

# Tree Caves?

SEE PAGE 2

JOURNEY TO THE CENTER OF A TREE SHOWS ① TREE VIPER AT ENTRANCE; ② COLONY OF BATS; ③ ROACHES CLINGING TO INTERIOR; AND ④ SITE WHERE MARSUPIAL WAS FOUND.

TOP: DUMAR RIG. A. - LOOP TO HARNESS; B. - FOOTSLINGS.

The seasons are beginning to change... a group of nine ridgewalkers succumbed to spring fever a few weeks back - and it wasn't even planned that way! Won't be long at all before the big worry will be finding the cave/pit instead of not being found by the hunters...

Have been receiving many verbal comments about the newsletter and its contents - it would be nice to get something on paper to publish. We might even consider reimbursing postage if it proves that much of a hardship. Don't get us wrong - we appreciate any feedback.

We (the Eds) are going to miss the next three grotto meetings... hopefully we'll at least make it to Guido's and dull the withdrawal pains. Just because we aren't there, don't think we aren't still after you for articles/whatever for the newsletter. Anything you find before the meetings, please hand over to Joe or John Moore or Steve Spencer. Or mail it to us and I'll split a coke with you at Guido's (or a beer, Milo). We're depending on you, we're trusting you not to let us down, we know where you live.

Hope all is well with Joyce Attaway, who has been hiding out at St. Vincent's. You don't have time to be sick - there are only 2 months left!

## SECRETARY'S REPORT

Meeting of February 6, 1978

Five visitors were recognized. VALHALLA was announced to be open (as heard at Huntsville meeting). Joe asked for information to be included in the annual Internal Organizations Report. The Grotto voted to bid on the Winter SERA Business Meeting for next year. Trip reports included RAINBOW CAVE, TUMBLING ROCK and SAUTA. Tom Lamb announced an upcoming trip to NEW FERN. The grotto trip is to ANDERSON. After a discussion on current intra-grotto projects and caves to visit the meeting was adjourned.

- JOHN R. MOORE

POTENTIAL GROTTO TRIPS (looking for leaders):

MARCH: Byers Cave

APRIL: Kennamer Cave

MAY: Guffey Cave

JUNE: Falling Springs (Dave Howell)

## DATES TO WATCH

March 18-25: Sports/Outdoor Show, Civic Center

May 26-28: Kentucky Speleofest

July 4th Weekend: Summer SERA, Smoky Mtn. Grotto, Host

### NEXT GROTTO MEETING:

Monday, March 6, 1978 7:30 pm  
Red Mountain Museum Auditorium  
2230 15th Avenue South

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TREE CAVES?, or  
 LIVES OF A TREE: THE MYSTERIOUS INNER  
 WORLD OF TROPICAL PLANTS



By Donald Perry

The following article was found in and lifted from Volume 13, Number 4 of the MASSACHUSETTS CAVER. Before that, it was published under the second title in the Massachusetts Horticultural Society magazine, HORTICULTURE, of October 1977.

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Recently there has been some speculation that a mutualism may exist between hollow trees and their inhabitants. The research I have been conducting in the lowland tropical rain forests of Costa Rica sheds more light on this possibility. Throughout two summers of '74, '75, and '76, I began to explore an important but virtually inaccessible region of the forest known as the canopy, using techniques which I had developed for this research.

The canopy is a dense layer of vegetation which is formed by the interweaving of limbs of towering tropical trees. It ranges in height from 60 to 150 feet and is the home of a vast arboreal community of plants and animals. A botanist's dream, the upper sides of huge limbs, often more than 100 feet above the ground, are covered with luxurious growths. Cacti, bromeliads, ferns, orchids, moss and many exotic plants are seen everywhere. Even earthworms are found at these heights.

It is here high above the forest floor that I first discovered huge living hollow trees of a species (*Anacardium excelsum*) closely related to the cashew nut tree (*Anacardium occidentale*). Its nuts are identical in appearance to cashews and they are eaten by people in the area or used for fish bait.

I had climbed one of these forest giants to study the pollination ecology of several of its epiphytes. Sixty feet above the ground I was astonished to see a gaping hole in its trunk, large enough to hang through. By dropping small pebbles into the hollow I determined that it went most of the way to the ground, but not enough light was available to see that far. Often during my studies there, which lasted several weeks, I wondered what might live inside. Already I had once narrowly escaped placing my hand on the head of a poisonous tree viper which rested at

the lip of the entrance. Just inside lurked a scorpion and a few light tolerant bats.

Finally I decided to explore it to take a look at its inhabitants. Using my tree-climbing apparatus, I slowly lowered myself through the opening, trying to avoid touching the wet and slimy sides. I went down a few feet further and surprisingly, rather than becoming still narrower, the hollow widened quite abruptly into a cylindrical room, 8 to 10 feet in diameter, far larger than I had anticipated.

A cacophony of screeches filled the room; I had accidentally disturbed a colony of hundreds of bats. They began whizzing and screeching by my head while I dangled 50 feet above the arboreal cave's floor. I hurried down, inspecting the walls and floor for possible dangers such as snakes and scorpions. At the bottom an intermittent patter of falling guano struck my hard hat. I then realized that the dampness on the walls, the spongy cushion under my feet, and the stench all came from the bats.

In a dark grotto, a rat-like marsupial sat frozen in the light from my head lamp. Known to eat bats in captivity, it may have been here to find a sure meal. Large flying 3-inch cockroaches scurried around the tree walls. One of them landed on me and was nearly impossible to brush off, its claws gripping tenaciously to my shirt. A frog jumped by my light and disappeared. I stooped to see where it had vanished, and discovered a long, narrow wood-lined corridor stretching away from the base. The frog had escaped around a turn in the tree's hollow root system (a tern?).

On my first visit, something puzzled me about the tree, with its inhabitants and layers of guano on its floor. Why didn't the tree fill up with debris? One possible explanation, I discovered, is that the animal activity on the interior of the tree redistributes the guano throughout the floor and into the long hollow roots, some of which have openings to the outside. The large quantities of rain, often exceeding 12 feet per year, find their way inside and leach the nutrients into the underlying soil. The nutrients may then become available to the shallow root system.

I search through the forest and discovered that a large number of the adjacent individuals of *Anacardium excelsum* were also hollow. But isn't hollowness a

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## TREE CAVES?, or... cont'd

disadvantage? Doesn't this weaken trees and shorten their lives? This is not necessarily so. As anyone who has visited the Sequoia National Park in California understands, the sequoias are frequently quite hollow, while they are the largest and some of the oldest living things. In fact, the center of any tree is dead. Only the peripheral tissue, the cambium and its most recent derivatives, is alive and growing. As long as this tissue remains protected the tree stays healthy.

Unlike the soils of the temperate regions which are relatively rich in nutrients, soils of tropical rain forests are generally depleted. This condition is the result of a rapid and continuous leaching of soluble nutrients from the soil by the high volume of rain. Not surprisingly, leguminous tree species are common inhabitants of these forests. It is thought that they benefit from an ability to fix nitrogen in their roots, a process which occurs among many of the members of the family, as for instance in peas. The benefit additional nutrients have for growth make it seem natural that trees which lack any nitrogen fixing capabilities could have evolved hollowness to supplement their nutrient needs.

Of course, in order to be effective, a large number of animals, in addition to being dependable, must be available to process huge amounts of food material. Bats fill this role quite effectively. Their small size and high metabolism demand that they consume and process food equivalent to a large fraction of their own body weight each day to survive.

As a result of an abundance of food resources, such as insects, nectar, and fruit and a favorable climate, the bats are the most common mammal in the New World tropics. Caves, the temperate roost site for many bats, seem unavailable in the tropical rain forests. So bats must look to vegetation for places to rest during the day. Dependent upon vegetation, bats could supply fertilizer in a regular manner to a plant species which in turn had an especially favorable roost site.

As strange as a relationship like this may seem, it is not substantially different from the ones we have already seen in the myrmecophytes (ants, termites). However, the mutual coadaptations of the myrmecophytes are the mark of a highly evolved "partnership." In the hollow

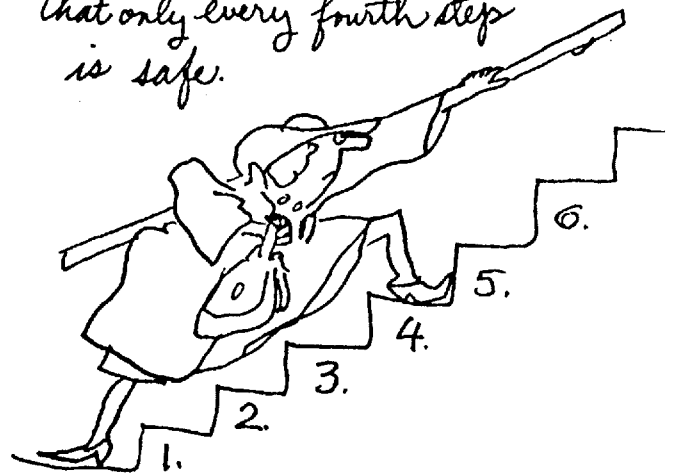
trees, the mutual relationships are less predictable, although much more research remains to be done. Bats generally are opportunists in selecting their roost sites, and the tree species need to be "programmed" (genetically) to go hollow for the relationship to be more of a system than an accident. Little is known about this aspect of *Anacardium excelsum* except that a large percentage of its population regularly shows signs of hollowness.

System or accident? The interaction between bats and hollow trees is still imperfectly understood. But the relationship of lives within these trees are a glimpse of a world that is still waiting to be explored.

Donald Perry is pursuing a PhD in biology at University of California, Los Angeles. He has done extensive research on virgin forests and has pioneered and developed a method of studying tropical forest canopy which he hopes will lead to a better understanding of its ecology, and contribute to preservation of the rain forests.

KEEPING  
FIT by George\*  
EASY EXERCISES  
FOR THE OUT-OF-SHAPE  
CAVER

Climb stairs pretending  
that only every fourth step  
is safe.



\*George bath, that is. From his book  
"rehearsals off!"

# VOICES FROM UNDERGROUND

\*\*\*\*\* HUGHES has a  
HUGHES CAVE \* large entrance  
March 12, 1977 \* room which is  
October 8, 1977 \* "L" shaped. In  
\* the back of  
Myrna Attaway - Reporter \* the room the  
Steve Attaway \* cave splits  
Greg Jordan \* into two levels

\*\*\*\*\* but we didn't know that on our March 12, 1977 trip. The highest level is higher than the entrance room and extends to the right and left of the big room. The lower level is a conyon passage that winds around underneath the right hand fork of the upper level and intersects it in the rear of both passages in a 15-foot chimney called the "60-Foot Chimney" on the map. A third and lower passage, according to the map, goes to the Fox's Lost entrance.

On March 12, 1977, Greg, Steve and I went to Newsome Sinks. We were planning on doing some vertical caving, but due to extremely high waters the only cave we entered was HUGHES. Greg brought some sulfuric acid from Auburn so we could try our luck at cave cleaning. Greg chose sulfuric acid because it produces gypsum when it reacts with limestone. We took several spray bottles to spray the acid and water mixture with and some wire brushes for scrubbing.

Driving in the area of the cave was slow because of all the water over the roads. A couple of times we thought we would stall even though Greg's '72 Ford truck has as much clearance as some four-wheel drive vehicles. From the parking area we even had to cut across the hillside to the cave because the dry creek which crosses the path was in full flood.

We entered the cave and began using the acid to clean up below the old wooden ladder which leads to the upper level. We were relatively close to water so we rinsed the walls well as we cleaned. We discovered that red paint cannot be removed using acid even with vigorous brushing. We also found that carbide marks can be removed with just water and brushing. After a couple of hours below the ladder we moved up on the ladder to remove the two foot high letters that declared "JOHN AND DENISE MADE LOVE HERE."

While we were working, some soldier boys from Huntsville came to the ladder climb. The first one up had a chain which he used to belay the others up the ladder. They talked to us a while then went farther

into the cave. A few minutes later an illegal scent drifted out to us which was followed by the soldiers who now bore illegal smiles.

Denise must have been a lot taller than us because we could not reach the "ISE" in her name and had to leave it. When we finished with Denise we hid the acid and decided to go caving. The only way we knew into the lower level was the "60-Foot Chimney" which is really only 15 feet high but looks 60 feet high. The soldiers wanted to go into the lower level with us but when they saw the "60-Foot Chimney" they changed their minds.

We worked our way in the lower to the waterfall we thought was in the vicinity of the Fox's Lost entrance. The passage to this waterfall that we took enters the dome pit about 20 feet up. On this trip the water was up to the passage. When we got to the waterfall we found the soldiers. They showed us the passage they had used to get there. As it turned out, the waterfall was only about 40 feet from the wall we had cleaned below the ladder. We were so grateful to the soldiers that we took them back through the loop we had made and up the "60-Foot Chimney."

After we said goodbye to the soldiers, Steve, Greg and I looked at the dry upper passage that branches to the left of the entrance room. This passage has been heavily mined for saltpeter and has a nice dry sandy floor. Greg decided that due to the wet weather he did not want to put up his tent so we decided to camp in this passage.

We went outside and had supper. After supper we walked to the sinks which were clear of foliage and found the Fox's Lost entrance. About dusk we took our gear into the cave and deposited it where we were going to camp and went cave exploring again. We tried to find the lower passage to Fox's Lost but it was apparently flooded. After our disappointment, we went back to camp and started cleaning walls again. This time we went sparingly with the water because of the distance to the nearest water.

Next morning we checked the water and found that it had gone down one-and-a-half or two feet. By this time we had seen all of HUGHES we cared to see, so we went home.

We returned to HUGHES six months later on October 8, 1977, for a turista trip.

HUGHES CAVE cont'd:

With us were Donna Matthews, 'Jet' Thomas, Letitia Seese, Ken Banasiewicz. and a friend of his named Paul. The water had once again limited us to HUGHES. We found that the walls we cleaned below the ladder looked good, except for the paint that had been added since we cleaned. The old wooden ladder had been replaced by an aluminum ladder and all the thrill of the ladder climb was gone. The walls we had cleaned in the upper passage where we had been sparing with the water did not look as good. The walls were streaked and bad looking. We also found the lower passage to Fox's Lost and entered it, but we did not get far before we discovered that the water was rising visibly and we had to back out.

The trip was very rewarding because we met John VanSwearingen IV who caved with us and then took us to meet his father, John VanSwearingen III who invited us to sleep next to his Franklin stove so we could have a warm, dry night without sleeping in the cave again.

You know, you meet some of the nicest people caving.



KEEPING  
FIT PHASE  
II  
EXERCISES  
FOR THE  
OUT-OF-SHAPE  
CAVER  
by George

Cycle to the county seats  
and climb the courthouse.

W A N T - E D S.

FOUND: Alien caving pack - the kind that should have a waist belt and doesn't. Identify. Editors (EDS.)

FOUND: Flannel J.C. Penney shirt, X-large, post caving condition. Identify and launder. Call EDS.

LOST: Normal caving pack, shoulder type. Contains Brut shampoo water bottle, etc. Give it back, Larry.

WIN the acclaim of friends and neighbors and the undying gratitude of the Grotto by designing/updating Grotto patch. Call EDS. or ask chairman for details.

WILL the person who was accompanied on a caving trip by 'experienced cavers, novices, women and children' please send definitions of each and differentiate between them?

ANYONE interested in compiling an article on the many kinds of caving gear available and recommended please feel free to send it in.

DID YOU REALIZE that there are 18 Cavers and 1 Caves (pardon the grammar) in the Birmingham telephone book? Wonder how many unexplored ones we missed...

NEEDED: Adventurous souls to undertake grotto trips to following: BYERS, KENAMER and GUFFEY. See Dates to Watch section. Apply at grotto meeting.

WHAT are the craziest questions you've been asked about caving? 'How many undiscovered caves are there?' and 'How much unexplored passage is there?' are a few favorites. Send entries by word of mouth or mail to EDS.

WANTED: Trip reports, articles, cartoons, art work, 'borrowed' material, ideas - caving related, or at least close. Contact EDS.

HOW about a trivia quiz? Or a crossword puzzle about caving? "What is the going price of entry to TUMBLING ROCK?" Any takers? Let the EDS. know.

\*\*\*\*\*

GRAVES CAVE

December 29, 1977

Les Bury - Reporter  
Debbie Glaister  
Larry Moore  
Letitia Seese

- \* The Christmas-
- \* New Year's week
- \* slowdown provided
- \* the perfect oppor-
- \* tunity to take a
- \* day off from work
- \* and do some mid-

\*\*\*\*\* week caving. The above individuals decided to take in an old favorite, GRAVES CAVE, just outside of Blountsville, Alabama.

The cave is located just off Joy St., about a mile west of town. Before starting into GRAVES we decided to explore several of the other small caves in the area, particularly LITTLE GRAY'S CAVE. This cave is not very extensive but has some very nice formations. In about an hour we explored the extent of the cave and, because of the sculptured rock and low crawlways, developed some extremely sore pairs of knees. Knee pads are definitely recommended.

GRAVES itself is entered through a sink entrance with an immediate 30 foot climbdown to the main level. The climb is not difficult and can be negotiated without a handline. Before following the main passageway through the infamous crawl, we explored the stream passage reached by the first right-hand turn after the drop down. The stream passage is reached by dropping into a pit over a small water spillway. Because of the flint outcroppings projecting from the wall in the pit, it is not difficult to negotiate this climb even without a line. We did not attempt to push the stream passage from this end.

On returning to the main passage and proceeding only 100-200 feet, we reached the crawl. It is approximately 300 feet long and sometimes no more than a foot high. I suspect that this crawl is the main deterrent to GRAVES being one of the most popular caves in the Birmingham area. Otherwise, it is one of the most attractive caves in central Alabama.

Immediately on the other side of the crawl, you reach an 11 foot drop down. A handline is definitely recommended for the return trip. Again the handline is not required, but as a matter of common sense it should be utilized. After the drop, the passage continues until you enter the upper level of a large room. This room has several leads which can be explored. A lower lead to the right side of the room

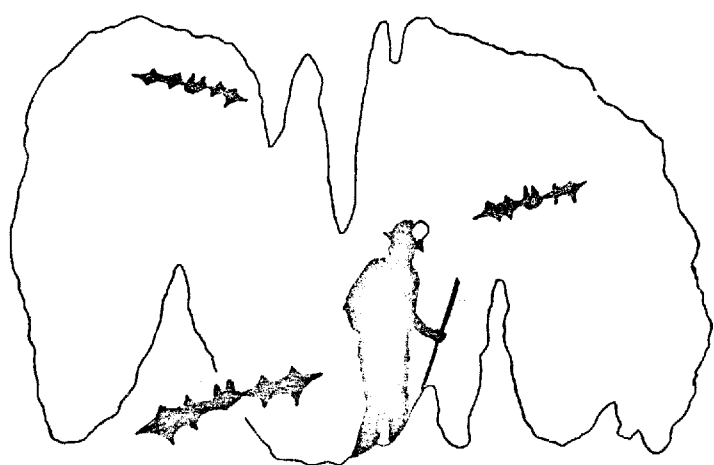
connects with the stream passage. We pushed this lead for some way until we entered a very nice domed room with a waterfall. While somewhat strenuous, this side venture is a very rewarding one.

We returned to the large room and continued on the main passage. It is in this large passage that the main formations can be seen. As we proceeded, the formations became more abundant with a number of striking stalactites and several very attractive totem poles, some very interesting pieces of bacon rind and some very impressive shelves of debris capped with flowstone. After several hundred yards a right-hand lead produces the most interesting attraction of the cave. Here we began climbing over the large rimstone dams. These are the most impressive which can be found in the area; some being four to five feet in height.

Just before the end of this passage, there is a corkscrew lead off to the right which ends in a small dome room and pit. There is one possible upper lead off this room which looks like it could be pushed, but after a very long day we did not feel inclined to attempt it.

Exiting the cave requires retracing the main passage back through the crawl and out of the original climbdown. It was misting when we came out at dusk. We made it back to the car just before the heavy rain began. Other than Larry attempting to back the car up through the culvert instead of around it we made it back from a very successful and challenging day.

GRAVES has a lot to offer. While the crawl is indeed difficult it should not discourage the serious caver from exploring fully both the main passage and the water passage. Few caves in this area offer as much in the way of variety and attractive formations.



BIRMINGHAM GROTTO NEWSLETTER  
1429 17th Avenue South  
Birmingham, Alabama 35205



Handwritten scribbles and markings, including a small '5' and several overlapping loops.

Handwritten scribbles and markings, including a large, dense circular scribble and a smaller loop.

