

Volume 5, Number 2

March, 1991

The latest Speleoweenend held at Ennis Cave in Mountain View, Arkansas was an incredible success! With over thirty cavers present and more than three grottos represented, you know it had to be wild! Our former leader, Bart Rapp, spent a lot of time and creativity to pull together a weekend of caving and frolicking on the high seas. The theme was a pirate weekend with plenty of grog and even a pirate ship decked out in a flag of skull and crossbones. A treasure hunt was the focus at 9 am on Saturday. Clues were spread far and wide, with the first on display at the local grocery store atop a pirate cake. The treasure hunt ended after several mutinies. The race was close as the last clue led the pirates to a bounty hidden in Ennis Cave. The winners made off with the treasure of mini mag lights, books, silver work from Doug Feaks and a mess of other fine, chocolate-like goodies in the bottom of a padlocked chest. Plans are already in the making for next year's speleoweenend and no doubt the theme will be just as dandy, mates!



National Park. On their self-guided, three-mile trip 750 feet beneath the Earth's surface, they're treated to one of the world's most spectacular displays of stalagmites and stalactites. So dazzling are many of the speleothems that some visitors are unable to resist the temptation to reach out and take home a unique souvenir. Consequently, hundreds of the irreplaceable formations are broken annually.

A year and a half ago, Carlsbad Caverns officials decided that the momentomoochers had to be curtailed. More staff, higher railings and rerouted trails all seemed either too expensive or too impractical. Finally, Gary Arenson, then the park's administrative officer, hit on it: screaming speleothems. A variation on the automobile-alarm theme, Arenson's idea was to use intrusion-detection devices to keep sticky fingers off the caverns delights.

In October 1987, seven passive infrared devices were placed in two chambers where there had been extensive speleothem damage. The monitors, which sense body heat and motion within a two foot field, emit a loud alarm when a cave visitor intrudes on a speleothem's space. Presumably embarrassed as well as deterred, the would-be thieves put their hands back in their pockets and the million year old treasures hang on.

Park officials estimate that speleothem damage in the two trial areas has been reduced by 95 percent, and they intend to plant the devices in other choice chambers at Carlsbad.

The success of the screaming speleothems has proved one of Arenson's pet theories: *Give a natural resource a voice, and it will speak up for itself.* -- Robin J. Robbins

Screaming Speleothems

taken from the March/April 1989 issue of Sierra magazine.

Each year some 800,000 some people trek through the underworld of Carlsbad Caverns

The Month's Guano is a publication of the Kansas City Area Grotto of the National Speleological Society. Correspondence and newsletters should be sent to the grotto address: KCAG, 4046 Charlotte, Kansas City, MO. 64110.

Newsletter contributions should be submitted to the editors by mail or at the grotto meeting (deadline). Editors address: Bob Younger, 19595 W. 87th Circle, Lenexa, KS 66220. (913) 888-6349

Meetings are held the 2nd Wednesday of each month at 7:00 pm at the Arthur Mag Conference Center at 425 Volker Blvd. in Kansas City, Missouri. Dues are \$10/yr for membership and \$5/yr for publications.

Trip Report by Jerry Cindric

After spending the night camping at Steel Creek by the Buffalo River, Richard Cindric, Mike Jones and I headed for the Running Creek area in Newton County, Arkansas. We stopped and talked to a local resident, Walter Williams, who had spent his entire seventy-some years at the same homestead. Walter knew some of the Arkansas cavers and had accompanied some of them on cave trips. He said he was with Dave Taylor when he injured his leg. Walter mentioned that there were some small caves in the area that he knew of, but did not have a lot to offer.

The three of us took out walking the banks and creek bed around Running Creek, seeing sinkholes, two natural bridges, many very small caves, springs, disappearing streams, and one cave about two hundred feet long. Walter told us it was called Saltpeter Cave and that it had some historical significance dating back to the civil war. Of interest was some antique graffiti and several bear digs.

On Sunday, after a rousing breakfast at the Dairy Delight, in Jasper (be sure to ask for a heaping serving of their Ozark famous "duck butter") we drove to the Fitton Cave area to do some ridge walking and cave exploring. Richard and I had heard of a 110 foot pit in the area and had located it on an earlier trip. We were going to save it for the end of the day. Unfortunately, we ran out of time and never dropped it. Something to save for another day. Approximately 1000 feet away from the pit was a cave with a twenty five foot entrance drop. The cave was in a creek bed and obviously flooded quite often. We used a rope for safety's sake. A short distance into the cave was another descent of about ten feet. From here the cave took off in two directions. One way went only a short distance and the other about 150 feet. To

get to the end we had to negotiate a difficult climb to find a small waterfall and a debris littered floor of unknown thickness.

Across the creek from the Fitton cave entrance at the base of a wall we entered what we think was Friday the 13th Cave. It looked like a small cave until Richard noticed a very small hole just inside the cave to the left. This led to a large, wet, muddy Missouri-like cave of perhaps 2000 feet. At one end was a nice waterfall room. At the other, was a muddy, wet crawl. Mike graciously took it while Richard and I cheered him on. He returned shortly. He was trashed. I took an upper climb to a room and additional vertical passage approximately sixty feet, then I returned. This cave was popular with the hibernating pipistrels. There were hundreds of them. When we exited the cave we noticed it was sucking a tremendous amount of outside air. This was in direct contradiction with the entrance of Fitton Cave which was blowing air about 30-35 mph.

We needed a good cave on Monday and sure saved the best for last. It was Copperhead Cave by the Buffalo River. The entrance was a small opening by a creek that dropped down thirty feet. This was done easily by hand. Our efforts were concentrated upstream. It was a stream passage with occasional upper passage. The stream passage was beautifully scoured and had flowstone and many speleothems from the waist up. Copperhead would have been much more enjoyable had we brought our wet suit bottoms since we had to enter the cold water on low crawls on several occasions. The stream cascaded down at least three small waterfalls. We stopped at the last waterfall where the passage looked about ten inches high. The three of us had explored about 3000 feet of cave, none of which was in mud or dirt! Photo buffs beware! Enter this cave with your cameras sealed and packed!!

Manual Flash and Zone Focusing

James Jasek, NSS 7248F

(From NSS News, March 1988)

Have you ever wondered why some of your cave pictures have a totally black background, making your subject look like they are standing in a sea of blackness? This is a peculiarity of the automated electronic strobe. The sensor on the strobe or in the camera is designed to detect the light reflected from the main subject and cut the light off for a perfect exposure of the subject, leaving the background underexposed. With the strobe set on automatic, there is little you can do to control this black background, but by using your strobe on manual, you can eliminate this problem. When the strobe is flashed on manual, all the power of the strobe is used in one full burst of light. The subject is properly exposed from the calculated aperture, and light that falls on the background gives a varying degree of exposure, producing a photograph with the appearance of depth.

To use your strobe on manual, you will need a good understanding of guide numbers and how they are used. I have written several articles in past issues of the News on the subject of guide numbers that you should go back and read. Basically, the guide number relates distance to aperture. For example: a guide number of 160 gives an aperture of f8 when the flash distance is 20 feet. The aperture is equal to Guide Number divided by Distance - A = GN/D. Once you have established a working guide number, you can use it to simplify using your strobe on manual. Using your guide number, calculate the aperture that matches each distance on your lens. Be sure to find the distance for each full f-stop. Cut a thin strip of white self-adhesive paper that will fit over, or above, the footage scale of your lens. Lay the paper over the lens and mark a dot where each f-stop will be located. Remove the paper scale and, and write the f-stop in ink where each dot appears. (Each aperture should be equal distance apart on the paper scale.) Remove the paper backing and press the scale onto the lens right over or above the footage scale. Now, when you focus the lens, you can instantly read f-stops instead of distance. This eliminates the need to calculate or refer to a chart for the correct f-stop each time you take a picture.

The advantage to using your strobe on manual is that you will not be "locked" into only using one aperture for all your exposures like you are when using the strobe on automatic. This will enable you to control the depth of field for each



picture. With more depth to your picture, this added depth of field will create a more pleasing picture.

The major drawback to using the strobe on

manual is with each flash you completely drain all the power from the strobe. The recycle time is much longer and more power is needed to recharge the capacitor. As a result, the life of your battery will be greatly reduced. If you do a lot of shooting on manual, you may have to bring several sets of batteries as backups or you will find yourself without light. The most practical use of the strobe is to use both the automatic and manual setting for the greatest versatility in your cave photography. By knowing how to use your strobe on manual, you can produce a well-exposed cave picture in a difficult setting.

Electric Caving Before Lightbulbs or Carbide

Frank Reid NSS 9086F

Jules Verne equipped his intrepid cavers with electric

"Ruhmkorff" lamps in Journey to the Center of the Earth, an adventure which begins in 1863, well before Edison's 1879 lightbulb or the discovery of calcium carbide in 1895. Seeing the MGM movie in 1958 influenced my early caving career, and I've wondered ever since whether Ruhmkorff lamps really existed.

The lamps in the movie were powered by hand cranks. "Self-generating! How long will they last, professor?" asked Pat Boone. "My guess is indefinitely; as long as they're wound up, the coils will give off current!" replied James Mason. The wonderful windup lamps were water proof, but failed when salt got inside them and "corroded the induction coils." Anything's possible in a Hollywood cave!

Journey to the Center of the Earth remains the greatest underground fictional adventure, though we may surmise that Jules Verne was not a caver. The book was first published in Paris in 1864, followed by a beautifully illustrated edition in 1867. The description of the lamps has changed and lost vital details in English editions (as have other aspects of the novel, especially in the movie version). The following translation by Indiana University history professor B. G. Martin is from the list of cave gear and scientific equipment on page 58 of the 1867 French edition:

a very portable light, sure and little encumbrance.

footnote: The Ruhmkorff apparatus consists of a Bunsen battery which is activated by potassium bichromate and has no odor, and an induction coil which produces electricity from the battery, connected to a special lantern in which is found a serpentine glass, exhausted and containing a residue of carbon dioxide or nitrogen gas. When the apparatus operates, this gas becomes luminous, producing a continuos whitish light. The battery and coil are held in a leather bag which the adventurer carries over the shoulder. The lantern, placed outside, very sufficiently illuminates the profoundest darkness, and permits the adventurer, without fear of explosion, in the presence of extremely inflammable gasses, and is not extinguished even under the deepest water. M. Ruhmkorff is a learned and able physicist. His great discovery is the induction coil which permits production of high-voltage electricity. In 1864, he received the five-year prize of 50,000 francs which France reserves for the most ingenious application of electricity.

Verne spelled the name with one f. After a lengthy search, I found a reference to Ruhmkorff in A History of Electricity and Magnetism by Herbert W. Meyer.

"Ruhmkorff coil" is an archaic term (actually, a brand name become generic) for what Americans commonly call "Ford coils," i.e., dc-powered high-voltage transformers with vibrating interrupters, small versions of which were used for ignition in Model-T Ford cars. Ford coils are still available from Warshawsky/J.C. Whitney Auto Parts of Chicago, for about \$35.

Ruhmkorff coils were "high tech" in Verne's time, a golden age of learning in France during which fundamental laws of electricity were discovered. Studies of electric gas-discharge phenomena were in the forefront of mid-19th-century science. A sucession of breakthroughs ensued from investigations of light produced by static electricity in the vacuum above the mercury column of a barometer. This fascinating "quest for fire" is chronicled in the PBS TV series and book Connections by James Burke. Electrical equipment was widely used for medical quackery during this era.

Meyer writes, "H.D. Ruhmkorff of Paris began making induction coils about 1851. He was familiar with the work of... others who had already produced powerful coils... Ruhmkorff was an excellent craftsman, and made coils of great refinement and excellence, so that the term Ruhmkorff coil was synonymous with induction coil for many years. In order to over come the difficulty of internal sparking, Ruhmkorff divided the secondary winding into sections, which were well insulated from each other and from the primary winding." (This insulating method is

used in cave radio transmitting coils today!)

"Ruhmkorff... coils were probably the finest made anywhere. He engaged in their manufacture on a large scale and was therfore often considered as the inventor of the induction coil. One his largest coils ever made in 1867 gave sparks of 40 centimeters, or about 16 inches."

"Theoretically, the discharge from an induction coil should be AC. Actually, however, the secondary voltage is so much higher when the circuit is broken by the interrupter than when it is closed that the secondary output is almost unidirectional."

Although they have moving parts, Ruhmkorff coils aren't mechanically powered, and require batteries. A related device, the magneto, is mechanically driven. Spring powered magnetos were within the technological capabilities of Verne's day., and would have been an attractive alternative to expensive and primitive batteries. Gas discharge lamps powered by induction coils or magnetos would probably have been inefficient light sources, but desirable for their then-unique advantages over open flame lights.

Verne also mentions Ruhmkorff lamps used underwater and aboard the Nautilus in 20,000 Leagues Under the Sea (1870). "It's bright as day! And it isn't oil or gas!" exclaimed Peter Lorre upon boarding Captain Nemo's baroque craft in the 1954 Walt Disney Movie.

19th century gas discharge lamps survive today as neon signs. Although Ruhmkorff lamps were eclipsed by incandescent bulbs, flourescent technology has steadily advanced. We may say that Verne correctly predicted that electric fluorescent lights would be ubiquitous in the future world except, ironically, among cavers and divers.

for acknowledgements please see The Cleve-O-Grotto News, December, 1990.

Upcoming Events

April 5, 6, 7 - Boyscout novice trip to Waynesville area with Randy Brugger.

April 5 - Orienteering class at Ernie Miller Nature Center, Olathe, Kansas.

April 16 - Rappel Master class with girl scouts. See Richard Crabb for information.

April 19 - Novice trip with David Foran.

April 20, 21 - Continuation of Rappel Master Class.

April 26, 27, 28 - Spring MVOR in Pulaski County,

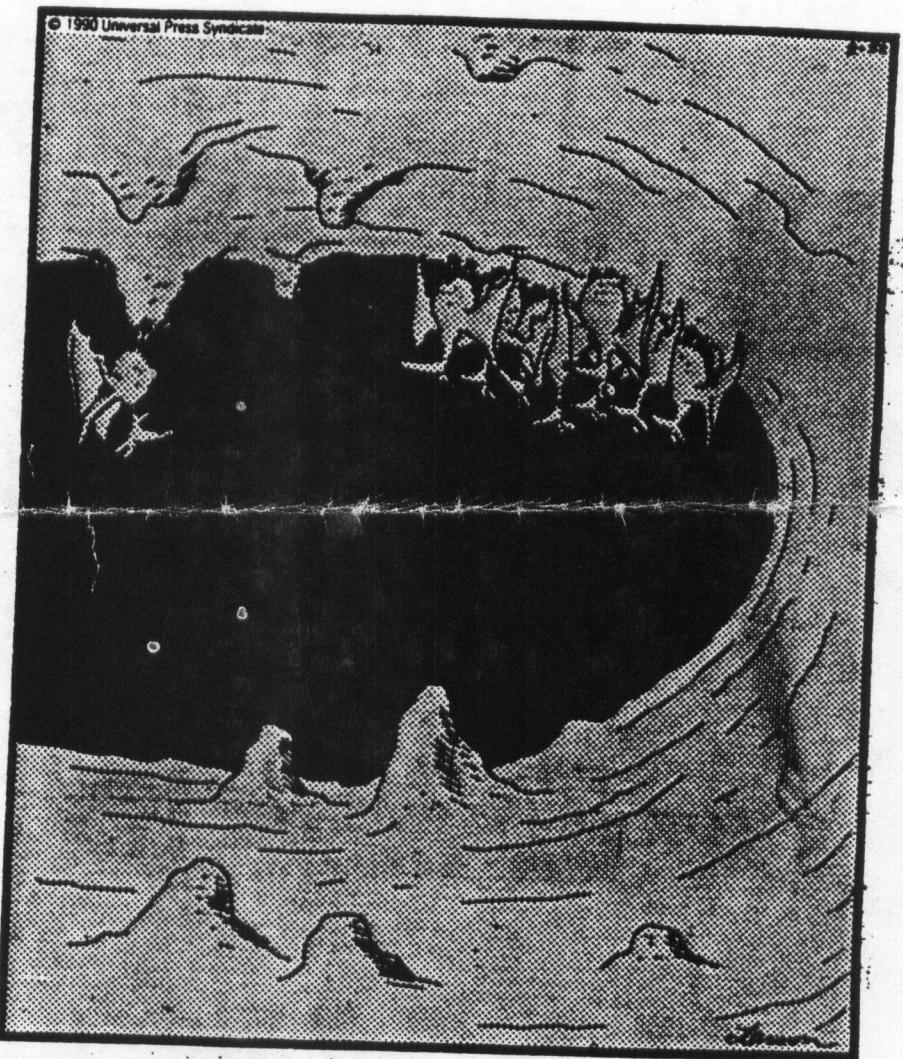
Missouri. Don't miss this! Too many good times.

May 7, 11, 12 - Rappel Master class

May 17, 18, 19 - Annual Fitton trip. Bart Rapp will be present along with good friends and good caving! Missouri. Don't miss this! Too many good times.

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"And, during my term, I'm looking forward to a kinder, gentler cave, with a thousand points of darkness showing us the way."

AND...

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