TALES FROM THE FIELDHOUSE

by Lou Simpson

CAVE CREEK -- CAMPGROUND #2 and BARNETT'S

Since the fuel can for the oil stove had a leak in it, Bob Wood had set it up with a siphon and only turned down the dial to "0," hoping the pressure would not be lost when the flame went out. There was still a small flame a week later when Barb and I arrived on November 12. Marion Callahan and David Grahl arrived a little later. I suggested they might enjoy a trip to South Firestone on Saturday, since Barb and I were planning to map the newly discovered part of wet, muddy, sub-lake Campground Cave #2.

The other two cavers decided they would go to S. Firestone. Barb and I left them at the fork in the trails and began a surface survey from an unsurveyed pit to Fossil Pit. Unfortunately the streambed we followed paralleled the hillside, and we ended up surveying about four times the distance we needed. The pit turns out to be only fifty feet from the southwest corner of the known passages in Fossil Pit, and at about the same elevation. Perhaps a connection should be looked at. Where we parked at the Cave Creek quarry, we noted that there was a narrow trench in the limestone in the quarry floor that could be loosely defined as an entrance.

Driving next to Cave Creek Campground, we prepared for the worst: ladder, rope, wetsuits, inner tube, hammer, chisel, shovel. Lugging all this to the eight-foot pit entrance of Campground Cave #2, we quickly descended and proceeded to the survey, continuing where Greg Kalmbach and I had left off the precious Sunday. Bob Wood and Dave Socky had explored beyond a lake, reporting about 500 feet of passage ending in breakdown that was possibly penetrable with hammer and chisel. We mapped 987 feet additional, including two levels near the end that terminated in breakdown. The upper level looked pretty hopeless. In the lower, I spent over an hour hammering my way into a final room and exploring dismal leads out of this room. The only encouraging thing was airflow and dried mud on the floor in certain places. In the room beyond the hammer and chisel project, I lost the airflow, however. Perhaps it's coming down through the breakdown.

The wetsuits turned out to be unnecessary, since the lake apparently dropped two feet during the week. We were able to cross the lake on a ledge and only get wet knee-deep. One end of the lake measured ten feet deep and is probably a lead to a lower level. We also noted a possible lead in the first room beyond the entrance that had unsiphoned (barely) during the week.

On Sunday, November 14, Barb and I entered Barnett's Cave, a two entrance, two-mile-long cave still unconnected with the rest of the Cave Creek System, to map dreadful Slurp Crawl and a portion of the Raft Route that is accessable by a small hole from Calcite Canyon. First we explored the Raft Route on foot, as it was now drained of lake water enough to permit knee-deep walking in the water and mud. When Bob Wood and I mapped it from rafts in 1972, the water had been fifteen feet deep. This day, with lake level about 684, we walked until it would have been necessary to cross water waist deep or better. We returned to Calcite Canyon and began the awful survey of Slurp Crawl.

Slurp Crawl got its name from the nature of the mud in it. Paul West and I had been the only previous cavers to enter this horrible little piece of cave. It starts out from Calcite Canyon as a belly-crawl between stalactites in soupy mud. Even the long absence of lake water had failed to dry out the first half (the lowest part) of Slurp Crawl. Ten gross stations later, we tied in to the last Raft Route station, now high on a shelf above the unclimbable fifteen-foot deep canyon. It would be impossible to know from below where Slurp Crawl joins the Raft Route, so we might well have walked this far on out exploratory trip. I had hoped we would be able to climb down and continue mapping this unmapped canyon, but we were forced to return through the crawl. (cont. on page 102)

TENNESSEE TURKEY TALES

by Lou Simpson

ZARATHUSTRA'S CAVE

Date: 25 Nov 76

Personnel: Lou Simpson, Barb Simpson, Ken Smith, Dave Socky, Mary Kalmbach, Greg Kalmbach, Bob Wood, Charles Gibbs, Paul Smith, Greg Dahlgren, Andre Mauterli, Raymond Harmon.

Charles Gibbs obtained the use of a house belonging to Harry Derda, an employee of Case Tech. in Cleveland. We met Charlie and his companions at the driveway to his Wayne County, Kentucky property and drove to Derda's place to set up camp. Charles had recently replaced the body of his International pickup truck and also replaced the gas tank. Somehow we made it to the Obey River gorge in one trip in the truck, with twelve people and all their gear. Paul Smith is a caver associated with the Florida Speleological Society. Greg Dahlgren is a dental student, and Andre is an associate professor of dentistry from Switzerland doing research with Charlie Gibbs. Raymond Harmon lives near Triple-S Cave in Wayne County, KY, and had caved with Charles previously.

At the entrance we separated into three groups: Greg Kalmbach, Mary Kalmbach and I planned to survey near the entrance. Barb and Woody went to Cleveland Canyon to bolt a high lead. The rest went to the Elephant Walk and Heaven and eventually to Cleveland Canyon for photography and sight-seeing. It turned out to be one of those days for Ken, who within one 12-hour period managed to smash his head on a wall projection, nearly knocking himself (more?) senseless, to have a 15 lb rock dropped on his leg at the Caugh Drop, to fall off a 12-foot cliff and to put his leg through a staircase.

The survey party mapped a total of 511 feet in two leads, discovering about 200 feet of virgin canyon in the first project. One survey was through a previously flooded rimstone pool to a few rooms beyond that had been explored before by a party from Knoxville. This has to be the muddiest place in this otherwise dry cave.

Woody's bolt climb resulted in two leads, but not enough time remained in the day to even thoroughly check them out.

The ride back up the steep jeep trail was similar to a hayride in the dark. Everything was fine until about five hundred feet from the other cars, when the engine suddenly quit. Charles noticed two minor leaks in his newly installed gas line and patched these. Then he essentially used the take-it-apart-and-put-it-back-together method of repair to get the truck going again. Back at the house we enjoyed a dinner of rolled roast and vegetables from the crockpot.

WOLF RIVER CAVE

Date: 26 Nov 76

Personnel: Lou Simpson, Barb Simpson, Ken Smith, Dave Socky, Mary Kalmbach, Greg Kalmbach, Bob Wood, Charles Gibbs, Paul Smith, Greg Dahlgren, Andre Mauterli, Patty Jo Watson, Louise Robbins, Betsy Skinner, Ron Wilson, Darwin Horn.

Barb and I arrived first to rendezvous with the five from CRF. After a discussion with the owner, we proceeded to Horrendous Trunk where the scientists began their investigation of animal tracks in three places. I head indirectly later that they found some "fossil regurgitation" from an animal. This had fish bones in it.

Barb and I mapped a short loop with animal tracks and named it Leopard Ledge. Then we began mapping Maso Crawl. This began as a stoopwalk, but it degenerated into a gravelly water belly-crawl. Actually, it is usually possible to avoid the water. An air flow is present. We aborted the survey after the twentieth station and left the cave. The crawl continues.

A nearby lead in Carnivore Corridor with animal tracks in it could possibly connect to an upper level of Maso Crawl

because the two passages are quite close. Perhaps the animal, probably a female jaguar, came in an entrance from that direction.

Bob Wood rigged the pit in Indian Trail. The pit turned out to be seventy feet deep, but the narrow drain was too difficult for Bob to explore alone. He was able to reach the bottom of the narrow tube, but he couldn't see with his feet whether it is passable or not.

Ken Smith and Dave Socky and the others photographed in Indian Trail and Tremendous Trunk. Socky, Gibbs, Dahlgren, P. Smith, Mauterli, and G. Kalmbach then went to Horrendous Trunk to explore a breakdown lead. This may still have potential.

Those who left early started a party that lasted for seven hours. When all had returned and feasted on spaghetti, slides of Wolf River and Zarathustra's Caves were shown.

Date: 27 Nov 76

Personnel: Lous Simpson, Barb Simpson, Dave Socky (hard core).

We returned to Wolf River on Saturday to explore a pit and map a crawl in Enchanted Forest, the southern extension of Tremendous Trunk. When we arrived at the entrance, we encountered a pickup camper with a small boy sleeping on the seat. We could hear voices in the entrance. We encountered four adults and a small girl 500 feet inside, with only one flashlight as a light source. We hoped they'd be able to get out before we returned much later.

At the pit lead, Dave discovered he'd lost one of his rockmaster kneepads on the way in. Since he hadn't worn them yet, they could have been anywhere along the route, over a mile. I began digging out the edge of the pit, discovered earlier when Dave stepped through a hole to reveal a deep belled-out orifice. Dave rigged the rope to a rock. When I attached the cable ladder to the rope, I was easily able to move Dave's rigged rock! We rigged to a large anastomosis shelf. Dave descended, amid a flurry of sand and gravel, and reported that he'd reached a small stream passage that was too narrow and jagged to explore.

We went on to our survey, which we'll name Macho Crawl. Bill Deane and Chris Kerr, who had discovered it, reported the only going lead to be a "dig that would take too long." We went to the beginning of the survey, where Barb and Tom Paterson had stopped in August. This was beyond a tunnel I dug to avoid a tight loop that had stopped me and Mike Warshauer in August but had not stopped Bill and Chris.

When we finished mapping to the final room, I took out my hammer and chisel and shovel and got to work! First I tried to dig out a grim-looking ceiling channel and told Dave to try Bill's tight lead. He reported that he couldn't get through where Bill already had. I tried it and found that a ceiling block over the tight spot had a horizontal crack in it that would possibly let it break away. Indeed, only a few blows with the hammer felled a slab weighing a hundred pounds.

I must mention that this lead has a swift airflow. I crawled through into a room (two feet high) and came finally to the frontier. It was an easy project for the hammer and chisel! I thoroughly enjoyed smashing my merry way through thin slabs of breakdown and shelves of rock. After a few tight spots, it opened up into a belly-crawl.

Pushing my helmet ahead of me, it fell into a hole 2 1/2 feet deep! I contorted into the hole, which had much airflow, and proceeded along a lower level. It opened up into a room big enough for all three of us to sit! A crawl proceeded on. After several other minor smash-throughs, we arrived at a more formidable obstacle. We spent over an hour trying to smash through an upper route. Then I found a lower route through, but this led to even worse prospects. Also I'd lost the airflow. Squeezing through into a slightly higher level, I found the airflow again, coming through an easily diggable crawlway. It will be possible to dig this out from before the nearby obstacles. We decided to map some of the virgin passage and leave the cave. The

importance of Macho Crawl is readily apparent from the accompanying map (below): it should provide access to an extension of beautiful Enchanted Forest passage beyond the fill at its southern end. We'll return at the first opportunity.

The total survey in Wolf River for the weekend was 1214 feet. The current cave length is now 5.89 miles. At least a mile is known and unsurveyed at this time.

On the way out Dave, whose unpadded knee was buised and swollen from Macho Crawl, found the missing kneepad -- 50 feet from where he noticed it missing.

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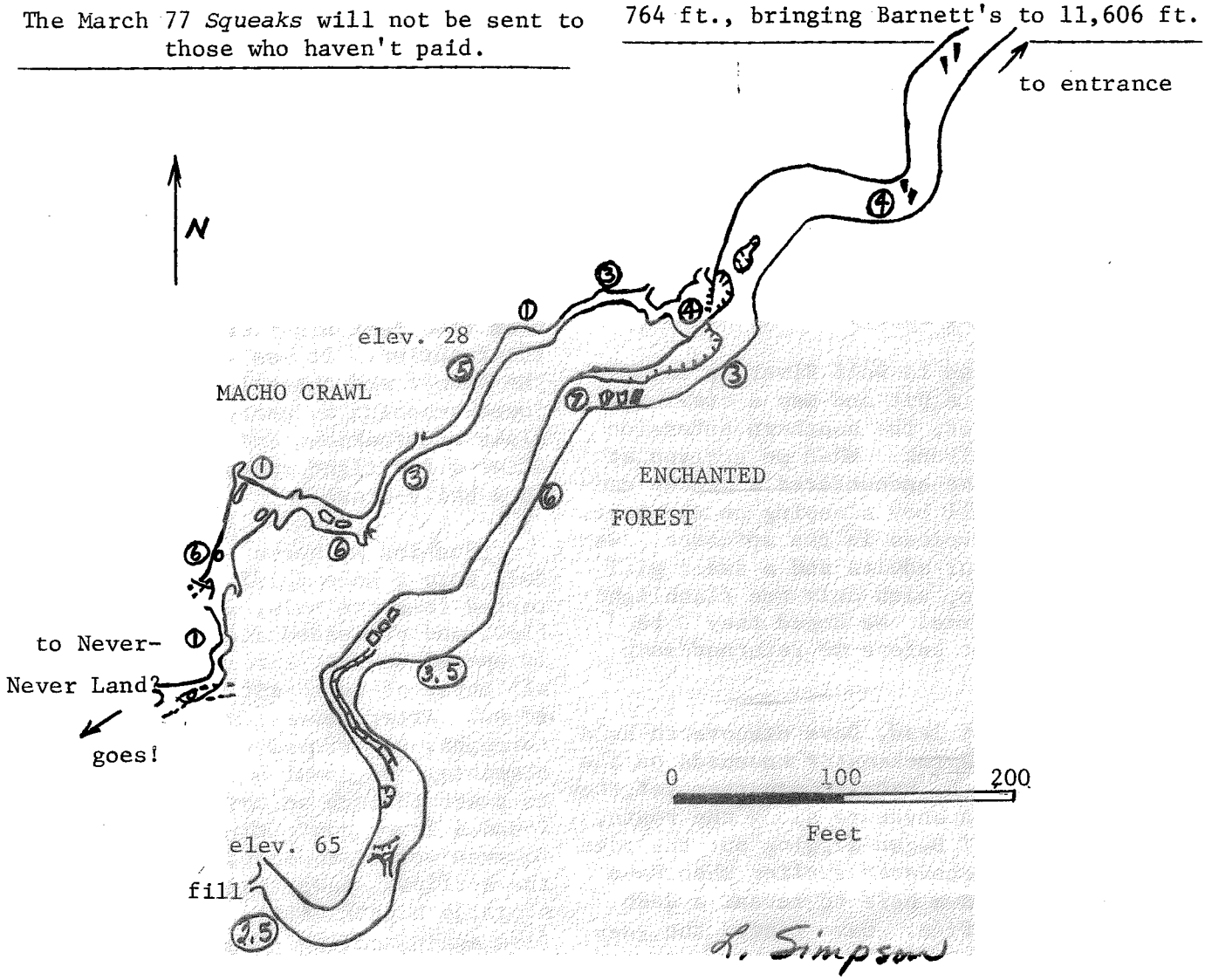
The March 77 *Squeaks* will not be sent to those who haven't paid.

FIELDHOUSE TALES CONT. (from pg. 99)

Now we proceeded to the point where Walter's Folly joins Calcite Canyon at the end of Claustrophobia Crawl. Here we began surveying down the small hole that leads to a shelf of the Raft Route, downstream from the Slurp Crawl overlook. We were able to map along the canyon to within a hundred feet of Slurp Crawl overlook. We could have continued by jumping across the twenty-foot-deep canyon, but chose not to. Downstream, the canyon continues unexplored and, at least at first, is dry. This will probably rejoin Calcite Canyon where the latter becomes very deep, but it is interesting to hope that there might be a lead going instead toward a connection with Firestone Cave. The closest point in Firestone is about 1000 feet to the south. Our total distance for the day's survey was 764 ft., bringing Barnett's to 11,606 ft.



CAVE PHOTOGRAPHY PART IV

by Ken Smith

Exposure Determination

Tlthough I'm sure most people are aware of it, I want to at least mention the inverse square law, since it is so important. The law states that the amount of light reaching a target is inversely proportional to the square of the distance from the source to the target. This means that if you move twice as fas away from your target, the amount of light reaching it will be cut to one-fourth ($1/2^2 = 1/4$). By the same token, if you move twice as close, the intensity increases four-fold.

It should be noted especially that the critical distance in calculating exposure is that from the light source to the target -- the distance to the camera is irrelevant. This appears to contradict the inverse square law, but this is not so. The difference lies in the fact that the inverse square law is based on the assumption of a point source. Intensity is determined by the number of photons per unit area; the energy of an individual photon remains effectively unchanged regardless of the length of its path from the source to the camera (via the subject). Assume that a fixed number of photons are generated at the light source. This front of photons constitutes a sphere, and as the front moves from the source this sphere expands. This fixed number of photons is spread evenly over the inner surface fo this sphere. Expansion of the sphere causes the surface area to increase, but the number of photons available to cover this expanding area is constant. Consequently the number per unit area must progressively decrease as the total area increases. That is, the intensity decreases with the distance from the source, which is the radius of the sphere. The target, which reflects the photons (selectively) and thereby becomes a source itself, is <u>not</u> effectively a point source relative to the distance to the camera. Consequently all photons leaving the target and headed toward the camera arrive there. This is not to say that all photons hitting the target are reflected to the camera, but the percentage that are is constant for any given target material.

If all this theory turns you off, don't despair. A simple formula, which is determined empirically, is used to calculate the exposure. The theoretical material just given explains why the formula works; an understanding of it is no more necessary to using the formula than an ability to assemble an engine is necessary to driving a car. The formula is

$$f = GN/d$$

where f is the exposure as an f-stop, d is the distance from flash to subject, and GN is a constant known as the "guide number." "Constant" is perhaps a bad choice fo words, since it is unit-specific (unit = flash unit) and subject-specific; that is, each flash unit has its own guide number as does the same unit used on different subjects. To understand why the subject makes a difference, we must return to theory. It was stated that the number of photons reflected by the target (i.e. as a percentage of the incident photons) was constant for any given material. The point is that some materials are more reflective than others; this is basically a function of the color and texture of the material. It is common knowledge that smooth, polished surfaces reflect more light than dull surfaces. It may be less commonly realized that color is determined by selective absorption of photons of specific energies (a white light source generates all energies within the visible range). Black, for example, results from the absorption of all energies of photons. Therefore, the closer the subject is to being "pure" black, the smaller the percentage of incident photons that will be reflected. What all this means for practical application is a guide number for a flash unit (whether determined by the manufacturer of the user) is for subjects of "average" color and texture (i.e. the standard "gray card"). If your subject is very light in color or smooth (= WET), the normal guide number will be too low (= too low an f-stop = overexposure). If the subject is very rough or very dark, the normal guide number will be too high (= too high an f-stop = underexposure). How much a particular unit is affected by subject conditions is peculiar to the unit and must be determined empirically. Keep in mind that under cave conditions it is possible to encounter subjects that are both light and smooth (live white formations) or dark and rough (lava tube walls). Judging subjects and fudging exposures appropriately is a matter of experience. (next month: Using the GN)

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