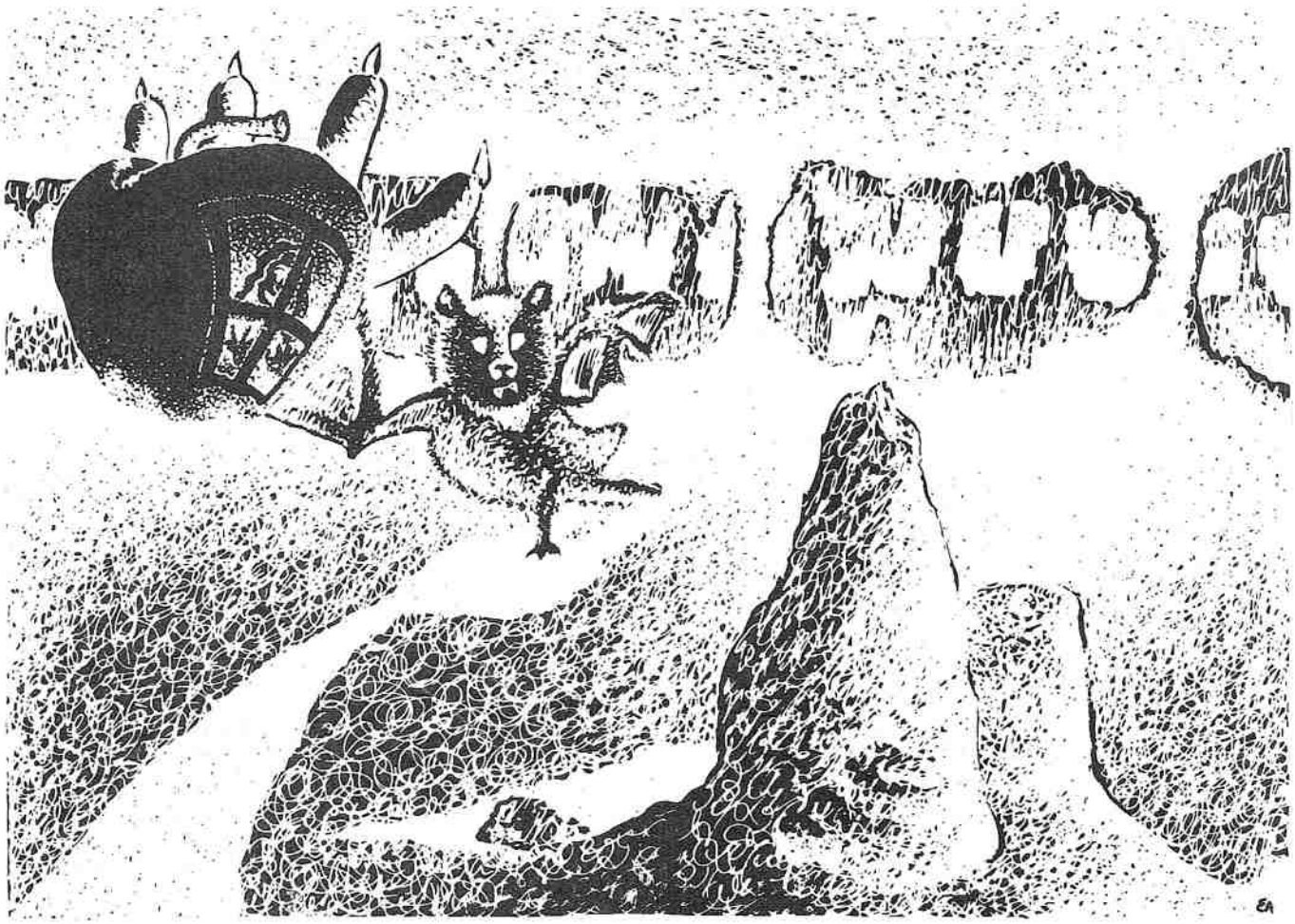
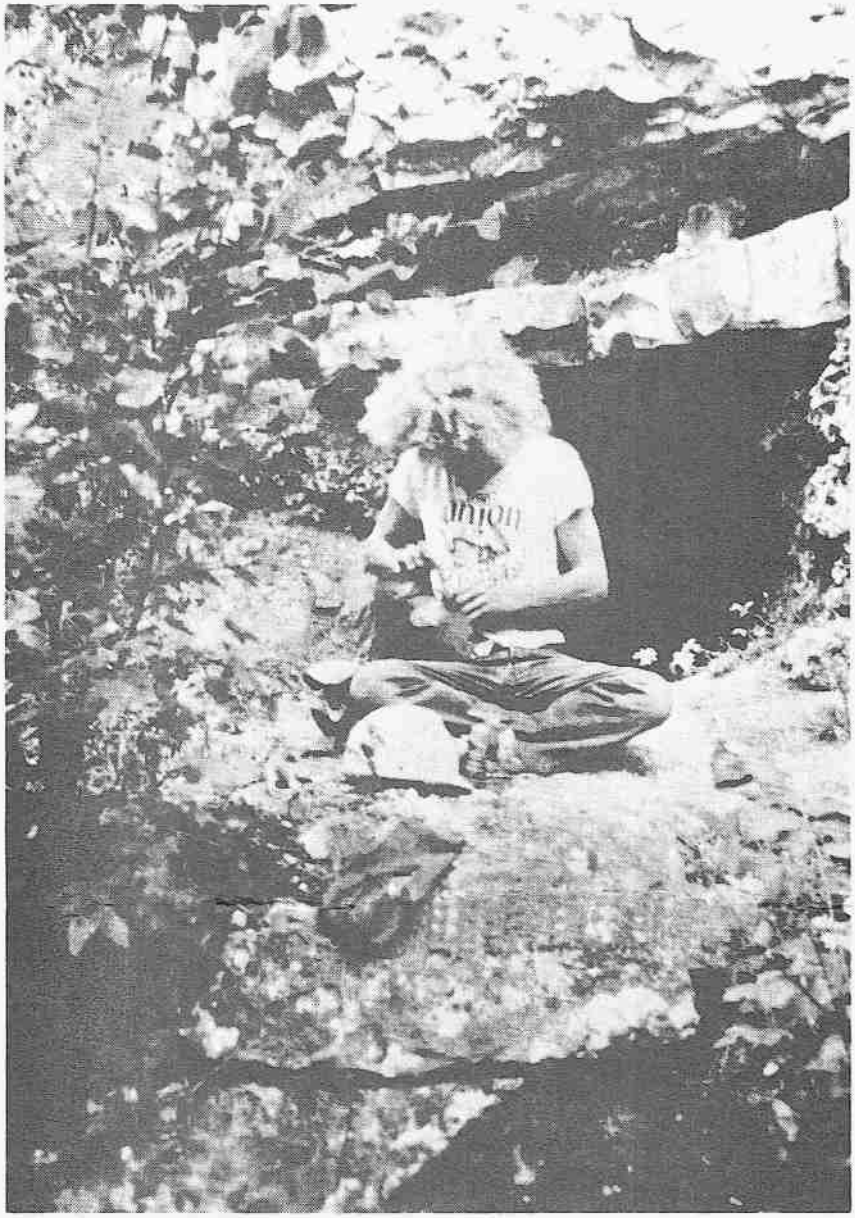
UTG NEWS

vol 8 no 4 jan 1978





JOHN D. DELANO

1949-1978

It is with much regret that the caving community witnesses the passing of John Delano from this reality to another. Our loss is great. We can only wish him well on his journey, and consider ourselves lucky to have known this person, to have shared the spontaneity and exuberance of his spirit, and to have learned from his wisdom.

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CONTENTS

Blah Blah	2
Trip Reports	
Cueva del Brinco	4
Map - Cueva del Brinco	6
Sumidero de Oyamel	7
Orizaba, San Carlos	8
Map - Cueva de Diamante	10
Cueva de Diamante	11
Cuetzalan	12
Cueva de Infiernillo	14

People who put this together: Terri Treacy, Peter Sprouse, Sheila Balsdon, and David Honea. Thanks to Ediger for the use of his typewriter.

The UTG NEWS is published by the University Speleological Society, a grotto of the National Speleological Society. Opinions expressed herein in no way reflect those of the University, the NSS, or any other group.

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The University Speleological Society has regular meetings on the first and third Wednesday of each month at 7:30 PM. Meeting room announced.

Cover Art: Unknown artist

Inside Front Cover: John Delano at entrance to Airman's Cave.

blah blah ...

SOME TEXAS CAVING

Cavers recently mapped in Frio Bat Cave, Uvalde County. The cave is about 1000 feet long. They mapped about 1/3 of it on the first trip and expect it will take two more trips to finish up.

Club members will be returning to Neel's Cave, Menard County to continue mapping there. They have 1 mile mapped so far and it's still going. There may be an attempt to dive the sump for a possible connection with Powell's Cave.

MORE CAVING IN MEXICO

Michoacan

A group of cavers visited a cave 32 kilometers from Cualcuman, Michoacan. The cave, Cueva de Montilla is characterized by large river passages, huge rooms, many formations, and was surveyed for almost 2 kilometers in a 6 hour trip.

Huautla

AMCS cavers spent four weeks in the Huautla Area exploring two of the hemisphere's deepest caves. La Grieta, now the third deepest, bottomed at -760 meters, is now also Mexico's longest cave with 8.8 kilometers of surveyed passage. A new cave in the area, Sotano de Agua Lecarrizo, was explored down 30 pitches, to -778 meters, making it second in depth to San Agustin (-859m). A computer plot of the two caves reveals that Lecarrizo is only 50 meters horzontially and vertically from the maze section of La Grieta.

Zoquitlan

The River caves of Zoquitlan, Puebla were visited by AMCS cavers. Sotano del Rio Coztcomilpa was explored down to a siphon at -164 meters. Cueva de Coyamilpa was explored down through increasingly wet drops to -289 meters and still goes.

PUBLICATIONS AVAILABLE

TSS - See Ronnie Fieseler at meetings to purchase TSS publications.

AMCS - Activities Newsletter #7 @ $2.00, #6 @ $1.00
Bulletin No. 7 - The Caves of the San Juan Area @ $5.00
See William Russell for these publications.

TEXAS CAVER - Subscriptions are available through James Jasek, 1019 Melroe Dr., Waco, TX 76710 for $5.00.

NSS PRE-REGISTRATION

Pre-Registration has begun for the 1978 NSS Convention in New Braunfel's, Texas - June 17-24. Pre-Registration fees are as follows:

NSS Members -	$15.00
Non-NSS Members -	20.00
Children 6-12 -	8.00
Children 5 & under -	Free

Unlike many past conventions where the registration fee entitled you to only attendance at sessions and everything else was extra, this year the fee covers everything - camping, the Howdy Party, the Banquet, entertainment, and refreshments (beer, etc.) all week. The fee will not cover field trip expenses. Karen Kastning is the Registration Chmn. - see her at the meetings for more information and to pay for registration.

NOTABLE QUOTE OF THE MONTH: Pulled from the Internal Organization Newsleter of the NSS in reference to Congress of Grottos attendance at the 1977 NSS Convention.

> It is noted that, again, no groups from Texas were represented. Besides the fact several Texas internal organizations have failed to renew their NSS affiliation for this year, it was reported in a recent issue of the TEXAS CAVER that the Texas Speleological Association had resolved (as a "Joke"?) to boycott the Congress of Grottos because of the allegedly trivial level of issues discussed. It may be appropriate for the Board to reexamine the relationship between the Society and Texas caving groups.

And now we hear that the latest rumor going around in the north is that Texas is going to secede from the NSS at the New Braunfels convention!

DUES PAID MEMBERS

The following is a list of those members who have paid their dues for the Spring semester of 1978.

Allert Brown
Tom Byrd
Maureen Cavanaugh
Randy Farr
Barbara Green
Cece Green
Blake Harrison
Josie Hooper
Roy Jameson
Hal Lloyd
Dino Lowerey
Mike McWhirter
Mark Minton
Patty Mothes
Ann Della Rose
Kurt Schultz
Renee Sheilds
Peter Sprouse
Bill Steele
Bill Stone
Peter Strickland
Terri Treacy
Charles Whites
Steve Zeman

Cueva del Brinco

November 18-27, 1977

People: Peter Sprouse, David Honea, Jerry Atkinson, Dale Pate, Bill Russell, Gill Ediger, Sara Cloyd, Cindy Kane, Wayne Ranney, John Delano, Mark Burns, and Terri Treacy.

Reported by Terri Treacy

Friday evening the twelve of us, in two trucks, headed south for a 10 day trip to Cueva del Brinco, Tamp. After the traditional stop in Victoria to eat and purchase last minute supplies in the market we were on our way up the mountain, stopping only for a quick dip in the canal. The drive went fast, arriving at the campground at dusk. Later that evening a few people entered the cave for about an hour to look for new leads near the entrance. A high lead at the bottom of the first flowstone drop,[1] first noticed the pervious trip, intrigued Dale and Jerry who decided to return the following day with a scaling pole.

Late Sunday morning two survey teams entered the cave. Dale and Jerry checked their lead with the scaling pole - the pole worked well, but unfortunately the passage only went 25 meters. Dale and Jerry then joined Bill to push upstream from the Bat Room,[2] mapping 68 meters to the end of the passage. Peter, Sara and I mapped the loop between two branches of the first stream;[3] then went up the southernmost one to the gravel belling crawl we had left last May.[4] We popped into a small lake room with three streams coming in, two of which pinched. We surveyed north up the third to a definate end. We had mapped a total of 160 meters.

Monday, after a leisurely morning of eating and preparing caving gear, two survey teams returned to Brinco. Gill, Sara, Jerry and Dale first surveyed the connection from Laguna Verde[5] upstream to the furthest point of exploration below Katy Fells. From there they went upstream to Tin Can Alley.[6] They surveyed 63 meters to a major junction room. This passage is the first to go above the entrance, adding 85 cm to the vertical extent of the cave. A good, windy lead remains in this area. They surveyed 165 meters. Peter, David and I set off for the long trip to the World Beyond to continue the downstream survey.[7] After a few hours we were finally at the end of our previous survey and began mapping. Over breakdown and lakes, the large passage (10m wide x 6m high) continued its southerly trend; the wind, however, had reversed and was blowing upstream. We came to what is now the largest room in the cave[8] (approx. 60 x 60 meters) which was named Sala de los Angeles for the huge, pure white formations dominating one side of it. Beyond this room the passage split[9] - the stream turning north and a dry passage continuing south - both blowing air. We mapped about 100 meters down the dry passage to an old travertine slope too steep to negotiate without a handline. Our hoots and hollars into the large,

black room below echoed for a long time. We went back to the stream and followed the passage down several flowstone falls, ending our 675 meter survey at another swim. We packed up our gear and headed out, exiting the cave at dawn.

On tuesday, Bill and others checked out a newly discovered arroyo pit a kilometer north of Brinco. The cave, taking air, was promising enough for a survey trip to be planned for the following day.

Wednesday morning, Bill, Dale, John and Jerry returned to the new pit, Sumider de Oyamel, and mapped 375 meters. Gill and David planned to continue the survey in Entrada del Viento Alta which had ended at the bottom of a 10 meter dome. Finding they needed tackle to climb the dome, they exited the cave and began bushwacking around for other entrances. About 600 meters south of Brinco they found a phreatic cave called Cueva de los Sierpres. Peter, Mark and I went to the two skylight caves, Cueva Tecolote and Cueva de Desmontes, across the road from the Brinco camp to check for possible leads but found nothing.

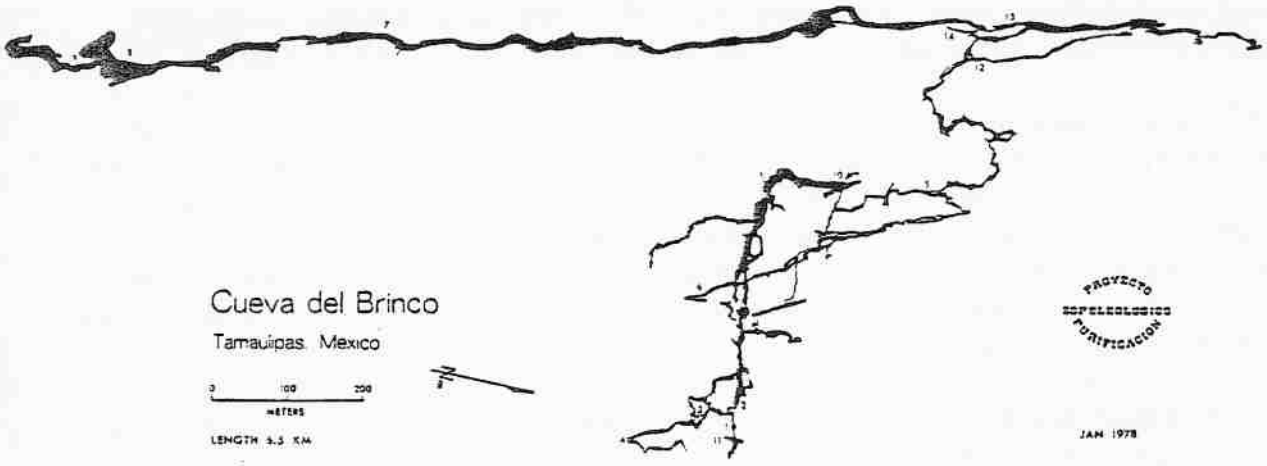
Thursday morning was spent hiking around looking at entrances, taking photos and playing at the springs. Peter found another promising arroyo cave, Cueva de los Allarines, near Oyamel, but it was not entered. Later in the day a few of us took the school teacher of Conrado Castillo into Brinco. We went as far as the Dressing Room,[10] checking a few leads on the way. Back in camp we gratefully gobbled down the feast which several Thanksgiving Day cooks had prepared. We were just settling down with some hot tequila lemonades when we heard the unmistakable sound of a Gringo truck coming up the hill. Running out to the road to greet the new arrivals we found not one truck but FOUR! - Robert Hemperly's, Paul Fambro's, Fred Paschal's and Paul Duncan's - 20 more people. (Besides Robert and Paul, other UT people included Terry Sayther, Lisa Wilkes, Barbara Green, Cece Green, Ann Della Rose, and Mills Tandy.) Camp was a frenzy! Soon everyone got settled in and we took some of the new comers on an orientation trip to the Helictite Passage[11] and noticed airflow from the crawlway at the end.

The activities Friday are rather difficult to account for as there were so many people. There were four survey trips and several tourist trips. Bill and Sara mapped in the upper portion of Oyamel; a maze section called the Worm Tubes. Dale, Jerry and John mapped downstream in Oyamel, turning back when they lost track of the air and water; there are still leads. James Strickland mapped down the first lefthand passage in Brinco[11] to a short drop. Peter, David, Robert and I headed down to the World Beyond. After losing me first to a laid back tourist trip and later Robert, who was being strangled by his wetsuit, Peter and David decided to check the leads off Scallop Speedway, just past The Canal [12]. They mapped the first one 100 meters to where it surprisingly popped out in the World Beyond, just

north of the 100 meter swim.[13] Returning through the new passage they mapped a short passage[14] off of it to the south which ended at a dig.

Everyone spent Saturday morning getting in last minute exploration, surveying, hiking and sunning before packing and cleaning up the camps. By that evening all of the trucks were back in the lowlands camped at the canal. Sunday morning, after breakfast in Barratal, we headed back to Texas.

This trip brought the length of Brinco to 6.5 kilometers from 5.2 kilometers and increased its depth 60 meters making it 257 meters deep. Six hundred seventy-five meters were added to the trunk passage in the World Beyond, making its total length over 2 kilometers.



numbers keyed to text

Sumidero de Oyamel

by Dale Pate

On a day off from mapping and exploring in Cueva del Brinco, a group of cavers led by William Russell headed to a karst area seen by William to check on the possibilities of caves. Several caves were found including one that had air movement. This one was named Sumidero de Oyamel for the fir trees located in the area. Four entrances to the cave were located. Two were small entrances that entered a crawlway maze area named the Worm Tubes. One was a 20 meter drop to a large crevasse with a water passage going off. The last was a 10 meter drop to the same water passage with a water scoured passage continuing off. The group then found their way back to camp and reported the good news.

The following day William Russell, Jerry Atkinson, John Delano, and myself returned to map, explore, and collect in the new cave. We rigged the entrance with a 10 meter cable ladder and headed into the cave mapping as we went. Jerry had his wet suit so he was the lead explorer. Close to the entrance we came upon several pools with white planaria in them. Due to lack of knowledge of collecting procedures, none were collected. We continued down relatively horizontal passage until we came to the first of several drops. This was a 8 meter drop which we called Apricot Pit. A bypass was found around the pit and immediately beyond was a tight vertical squeeze name Apricot Squeeze. Beyond this we took a break at a good stopping place and named it Comida Corrida.

As we continued on we came to another 8 meter pit which we named Avocado Pit. It was possible to chimney it. Beyond this was a large deep pool. It was possible to walk on a small underwater ledge and avoid getting totally submerged. After this, another drop of 10 meters was encountered. It was also chimneyable. This pit dropped down into a junction area where at least one other passage came in to the one we were in. The pit was named Apple Pit. The other passage was left unexplored. In the junction area was another 10 meter pit name Anchovy Pit. A bypass was found and we were able to continue on. In the bypass route were several polished flowstone formations that looked like polished wood. Below Anchovy Pit we took another break. The passage was getting bigger and scoured as we found several interesting insects including a psuedo-scorpion, centipede, and several others as well. Because of this find, we named the small room The Bug Farm.

From The Bug Farm, the passage continued for a short distance until another drop was encountered. At this point we decided to return to the

surface. The pit was named Artichoke Pit before we left. Jerry had carried a 10 meter cable ladder into the cave, so he lashed it to a large formation and we departed. It took approximately 30-45 minutes to get out.

Two days later Jerry, Bill Mayne, and myself returned to continue exploring, mapping, and collecting. We returned to the stopping place of the trip before and started again. We found Artichoke Pit to be climbable and continued a short distance to another drop. At this point a large amount of air was blowing into the cave. The drop was name Another Pit. We were able to chimney the pit and shortly thereafter we came to another pit. This one remains unnamed. A short bypass was found and we continued on. Below this point, the nature of the cave appeared to change. Large tinajas were located in the floor and several leads continued in this passage. We followed the water passage and it lead into a crawlway maze area continuing down at a 30 degree angle. We stopped mapping at this point. As we entered this area a small passage off to the right appeared to take most of the water, but it was not explored for any distance. At this point we decided to turn back and we arrived back at the entrance in less than 1 hour.

The following day, Jerry and William returned and tried to tie in the four entrances underground. The pit with water was tied into the main surveyed passage and they also mapped a lot in the Worm Tubes, but were unable to finish and connect into the other surveyed passage.

At this point in time, there is slightly less than 1 kilometer of mapped passage and we stopped at around the 100 meter depth. We were hopeful that the cave was heading for the World Beyond passage in Cueva del Brinco, but it appears to be heading down at too great an angle. However, it is impossible to predict what the cave will do at this point. More mapping and exploration is needed.

Orizaba, San Carlos

December 30, 1977 to January 13, 1978

Reported by Barbara Green

On Friday, December 30, Terry Sayther's vehicle and six passengers left Austin for Mexico: Terry, Ann Della Rose, Don Hejny, Margaret, Cecilia and Barbara Green.

We spent New Year's Eve amidst the fiesta and dancing in Los Sabinos. New Year's Day brought the rodeo extravaganza, which included such unique events as tail-wrench steer wrestling.

A passenger exchange occurred, with Margaret and Don joining Ediger's Brinco trip and Mark Burns going with Terry's truck. Visited Xilitla in the fog, then stayed in a fine spot - Campo de los Marmoles - a lead mining, mountainous area. We visited the ruins at Tula on our way to Mexico City, where Terry bought topographical maps and also lost 500 pesos in a minor backup wreck.

Drove through Orizaba and camped near Rio Seco, a lush area close to the sugar caning town of Potrero. Then we ascended the mountains, asking at villages along the way about various cave leads. We spoke with a couple of Mexicans at a store who agreed to lead us, and they showed us one pit, as well as Sala del Agua, a large one-room cave with formations and crawl-spaces but no leads. Collected crickets, blind water organisms, fungus and one spider. Then spent some time going from village to village asking about leads that didn't materialize, until a coffee rancher named Leonardo Chacon led us to a couple of caves in the vicinity. One, Cueva del Mirador, was explored by Ann, Barbara and Cecilia. Besides the entrance area, there is one room with a chimney 5m high with a triangle skylight at the top, and a hole in the floor about three meters deep which ends in a small room. A crawlspace led into another room theretofore untouched, where some excellent formations were seen.

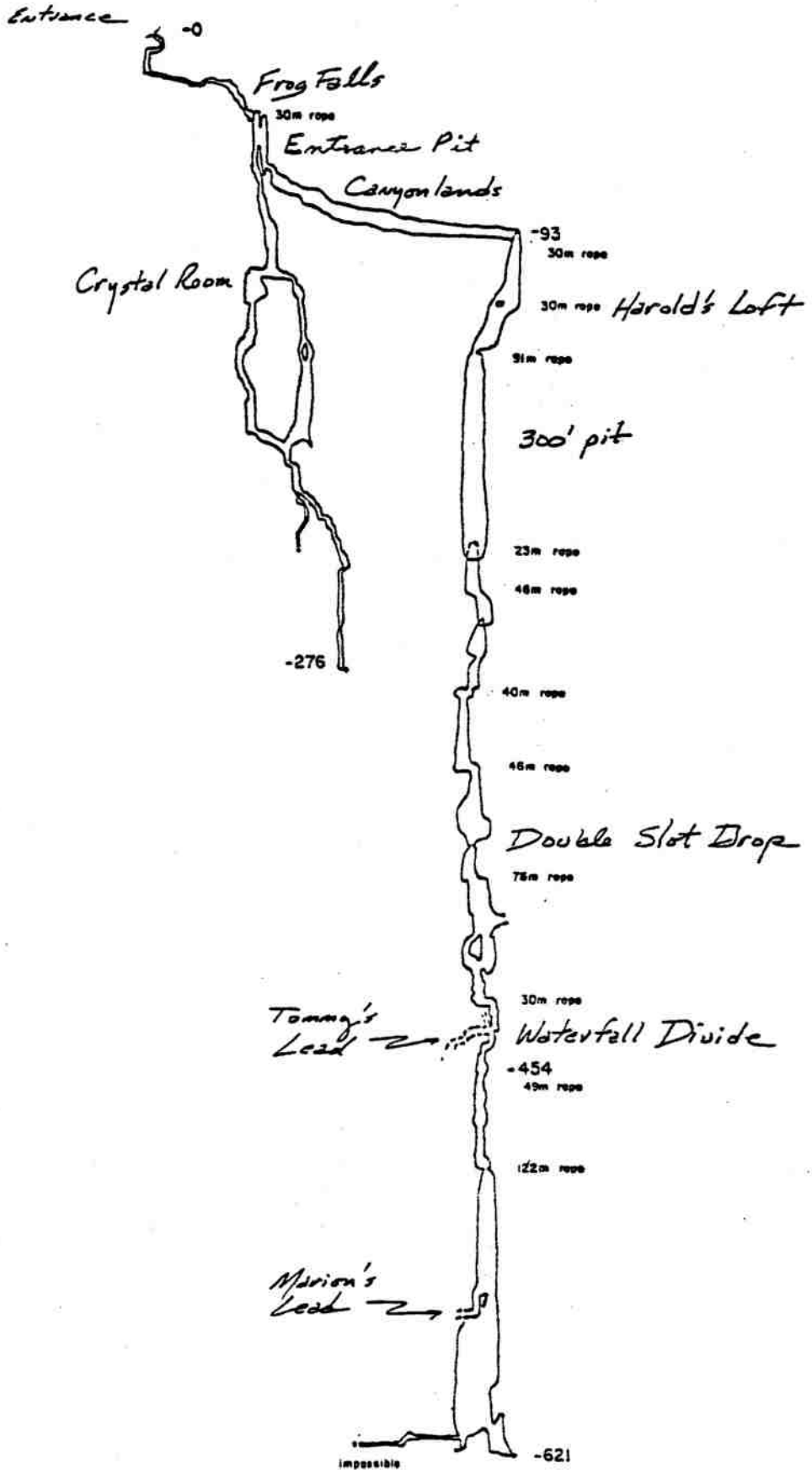
Sr. Chacon then showed us a bat cave that has two large rooms, with a pit that Mark found that led nowhere. Cecilia found and Terry collected a large black spider, and millipedes were also gathered. Our guide treated us to amazing wine later, and we left him a Spanish/English dictionary.

We then headed north to the mountain range NE of Brinco, arrived in San Carlos on January 11, and went up into an adjacent range. A cave was shown on the topo maps, but after a day's search, nothing had been found. The area is called Mina las Flores, and despite the lack of caves it was great - there are lots of rocks and plant life to be seen.

Another couple of leads nearby were checked out. Cueva Tio Marcos was just an old well in a tick-infested area, but Terry found Cueva del Guano, about 200m long and full of bats.

Followed a new highway out of that region and ended up meeting the road into Barretal. Camped at the canal, then headed toward Texas, had only one flat, and arrived back in Austin around 11:00 PM, Friday, January 13. A good reconnaissance trip.

Cueva de Diamante
Tamaulipas, Mexico



drawn by N.Morris

Cueva de Diamante

December 20-30, 1977

People: Marion Smith (TN), Tommy Shifflett (VA), Harold Goldstein (DC), Neal & Max Morris (TX), Barbra Vinson (TX), Hal Lloyd (TX), Richard Minton (CO), Dave Seslar (OH), and Mark Minton (TX)

Reported by Mark Minton

The fourth year of exploration in Cueva de Diamante finally produced a bottom to this amazing El Abra cave. We were taken off guard last year when the cave went deeper than we had assumed possible, and we ran out of rope at -450 meters. This year we came prepared for a really deep cave, bringing over 1200 meters of rope and prepared to stay as long as it took to reach bottom.

The initial rigging trip required all ten people and 16 hours to move a mountain of rope only 300 meters into the cave (its total horizontal extent). After rigging the "entrance pit" and handlines at Frog Falls and at a couple of places in the beginning of the canyon, the remaining rope (over 600 meters) was uncoiled, tied end to end, and pulled through the tortuous canyonlands (180 meters of half-meter-wide fissure, usually without a floor) as one continuous snake. Past experience had taught us that this unconventional technique was the only practical approach, since one usually needed both hands just to support himself. The following trip rigged down all known drops and began exploration and mapping at -450 meters just past the Waterfall Divide (see map). The character of the cave changed significantly at this point: not only were the pits getting larger and deeper, but we were no longer coming into them at the top. There was also the light spray from small waterfalls to contend with, and the walls were even sharper and more jagged than before. (Almost every drop had to be rigged with Goldline (stretch!) due to the abrasive nature of the cave). The group turned back at -550 meters with two leads and exited after 27 to 30 hours underground.

The next push trip finally bottomed one of the above leads after a total of 20 drops at -621 meters with only five and one-half meters of rope to spare! The relatively flat bottom was characterized by several large intersecting joints and a conspicuous absence of water (we had expected to hit base level). A small muddy horizontal crawl and fissure passage was the only lead, but it became impossible after about 30 meters. Some inch-long white isopods and a small red spider were seen in this passage. After convincing ourselves that this was really the end, we derigged up to the 300 foot pit, leaving the other leads unexplored. It was another 26 to 30 hour trip! A final derigging trip involving nine people snaked all the rope back out of the cave in just over 24 hours.

It was a very successful ten days: Diamante moved from 9th to 4th deepest in the hemisphere (the only 2000 foot deep cave outside Huautla), and nearly doubled the previous depth for the El Abra (Hoya de Zimapan, -318 meters). For the first time photographs were taken inside the cave. On off-days surface surveys, jungle chops, and work in 215 meter deep Sotano de Monticulo kept us busy. Although several leads remain, it is unlikely that we will return soon. This year we spent 550 person-hours in the cave, bringing the four year total to around 1500. At least half of every trip was spent rigging or derigging, and the only reasonable way to check out the remaining leads would have been to stay another week (or leave the cave rigged!). To return would require a massive effort, and the potential for increased depth is very limited (the height of the range was triangulated at 728 meters, and the cave plus sinkhole total nearly 700 meters), although discovery of a horizontal base level passage is still a possibility. Perhaps someday....

Cuetzalan

January 6-20, 1978

People: Mike Boon, Jim Rodemaker, Shari Larason, Loretta Poer, Peter Lord and Preston Forsythe

Reported by Jim Rodemaker

Ever since the AMCS Bulletin on Cuetzalan came out it has been my desire to visit the area and experience, first hand, some of the caves in this relatively unknown karst area. So, with amazing continuity the Cuetzalan segment of our trip came into being when Mike Boon, who was with us in Zoquitlan, talked us into going there. We stayed for 2 weeks and had it not been for a lack of time and wet suit glue we would probably still be there, (Mike Boon still is to my best knowledge). Cuetzalan is in the extreme northern part of Puebla.

Various members of the group visited 5 of the major caves listed by Nevin Davis, author of the original Cuetzalan publication. One other, Chicasapan, was explored and 1km of virgin inlet was surveyed. Chicasapan has over 5km surveyed to date, with large going cave. Peter Lord is presently in the process of exploring and surveying a small area of the Cuetzalan karst area. Included in his work area are many caves and pits, the most prominent being Coatichan (not Yoatichan), Ateschire, Oxtimaxal Sur #1 & #2, Atepolehuit, Chicasapan and Cueva Sin Nombre.

Sumidero de Atepolehuit is a large river cave 4-5 km west of Chicasapan. Up until we went there in January '78 no one had been there in 4 years and the map showed the main stream passage continuing at a rope drop. Boon, Lord and I elected to check this cave out for it fell within Peter's drainage area and had never been pushed. After 2/3 mile of relatively large stream passage we came to the point where others had turned around for lack of rope. This we downclimbed 20m to a 30m lake swim. At this point a large 15m x 15m inlet came in from the left. To make a long story short the cave goes like a shell (Brit term) from there. After 7 swims and 5 to 6 drops we ran out of tackle at the top of an 8m drop and elected to return the next day and surveyed one kilometer on the way out, passing up the side leads. When we returned we pushed the cave another 2km through enormous sized cave, past huge breakdown rooms and side leads to an arbitrary point some 5km in the cave with no reason to stop walking other than fatigue. The cave was conservatively 45 x 30 meters where we turned around and pushing over 300 meters in depth.

Other caves in the area were found to provide nice virgin passage. Sumidero de Jonotla was one of these. This one also was not pushed where the going got rough. Luckily we found a 20m x 20m, dry side lead that bypassed the waterfall and narrow canyon obsticle and surveyed 1km of beautiful virgin cave. Another cave visited was Grutas de Tenextepec. This is a classic borehole, river cave starting out (after the 108' entrance drop) in 20 x 25 meter flat floored stream passage for 0.5km to a small passage which splits again and again until progress gets uncomfortable, if not impractical. A true show cave full of formations. A note of CAUTION! When we returned to the rope it was missing! Yes, even though this area is very mellow, some passing Mexican couldn't pass up my 150' PMI rope and made off with it. Luckily the cave has another "marginally" climbable entrance which Preston and I climbed, returned to the truck and rigged a belay line for the rest.

Other caves visited were equally fascinating in other respects. Sumidero de Coatichan is the cave with the immense entrance which can be seen from the paved road to Coatichan. As cave will do, unfortunately, Coatichan does not retain its massive proportions throughtout its 1km long length and siphons.

Oxtmaxal Sur #2 is a completely uncommercialized commercial cave. Not even a path to the entrance! The cave represents a minor upstream inlet probably feeding the Coatichan drainage basin to the East. Characterized by large formations and flowstone cascades with the everpresent conglomerate floor, the cave tour is almost all climbing. So much so that the guides bring a "larriette" which is rigged as a handline over a 15' waterfall pitch. Near the back of the cave, beyond where most tourists dare venture is a climb over a large formation block. Beyond this point the cave becomes very beautiful with helictites and columns. Shortly the cave becomes imapssable due to formation blockage.

Other caves in the area are large and incompletely explored. The actual geographical limits are not yet known. Most known caves are near the primary and secondary roads.

Cueva de Infiernillo

December 24-31, 1977

People: David McKenzie, Linda Elliott, Logan McNatt; plus Gary Napper and Tom Byrd.

Reported by Logan McNatt

We started up the mountain on Christmas Eve and camped that night at the campsite between El Mirador and the Paso de la Muerte. The next day we continued on towards Infiernillo, stopping once at Sr. Grimaldo's to give him a copy of the AMCS Activities Newsletter #7 and then again at Los Caballos where Gary and Tom got out and began their hike to Zaragosa. While we were there a lumberman told us of a pit nearby, but we didn't check it. We backtracked to the Infiernillo turn-off and proceeded on down to the parking spot where we camped. Monday morning we hiked over to the cave, finding the pool below the entrance completely dry.

Before entering the cave, we decided to check the small hole in the left wall of the cliff. With a boost from David, Linda and I were up in the hole crawling on our hands and knees over a very sharp floor. The passage, which had a few formations, went about 10-15 meters before getting very tight. We did not push our bodies all the way to the end, but it did appear to pinch out after a few more meters. We chose not to map it and exited, via a handline.

By dusk we were sitting in the entrance watching the sunset. It is interesting to note here that the strong breeze which blows out of the entrance was now blowing <u>into</u> the cave. We hiked on in to camp, 500 meters in, noticing when we arrived that there were no signs of previous camps; clean sand, no footprints, and the jug of carbide which had been left by the August trip was nowhere to be found. It was apparent that the cave was flushed clean during the hurricane only two weeks later.

We left camp late Tuesday morning to pick up the survey at the end of the major passage leading south. Along the way, at the top of the Bicycle Run, we checked a crawlway going off to the right; we stopped after about 25 meters but it's still going. Then on through the Confusion Tubes; they

were incredible! But we had no problem following the air through them. When we reached the end of the mapped passage we began our survey through the breakdown. The cave still continues to go up, with a strong breeze - this time blowing in. After 5-1/2 hours, with 180 meters mapped, we ended the survey. David explored ahead about 60 meters to a junction. One fork went to an unclimbable dry waterfall; the other bypassed the waterfall and continued with the air flow to a deep lake. Two left-hand leads take air and may provide a way past the lake. We arrived back in camp about 4 AM.

Wednesday was a day of rest. David collected asellid ispods at the lake below camp. We measured the air temperature of the cave to be 57.5-58°F; very constant.

On Thursday we went down the middle fork passage to check some leads near the Puente de Oztotl. We mapped the obvious right-hand walking lead 160 meters to breakdown. With no promising way on we returned to the Puente and mapped down the other, less obvious right-hand lead. It went 180 meters to a very definite end. The last 160 meters was nice walking, fissure passage, with numerous domes that feed water into it. One triconiscid isopod was collected from a pool.

Next we checked the 25 meters pit lead on the left hand wall just past the Puente de Oztotl. It leads into a maze of tubes with pools of water and sharp, fluted rock. I explored about 40 meters of stooping passage. There were no obvious leads except for one tube which was still going as a narrow fissure. We did not map this section.

From the pit lead we explored on the main passage several hundred meters. On the way David checked the first lead on the right wall, which turned out to be a low crawl filled with cobbles. We decided to head back to the Puente where we resurveyed a sight line from there to the main passage junction.

We broke camp Friday and hiked out to the cave entrance. For the first time since we got there the air was blowing out of the cave. We were at the truck before dark and camped for the night. The next day we began the drive off the mountain, stopping at Sr. Grimaldo's house to give him some carbide. He said that the locals were out looking for a plane thought to have crashed on the mountain the night before. We spent a drizzly New Year's Eve at a microwave tower.

The length of Infiernillo is now 4.6 kilometers with a vertical extent of 217 meters. There are presently 105 leads in the cave!