event such as the fall of sea level, glaciation and ice melting, a major climatic change, relocation or rejuvenation of surface streams, or the break-through of some impervious barrier or wall causes the activation of a swift flow at the water table level. Of course there must have been a pre-cave epoch in which joints and fractures acquired porosity enough to initiate the development.

### Stream Piracy

There are different methods of stream piracy. Unfortunately, this is an area of geomorphology that was studied intensely for some years but has not received much attention recently.

Stream piracy may include two surface streams, two subterranean streams, or a combination of the two. There are three distinct types of capture. There is capture by headward erosion, planation capture and capture by underground methods (Crosby, 1937).

#### Capture by Headward Erosion

Whenever two streams are at different elevations and the tributaries of the lower are working back toward the upper, there is a good chance that a capture will take place (Crosby, 1937). Given time with the correct conditions, the lower stream will work its way back up its valley and gnaw away at the divide between the two streams. Eventually the divide will collapse and capture will have taken place.

#### Planation Capture

Planation capture is due to the lateral cutting of one stream into the valley of another stream, but doesn't require any appreciable difference in elevation between the two. This will typically occur in conjunction with a meandering stream.

#### Subterranean Capture

The subterranean type of capture is dependent on the presence of soluble rock, such that exists in karst regions. Crosby, 1937, details that in most cases of subterranean capture, the two streams were a considerable distance from each other, that the entire capture took place underground, and the work was largely done by the diverted stream or captive. Many cases also show that the capture of a surface stream by a subterranean stream occurs when surface methods of capture probably would not have occurred for a very long time, if not at all. This is the case of Tunnel Cave in Pulaski County, Missouri.

Subterranean piracies also have an effect of the topographic nature of the areas in which it takes place. Werner, 1970, found that Greenbrier River of West Virginia was actually straightened due to the subterranean piracy through the limestones of the area when the river eroded to that level. So again, cave formation and maturity may follow different models depending on each specific situation. It is suggested that many cases of stream piracy formerly attributed to surface erosion were actually initiated by underground solution of calcareous strata such as limestone. Many water gaps may have been formed by

similar stream piracy (Fridley, 1939),

#### Development of Tunnel Cave

A wet weather stream which drains about one square mile on the eastern side enters the cave at the sink. The cave itself is an anastomotic maze (Palmer, 1975) type but is very simple with one main passage. The passage is a canyon passage with approximately 10-80 feet of relief depending on your location within the cave. The walls are smooth and exhibit very little spongework (except for the eastern opening) which is an indicator of slow moving water. Instead, the cave reminds one of the bottom of a swift moving river on hard rock. It is smooth with some scallops. Few caves show such a young, canyon-like lower portion that was cut into the cave long before the ridge it perforates was carved. The stream, which is now pirated by the cave and enters in the east, originally flowed southeastward away from the present sink and on to the Gasconade River. It descended about 150 feet in a mile and a half. The cave lies about 75 feet before the level of the stream. When the first collapse of cave passage occurred at this point, it offered a 75-foot drop instead of the gradient of 100 feet per mile to the river (Bretz, 1956). The stream shortened its route to the river by more than a mile in taking the cave passage (not shown on the map). The piracy then continued to enlarge the cave passage, further altering its size and ability to act as a conduit. southeast of the sink, the old stream valley lies empty for half a mile.

The author would suggest that stream piracy in the Ozarks has played a major role in cave development and evolution. It will be found in the future that stream piracy, both above ground and subterranean, has probably affected many, if not most, of the caves in the greater Ozark region. A topographic map of these areas reveal many streams that have been pirated. Tunnel cave is on the Hancock quadrangle for those persons interested in viewing the pirated valley.

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## Boy Scouts/NSS Caving Guidelines Summarized

Reprinted from NSS Administrative Memo -  
October 1993

The following is an Act from the Board Of Governors Manual (86-159)

**“Grottos who are contacted by Scout groups should give serious consideration to their requests, not necessarily in doing just what they ask, but in some way meeting their needs, because Scouts are going to be caving, with or without the NSS, and if we ignore them, we will simply alienate them. Grottos contacted should offer to train Scoutmasters so that they will become competent cavers. Cave exploring, other than simple novice activity, should be limited to High School age youth—Explorer Posts or older Scouts only. Safety, conservation, and courtesy to cave owners should be practiced. The Boy Scouts may mail out a current listing of all Internal Organizations with the Policy Statement on Cave Exploring so that if any of the Scout units want or need help they will know where to go.”**

See next column for some specific sentences from the BSA/NSS policy. NSS members have reported that local Scoutmasters are sometimes quite unaware that there is a national BSA policy on caving trips that was worked out with NSS cooperation. If in doubt, contact your local BSA Council for information.

In addition the usual provisions on conservation and cave owner courtesy are spelled out. In the BOG discussion it was mentioned that if BSA guidelines are not followed properly, the BSA insurance policy covering accidents may not be applicable. It is quite possible that the same would be true of other youth groups such as the 4-H and Girl Scouts of America.

A grotto may want to decide early in the game what its policy will be if approached to assist in caving activity by a youth group. If you are just

neophytes yourselves, it may be best to explain this and decline for the present. If you have members who are motivated to introduce young people to an underground experience and who are competent and seasoned cavers, providing trips for youth groups may be an important service that can be rendered that may provide future Society leaders.

The guidelines summarized here should not be considered as a convenient excuse for turning down requests for helping with caving trips, but rather as an important prerequisite for setting up a trip that will be enjoyable, safe, and successful.

In the conservation part of the policy, which we did not copy, it is suggested that youth groups may express their appreciation for the introduction to caves by participating in cleanup trips.

Hint: NSS members volunteering to lead caving trips for youth groups should make clear that they are serving as resource people and that the adult leaders of the group are responsible for the young people (unless, of course, the NSS trip leaders happen also to be the Scoutmasters or among the adults associated with the group being led).

¶ *All cave exploring, other than simple novice activities, should be limited, as is the case with mountaineering and scuba diving, to high-school age youth 14 years of age and older—Explorer Posts and older Scouts in troops.*

¶ *(BSA caving trips) must be under the leadership of a responsible, mature adult who is constantly present with the group. The leader must be highly qualified through both training and experience in cave exploring and must be thoroughly versed in all established safety practices, conservation measures, and courtesy to cave owners.*

¶ *In conformity with the BSA policy on the use of wilderness areas, all caving groups should be limited to 8 to 10 persons including at least one adult leader. Mass-type caving activities should not be conducted...The only exception to these rules should be certain commercial caves where special provisions are made to furnish proper supervision by professional guides.*

¶ *Any Explorer Post wishing to learn about cave rescue work or pursue that activity as a specialty must do so under the sponsorship and supervision of an adult cave rescue group which is affiliated with the NSS,*

¶ *All Scout groups are required to have an approved tour permit for trips of all kinds. Caving activities are included under this plan. National tour permits are required for a trip of 250 miles or more; local permits are issued to cover shorter trips.*

¶ *The leader of any cave trip must realistically evaluate his own knowledge and experience and*

*must never attempt to lead his group into a situation which is beyond his capability or the capability of any member of the group. The overall capability and pace of a cave exploring group is always that of the least able member of that group, and no member of the group should ever be encouraged or permitted to attempt a potentially dangerous act that is beyond his ability solely because the remainder of the group had the necessary ability.*

*All basic equipment such as clothing, shoes, lights, and spare parts for the lights, hard hats, and food should be appropriate to the cave being explored. The equipment and spares must never be makeshift or of questionable dependability. Under no conditions should any member of the group be permitted to enter the cave if he does not have all of the required equipment in his possession. The sharing of any equipment, such as lights, between individuals must be prohibited.*

¶ *Except for groups composed entirely of experienced cavers, the cave to be explored must not require the use of ropes, ladders, or other climbing devices.*

¶ *Running, jumping, horseplay, and solo exploration must be prohibited—such foolhardy actions jeopardize not only the individual but also the entire group.*

¶ *A record of every cave trip will provide valuable assistance to new leaders and cavers alike. Full records of all caving accidents will provide the basis for a guide to the development of a safe caving program. A complete report of any accident, regardless of severity, should be sent to the Safety Committee of the NSS, 2813 Cave Avenue, Huntsville, AL 35810. Serious accidents should also be reported to the manager of the Health and Safety Service of BSA.*

Source: BSA/NSS Policy on Scout Caving.

## Beware of Hibernating Bats

by Kate Johnson

When you enter a cave during the winter months, imagine that there is a "Quiet Bats Sleeping" zone sign similar to the street signs around hospitals. Not all caves contain hibernating bats, but it is wise to make that assumption until you know for sure. Cavers and biologists have had the biggest impact on the drastic decline in bat populations.

To conserve energy during hibernation, a bat's temperature drops from 104°F to lower than 32°F. Breathing slows down from 200 breaths a minute to less than 25.

Each time a bat is aroused during hibernation, it uses the equivalent of two to three weeks of stored energy that must last until insects begin flying in the spring. If aroused more than once, the bat will likely starve to death.

During the summer months, disturbing a

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maternity colony is also extremely detrimental. When pups are unable to fly, they may be dropped to their death or abandoned by panicked parents.

Why bother since bats are tiny, nasty, disease-carrying creatures—nothing more than a flying mouse? Actually bats are the smallest mammal, not a rodent, are shy, docile and easily trained. One biologist who works with bats likens them to “winged hamsters.”

Another myth is that bats carry rabies. Actually only one-half of one percent have the disease. According to Kerry T. Givens, M.D., there are more rabid cows in the state of Pennsylvania than rabid bats.

“Yet while bats continue to be persecuted, the threat of frothing Holsteins has yet to ignite the media,” Givens said. Rabies in humans is actually rare with fewer than 50 cases being reported in the past three decades and the annual rate is falling.

A highly diverse animal, there are close to 1,000 bat species world wide ranging in size from the bumble bee bat of Thailand that weighs less than a penny to the flying fox of Indonesia with a wing span of nearly six feet.

Some bats feed on fruit or nectar and pollen during the day and are important to the ecosystem. About 100 plants, especially in the rain forest, depend on bats to disperse seeds and pollen. Even desert plants such as the giant cacti, including the organ pipe and saguaro of Arizona, rely on nectar-feeding bats as primary pollinators.

About 70 percent of bats feed on night-flying insects by scooping the insects into their tail or wing membranes and then reaching their mouth down to grab the insect. That is the reason for the bat's erratic flight. A single bat can eat half of its weight in insects per night—as many as 3,000. A bat weighing 10 grams in a colony of 1,000 bats feeding approximately 200 days per year when they are active, can consume 2,200 pounds or as many as 600,000,000 insects. A colony of big browns bats can protect local farmers from up to 18 million or more rootworms each summer.

Despite another popular myth, bats have good eyesight, but they depend on echolocation to catch their prey. The bat's sonar is more sophisticated than anything man has been able to devise. A bat can avoid obstacles no wider than a thread. A fishing bat can detect the fin of a minnow sticking 2 mm above the water's surface. An African heart-nosed bat can hear the footsteps of a beetle walking on sand from a distance of more than six feet.

In light of these facts, you can see that tales of blind, crazed bats getting tangled in a woman's hair

is pure fiction. But this myth is perpetuated by the tabloids, oral tradition, and even Gary Larson, biologist turned cartoonist of *Far Side*.

Although only three species of bats in the eastern U.S. are in danger of extinction, overall bat populations are declining. Recovery programs by the U.S. Fish and Wildlife Service include gating or fencing important bat caves and placing warning signs at other caves. Entering these caves during restricted times carries a penalty of fines up to \$50,000 for each violation.

In the United States, there are 39 species of bats; eight of those live in Missouri and Arkansas caves during part of their life cycle, and three more species live outside caves and winter in hollow trees. Hibernation usually begins during October and lasts until April or May. The cave bats are as follows:

**Eastern pipistrelle** (*Pipistrellus subflavus*)—There are more of this species than any other in the eastern U.S. They usually hang alone in warmer parts of the cave. Often you see them with water droplets covering their bodies.

**Little brown bat** (*Myotis lucifugus*)—These bats have a broad range from Canada to Central America. During summer, they often inhabit buildings.

\*\* **Gray bat** (*Myotis grisescens*)—About 95 percent hibernate in eight caves, three of which are in Missouri and one in Arkansas. They prefer deep vertical caves with large rooms acting as cold air traps and cluster with about 170 bats per square foot.

\*\* **Indiana bat** (*Myotis sodalis*)—About 85 percent of the population hibernate in seven caves including two caves and a mine in Missouri. They also cluster by the thousands with 300 bats per square foot

\*\* **Ozark big-eared bat** (*Plectus townsendii*)—The total population is about 1700 with most of them located in Oklahoma. Arkansas has two caves where about 260 roost.

\* **Eastern small-footed bat** (*Myotis leibii*)—These bats hibernate near entrances where the temperature drops below freezing. Some have been found in cracks of cave floors.

**Northern long-eared bat** (*Myotis septentrionalis*)—They prefer cool areas of caves and mines.

**Big brown bat** (*Eptesicus fuscus*)—They move into caves only during the coldest weather. Where most of these bats winter is unknown.

\*\* **Endangered species**

\***Under review for endangerment**

Due to the fact that most bats only have one pup per year, the population does not recover rapidly when put under stress. So cave softly, don't shine your light (unless it's red) on hibernating bats or make a lot of noise to disturb them. If you encounter the endangered species, leave the cave rather than risk disturbing them. Hopefully, the bats will survive to gobble great globs of insects next summer.

(Information is from *Bats of the Eastern United States* by Michael J. Harvey, Arkansas Game & Fish Commission; *The Most Famous Bat in the World* and *Important Bat Facts* by Bat Conservation International; *My Gentle Friend, the Bat* by Kerry T. Givens, Oct-Nov "Modern Maturity," 1990); *Bats in the Belfry*, Eco Facts, Oct. 1991, Salina, Ks. Parks & Recreation Department.

For information on how you can help save bats or to make a tax-deductible contribution write to: Bat Conservation International, P.O. Box 162603, Austin, TX 78716-2603.

**KCAG Minutes for  
November 10, 1993**

The meeting was called to order by Mary Williams at 7:05 p.m. with 47 cavers in attendance. Mary started the meeting with introductions of all present.

**Trip Reports**

- ◆ Kate Johnson: cave trips to get ready for the MVOR.
- ◆ John McGuire: novice trip to Bat, Tunnel and Indian Caves.
- ◆ Jerry and Richard Cindric: AACs weekend to Hell Creek and Blanchard Springs.
- ◆ David Foran: novice trip to Mermac State Park and Onondaga Park.

**Upcoming Trips**

- ◆ Nov. 19th through 21st—Richard and Jerry Cindric ridge walk trip to Arkansas. Call Richard.
- ◆ Nov 20—Mary Williams to lead trip to secret cave, one day.
- ◆ Dec. 17—Fitton Cave in Arkansas. Contact Kate Johnson.
- ◆ May '94—Trip planned for yo-yo's. Three days for a total of 1,000 feet in Missouri and Arkansas.

**Old Business**

- ◆ Treasurer report: the grotto auction netted nearly \$590.
- ◆ MVOR bid talked about for fall of 1994. Committee formed with Kate Johnson, Richard Cindric, Mike Kirch, Bob Younger and Randy Bruegger.
- ◆ Randy Bruegger will send out information on the December meeting and Christmas Party to be held Dec. 18 at the Fleming Park Meeting Hall.

**New Business**

- ◆ Nominating committee report from Richard Cindric.
  - ◆ Long discussion about need to keep grotto equipment under more control.
  - ◆ Mike Kirch and Bob Younger will upgrade our grotto slide show and make two copies.
- Business meeting concluded by unanimous consent.

**Program**

Rick Hines spoke and showed slides about his work to make a three-dimensional model of Lechuguilla.

Submitted by Randy Bruegger, Secretary/Treasurer

**KCAG Elections -  
January 1994**

Please vote for only one person per office by making a mark next to your selection. If you wish to vote for a write-in, mark that space and write in the name of your nominee.

**President**

- Mike Jones
- Mary Williams
- Write-In —

**Vice President**

- Paul Green
- Tom Howell
- Bob Younger
- Write-In —

**Secretary/Treasurer**

- Dave Foran
- Kate Johnson
- Bob Parks
- Write-In —