June 1977

# Association of Mexican Cave Studies Newsletter, Volume 5, No. 2-3, June 1977

Association for Mexican Cave Studies

# Association For

# Mexican Cave Studies

# NEWSLETTER

The Association for Mexican Cave Studies is a non-profit organization whose goals are the collection and dissemination of information concerning Nexican caves. The AMCS publishes a Newsletter, Bulletin, and Cave Report Series which are available to any sincerely interested conservation-minded person. The AMCS Newsletter is published six issues per volume as frequently as necessary at a cost of $5.00 US per volume. Information concerning the other publications is available upon request. Potential contributors are urged to submit articles for publication. The article may cover any phase of Mexican speleology. Trip reports are requested from all trips. All correspondence and orders for publications should be sent to:


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Material for publication in the Newsletter should be sent to James Reddell or Terry Raines at the above address.


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*Cover Photograph–*

The tenth anniversary of T. R. Evans' initial descent into Sótano de las Golondrinas is now being celebrated by AMCS cavers throughout the world. We thought it appropriate to reproduce this entrance photo from AMCS Bulletin 2 in honor of the occasion. In the ten years since the 1967 exploration we estimate that more than 300 people (mostly cavers) have entered the pit. It is truly a miracle that no one has been killed, considering the competency and equipment employed by some. The hole's measurements are 62, 48, 333 meters. The floor is an incredible 134 by 304 meters and along the west wall a fissure drops to a total depth of 376 meters. Regardless of what future explorations discover, the Golondrinas chapter will remain one of the grandest in the great Book of Speleology. (Photo by Terry Raines)

Association For
# Mexican Cave Studies
# NEWSLETTER

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## NEWS AND NOTES

In the September issue of the AMCS Newsletter (AMCS News., 5(1):2) an article appeared concerning a group of vertical enthusiasts from Maryland. This group is reported as having done the skylight in Cueva de El Abra and found it to be 380 ft (116 m) deep; and that this group made the first recorded descent of this skylight. Also in this article it is reported that Sótano de las Golondrinas was rappelled in 2-1/2 minutes. As the members of this group of vertical enthusiasts we would like to clarify some of the statements made about us and our trip. The skylight at Cueva de El Abra was done before our descent. Our records show that the pit was done by a group of Maryland and Tennessee cavers in December of 1973, and also done by a group of Tennessee cavers in April, 1973. The length of the drop was never measured by us, we only estimated it to be about 400 ft by the hundred foot markings we had placed on one of the ropes we rigged for the drop. During the descent of Golondrinas the fastest time on rappel was 18 minutes (see the trip report that appears in this issue). The new rope we used (a 1540 ft Bluewater III) was not damaged at any time while we were in México—as a matter of fact it will be used in México again in the near future. It is our hope that this article will show that our group recognizes the importance of safety in caving and are just as intolerant of unsafe caving methods as our fellow spelunkers.

| | |
|---|---|
| **Bert Ammann** | **Doug Dotson** |
| **Chuck Elliott** | **Don Evans** |
| **Terry McClanathan** | **Al Goldey** |
| **Rick Davis** | **Steve Lebel** |

**(Editor's Note:** The editors of the AMCS Newsletter regret very much the inaccurate report printed in the News and Notes Section of the previous Newsletter and wish to take the opportunity here to formally apologize to the above cavers for the earlier statement. We hope that in the future such statements, reflecting as they do on the character and qualifications of other cavers, will be carefully verified before they see print.)

## EDITORIAL

With this issue of the AMCS Newsletter it is undergoing its latest rebirth. Hopefully, this issue marks a true beginning of a consistent series of newsletters. Problems have plagued the Newsletter for several years, with the unfortunate result that much information which should have been made avilable for all cavers working in México has lain fallow in the AMCS files or else has never been submitted for publication. The AMCS Membership Committee Newsletter has done an admirable job of keeping cavers abreast with the more significant caving by Austin area cavers, but a consistent publication policy by the regular Newsletter is desperately needed if the work which is being done in México is to be recorded and if duplication of effort by cavers working in México is to be avoided.

A complete reorganization of the AMCS Publication Staff is in progress and this should bring about a more efficient and productive organization. Andy Grubbs has consented to be the new AMCS Secretary. All letters, including subscriptions, should be addressed to him at the address given for him in the back of the front cover. He has promised to be faithful in answering correspondence and in seeing that members receive their newsletters *on time*—that is, as soon as they are published and not several years later.

Although the present and the following issues are being edited by the old editors, James Reddell and Bill Elliott, the reorganized staff will shortly include special editors who will be responsible for putting together a single issue. This will prevent one or two people from becoming tired of the Newsletter and the hassles involved in getting material together and in shape for publication. James Reddell will probably remain an overall production editor for the remainder of Volume V.

With this issue we are initiating a new concept in content for the Newsletters. At least until all of the backlog of material is published each issue of the Newsletter will be oriented largely towards a single area in México. The present issue concentrates on the caves of the general north and west of México. The following issue (Vol. V, No. 3) will emphasize the caves of the Ahuacatlán-Jalpan region. Future issues will concentrate on the caves of the Soledad-Tequila areas, the Aquismón area, and the El Barretal area. This is NOT to say that if we receive a current trip report or article outside of these areas that they will be held until they belong in a specific report. We promise to publish all material in the next issue to be published following receipt of that material. In fact, it is important that current material be sent to us, so that other people working in México can know what has been found.

We realize that to once again call on Mexican cavers to trust us is to ask a lot—and we will understand the scepticism of those whose issues have been delayed for years or never received, whose material has languished in the files for years or never been published, and whose letters have gone unanswered. But, we believe that we are going to produce a good newsletter and one that will come out promptly and that will be in the hands of the members immediately upon publication.

The present Newsletter has a lot going for it. In addition to Bill Elliott and myself, it has the active support of the Austin caving community—including Andy Grubbs, Bill Russell, Peter Sprouse, Bill Stone, and many others.

And so, once again, we ask the support of the caving community—and once again, we say that we will try to provide all Mexican cavers with a valuable publication.

—James Reddell

# TRIP REPORTS

**Date:** 4-7 July 1968
**Destination:** La Cueva del Alamo, Chihuahua
**Persons:** Richard L. Breisch, Tom Meador, Lee H. Skinner
**Reported by:** Tom Meador, Eldorado, Texas

*4 July*—We entered México at Zaragoza during a light rain, and drove down Route 2 to El Porvenir. The pavement ends at El Porvenir and we found it necessary to switch the jeep over to 4-wheel drive because of numerous flooded arroyos. Most of the afternoon was spent hunting a route to Rancho de Marffn. Also an unsuccessful search was made for La Cueva de la Pluma Colorado. After numerous detours up canyon beds we found the right canyon and drove up it to a pass in the mountains. Late in the afternoon we reached the ranch house. Señor Marffn was in Chihuahua, but Señora Marffn gave us permission to cross their ranch to La Cueva del Alamo. She also gave us permission to camp in some dugouts, which we had passed on the way to the ranch house. During the night a heavy rain fell soaking our bedding and flooding Lee out of one of the dugouts.

*5 July*—Next morning the jeep wouldn't start. After working on the motor for some time, pushing it down a hill, etc., we were about to start walking out when it was decided to try starting it "just one more time." It started! We drove back over the pass and turned up the main canyon. After letting down several fences, rebuilding them, and going up numerous side canyons in search of the right road we decided to return to El Porvenir for a guide. Reaching El Porvenir in the late afternoon we inquired about Quirino who had guided Lee to La Cueva del Alamo 4 years earlier but were told that he had been jailed on the other side as a *mojado*. Benito Levario was persuaded to go with us as a guide. It was decided to cross back over to Fahens as we were running low on gas and needed some more groceries. We left Benito Levario on the south side of the Rfo while in Fabens. When we returned to México we were denied entry as we did not have tourist cards. We were able to give Benito Levario his bed roll and made arrangements to meet him at his home in El Porvenir the next morning. Then we drove to Lee's apartment in El Paso for the night.

*6 July*—Next morning we obtained tourist cards and car import papers in Ciudad Juárez. Sections of the city were flooded and more rain was falling. We drove to El Porvenir and picked up Benito Levario. Returning to an airport south of Guadalupe, where we turned off the paved road and put Lee's super wagoneer in 4-wheel drive. We drove south over a pass in the Sierra de Guadalupe and out onto a plain beyond. We entered the Sierra de Alamos through a small canyon and drove up it to its head and over a pass to the headquarters of Rancho del Alamo which is owned by Señor Enrique Domfnquez. No one was at home so Benito Levario wrote a letter to Señor Domfnguez explaining the purpose of our trip and left it at the ranch house. After eating supper we hiked up the mountain and along a ledge to the entrance of La Cueva del Alamo.

La Cueva del Alamo is formed along bedding planes which dip 25 degrees to the northwest. The ceiling height ranges from 0.15 to 1.52 meters and the average passage width is approximately 1.52 to 3.05 meters. We started mapping at the entrance of the cave and after explaining to Benito Levario that we didn't need string in order to find our way out. We had surveyed 160.48 meters, reaching a depth of 52.40 meters, when we stopped near midnight for a bite to eat. Lee pushed ahead in search of the 38.10 centimeter gypsum flowers which he had seen during the 1964 trip (Rodes, Douglass, "Mexican caves," *Southwestern Cavers,* 3:27-28, April 1964). Later he returned to report that he had found a 12.70 cm gypsum flower, but had been unable to locate the large ones. It was decided to stop surveying at this point as the cave passage was opening into a complex maze. So we started crawling out of the cave. On the way out it was necessary to enlarge a crawlway for one of the larger members of the party. We hiked along the ledge and down the mountainside, reaching camp at 1 A.M.

*7 July*—After an early breakfast we drove back to El Porvenir to leave Benito Levario at his home. We then made another search for La Cueva de la Pluma Colorado but were unsucessful. So we returned to El Paso, which was flooded by the recent rains.

**Date:** 25-26 October 1969
**Destination:** Rancho Agua Caliente, Baja California
**Persons:** Phil Curtis, Bill Deane, John Ineson, Steve Lopez, John McIntosh, Don Miscowich, and Pat Zedalis
**Reported by:** Bill Deane

According to rumors a fabulous cave filled with formations is located in Baja California in a marble outcropping near some hot springs. During a weekend in October seven cavers made a trip into Baja to locate this cave. The search was concentrated near the town of Guadalupe which is located 47.6 miles south of the border on the road between Tecate and Ensenada.

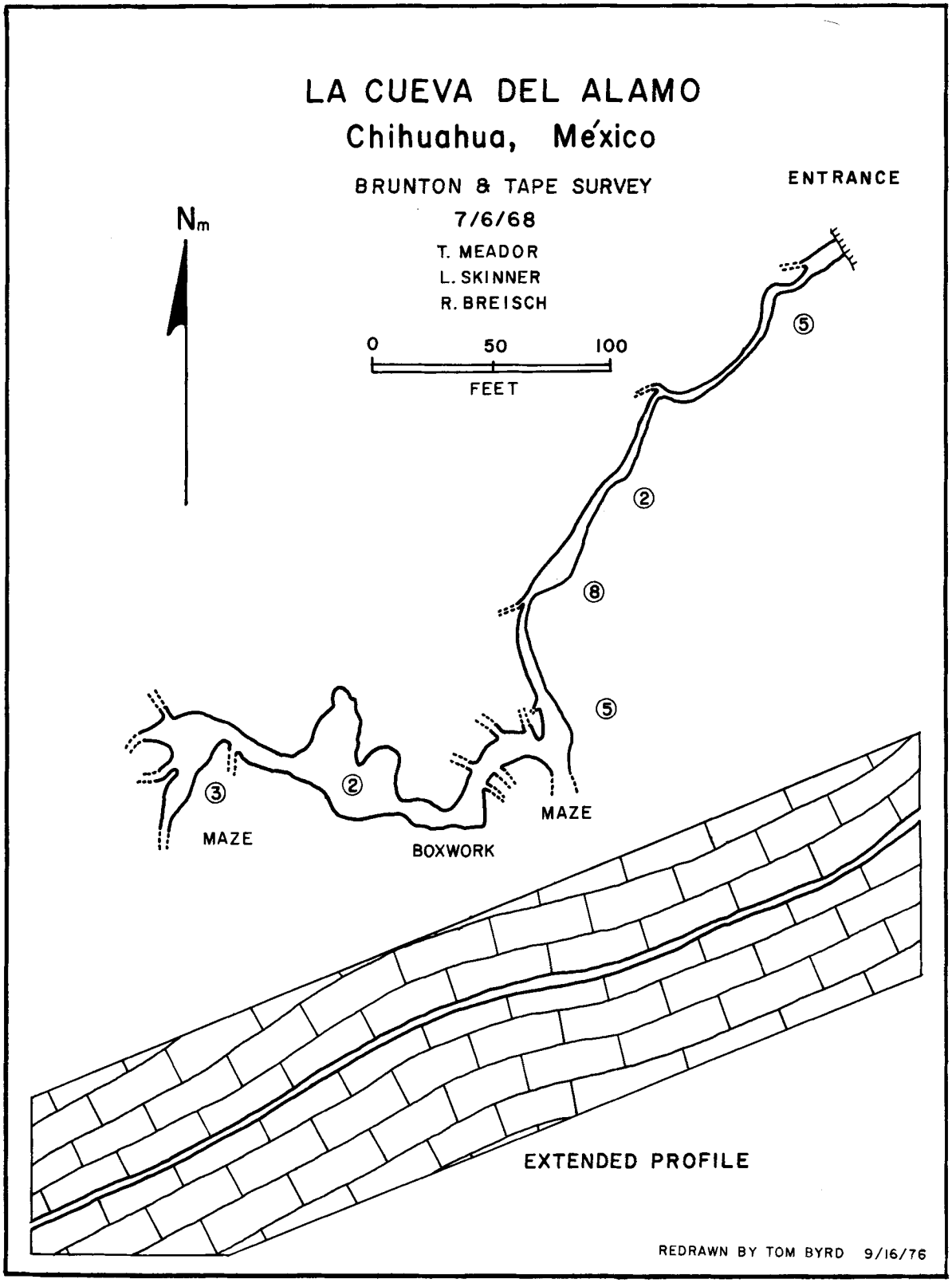
The search led the cavers to the Rancho Agua Caliente which is located at the entrance of a steeply walled canyon of marble and granite. Two sets of hot springs discharge enough water to turn the canyon into an oasis.

A discussion with the ranch owner revealed that the cave did exist and was on his property. However, it had been very badly vandalized and he had permanently sealed the entrance shut. The cave had been discovered, explored, vandalized, and closed in a matter of three or four years.

Very discouraged over this setback the cavers checked out a second lead in the same area. Two caves were located in a marble outcropping near the top of a wet weather waterfall above the oasis canyon.

Cueva de Rancho Agua Caliente No. 1 has two entrances and consists of a room 6 ft high, 4 ft wide, and 15 ft long. A crawl 4 ft long leads to a 9 ft pit which has a 4 ft long crawl at the bottom.

Cueva de Rancho Agua Caliente No. 2 has a 20 ft deep sloping pit-like entrance which apparently ends in a dirt and rock choke. Air was blowing out of the choke and an hour long digging effort broke into a tight crawlway. Bill Deane and Pat Zedalis forced their way through the crawl and were able to explore about 200 ft of virgin cave having many formations.


LA CUEVA DEL ALAMO
Chihuahua, México
BRUNTON & TAPE SURVEY
7/6/68
T. MEADOR
L. SKINNER
R. BREISCH
ENTRANCE
Nm
0
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FEET
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③
②
MAZE
BOXWORK
MAZE
EXTENDED PROFILE
REDRAWN BY TOM BYRD 9/16/76

**Date:** 23-25 December 1969
**Destination:** Rancho de El Refugio, Tamaulipas
**Persons:** Dennis Barnes, Bill Deane, Walt Rosenthal, John Smyre, Pete Strickland, Joe Sumbera, and Ron Zawislak
**Reported by:** Bill Deane

Our original plan had been to hike up to a deep sótano located in the center of the Sierra de El Abra near the site of an airplane crash. A trail led to a small shrine at the crash site and from there it was only a few hundred feet to the sótano. To our dismay we found that our English speaking guide had left on his annual Christmas vacation. Efforts to obtain a satisfactory second guide failed so we elected to go to our back-up destination, the Sótano de El Regugio, located in the Sierra de Guatemala (see road log, AMCS Bulletin 1, p. 45). We planned to map the pit and hoped to photograph some of the beautiful giant parrots which John Fish said lived in it.

The road from Ocampo to the Rancho de El Refugio leaves much to be desired. Ron's 4-wheel drive Chevy Blazer had no trouble negotiating the ruts, rocks, and steep grades. Unfortunately Pete's Volkswagen Bus did not fare as well and it became necessary to leave it at a small village about 4 miles from the rancho.

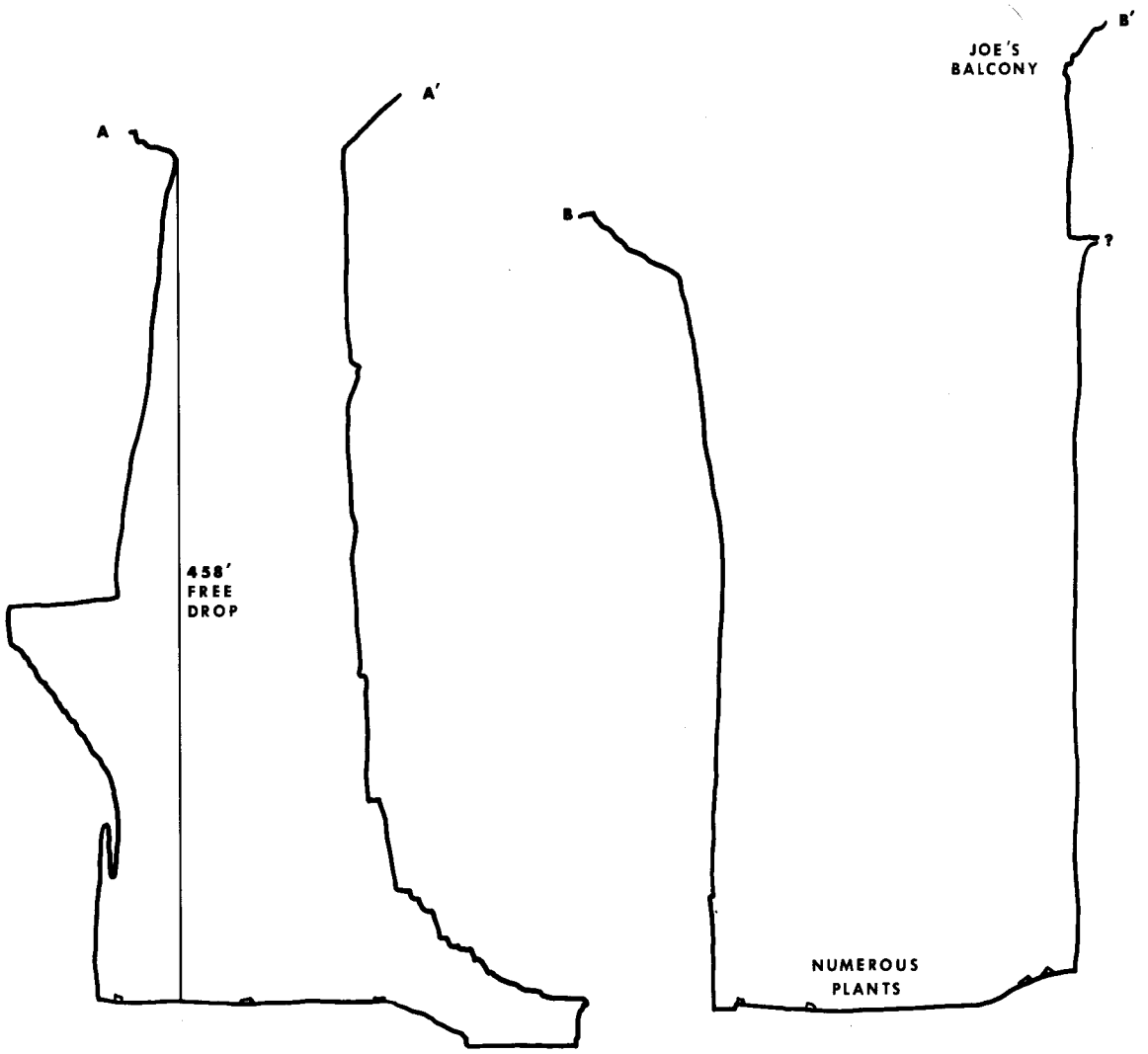
The rancho is located in a large semi-dolina a mile long and a couple of hundred yards wide. We were informed that the jéfe would not be home until the next morning and that only he could give permission to explore the sótano. The next morning the jéfe told us the sótano was not on his property and that permission must be obtained from the Presidente at Ocampo. Ron (tightjawed) and Walt (laughing) drove back to Ocampo and obtained the Presidente's permission. The round trip of fifty miles took 4 hours. The letter of permission was given to the jéfe and we proceeded on to the sótano.

The large impressive entrance is 100 ft wide by 200 ft long and is located on the side of an arroyo about a mile from the rancho. We rigged the rope on the southeastern edge and Ron, Walt, and Pete rappelled in just before sunset on Christmas eve. Walt spent the night on the bottom.

Christmas morning we re-rigged the rope at a spot picked out by Pete which gave a free drop to the bottom. We measured the depth at this point with a steel wire to be 458 ft. High on the western rim Joe cut the brush away, opening up a balcony with a splendid view of the entire pit and arroyo. From the balcony a free drop of over 500 ft should be possible. The drop from the eastern rim is only about 400 ft, half of which is against the wall.

The bottom measures 215 ft by 165 ft and is composed of packed dirt and small rocks. The majority of the bottom is covered with plants ranging up to 18 inches in height. The lowest level is a barren mud flat. A very impressive feature is the giant flowstone formation in the southeast corner which is 25 ft high and 50 ft long (see map, page 56).

The most outstanding feature of the sótano are the rainbow-colored macaws which live in it. For 2 days the birds circled high above the pit afraid to enter. They finally flew in on the evening of Christmas day presenting a beautiful spectacle. They are 2 ft long with a wing span of 3 ft. They have bright red and green tail feathers, an orange beak and their wings and body are every imaginable hue of yellow, green, and blue. Watching these birds in flight was the high point of the entire.trip. We learnedthatlocally the pit was named for the macaws and was called the Sótano de los Guacamayos, rather than being named after the Rancho de El Refugio. About 200 small green parrots also live in the pit. We were amazed at the virtual absence of small animals such as salamanders and insects.





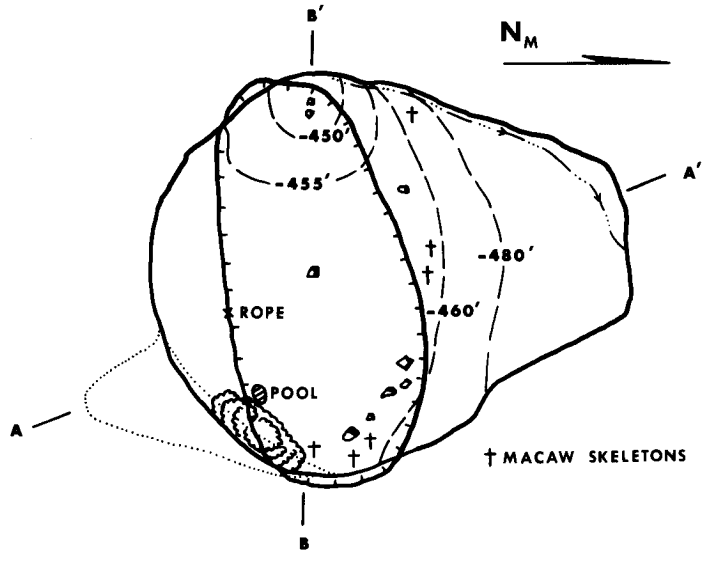
# SÓTANO de los GUACAMAYOS

MUNICIPIO DE OCAMPO

TAMAULIPAS, MEXICO

SURVEYED 25 DEC 69 BY
D. BARNES, B. DEANE, W. ROSENTHAL,
J. SMYRE, P. STRICKLAND, J. SUMBERA,
R. ZAWISLAK

DRAFTED BY B. DEANE



**Date:** 12 May to 1 June 1974
**Destination:** Aquismón area (S. L. P.) and Ahuacatlán-Jalpan area (Querétaro)
**Persons:** Bert Ammann, Rick Davis, Doug Dotson, Chuck Elliott, Don Evans, Al Goldey, Steve Lebel, and Terry McClanathan
**Reported by:** Bert Ammann and Chuck Elliott

*12 May*–The entire group had scheduled to meet in Hagerstown, Maryland, at 8:00 p.m.; a little after 8 the convoy of three automobiles and a trailer left for México.

*13 May*–The day was spent in driving with the only noteworthy incident occuring that night when the group just missed being involved in a truck accident. After lending help, the trip continued after having been delayed about two hours.

*14 May*–Encountering no further mishaps we arrived in Laredo, Texas. The water supply was refilled, Mexican auto insurance was purchased, and our dollars changed into pesos; when all these things were completed, we went to the customs building to be cleared to enter the country. Some of our group ran into trouble in crossing–but after some discussion and the payment of certain "gratuities," we were allowed to enter México and continue on our way. It was agreed that if any vehicle became separated from the others we would meet that night in Cd. Victoria; an arrangement that later proved beneficial because we arrived in Monterrey at evening rush hour. The congested confusing traffic conditions caused us to be separated but hours later we rejoined in Cd. Victoria and slept on the apron of a Pemex gas station.

*15 May*–We arrived at Cueva de El Abra. Within our group were two cavers (Bert Ammann and Terry McClanathan) who had been to México previously, so they were serving as guides and trip organizers. The drop had been estimated from earlier trips to be about 400 ft, so we decided to rig two 600's down the skylight. Two members of the group entered the horizontal entrance that intersects the large dome with the skylight at the top. At the end of the horizontal passage they rigged the small (about 90 ft) sloping drop to the dome's floor. Everyone did the drop; the only difficulty encountered at El Abra was the extreme heat the people on top had to contend with while carrying up the 600's and waiting their turn to rappel. The first Mexican cave for most of us was impressive and heightened our interest in seeing more of what we had heard existed in the central mountain area. We then drove to Aquismón, arriving around 9 p.m. Arrangements were made with the local authorities to camp behind the jail and to see "El Presidente" in the morning to obtain a letter of permission to do Sótano de las Golondrinas and Sótano de Cepilla. While searching for burros for the trip we met Señor Pepe López, a local resident who had lived in the U. S. many years ago but still spoke good English. Señor López was very hospitable to the group and offered shelter and sleeping areas to us when it appeared to be about to rain. Having no success renting burros we camped for the night, hoping to be more successful the next day.

*16 May*–Rising early to start the trip and avoid the sun's heat, we were told that "El Presidente" would not be in today, but we could wait for his secretary. While waiting we hired three Mexicans who were willing to carry what supplies and rope we couldn't fit on our backpacks. The entire four day trip was agreed to for the price of 400 pesos, so when the secretary arrived and gave us our letter the group immediately started the hike. Unfortunately due to the lateness of the secretary, the majority of the hike took place during the heat of the day, making many of us glad we had started preparing ourselves physically months earlier for this trip. After about 7-1/2 hrs of hiking we arrived at Golondrinas; we rigged the 1500 ft Bluewater and retired for the evening–hoping to get an early start into the pit the next morning. Two of the Mexicans decided to return home and come back the next day; two young boys

who we had hired to come along (mostly because they had asked to go along) and one Mexican called Pedro decided to remain in camp. After everyone had eaten we prepared camp. Most of us had constructed jungle hammocks to sleep in while two other members had brought tents. That night it rained extremely hard; the Mexicans abandoned the blankets given them for the cover of the tents. Unfortunately for the rest of the group, the hammocks did not prove to be completely waterproof, so that the next morning the hammock people were wet and very cold.

*17 May*—Although we were cold and wet, all were eager to start descending the pit. The entrance area was shrouded in mist and a cloud of vapor was hanging in the top 300 to 400 ft of the pit, obliterating the view of the bottom. It was agreed that Terry would go down first and that no one would exceed his descent rate. Bert would descend last so he could help everyone over the edge. (Bert and Terry had done Golondrinas previously so they knew what to expect.) Everyone in preparation for Golondrinas had done drops in excess of 600 ft, everyone except Chuck who agreed to remain on top for safety reasons and to take pictures of the descents. The descents were made in the following orders and times: 1) Terry, 22 min.; 2) Doug, 26 min.; 3) Al, 25 min.; 4) Don, 36 min.; 5) Rick, 25 min.; 6) Steve, 18 min.; and 7) Bert, 26 min. As descents were made, the morning's rain clouds were replaced by sun, which burned off the fog in the pit. Because of the time of the year and the latitude of the pit, the sun was hitting the floor of the pit when the last person made his descent—causing a very spectacular illumination of the pit. After some exploring and photographs on the bottom, climbs were made in the following order (climbing tandem): 1) Doug and Terry in 1 hr. and 30 min.; 2) Rick and Don in 1 hour and 10 min.; 3) Al and Steve in 2 hrs. and lastly Bert in 40 minutes. The rope was derigged and we returned to camp where we got rained on that night harder than the previous evening.

*18 May*—Two members who did not want to walk to Tamapatz took off and returned to Aquismón. The rest of the group went on to Tamapatz where they rigged Sótano de Cepilla. The pit was covered on the edges by thick vegetation and poison ivy type plants. Bert descended first and reported the pit as being very impressive. The drop bells out from about 30 ft in diameter to 250 by 300 ft in diameter. The drop was estimated to be about 414 ft. There is a lake on the low side of the steeply sloped breakdown floor. There is also a waterfall which is very impressive because it is visible in its entirety without a light. The pit was very well lighted by reflected light from the wall, considering the enormous size of the floor relative to the size of the entrance. The only problem encountered in doing Cepilla was the spin on the rope during the climb out (a 600 ft piece of Goldline was used).

*19 May*—We got up early to walk back to Aquismón. After arriving in town the sheriff offered us a shower, which everyone accepted with pleasure. After the bath we paid the porters, did some shopping, and headed south of Highway 85 for Ayutla. We discovered that the town of Ayutla was not on our maps and the authorities in the city of Tamazunchale didn't know where the town was either. So after some searching part of the group decided to go to Tampico rather than on to El Sótano. The rest of us went on, arriving at Ahuacatlán at 3 in the morning. We then hit some horrendous mountains which made night driving rather unnerving. We got a couple of hours sleep about 20 minutes east of Jalpan.

*20 May*—In the morning we arrived in Jalpan to get gas and directions. We asked a bus driver where Ayutla was; he pointed to a road which went toward Río Verde. We went by a sign which said Puerto Ayutla, but saw no roads marked Ayutla. We crossed an impressive highway bridge, and after passing a few more towns arrived in Río Verde. Taking on gas and food in Río Verde, we headed back in search of Ayutla. We stopped in Puerto Ayutla where we learned that Ayutla was about a half mile back down the road. Before reaching the large highway bridge there is a dirt road that bears off to the left. This road winds down the hillside

and comes out somewhat underneath the highway bridge–this is the town of Ayutla. We arrived in town too late to start the hike to El Sótano but we did bargain for four burros for 300 pesos. The burro dealer, Modesto Ramírez, showed us Ed Yarbrough's trip report on El Sótano; it seems Ramírez had gotten a copy of the article and was very proud of it. We spent the rest of the evening swimming in the river and turned-in hoping to get an early start for El Sótano.

*21 May*–Ramírez got things moving early. Everything went on the burros except our cameras and cartridge belts with canteens and first aid supplies. Everything went well and we crested the first mountain range and had our first look at El Sótano after 3 hours of walking. Four hours later we were sitting, exhausted but happy, under some trees in Puerto el Barro. We were pleased and relieved that the walk had taken only seven hours instead of the anticipated twelve. Al and Bert went over to Rancho el Barro and obtained permission to do El Sótano from the area mayor, a man named Amador. Terry found burros to carry the equipment on to El Sótano the next day.

*22 May*–The walk from Puerto el Barro was quick and easy, taking about 2 hours. We were left with our gear at the edge of a freshly plowed field about 10 minutes walk from the pit. We regretted not having a machete or huingaro to chop our way around the pit, the vegetation being extremely hostile with razor sharp leaves and spines. About 6 hours were spent scouting for a rig point and rigging the rope. Since there was about an hour of daylight left, Bert decided to rappel in. He was on rappel over 20 minutes and was followed by Doug and then Terry. Al stayed on top and decided to rappel in the next day. It was dark by the time Terry got down so Bert and Doug started up the rope in tandem. When they were about halfway up they heard rocks clattering on the far side of the pit, and began to shout a warning to Terry who was standing below. A shower of rocks crashed into the floor for several seconds and we were relieved when Terry shouted up that he was alright. Bert and Doug reached the lip without further incident and as soon as Terry reached the top, all retired to the camp for food and sleep.

*23 May*–Four people did El Sótano, and after derigging the rope, we waited a few hours for the Mexicans to show up. Ramón, the man who owned the burros, finally showed up to take our gear back to Puerto el Barro. He told us to dump our garbage in the field by the campsite, but we refused and eventually carried the garbage back to el Barro on our backs.

*24 May*–Bert and Doug hiked back to Ayutla via the gorge and discovered that what Ramón had described as being an easy 2-1/2 hour walk turned out to be an exhausting 5 hour hike over very rough terrain (this route is definitely not recommended to anyone thinking of doing El Sótano). The others walked to Ayutla over the mountain in about the same amount of time. When the Mexicans arrived, there was some disparity regarding the fee to be paid for their services. The agreement was as follows: transport of our gear from Puerto el Barro to El Sótano, back to el Barro and from there to Ayutla, all for 700 pesos, but only if four burros were needed all the time during the three days. Since 100 pounds of water and 40 pounds of food were consumed at the pit, the load for the return trip was much lighter. Ramón used only 3 animals from El Sótano de Ayutla. One of these animals was a mule; Ramón informed us that in México a mule equals 2 burros, so technically we had four animals as per agreement. In the end we paid the price of 700 pesos and departed Ayutla to camp in the mountains between Jalpan and Ahuacatlán.

*25 May*–We did Sótano del Pozo, a 376 ft freefall pit about 0.8 miles west of Ahuacatlán. While doing the pit some unusual tarantulas were obtained off the cave walls along with a species of flatworm. The tarantulas were later identified by John Prentice as probably being *Schizopelma stygia* (Gertsch); the species is described in AMCS Bull., 5:142. After doing Pozo we drove back to Aquismón to meet the rest of our group that had gone to Tampico. We drove

to Valles to eat some good Mexican food and then went on to Estación Tamuín where we hoped to camp and do the 503 ft skylight drop at Ventana Jabalí the next morning. While in Valles we met a group of AMCS cavers who were doing research and survey work in the area. Some of our members (Steve, Rick, and Don) went to a cave with one of the AMCS group and had learned where they were staying. After talking for some time and examining the tarantulas with John Prentice and William Elliott we headed for Estación Tamuín, where we camped late that night.

*26 May*—After a couple of false starts on the wrong roads we finally found the road (?) to Ventana Jabalí. The road turned out to be a washed-out creek bed that played havoc with our automobiles, but none were seriously damaged. After driving as far as we could, we still had about a two hour hike through the jungle to the cave. We walked up to the entrance and found the cave very impressive. To reach the skylight a rough, thickly vegetated steep slope had to be climbed, and once climbed the skylight is very easily missed, so after a couple of hours searching for a way up the slope and for the skylight, it was decided to explore the cave rather than risk being caught by darkness wandering around in the jungle. The sheer cavern size of Ventana Jabalí more than made up for the missed rappel. After hiking back to the cars and driving to Valles, we drove west toward San Luis Potosí. About an hour out of town we camped for the night.

*27 May*—Drove to San Luis Potosí; along the way Steve, Terry, and Rick did Sótano de los Lobos.

*28 May*—Spent the morning in Matehuala and then headed north on México 57 to San Roberto, then east over the mountains to Linares (this route passes through some very impressive valleys). We then drove from Linares to Montemorelos on Rte. 85, then northeast to Reynosa—crossed the border about 9:00 p.m.

*29 May to 1 June*—The group traveled back to Maryland via Chattanooga, Tennessee, where some of the group did Neversink, Valhalla, and the 510 ft at Ellison's, all courtesy of Buddy Lane.

**Date:** 22 November to 1 December 1974
**Destination:** Ejido Purificación, Grutas de California, and Rancho Nuevo Area, Tamps.-N. L.
**Persons:** Jim McLane, Bill Sherbourne, Tom Iliffe, Ralph Batche, Jeff Ethridge, Theresa and Mike Connolly
**Reported by:** Mike Connolly

*22 November*—Everyone got together at Bill's house Friday evening and after some delay wondering if Jeff's van could make it, the trip got underway in two vehicles. Jeff's van ran out of gas somewhere before Brownsville so everyone spent the night beside the highway.

*23 November*—Crossed border without difficulty. Jeff's van had carburetor problems, but everyone made it to Cd. Victoria by nightfall. Spent the night on the Río Purificación near the Pan American Highway.

*24 November*—Weather turned bad in the morning as a very strong norther blew through the area. Jeff's van was left at El Carmen and everyone piled into Bill's van and onto motorbikes for the trip into the mountains. The weather became colder and it began to rain as the ascent into the high country continued. By the time they reached Ejido Purificación the bike riders were thoroughly drenched and sought refuge at Sr. Grimaldo's house. A short conversation with Sr. Grimaldo indicated that no cavers had been by for quite a time and he provided several new leads. It was decided to continue on to Corrales despite the intolerable conditions and the group took about three hours to cover the nine miles or so. Everyone camped in the big

field at Corrales that night.

*25 November*—The rain had stopped but it was miserably cold and much time was spent around the campfire trying to stay warm. All agreed that it would be warm in the caves so everyone but Theresa went to do Cueva del Brinco. Most of the group did the entire cave but chickened out on exploring the lower levels due to cold water. The group also avoided the most delicate areas of the helictite passage after noting evidence of recent visits by locals whose curiosity has probably been aroused by the visits of cavers. On our first visit to this area in 1973 we were shocked by the unrestrained vandalism on the part of the local people when guiding us through Cueva des Montes. I think it wise to avoid revealing new cave locations or the existence of well-decorated passage to the townspeople. After leaving the cave the rest of the day was spent checking pits and unsuccessfully trying to locate Cueva del Borrego. The night was colder than the one before.

*26 November*—A guide was found to locate Cueva del Borrego so that a quick survey could be made. The only problem was that Tom pushed a lead into a new passage. After a break for siesta and supper, Tom, Mike, Bill, and Ralph returned that evening to finish surveying. Upon leaving the cave around 12 PM everyone noted how COLD it was outside.

*27 November*—After standing around the morning campfire until it was warm enough for the human brain to function everyone broke camp and set out for Rancho Nuevo. Bill's van rolled into Rancho Nuevo early in the afternoon and someone noticed a leak underneath. While Bill attempted to save some of the antifreeze from his radiator everyone else spread out to visit the sinks and pits around town. Later it was decided not to spend the night at Rancho Nuevo due to its elevation (about 9,000 ft) so the van limped back down the road and everyone camped near La Cueva. La Cueva is the local name for a group of buildings at one time associated with a mine in the area. After much manipulation with carbide lights, Swedish gas stoves, and homemade solder (Lead Ore), the radiator was repaired with fabric reinforced epoxy glue.

*28 November*—Thanksgiving—All of our water jugs (1 & 1-1/2 gallon) were frozen *solid* when we mustered enough courage to crawl out of the sack. During the usual aimless huddling about the fire an old Mexican joined us and explained that he was living in the nearby buildings and working a mine. Most of the group took him up on an offer to tour his workings which proved quite interesting. Afterwards things got organized and everyone went to visit Grutas de California. Several cavers spent some time hiking about trying to locate Nueva California which is reported to be nearby and even larger than California. They were unsuccessful, however, and everyone returned to camp for Thanksgiving supper. Shortly after supper Mike Padgett and several PASS cavers rolled into camp. They had come down for the Thanksgiving weekend and planned to do California.

*29 November*—The Houston group got everything together and started for Revilla with the intention of checking leads near Yerba Buena while the PASS group went to do California. At the turnoff to Yerba Buena part of the group continued in the van to Revilla where they checked several small caves near town. The bike riders reached Yerba Buena but were unable to locate anyone knowledgeable of the caves in the area. After an hour of frustration they set out to rejoin the others at Revilla. It was decided to spend the night at Tinaja due to its lower elevation. Several small caves near town were checked but found to be insignificant.

*30 November*—An old Mexican carrying a spoon showed up for the breakfast campfire with information on caves in the canyon to the west. After thanking him by sharing breakfast everything was made ready for the jouney back and the group departed. One of the bikes ran out of gas partway down the mountain and there was more than usual delay before the bike riders caught up with the van. Back in El Carmen the Mexicans were complaining of the severe frost that had wiped out their crops. Everyone but Jeff gladly spent the night in the hotel in

Cd. Victoria. Jeff preferred sleeping in his van in the hotel parking lot.

*31 November*–Both vans headed back for Houston and all arrived eventually in one or more pieces.

**Date**: 7-9 October 1972
**Destination**: Galeana, N. L.
**Persons**: Billy Campbell, Jim McLane, Wayne Saunders, Bill Sherbourne, Rick Sauter, Mike Connolly
**Reported by**: Mike Connolly

The objective of this trip was to check out several caves in the mountains about 15 miles north of Galeana. The local people reported caves in this area near a town called La Joya. These reports proved to be accurate with one of the caves consisting of two, thirty-foot drops to water and a small lake. It was decided to call this pit Pozo de la Ropa, due to the suit of clothes found at the bottom (no bones).

The other cave explored begins with a stooping horizontal passage for about 100 ft. A 40 ft drop is then encountered, which leads into a passage running at right angles to the first. This runs into a series of stooping and crawling passages, winding back and forth for a considerable distance. In all, several hundred feet of passage were explored. It is planned to return at a future date for surveying. With no local name, the cave was named Cueva Sinuosa.

**Date**: December 1972
**Persons**: Jim W. Gordon, Jack W. Hart, Bill Horn, Anne Knox, Marion O. Smith, David Stidham, Doug Strait, David Teal, B. C. "Tommy" Thompson, Ted Wilson, and Jim Youmans.
**Destination**: Ayutla and Ahuacatlán, Querétaro

*Night of December 10-11*–People in three vehicles congregated at the bridge over the Río Conca near Ayutla. Doug Straig (Ga.), Anne Knox (Ga.), and Bill Horn (Pa.) arrived about 11 P.M.; Marion O. Smith (Ga.), Jim W. Gordon (Ga.), David Stidham (Tenn.), and Ted Wilson (Ind.) about 1 A.M.; and Jim Youmans (Ga.), Jack W. Hart (Ga.), B. C. "Tommy" Thompson (Ala.), and David Teal (Ala.) about 6 A.M.

*December 11*–Plans fell through to acquire burros to carry gear to Rancho de Barro so the day was spent as a reorganization and rest day by some and as a day of a "breaking-in" walk by others. Wilson, Stidham, Strait, Horn, Knox, Smith, and Gordon spent 3-1/2 hours walking on the mountain north of the village of La Purisma searching in vain for two reported pits.

*December 12*–A guide and seven burros were obtained and the hike was made to Rancho de Barro. Permission was given by Judge Gregorio Gonzalez's son Guadalupe to camp in the school and schoolyard. Arrangements were made with him for pack animals to take the gear up to El Sótano.

*December 13*–The last leg of the journey to El Sótano was made by 11:30 A.M. and the pit was rigged a couple of hours later. The drop rigged was probably the 1,181-footer done by the Texans on the first descent. Three people did the drop: Smith, Teal, and Thompson.

*December 14*–Ten descents and ascents of El Sótano were made in this order: Horn, Youmans, Stidham, Gordon, Wilson, Knox, Strait, Hart, Thompson (2nd descent), and Smith (2nd descent). Teal, Thompson, and Smith earlier searched unsuccessfully for Craig Bittinger's deep crack in rocky brush near the campground, finding a 12-13 ft deep, 10 ft long "cave" with

a mummified cow at one end and hundreds of black granddaddy longlegs-type spiders at the other. At 1:30 P.M. it was noted that the temperature at the top of El Sótano was 87° F.

*December 15*—It drizzled rain in the morning and was generally cold and foggy. De-rigging El Sótano was greatly delayed because the rope got snagged around a tree on the bottom. Strait made the descent (2nd descent) and untangled it. Finally by 3 P.M. the pit was de-rigged and camp broken. Gonzalez arrived with the burros and the group returned to Rancho de Barro. At 3:30 P.M. the temperature at camp was 38° F.

*December 16*—All members of the group returned to Ayutla. Gordon, Wilson, Knox, Thompson, Teal, and Strait stayed with the burros and went over the mountain pass. The rest made an interesting walk through Cañón de Ayutla, "checking" a couple of horizontal caves along the way. Camp was again made at the bridge. The total cost for guides and animals was 614 pesos (230 at Barro, and 384 at Ayutla).

*December 17*—Operations were shifted to the Ahuacatlán (Querétaro) area. Dr. John P. Sevenair of Louisiana was added to the group near Jalpan. No burros were available in Ahuacatlán so it was decided to physically carry the 1500 ft Bluewater rope up the mountain along with full backpacks. In time there were three groups instead of just one. Thompson, Youmans, Hart, Wilson, Stidham, Strait, and Horn got ahead with the rope. Not understanding that they were supposed to turn to the right once the mountain top was reached, they carried the rope down the other side of the mountain and an hour's walk past the village of Guilotla before realizeing their mistake. They turned around and spent the night in the schoolhouse at Guilotla. Gordon, Teal, Knox, and Smith spent the night in one two-man tent next to the large dolina near Sotanito de Ahuacatlán, and Dr. Sevenair spent the night by himself down on the main trail.

*December 18*—The group re-united and by 3 P.M. rigged the Sotanito. Then three two-man teams took their turns bottoming the 946 ft tube-like second drop: Hart and Youmans, Stidham and Thompson, and Wilson and Smith. The rest set up camp next to the entrance. The last person was out of the pit by 3:30 A.M.

*December 19*—David Teal bottom the Sotanito early in the morning and by 11 A.M. he, Youmans, Thompson, and Hart left for Aquismón. During the afternoon the Sotanito was de-rigged and the 1500 ft rope was hauled to 420 ft Sótano de Aguila. Strait, Horn, Knox, Sevenair, Smith, Stidham, and Wilson made the drop and by 6:15 P.M. returned to camp. Since food and water were almost exhausted it was decided that if any other pits were to be done in the area it had to be that night. So at 7:30 P.M., after supper, the rope was transported around the large dolina to Macho del Rey where Smith, Strait, Stidham, and Horn did the 300 ft and 348 ft drops, and Knox did the 300 ft drop. A weary crew returned to camp at 3:45 A.M.

*December 20*—The group lugged the rope and all other equipment off the mountain and returned to Ahuacatlán. There, after a much-needed meal, the group dispersed for hotels in Ciudad de Valles. Along the way Smith and Stidham did roadside 376 ft Sótano de Pozo, and most of the others washed in the Río Huichihuayán near Xilitla. That night many of the group ate at the La Condesa in Valles where Texas cavers Neal Morris and Barbara Vinson, and F.R.O.G. (S. Ala.) caver Ken Branson happened to be. They had just returned from the El Abra where they had located an estimated 600 ft pit, Sótano de los Coati Mundis. Meanwhile Youmans and crew hiked to Sótano de las Golondrinas.

*December 21*—More Texans (Dr. Stanley, Steven, and Craig Bittinger and others) were met in the La Condesa for breakfast. They soon left to check out a pit near La Florida. Wilson returned south by bus to the Xilitla turnoff to meet his wife; Youmans and crew did Golondrinas, and the rest headed north.

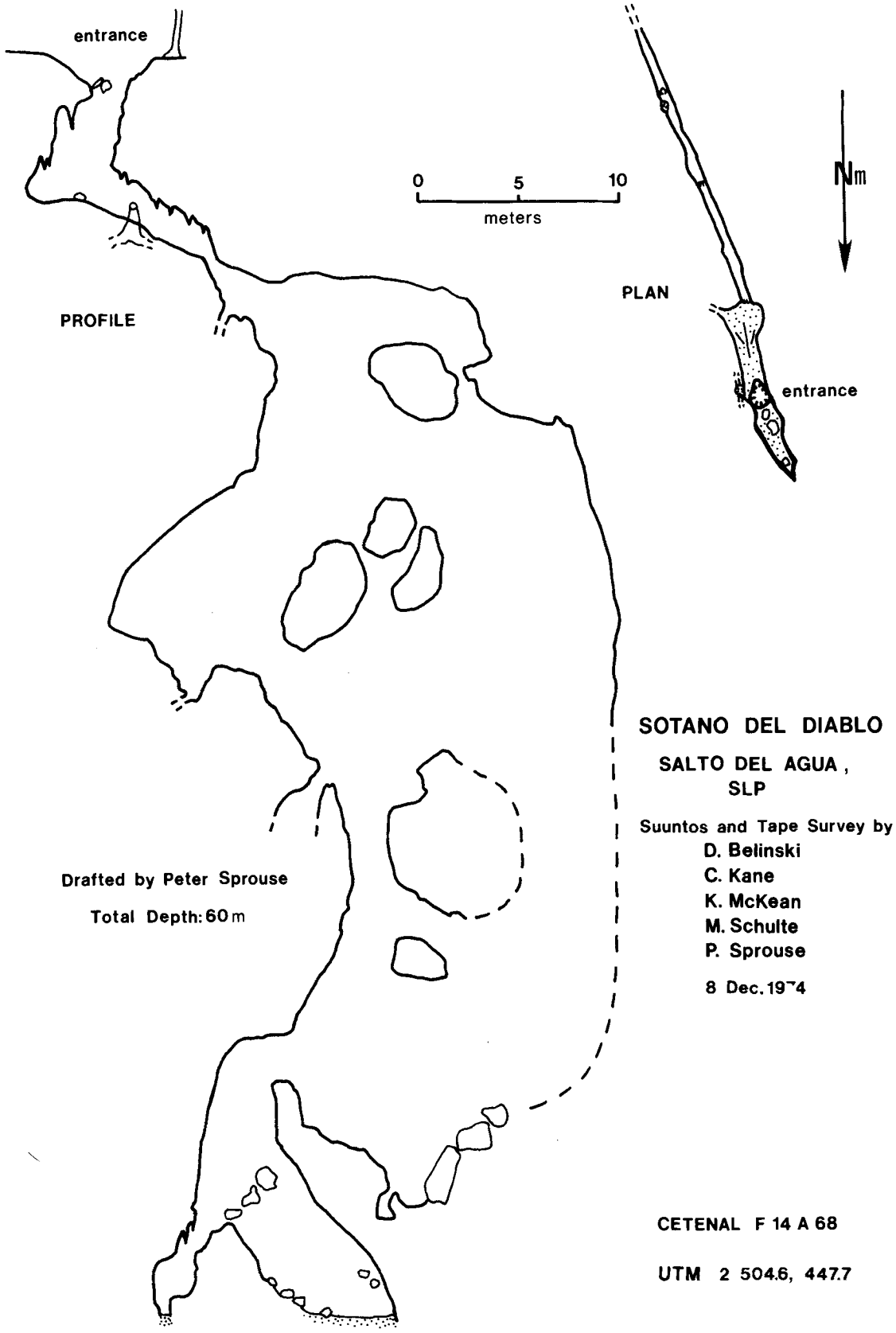
*December 22*–Strait, Knox, Horn, and Sevenair visited Grutas de Quintero and Cueva del Abra south of Mante; Smith, Gordon, and Stidham visited Pozo de Gavilán near Galeana; and Hart, Youmans, Thompson, and Teal walked back to Aquismón. Then all but Dr. Sevenair returned to the States.

**Date:** 5-9 December 1974
**Destination:** Salto de Agua, San Luis Potosí
**Persons:** Dave Belinski, Cindy Kane, Keven McKean, Mike Schulte, Peter Sprouse
**Reported by:** Peter Sprouse

Following a trip into the Aquismón area, the four of us decided to check out some named map leads northwest of Salto del Agua, S.L.P. Picking up Dave in Los Sabinos, we drove to Ojo de Agua de Tierra Nueva and camped. The next morning (December 6th) we secured permission from the town Juéz and obtained a guide to our first objective, a sink named "Hoya el Agua Escondida" on the topo map. After a few hours on vague, pinolillo infested trails we crested the ridge of the Sierra Ojo de Agua at a small sink named Hoya el Tigre, according to our guide. It did not appear on the map (UTM 2 509.8, 445.8) and it contained only a few tiny dirt collapse holes. Continuing a bit further west through a pleasant oak forest we eventually came to the sink at Hoya el Agua Escondida. It was a sheer-walled sink 15 m wide and deep and contained no passage or water. So we returned to Ojo de Agua de Tierra Nueva. The following day our guide failed to meet us as planned, having apparently gotten quite *borracho* the night before on the wages we had paid him. So we elected to find our own way up to our next destination, Hoya El Diablo, using the topographic map.

About 5 km south of our previous hike, this climb was quite miserable and a constant uphill battle against agave and loose karren. Halfway up the ridge a small-mouthed pit (25 m?) blowing air was located and flagged but not descended. Finally topping the ridge, we found the Hoya to be a wide, gently sloping dolina 1/2 km across. To our disappointment the large pit in the middle of it we had envisioned did not materialize: only an open oak wood uncut by any arroyos. The next day (Dec. 8) we located a small pit (5 m) to the west that didn't go, and another to the east that did. It appeared promising as the entrance pit (6 m) blew air, so we surveyed in and found ourselves in a well decorated room that sloped into a long canyon pit, narrow and deep. Our survey ended at -60 m when the fissure became plugged with dirt fill. The cave was named Sótano del Diablo (see map), after the Hoya. Another entrance just to the south was partially explored to a fissure that probably connects, which may account for the air movement at the entrance to Sótano del Diablo.

The following day turned wet and miserable as we headed due east off the mountain. We paused not in our retreat to investigate several very interesting collapse entrances halfway down the steep slope. This slope of the sierra just north of Cañón el Tinajeño looks promising and ought to be investigated someday.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SOTANO DEL DIABLO
SALTO DEL AGUA, SLP
Suuntos and Tape Survey by
D. Belinski
C. Kane
K. McKean
M. Schulte
P. Sprouse
8 Dec. 1974
Drafted by Peter Sprouse
Total Depth: 60 m
CETENAL F 14 A 68
UTM 2 504.6, 447.7

# ARTICLES

## VISITS TO SOME CAVE AND KARST BIOLOGY LOCALITIES IN EL SALVADOR AND MEXICO IN 1971

by Stewart B. Peck
Department of Biology, Carleton University
Ottawa, Ontario, Canada

In June and July, 1971, I had the opportunity to make some observations on caves and cave faunas in El Salvador and México. The field work was generally aimed at zoogeographic and taxonomic studies of upland forest beetles, and time was spent mostly in the states of Oaxaca and Durango. Only cave-related observations will be reported here. During the full field trip I was accompanied by Dr. H. F. Howden, Department of Biology, Carleton University, and in México by Dr. D. F. Bright, Agriculture Canada, Entomology Research Institute, Ottawa. Some of the sites visited on this trip I had previously visited in 1969 (reported in AMCS News., 4:63-70).

**El Salvador.** Most of our field localities here have already been described (1972, Coleopterists Bulletin, 26:63-72). Several years ago Russell Gurnee (in the NSS News, I believe) mentioned a lava tube region in this country. Large lava flows, one to two thousand years old occur 8 km S of Metapán, and the road to Cerro Verde passes through an older lava flow area. Both these regions may have lava tubes.

A 10 m long crawl cave was found at the base of a cliff 40 ft from the north side of the highway, a few km east of La Libertad. The cave seems to be in volcanic strata, and to have been formed by wave cutting along a joint, at a time of higher sea level. The cave was occupied by vampire bats, but the fauna of their guano consisted only of fly larvae.

Limestone caves in El Salvador will be few if there are any at all. The only limestone exposed in the country is in and at a quarry at Metapán.

**MEXICO, Oaxaca, Valle Nacional Road.** Highway 175 going north from a point a few miles outside of Oaxaca crosses two mountain ranges before entering the lowlands of the Gulf of México at Valle Nacional. In the more northerly of these ranges, closest to Valle Nacional, the road crests at 10,000 ft in a pine and oak forest, 52 mi north of Oaxaca. The region is called Llanos de las Flores. Limestone is abundant here with many sinks and limestone knolls and knobs. I found no actual caves in the sinks I searched, and was unable to find any locals to ask about caves.

From Llanos de las Flores the road eventually descends through many undisturbed forest habitats. But the road paving program in progress during our visit may serve as an attraction for more settlers, resulting in deforestation. One site, 15 mi from Valle Nacional at 4000 ft

yielded interesting arthropod collections in the cloud forest litter, including the only known continental North American terrestrial amphipods, and a blind scorpion of the same genus as those occurring in caves in México. An epigean *Ptomaphagus* beetle here is the closest known relative of *P. cavernicola* which is widespread in caves in the United States.

**Oaxaca, Puerto Angel Road.** South of Oaxaca City on highway 175 (going to Puerto Angel) at km post 114, a cave is visible at the roadside on a barren hill slope, at a culvert drain with no. 5.81.1, 7100 ft elevation. This is exactly 7.2 mi S of the S edge of Miahuatlán. In the rocks above the road is a vertical slot which was possible to enter, and to gain access to the cave at the roadside. A breakdown goes deeper, but no other passage was observed. No fauna was found in this relatively dry cave, which must take a lot of roadside drainage in rains.

**Oaxaca, Puerto Escondido Road.** We were told of a cave lying about 70 km south of Oaxaca City on road 131, going to Puerto Escondido at Río de la Y. This is one of the few places where the road crosses a river. One is to go upstream along a lane about 8 km to a SAG gate and village of San Sebastian Fueste. Go through town, cross the bridge, and park, walk to stream resurgence, and cave mouth is above this. This has been reported with better directions as Grutas de San Sebastian in AMCS Newsletter, 3:70-71.

**Querétaro.** On Route 120 north of San Juan del Río the highway 12 mi N of Vizarron climbs out of a desert valley into the spectacular limestone mountains at Tejamanil. I checked a cave lead along the road 1/4 mi W of Tejamanil and found it to be shallow, and a small cave with a roadside entrance in a culvert drain a bit above Madroño. A small mine about 2 mi E of Pinal de Amoles at the roadside (in AMCS Bull. 1) that I collected in 1969 was revisited. White terrestrial isopods, collembola, red harvestmen, blind trechine beetles, small white and larger blue millipeds, rhagidiid mites, and a pale snail were collected. One of the millipeds has been described by Shear (1971, Mus. Comp. Zool. Bull., 144:151-352) as *Mexiterpes metallicus.*

**Laguna Colorado** region, 5500 ft, E of Landa de Matamoros (AMCS Bull., 1:86). I looked into several small caves in the broad limestone valley just to the east of the road crest. Dung baited pitfall traps in sinks took many *Agonum* carabids and some catopid beetles. A *Chiropterotriton* salamander was found in a 20 ft sink chimney, with a 30 ft deeper shaft at the bottom.

**Cueva del Salitre, Xilitla, S.L.P.** The cave was visited to find more of the blind *Proptomaphaginus* beetles I collected in 1969. None were found, but some other unimportant fauna was collected.

**Valle de los Fantasmas, S.L.P.** This limestone karst region is at 7500 ft on route 70, 27 mi E of San Luis Potosí. Six *Agonum* carabids were found in a sink bottom. I also set dung baited traps in a sink, and took sink litter for Berlese funnels, but the collections were poor.

**Cueva de la Boca, Nuevo León.** No phosphate mining activity was evident. Eight eucinetid beetles were found in guano in the twilight zone. In the dark zone, *Agonum,* staphylinid, and *Ptomaphagus* beetles were collected. Guano was not as abundant as formerly, and the large mold shroud over the guano was absent. Centipedes were abundant and no adult crickets were seen. In the small mine to the eastside of the trail below the cave entrance and east of the ore cart track, 11 asellid and 2 cirolanid isopods were collected in the mine water on sticks. It had filled from a stoopway to a hole just big enough to slide into on a soil and pebble slope in only two years. The cirolanids were identified by T. Bowman as *Sphaerolana affinis* Cole and Minckley, known otherwise only from a site 100 miles to the west. The asellid is undescribed, and is one of the few eyeless species known from México.

**Chipinque Mesa, Monterrey.** The cave at the east end of the field, in which Rusty Norton and I caught the eyeless trechine beetle was visited. The cave had been nearly filled with debris and beer cans since 1969. No fauna of note was found.

# ARCHEOLOGICAL NOTES ON CUEVA DE LAS MANOS AND CUEVA CERAMICA, SIERRA DE EL ABRA, S. L. P.

by John W. Greer

In July, 1972, I visited Ventana Jabalí on the east face of the range near Estación Tamuín. At that time Genaro Cruz, who presently lives by the school at the Mina San Luis turnoff on the road from Estación Tamuín, guided me to two nearby small horizontal caves containing archeological materials. Although both are nearly beside Jabalí, apparently neither had been reported by AMCS cavers. Since the caves have no local names, new names are presented here: Cueva de las Manos (contains handprints and ceramic sherds) and Cueva Cerámica (contains sherds only). In addition, a Cueva de los Indios (local name) was reported toward the top of the east face, also slightly south of Jabalí and just south of Ladera Blanca (a white scar marks the cave).

Las Manos and Cerámica are located in the Municipio de Tamuín, San Luis Potosí, 21 km northeast of Cd. Valles and 17 km north-northwest of the town of Tamuín. They are on the east face of the Sierra de El Abra, about 215 m above the base of the range and 150 m below the ridge top. Their location is readily marked by the large oval entrance to Ventana Jabalí, plainly visible for many miles from the eastern plain and locally known as La Mina San Luis. Both caves are just south of Jabalí and on about the same level, and likewise both face east overlooking the extensive coastal plain.

Cueva de las Manos is about 230 m south of Jabalí and about 45 m higher on the hill than the mine. Cueva Cerámica is about 45 m south of Jabalí and about 18 m above an exceedingly dim trail running from Jabalí to las Manos.

## CUEVA DE LAS MANOS

**Description.** The cave consists of a single, relatively straight, high oval passage 45 m long and averaging 4.5 m wide. Development appears to be phreatic with very little possible vadose enlargement. Presently there is a breccia plug in the oval entrance indicating that the passage at one time was partially blocked. Walls are all limestone with almost no flowstone. The rare formations consist of a few small stalactites and columns and a couple of small soda straws. The almost level dirt floor rises gradually from the entrance to the back. Bats are few and are only in the back room. No other biota was observed. See map, page 66.

**Pictographs.** Two small rooms contain dark orange negative handprints (the same shade as in Cueva Pinta on the west side of the Sierra de El Abra) on nearly vertical walls. The prints are outlined with a dark, circular homogeneous background dimming toward the edge, indicating a spatter technique utilizing very fine paint evenly applied.

An enlarged joint 62 m in from the cave mouth contains three adult prints, two on the south wall and one on the north. All are 2.1 to 2.4 m high, and although they can be reached, presumably notched log ladders or something similar were used when the prints were made.

A small circular room on the east side of the main passage 76 m from the entrance is 1.5 m in diameter and 2.4 m high and contains nine easily reached adult prints: five right hands, two left hands, a right hand and forearm to the elbow, and a left (?) hand and forearm to the elbow. A small test pit 1.1 m deep below the paintings contains no cultural debris. Paintings are on the grayish limestone wall and on a thin white flowstone layer—locations were selected for their color.

**Pottery.** Sherds extend from the cave mouth back at least 19 m and are from jars and bowls of several sizes, mostly small plainware vessels. Jar rims vary from everted to direct.

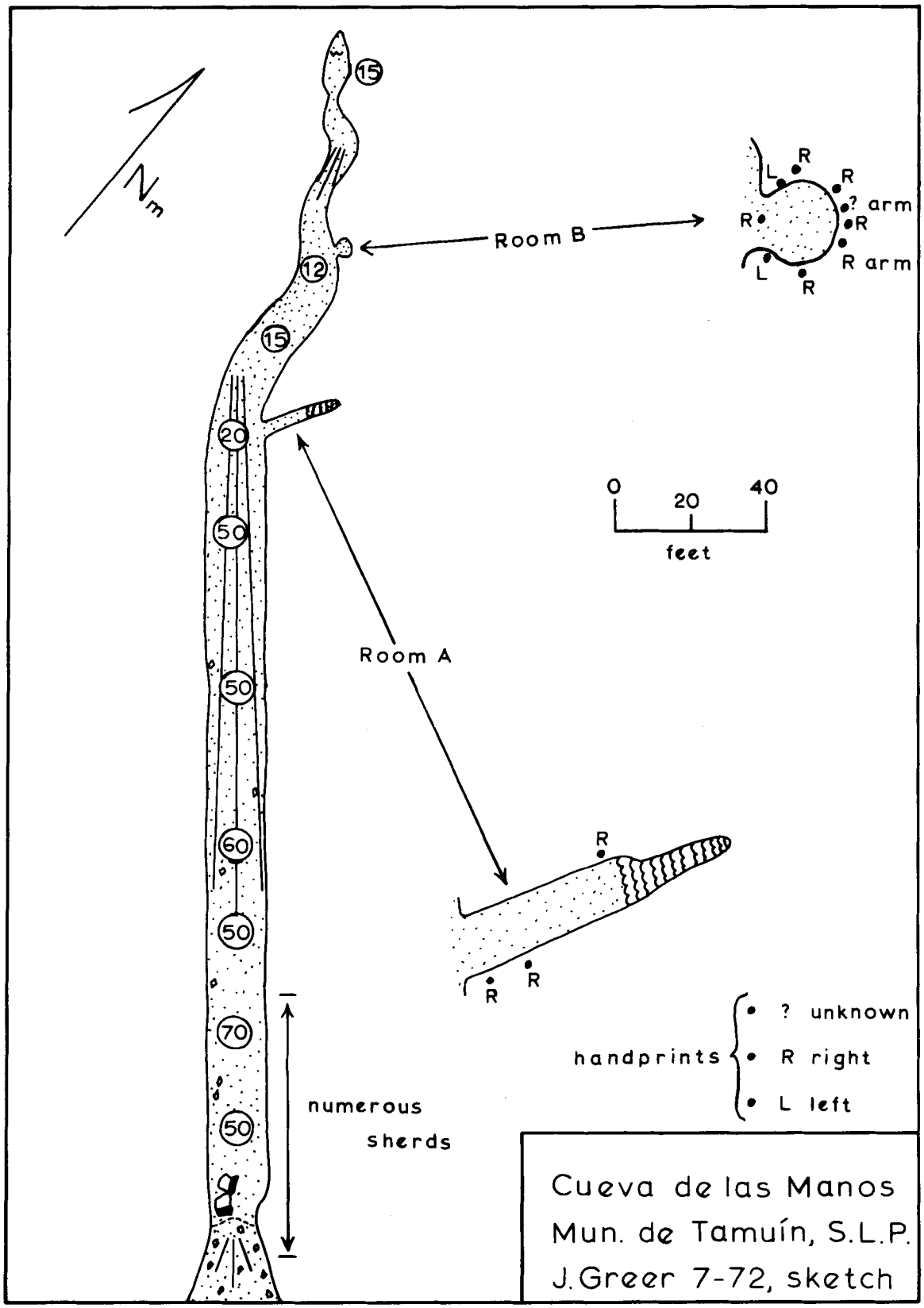



Fig. 1. Site plan of Cueva de las Manos showing locations of pictographs. Circled numbers are ceiling heights.

Several sherds were individually examined:

(1) Four decorated sherds, representing at least a shouldered bowl and two jars, have light beige or cream surfaces and black, broad-line designs painted on a well-smoothed surface, perhaps at one time lightly slipped or washed. The nonpainted surface also is moderately well smoothed. The beige paste is homegeneous and exceedingly hard and contains very very fine-grained rolled quartz (?) sand temper. A few small white inclusions appear to be lime or limestone.

(2) A plainware vessel has moderately well-smoothed beige surfaces and a light brownish-gray core with angular clay and grog temper.

(3) A polished orange bowl has a monogeneous, orange paste containing a fine, rolled quartz or granite (? ) sand temper with a few minute, unidentified black fragments.

(4) A large beige jar with an uneven but well-smoothed to floated surface has a porous paste profusely tempered with finely ground calcite crystals.

(5) A jar with a slightly everted, thickened rim has a friable, medium gray paste (seemingly a manganese clay) tempered with finely ground calcite crystals. The paste also appears to contain a few rounded quartz (?) crystals.

(6) An unidentified body sherd contains crushed calcite crystals, some of which appear to be finely rolled, like a calcite silt.

CUEVA CERAMICA

**Description.** A circular entrance 1.5 m in diameter opens immediately to a passage 1.5 m wide and 2.1 m high, continuing westwardly (60 degrees) 23 m into the hillside. The passage averages 1.2 to 1.5 m wide, 0.6 to 0.9 m wide at the floor, and 1.5 to 2.1 m high. The dry dirt floor is nearly level throughout, rising gently from front to back of the cave. No formations are in the cave. Development appears mainly phreatic with some later vadose deepening and enlargement.

**Pottery.** Sherds and broken ceramic vessels are abundant at the entrance and occur throughout the entire passage. Most are plainware jars, though a single decorated black-on-cream sherd was found at the entrance. Several sherds were individually examined:

(1) Two similar large, beige jars have dark gray cores containing a medium amount of crushed calcite temper. One vessel from the entrance is a rounded olla with a smoothed surface and a highly everted, horizontally protruding rim with a rounded lip. The body is 41 cm in diameter and 36 cm tall, the short neck is 28 cm in diameter, and the rim is 31 cm in diameter. Sherds from 15 m inside the cave are from similar vessels.

(2) At the entrance is an entire, broken orangeware plate 35 cm wide and 1.3 cm deep. It is broad and nearly flat with turned-up edges and a pinched lip. The interior surface is covered with a thick, dark red slip. The orange, oxidized paste is a noncarbonate clay containing quartz sand and orange feldspar (?) grains. There is no apparent temper—the few calcite crystals probably are indigenous to the clay.

(3) A broad-line, black-on-cream jar with thin, very hard walls is similar to decorated vessels from las Manos. The cream paste with very fine-grained igneous sand apparently contains very little carbonate and no obvious temper.

(4) A moderately thick, well-smoothed plainware jar is of a porous beige clay containing a large amount of crushed calcite temper.

(5) A thin, well-smoothed jar is of porous orange clay full of feldspar grains. White noncarbonate grains possibly were added as tempering agent.

(6) A small body sherd is of porous gray paste with a few noncarbonate (feldspar?) sand grains and profuse crushed calcite temper.

(7) A relatively thick jar body sherd has a black porous core of laminated clay containing profuse crushed calcite temper.

## DISCUSSION

The proximity of Cerámica, las Manos, and Jabalí to each other suggests the caves in this group might have been in some way culturally related. The large amount of pottery in the entrances of Cerámica and las Manos seem to suggest that they might have been at least partially used as temporary habitation areas. Unfortunately, phosphate mining activities in Jabalí have removed the upper several meters of deposit, therefore removing whatever cultural evidence which might have been present.

The sherds in the passageways of Cerámica and las Manos, as well as such other El Abra caves as Cueva Pinta, clearly show that local caves were used far beyond the range of natural entrance light. Both caves appear always to have been dry and therefore presumably were not used as water sources. Both also lack constructed features of any kind.

Only las Manos contains rock art, and then only localized negative handprints in alcoves off the main passageway. All prints appear very much the same and quite likely were all made at approximately the same time. No evidence was observed to help explain the presence or meaning of the prints. Similar prints also occur at Cueva Pinta and Cueva de El Abra.

An interesting distinction between handprints was inadvertently provided by the local guide. From memory he recalled white and green prints outlined in red, and in the cave he reluctantly agreed that no longer were any prints green because the green paint had all faded away. Actually no green paint had ever been used in the cave, but his distinction was a good one and originally overlooked as insignificant. The white prints were on carefully selected patches of a perfectly white thin flowstone deposit. The so-called "green" prints were placed on carefully selected patches of the naturally grayish limestone wall. When outlined in red, this grayish wall appears to have a greenish tint.

Analysis of the ceramic tempering agents indicates two, probably overlapping, traditions. Most sherds seem to be of a noncalcareous paste containing small grains of igneous material. Half the sherd sample, including the decorated and polished vessels, also is tempered with igneous sand which could have come either from igneous intrusions to the east or from sands of the Río Tamuín (Río Tampaón). The other half of the sherd sample, consisting mainly of plainware jars, is tempered profusely with crushed calcite crystals, most likely obtained from caves along the east face of the range. No sherds were found definitely tempered with either calcite sand or crushed limestone, both tempering agents at other El Abra cave sites. Nearly all vessels in both Cerámica and las Manos were jars.

It seems likely that at least some of the finely made bowls and painted vessels may have been obtained from areas to the east, while utility wares were manufactured locally. Certainly pottery must have been manufactured locally at such nearby large religious centers as occur in the Tamuín area, and that tempering agents were gathered from various places for use in different wares.

# ARCHEOLOGICAL NOTES ON HOYA DE HIGUERON, SIERRA DE EL ABRA, S. L. P.

by John W. Greer

Higuerón is in a large depression about 365 m east-northeast of Sótano de los Monos in the jungle region on top of the El Abra range. The sink is a large oval depression 45 m across lined with vertical limestone walls 4.5 to 12 m high containing several narrow, unoccupied rockshelters. A steep breakdown-soil slope at the west end of the depression drops through an entrance about 9 by 9 m into a long, elongated room with a breakdown and dirt floor. Large square boulders lie along and at the bottom of the seemingly terraced entrance slope. The room comprising the cave is about 153 m long and 18 to 40 m wide and averages about 15 m high in the front two-thirds and 6 m high in the remaining back portions. One can nearly always see dim light from the entrance, but nearly the entire room is in total darkness. See map, page 70.

The walls are all mainly steep, smooth, exposed limestone in the front. Especially in the entrance sink, the entrance slope, and the entrance area of the large room, the walls are extremely suitable for paintings, although none are present.

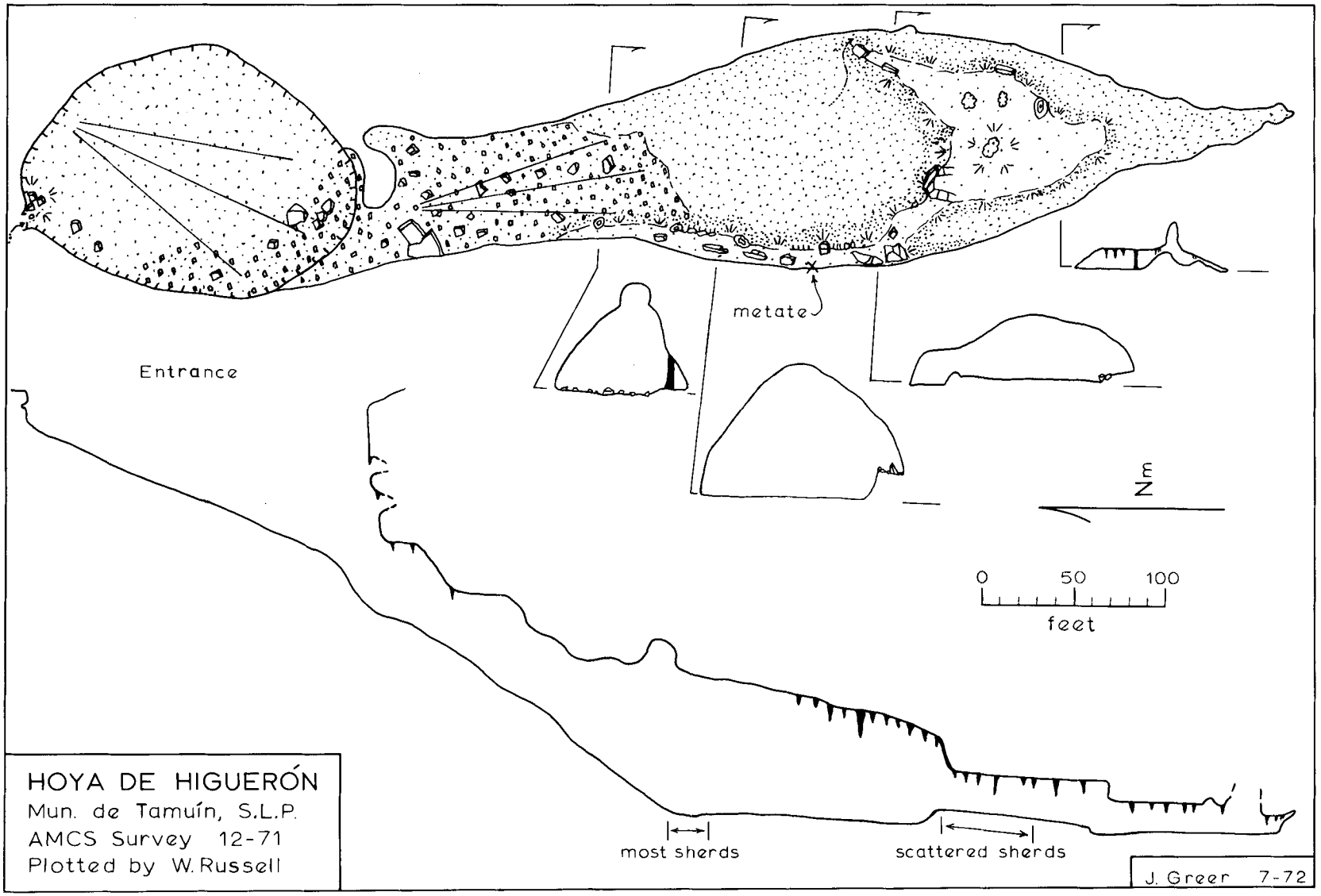
Flowstone and formations are common in the rear portions of the large room. Many or most low stalactites of clear, fine-grained calcite crystal have been broken off. Almost none are on the floor–seemingly they have been taken from the cave. It remains possible that they have been broken by floodwaters and buried in the silt, though this does not seem the most reasonable explanation. From the formations, water drips constantly, sometimes into small, shallow pools.

The floor is quite uneven–the lower parts in the front portion of the cave contain much large breakdown, while back portions contain mainly modern washed-in silt. Along the edges and in a raised area (the "mountain") in the center of the room, the floor is flowstone and old soil. Apparently the cave also floods periodically, judging from washed-in silt and wood fragments at least 1.2 m high on wall ledges.

A milling slab near the "mountain" beside the west wall is a nearly unaltered tabular piece of crystaline flowstone. The nearly circular slab is 40 by 40 by 12 cm and has a somewhat uneven, shallow circular grinding basin with a pecked surface 27 by 3 cm. Sherds were found nearby.

A few sherds are scattered around the floor, especially near the entrance. Most of the lower floor is covered with modern silt, thereby probably covering whatever sherds might have been present. The higher areas, such as the "mountain" about 90 m inside the entrance, are flowstone and dry, nonwashed dirt and rock and contain scattered sherds (and tigre tracks).

All of the 16 analyzed sherds are from jars. Half are tempered with crushed calcite, one with calcite sand, the rest with igneous sand. All the igneous sand tempered sherds and three calcite tempered sherds have paste containing igneous sand. These sherds follow the general thickness pattern of sherds from other El Abra caves in that calcite tempered sherds are thicker than sand tempered–calcite tempered sherds average 8.4 mm, sand tempered average 7.1 mm.




HOYA DE HIGUERÓN
Mun. de Tamuín, S.L.P.
AMCS Survey 12-71
Plotted by W. Russell

# ARCHEOLOGICAL NOTES ON CUEVA DE EL ABRA, SIERRA DE EL ABRA, S. L. P.

by John W. Greer

Cueva de El Abra is located in northern San Luis Potosí high on the northwest side of the northern El Abra pass beside the Cd. Mante–Cd. Valles highway. It is well known to most AMCS cavers.

The cave is an extremely large phreatically enlarged fissure with an oval, dome-shaped entrance with much interior flowstone-stalactite formation along cracks. The south-facing entrance is 21 m wide, 18 m high, and slopes gently downward to the large passage back 183 m toward the 20 m pit leading to the lower levels. The passage widens at the base of the entrance slope to about 25 m; the floor here is relatively flat.

**Shrine.** A shrine is on a high ledge just outside the east side of the entrance and faces south toward the valley bottom. It consists of a wooden cross wrapped with white paper and attached artificial and natural flowers and dried leaves. No other items are present.

**Bees.** Sticks from honey collectors line the cliff face, walls, ceiling, even the tops of the highest domes in the entrance area. This indicates unbelievable climbs across, around, and up smooth, overhanging limestone walls into dome tops probably 30 m above the floor.

**Trails.** A trail enters the cave from the valley bottom below, while a second trail goes up the near vertical limestone wall about 15 km east of the entrance and appears easily climbable to the ridge top. Both trails are frequently used.

**Pictographs (Fig. 1).** Pictographs occur in a small alcove room on the west side of the entrance at the bottom of the entrance slope. The alcove is about 5.5 by 9.0 m, and walls are mainly flowstone formations. A small hole 30 by 30 by 21 cm deep in the center of the floor contains clear water, though presently there is none dripping. At the south end is a small hole in the wall 0.36 m in diameter leading into a small room 3 m long by 0.7 m high with a limestone pebble and cobble floor. No pottery was observed.

The paintings are all 4 to 5 m above the floor on a section of clean, smooth, white limestone wall. To draw them it was necessary to use notched log ladders or to climb flowstone projections and precariously balance oneself. The following figures are present:

1. Two red negative handprints, both an adult right hand, were applied with thin red paint using a spattering technique. They are a medium dark red, approximately the same as at Cueva Pinta farther down the range.
2. The larger man is a light orange liquid paint applied by brush or finger.
3. The smaller man is a darker reddish-orange like the handprints, a liquid paint applied by brush or finger.
4. A zig-zag line is of thick, reddish-orange liquid paint applied by finger. An adjacent, elongated rectangle contains a negative zig-zag line–thick reddish-orange liquid paint applied by brush or finger.

**Pottery.** Several sherds of modern salt-glaze jars and large bowls were found in the front section of the cave. Only one aboriginal sherd was observed. It is an incised rimsherd from the flat floor at the base of the entrance slope just below the pictograph alcove. It has dark gray paste with limestone sand temper and probably is from a small olla with a short neck, a very slightly turned-out rim, and a rounded lip. The upper neck just below the rim is incised around the vessel with two discontinuous parallel lines. The dark gray surfaces are well smoothed.

**Soil sample.** A soil sample was collected from just beside the phosphate test pit at the back of the entrance room. The appearance–color, texture, grain size, weathered calcite sand inclu-

sions, etc.--looks identical to the paste of crushed calcite tempered sherds from such Sierra de El Abra caves as Pinta, Higuerón, Cerámica, and las Manos.

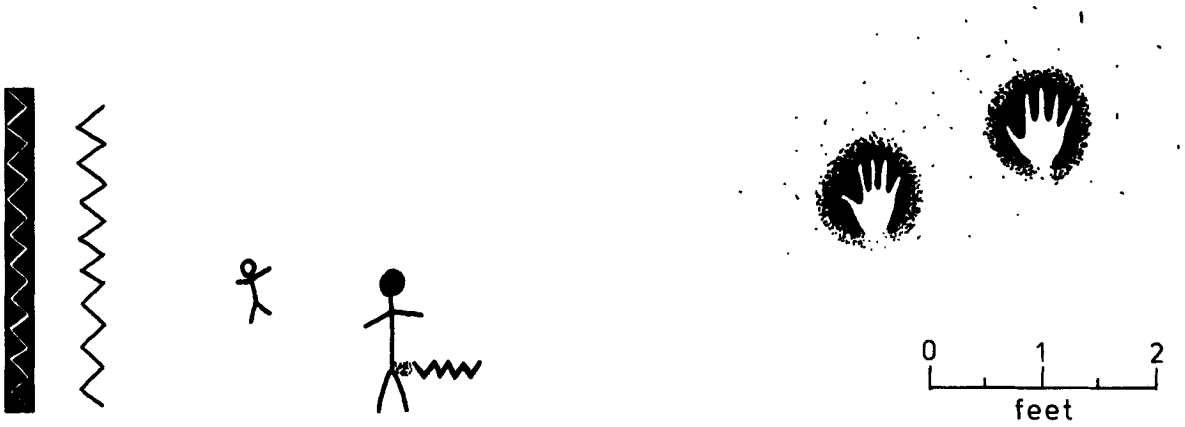



Fig. 1. Aboriginal pictographs in Cueva de El Abra.

## A SPELEOLOGICAL RECONNAISSANCE OF THE LOWER CANYONS OF THE RIO GRANDE, STATE OF COAHUILA, MEXICO

**by Ronald G. Fieseler**

As it follows its long path to the Gulf of Mexico, the Rio Grande is primarily a lazy, sluggish river with occasional stretches of turbulent, roaring whitewater. Most of these are located in the canyons of the Big Bend Region, where they add another hazard to an already harsh environment. However, with skill and common sense, most canoeists and kayakers can safely negotiate the various canyons and enjoy a wilderness experience difficult to rival.

One of the least-traveled stretches is the area known as the "Lower Canyons." No more hazardous than the other canyons, the Lower Canyons' difficulty lies in the distance involved (about 90-100 miles) and the time required (5-10 days). The logistics of such a trip can be a problem, not to mention the long, always-hated car ferry from put-in point to take-out point and back again. This is not your average weekend outing.

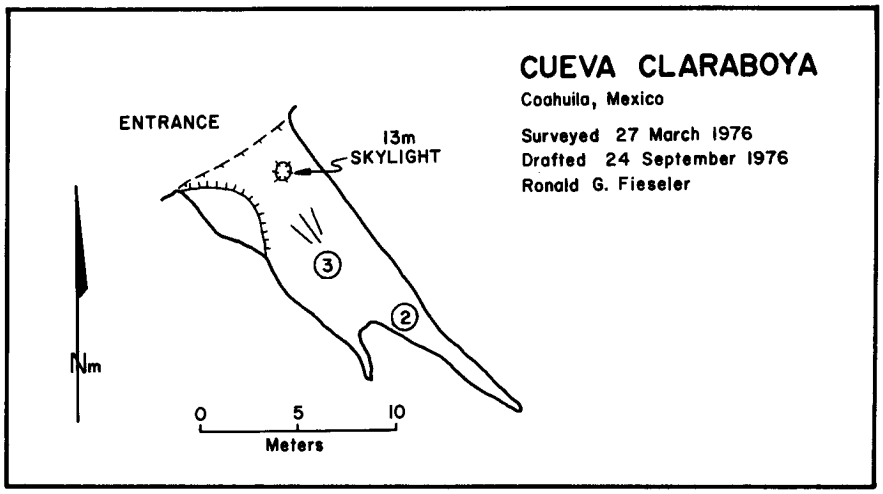
In late March, 1976, I was fortunate enough to be part of a large expedition through the Lower Canyons. The trip was sponsored by the Texas Natural Areas Survey and was scientific in nature. Along on the trip were botanists, geologists, archeologists, zoologists, photographers, and a speleologist--namely, me. My job was to assess the speleological resources of the Lower Canyons, both on the Texas and Mexican sides of the river.

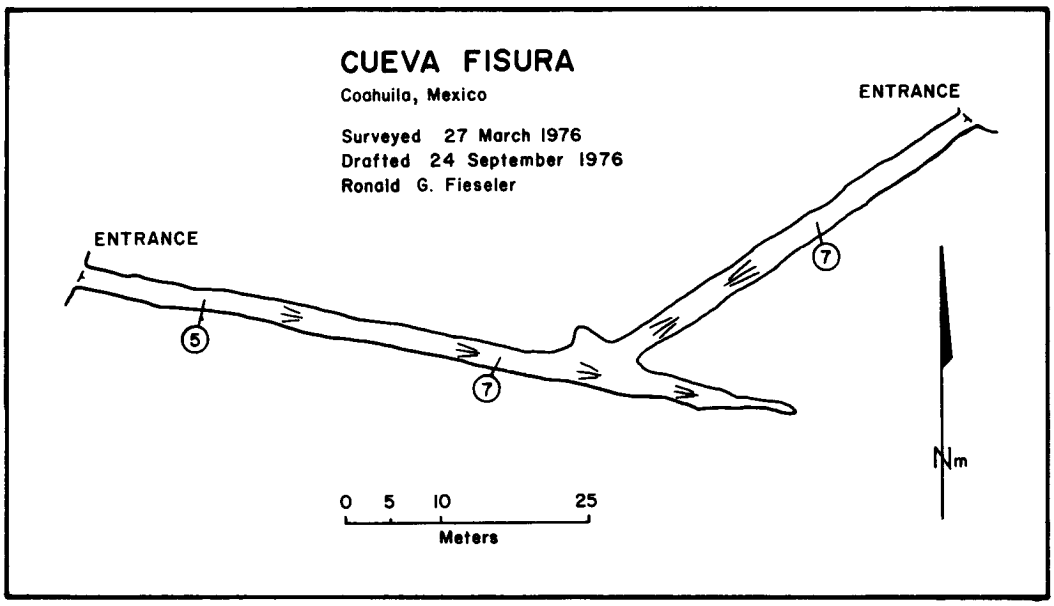
From the beginning, it was painfully obvious that I would only be able to scratch the surface. The vastness of that country is staggering. Once in the canyons, the sense of futility grows day by day as canyon follows canyon, entrance follows entrance, and the terrain restricts access to all but the most determined. It was difficult enough to muster the desire and energy to check out the easily accessible and largest entrances, let alone the small or hard to get to entrance. Imagine a 2 meter in diameter entrance, 300 meters above the river and 1-3 kilometers by foot through a waterless, scalding, thorn-covered, snake-infested desert, and all this after paddling for hours, beaching the boat, dragging it high on shore to insure against possible

rises, digging out your gear, and finally heading up the mountain to what might be a large cave—or maybe a dark shelter. Do this 2 or 3 times a day, and you too will say, "the hell with it." We left several 10-15 meter high entrances unchecked, something I didn't think I would ever do.

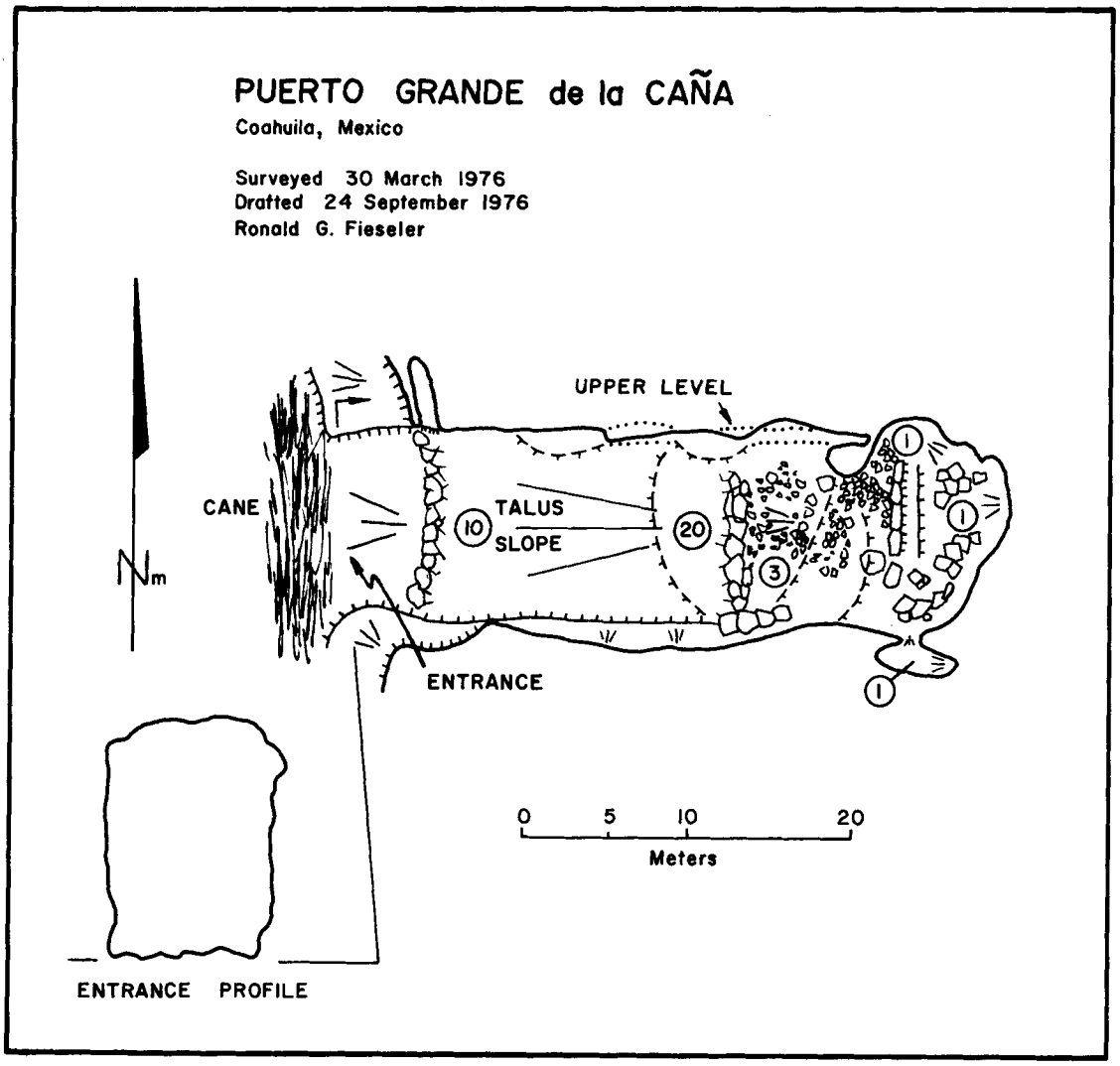
We put in the river at La Linda in the Black Gap Wildlife Management Area and spent 12 days on the river, leisurely working our way downstream to the take out point at Dryden Crossing (John's Marina). There was hardly a mile of river that failed to produce possible cave entrances. A conservative estimate of the number of possible entrances observed during the trip would be in the vicinity of 2000. I have never seen an area with so many holes. They ranged from narrow crevices and small holes to huge entrances up to 25 meters high. My binoculars were invaluable in checking out entrances since I was able to eliminate obvious shelters, but there were still an awful lot of black holes left as possibles. I managed to check out several holes on both sides of the river. A brief review of the Mexican results follow.

Two small and easily reached entrances were checked out in the second canyon down from La Linda. Both were small, See maps, below.



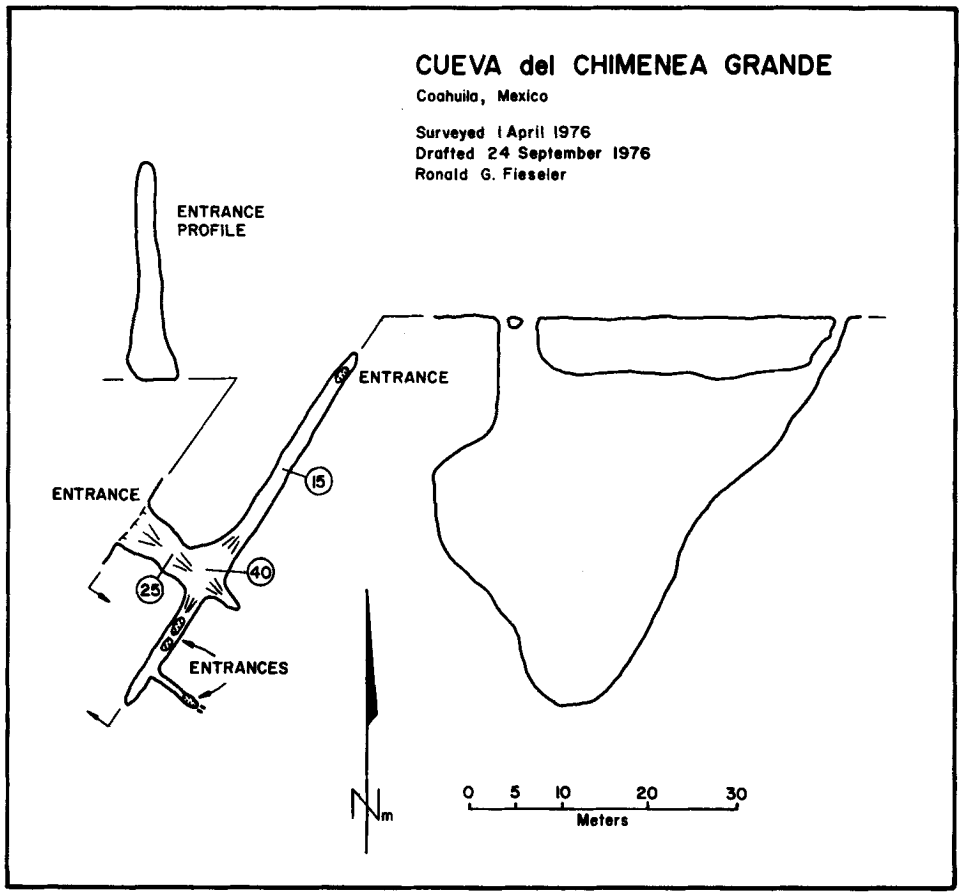
Maravillas Canyon down to Reagan Canyon is relatively caveless except for some far-off cliffs. Downstream from Reagan Canyon several entrances can be seen. Approximately 3 miles below Reagan Canyon a large entrance was encountered near river level. Measuring about 17 meters by 13 meters it is located behind a nearly impassable stand of river cane. It was explored and surveyed by myself and others of the party. Archeologists observed burned rock, sticks, and cane in the back of the cave, but feel it is a relatively minor site. We named it Puerto Grande de la Caña. See map below.




Many possible entrances were observed on the cliffs and side canyons as we paddled to Hot Springs at the mouth of Arroyo San Rosendo. About one kilometer of the canyon was checked out and several entrances located, but not entered as they needed a rappell from above.

Another large entrance was checked out just below the second side canyon on the Mexican side downstream from Hot Springs. Located at the base of the second cliff (Santa Elena limestone, Georgetown equivalent) it involved a tricky climb up a side canyon and a traverse around the base of the cliff. The entrance is very impressive, measuring about 25 meters by 5 meters and leads into a 30 meter long upward sloping passage intersected by a 50 meter long fissure

passage. Skylights are visible at each end of the fissure and are estimated to be 40-50 meters high. Another fissure with a skylight entrance intersects the west end of the main fissure. We observed 20-30 Western Lump-nosed Bats high in the fissure. We named it Cueva de Chimenea Grande. See map below.




Many promising entrances were spotted all the way down to San Francisco Canyon, some of relatively easy access, some of nearly impossible access. None were checked out (except by binoculars) due to lack of time and to fatigue. Ben Everitt and David Sleeper reported a cave on the Mexican side directly across from San Francisco Canyon and 20-25 meters above the river. They estimated it to be 25-35 meters long and said it was easy to get to. Unfortunately they did not sketch it and I did not visit it.

From San Francisco Canyon to Dryden Crossing the limestone dips down and the Del Rio Clay forms the low canyon. Cave and possible entrances are very scarce in this stretch of the river. None were sufficiently promising to lure us off the river. Finally we arrived at Dryden Crossing and the take-out.

It is doubtful that this cave area will ever be thoroughly checked out. There are simply too many leads to check and too many difficulties to overcome. Most work will probably be done in a fashion similar to mine; that is, haphazard checking of convenient or interesting leads. Most of the time the caves will be small and rather uninteresting, but the possibility of large, significant, relict caves remain. There is undoubtedly a few of these scattered in the canyons and mountains of the Lower Canyon to lure and reward the diligent and perservering explorer.

## SIERRA DEL BURRO ROADLOG

**by Tony Mollhagen**

On the dates 5-11 September 1968 I, along with Dale Berry and Bob Martin, traveled through some portions of the Sierra del Burro in northern Coahuila. In the course of the trip several caves were brought to our attention that are worthy of report to the AMCS.

Being Zoology students, the emphasis of the trip was naturally oriented toward things biological and for that reason our notes may have some omissions not seen in an experienced spelunker's field book. Never-the-less we do have some mileages, landmarks and names that may be of some use in finding the caves.

| Miles | |
|---|---|
| 0.0 | South city limits of Ciudad Acuña. Driving on México 57 toward Morelos. |
| 34.5 | Zaragoza. It being the rainy season, we chose to take the paved road to Múzquiz, rather than the dirt road cross-country from here. |
| 40.5 | Morelos. |
| 45.4 | Allende. |
| 83.0 | Entering Nueva Rosita, going now to Múzquiz. |
| 98.8 | Palau. |
| 105.5 | Leaving Múzquiz, taking Boquillas road. |
| 106.1 | Sign saying Boquillas 235 km. |
| 113.1 | One of several low-water crossings in the vicinity. This particular one is deeper and should the water be up, there is a trail going south along the stream that leads to a narrow wooden bridge, where a vehicle may cross easily. |
| 153.5 | Junction. Signs saying Boquillas road left and a road back to Zaragoza to the right. There is an unmarked trail in the center going to Rancho Las Margaritas, one of our objectives. We did not know it at the time, but we were very fortunate to find the gate across this road unlocked as the landowners up the valley are very touchy about having strangers on their property unknowingly. There was a house a little way back toward Múzquiz where one might get permission and/or a key, should the gate be locked in the future. We do not know this but it might be a place to start if previous arrangements had not been made. Most of the ranchers are radio operators and are in contact once or twice a day. |
| 166.5 | Stock tank on north side of road. The roads in this area do quite a bit of branching but they all merge again. |
| 173.3 | Sign and mailbox (?) indicating trail to the right leads to Hacienda Las Margaritas. |
| 176.1 | Hacienda Las Margaritas. We didn't talk to the owner because he wasn't there at the time but in talking to his wife we got the impression that we were welcome but before we did anything we should talk to the Señor. The people on this particular ranch have seemingly been receptive to biologists in the past because Rollin H. Baker, in writing on the mammals of Coahuila, cited a number of collecting localities on and near this ranch. |
| 178.9 | On the main road again and heading north. |
| 180.3 | Turned off the road and looked for mammal sign. |
| 180.7 | Back on road again. |
| 183.2 | Well-constructed gate. Left the road and drove to the canyons to the northwest. |
| 190.7 | Back on the main road again at the well-constructed stone and iron gate. We later |

learned that this marked the entrance to Rancho La Enfante.

199.7 Hacienda La Enfante.

212.3 Hacienda Las Pilas. Owned by Sr. Guillermo Osuna, Apde No. 31, Múzquiz, Coah., México. He was not home when we arrived and again we were instructed to wait before we started exploring. We found him very agreeable to our activities and expressed more than a landowner's interest in what we were doing. He speaks English and told us of other students and scientists that had visited the valley. He suggested we visit a cave in a canyon west two miles of the house that he had only partially explored himself. His directions to the cave are: leave the house and go back across the wooden bridge to the gate by the hangar; follow the trail through the corral and into the pasture west of the house; stay on the trail for about a mile where you will cross a stream bed and break into an open area where there are some small concrete water troughs; the trail ends here but continue a short distance west around some trees where there is a large concrete water tank fed by a spring, via a pipe, in the canyon; the pipe is buried but the trees have been removed above it, leaving a well-marked trail that can be driven for a good distance; once in the canyon, there is a foot trail that crosses the pipe several times; after a walk of about 20 minutes there is the first of two concrete structures for funneling water into the pipe, it being square and about 4 ft high; the second is around the corner and up the canyon a little bit; this structure is also concrete but flat; the cave opening is between these two structures and up the south slope of the canyon about 40 yds; the opening can be seen from right spot on the canyon floor. The entrance is essentially a shelter with water dripping over the front edge. It is approximately 80 ft wide and varies in height from 2-10 ft because of irregularities in the floor. The depth is probably no more than 50 ft. There are several columns behind which, in the southeast corner of the shelter, is the opening to the cave itself. This opening is about 4 ft high but almost immediately after passing through, we were able to stand upright among some hanging columns whose bases had been washed free of the floor after their formation. Some of these columns are a foot or more thick at the base. The passage here is ovoid and 6-10 ft high. Both here and farther back the temperature is cool, probably in the low 60's. A single *Myotis velifer* was collected from the ceiling. No other bats were seen at this point. This part of the passage continued relatively straight for 40-50 yds where a sharp right turn was taken. Here the passage increases to about twice the size and continues for 40-60 yds. In many of the domes in the ceiling there were clusters of *Plecotus townsendii,* some specimens of which were collected. There was a moderate amount of guano on the floor, but far in excess of that expected from the 50-75 animals we saw. When we neared the end of this passage we found two holes that spanned the width of the floor which had narrowed to about 5 ft. The ceiling was 15 ft high above the holes. We decided against going into the lower levels without proper equipment. Sr. Osuna later told us that he had visited two levels below and that it continued deeper still. We estimated the first drop to be about 10 ft to a narrow ledge, but beyond that our estimates would be unreliable. Sr. Osuna was unable to recall further distances, but he indicated that he was very interested in having someone completely explore the cave in the hopes of finding a source of water. Before leaving the ranch he gave us his mailing address (see above) and a way he could be reached on shorter notice should we or anyone else want to return. He has no telephone but is in radio contact with Sr. Guillermo García, No. 40680, Múzquiz, Coahuila, at 8:00 AM or 6:00 PM. He further gave us gasoline, a compass,

a meal, fresh fruit, and a letter necessary to get a key to open a gate at the north end of the valley, all unsolicited. A word to the wise, he also hinted that he and other ranchers had known we were in the valley before we met him.

214.6 Leaving Hacienda Las Pilas.

234.3 Gate marking boundary of Rancho Las Pilas.

247.7 Locked gate to public road for which we needed the key. Still required a two mile walk west with the letter to Hacienda Guadalupe. The roads from Rancho Las Pilas to here are quite passable in dry weather but unfortunately we were blessed by some showers that elicited an unpleasant experience with a shovel handle. Once the gate was opened, we turned right toward Acuña. To the left was some small mining towns and Boquillas. We have no mileage, but we shortly encountered a border station.

262.6 Locked gate on east side of road leading to a hacienda for which we had no name. The roads seemed suddenly to get worse and appeared to be a detour around the rancho.

267.4 Crossed a cattle guard and headed northeast toward mountains. Road improved.

275.4 A series of openings in a bluff on the north side of us caught our attention. We were assured by a ranch hand we had picked up that there was indeed a long cave up there as well as in the bluffs on the opposite side of the road. The latter information we did not pursue but one opening of the first series was enough larger than the others (about 30 ft wide) to warrant investigation. After climbing 45 min. we found we could not climb safely to the larger openings without a rope. Footholds crumbled beneath our feet. The caves entered were dry and formed by breaks in the strata at the apex of an anticline. Three adjacent caves were entered at ground level. The east-most opening was narrowest as a result of some breakdown. Entry was gained to a depth of only 25 ft where to go farther one would have to wedge himself into a fissure. The middle cave was 6-8 ft wide at the front and gradually narrowed to nothing after 50 ft. Scattered guano was seen on the floor. The fissure was 10-12 ft high. The east cave is a larger model of the middle one, being about 100 ft long. It too had some guano on the floor as well as a blackened ceiling.

301.7 Dirt stock tank on south side of road. Road goes over spillway and dam. Saw a number of shelters in the bluffs on either side of the road while still in the mountains but our spelunking initiative suffered a setback in the long climb to the last caves.

306.2 Hacienda Chupadero del Caballo. The road runs by the hangar and the house is in a draw to the south. Some English spoken. We were told here that the road would fork soon and that we should take the right or south fork as it was the better of the two roads. Both go to Acuña. We have no notes to this effect, but it seems shortly after we turned we were following a fence south and then east for a little way. There may have been a hacienda in the distance too.

332.2 Hacienda San Miguel. The road winds right through the headquarters. There is a gate by a corral.

367.7 Intersection with paved highway just west of Acuña airport. Wooden sign saying in Spanish, "the road to all the ranches," and pointing back the way from which we had come.

368.3 West edge of Ciudad Acuña.

## SOTANO DE SAUZ

**by Peter Sprouse**

The existence of this unique cave was brought to light through a tale of a deep pit south of Lajitas, Texas, that reached the ears of Dr. Dwight Deal (Alpine, Texas). An American explorer had descended an arroyo-fed pit as far as his 100-foot rope would reach. Dr. Deal passed this lead on to AMCS cavers in Austin who, due to the fact that the cave was in a completely unknown area speleologically, immediately began planning an expedition.

Over Thanksgiving 1975 a truckload of 7 cavers left Austin and crossed easily into México at Ojinaga. Following Deal's general directions the cave was located with the help of a local guide, whose description was the most tantalizing of all: "Entre un arroyo y no sale." The entrance lies in a mining area approximately 30 km northwest of the Ejido M. Benavides and 20 km south of Lajitas. A large arroyo, draining perhaps 4 $km^2$, is pirated into the joint-controlled collapse passage entrance sink, bounded by vertical walls of gently dipping brecciated limestone.

Questioning of the locals (what few there were) revealed that the cave was not named. So it was decided to call it Sótano de Sauz, after the name of the rancho on which it was located. Upon approaching the entrance, the stench of bat guano is immediately apparent. Directly beyond the dripline of the cave proper is the lip of a 50 m drop of a long, narrow, canyon-like nature. Off of the bottom leads a high ceilinged guano and cobble floored passage—immediately recognizable as the vadose joint-controlled kind that typifies many deep Mexican caves. The passage continues linearly, dropping occasionally down short climb-downs, and the floor contains patches of sandy guano in places that fills the air with dust, illuminating a distinct wind. The air is hot and dry.

After 130 meters the cave makes an 85 degree bend to the left, having intersected another joint that causes the passage to descend more steeply. Soon an 18 meter drop is encountered along this trend that must be rigged. Soon afterwords the passage turns 80 degrees to the right, which restores the cave to nearly the same joint trend. As the passage drops steadily in several climb downs the air temperature becomes stifling hot.

At a depth of 130 meters below the entrance the fissure-like nature of the cave changes. The passage widens into a room averaging 12 meters wide by 15 meters high, nearly rectangular in cross-section. Two prominent joints cross this room. Hundreds of bat corpses litter the room, lying in a matrix of guano and guano ticks. Samples taken identified the bats as Old Man Bats (*Mormoops megalophylla*). This room, prematurely named the "Sala Grande," ends in a 3 meter drop leading to a cobble floored crawlway. Beyond this crawlway the cave undergoes a drastic transformation. The passage becomes immense, averaging 30 meters in diameter, stretching in a vast tunnel beyond the reach of lights. The floor is covered with dessicated bat corpses, all in the same state of decay, and thousands of them still cling to the cave walls. The temperature in this lower chamber climbs to 106° F. The passage still drops gently for 700 meters to a level stretch that is evidently a great sump, floored in sedimented guano with mud cracks up to 30 cm deep. The cave simply ends when the ceiling arches down to meet the dry, crumbly floor, 1226 meters from the entrance and 220 meters below it. (See map, plate V.)

### Summary

Sótano de Sauz is the only cave in its immediate area and the only one like it known in the world. There is very little limestone in the area and, indeed, seemingly barely enough to

contain a cave of its size. The cave obviously contained an enormous bat colony, whose demise is a great mystery. A few hundred bats still live near the entrance, but nothing to compare to the thousands of well-preserved corpses that are present throughout the cave, and that fill the final chamber. The cause of this natural catastrophe is a subject of much conjecture. It is possible that a great flood filled the cave, as apparently it does at infrequent intervals, yet observations in the cave suggest this was not the cause. The cave does not appear to have flooded since the bats died as most are still in their natural death positions on the floor and walls. It would also not explain why no bats have reinhabited the far reaches of the cave. More likely is the possibility of disease striking the colony, a phenomena recorded in at least two other cases. A third possibility is that a sudden igneous intrusion could have raised the cave temperature to a lethal level, of which the present temperature may be but a fraction. Though why the bats would stay until death in a decaying environment is a mystery–perhaps they were trapped by a lingering water siphon in the lowspot present before the first "Sala Grande." But again this seems improbable by the strange extreme dryness of the cave. Certainly Sótano de Sauz is a treasure chest of natural phenomena deserving of the study of specialized biologists and geologists. But be forewarned: Sauz is a place of death, and the unprepared will quickly find a place amongst the mummified corpses of fellow mammals. It is ABSOLUTELY NECESSARY that anyone contemplating entering this cave first contact the AMCS members who explored and mapped it.

Fig. 1.–Sótano de Sauz in the foreground with Big Bend National Park, Texas, on the horizon. Photo by Peter Sprouse.

Fig. 2.–Entrance of Sótano de Sauz. Photo by Peter Sprouse.

# THE CAVES OF CHIHUAHUA AND DURANGO

**by James R. Reddell**

The north-central Mexican states of Chihuahua and Durango have been little investigated by the Association for Mexican Cave Studies, despite the potential for large, important caves. Part of the reason for this neglect has been the distance from Austin and the difficulty of reaching the caves in a rather hostile environment. A more likely cause for neglect, however, has been the unlikely prospects for finding deep cave systems. The recent discovery of the 220 m deep Sótano de Sauz in northern Chihuahua may well inspire more attention to this part of México.

Attracted by the fame of Grutas de Arteaga near Mapimí in Durango, Bill Russell visited Cueva de los Riscos, which may be the same cave. This cave and others near Parral, Chihuahua, were visited by John Fish, Terry Raines, and James Reddell in July 1965. Caves south of Gómez Palacio, Durango, and in the Sierra Madre Occidental near Creel, Chihuahua, were located by Bill Bell and James Reddell in February 1966. In July 1968 Richard Breisch, Tom Meador, and Lee Skinner located and partially mapped Cueva del Alamo south of Zaragoza, Chihuahua. In June 1972 Bill Elliott, Carl Kunath, and James Reddell mapped Cueva del Guano, Cueva de los Riscos, and the newly discovered Cueva de la Siquita in Durango and began a map of Cueva del Diablo in Chihuahua. During Thanksgiving 1975 Peter Sprouse, Terry Sayther, Gill Ediger, Steve and Donna Bittinger, John Omnaas, and Maureen Cavanaugh located and partially explored Sótano de Sauz. This cave was mapped in 1976 by Gill Ediger, Dino Lowery, John Omnaas, Ron Ralph, Terry Sayther, Peter Sprouse, Beth Everett, and Steve Zeeman.

Eastern Chihuahua and northeastern Durango lie within the Northern Basin and Range Province. This region is characterized by high steep mountain ranges of Cretaceous limestone separated by deep bolsons, largely filled with non-cavernous deposits. Caves tend to be located along the flanks of the mountains or else on cliff-faces, although Cueva del Diablo and Cueva de los Muchachos are developed in a gently-rolling range of hills.

Western Chihuahua and southwestern Durango comprise part of the Sierra Madre Occidental. Most of this area consists of igneous rocks, although "islands" of limestone appear in several places throughout the range. The eastern face of the Sierra Madre Occidental rises gently from the east, but the western face is abrupt and the range is cut by enormously deep gorges, the most famous of which is the Barranca del Cobre near Creel, Chihuahua. Numerous large shelters have formed in various igneous rocks in this region. One of these, Cueva del Salitre, was investigated by the AMCS and is sufficiently long to be considered a true cave. Doubtless many others similar to this exist. These large shelters have served as the homes of the Tarahumara Indians for thousands of years and many are still utilized by the Tarahumara.

Access into this part of México is not unusually difficult, although visits to the caves themselves may involve hikes up the sides of steep mountain faces for several hundred meters. The known caves are all comparatively accessible and, except in bad weather, do not require 4-wheel drive. There are, however, doubtless many caves in the less accessible parts of Chihuahua and Durango which will involve both 4-wheel drive and long hikes.

The following descriptions of the caves of Chihuahua and Durango include all of the caves which have been visited by members of the AMCS. It is supplemented by a list of the caves which have been reported, either by cavers making local inquiries or by published articles by non-cavers.

## CHIHUAHUA

*Cueva del Alamo.* This cave is described by Tom Meador on page 53 and the map is published on page 54.

*Cueva del Cañón de la Chiva.* This cave is visible from the road west of Candelaria, Presidio County, Texas. The entrance is about 5 km SW of the road on the face of the mountain that parallels the road and in Cañón de la Chiva. An 8 m high, 8 m wide entrance leads into a passage up to 21 m high and 27 m wide. This passage extends for about 80 m to a 5 m drop. It was not explored beyond this point, but the cave continued large with bats in the inner part. A Mexican reported that the cave had another entrance on the other side of the mountain. It was explored by Tom Dillon.

*Cueva del Diablo.* To reach Cueva del Diablo drive west of Jiménez to the small village of Salaices. The cave is located about 4 km west of Salaices and a few hundred yards north of the highway to Hidalgo del Parral. The cave entrance is on the gentle slope of a low hill and is a sinkhole about 30 m in diameter (see Fig. 1). A slope along the southwest edge of the sink leads down to the bottom of the sink. A passage to the right circles the sink and continues as a narrow fissure for at least 75 m, at which point it becomes very narrow and exploration ceased. The main part of the cave is reached through a low passage along the vertical back wall of the sink. After about 100 m a pit at least 15 m deep is crossed by a ladder. At the base of the ladder is a 3 m wide, 2 to 5 m high passage developed in beautiful white limestone. This main passage extends past several major passages to the right before ending in a 5 m high steel ladder leading up into a very complex maze area which remains largely unexplored. To the left at the base of the ladder a passage leads into a maze of fissure-like passages connecting back into the main passage near the ladder. This area contains several hundred meters of passage. At the lower part of the fissures low crawls lead down into small crystal-lined solution rooms, some of which have pools. The cave is poorly explored and will probably contain more than a kilometer of passage when it is surveyed. A partial map of the cave is included with this report as Plate 1.

The cave was first reported by Spieth (1953). He gives a brief account of a trip to the cave by Dr. Willis J. Gertsch of the American Museum of Natural History. Gertsch collected a new species of spider in the cave. The next recorded trip to the cave was on 22-23 July 1965 when it was partially explored by John Fish, Terry Raines, and James Reddell (Fish, 1965). A second trip to the cave was made by Bill Bell and James Reddell on 25 February 1966 (Reddell, 1966). The cave was partially mapped on 11-12 June 1972 by William Elliott, Carl Kunath, and James Reddell.

Cueva del Diablo is of some biological interest, although the dryness of the upper levels is not conducive to troglobite habitation. Of greatest interest are unidentified cirolanid isopods found dead in one of the lower-level pools. The nearest population of cirolanids is at Cuatro Ciénegas in Coahuila and the species in this cave is almost certain to be undescribed. The only terrestrial troglobite known from the cave is a spider, *Psilochorus diablo* Gertsch, which is known only from this cave.

*Cueva de los Muchachos.* This cave is located on a small rolling hill about 1 km south of Salaices. A 1 m in diameter sink drops about 23 m to a walking horizontal fissure which ends abruptly after about 70 m (Fish, 1965). The cave is named for two Americans who were killed and their bodies thrown into the entrance several years ago. The cave was located and explored by John Fish, Terry Raines, and James Reddell on 22 July 1965.

*Cueva del Salitre.* Cueva del Salitre is located near the town of Las Cuevas southeast of Hidalgo del Parral. The entrance is 12 m high and 10 m wide and the floor slopes up for 33 m to meet the ceiling. The cave is inhabited by a colony of cave swallows. It is formed in

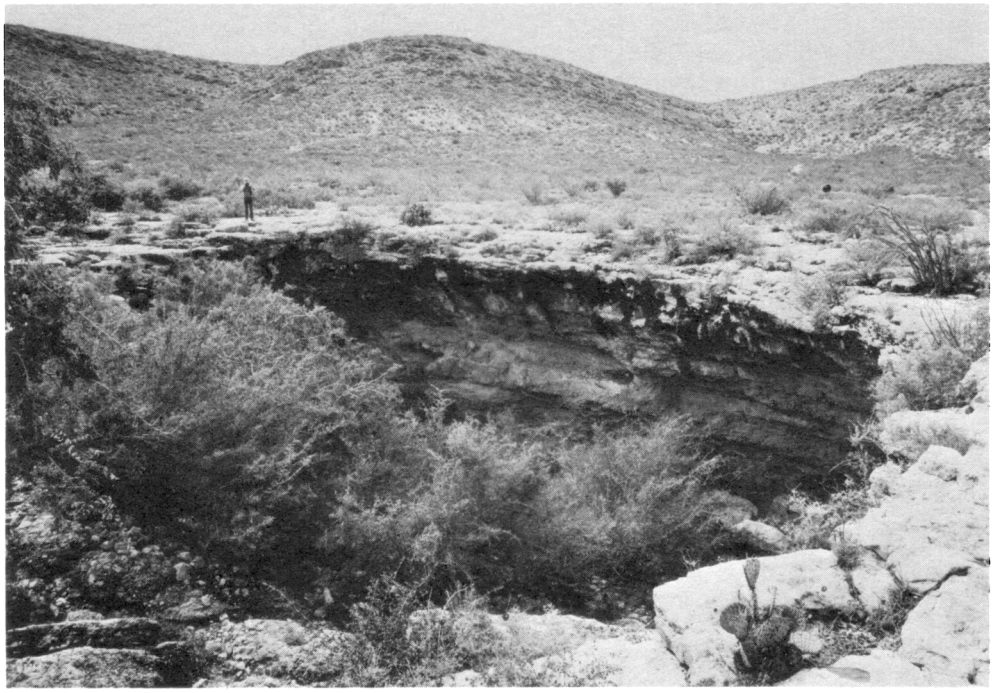


Fig. 1.–Bill Elliott at the entrance to Cueva del Diablo. Photo by Carl E. Kunath.

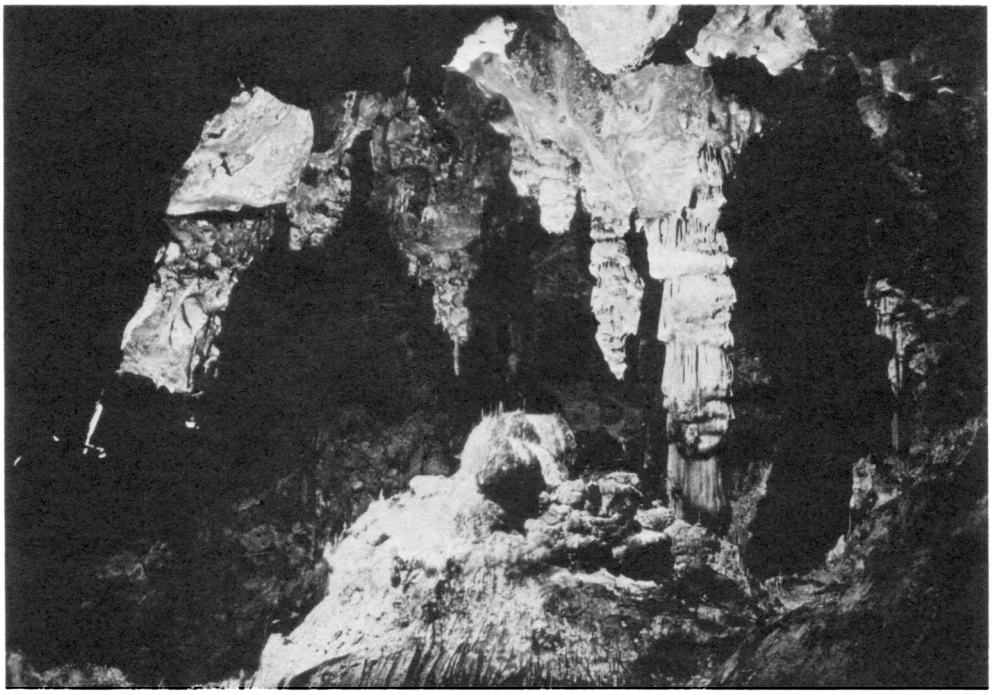


Fig. 2.–James Reddell (L) and Ed Alexander in Cueva de los Riscos. Photo by Carl E. Kunath.

ignimbrite. The cave was located and explored on 24 July 1965 by John Fish, Terry Raines, and James Reddell.

*Los Socavones de Santo Tomas.* These caves were marked on the Shell Oil Co. highway map of México and are also mentioned in Almada's (1945) book on the geography of Chihuahua. They are located 8 km northwest of Santo Tomas in the Sierra Madre Occidental and about 500 m from the road which goes from Santo Tomas to the Rancho de las Manzanas. Almada describes the main cave as being at the end of two arroyos running from the mountains, the waters of which emerge as springs feeding the Río Papigochi near Carichi. He reports that, although the first gallery is easily accessible, others are reached only by ropework. On 26 February 1966 Bill Bell and James Reddell visited Santo Tomas. Investigation and inquiry led to an island of heavily karsted limestone emerging from the surrounding igneous rocks. The area consists of literally dozens of openings, some very recent. The largest of these, which the guide referred to as "El Socavón," was a snow-floored sink with a narrow crevice at one end. A chimney down led in turn to a succession of narrow crevices, small dusty rooms, blocked domes, and highly unpromising passages, but with names covering the walls. Whether this is indeed the famed Socavón de Santo Tomas is not known, but it is very doubtful that the correct entrance was located. Other entrances led into caves even less promising; the area remains very poorly checked.

*Sótano de Sauz.* This cave is well-described by Peter Sprouse on pages 79-80 above.

## Rumored Caves

*Boquillas Canyon Cave.* This cave is reported to be located in Boquillas Canyon on the Río Grande. The cave is found by taking a small side canyon just downstream from a small shelter in the cliff. A trail leads to the cave which is reported to be a guano mine.

*Grutas de Coyame.* This cave is reported to be in the immediate vicinity of the town of Coyame in El Cerro de la Cueva. It is reported to be very large with many formations, but has been seldom visited.

*Grutas de Chumachi.* This cave is located on the margins of the Arroyo de Chumachi, an affluent of the Río Chalaca (Río Conchas) in the Sección Municipal de Sisoguichi, Municipio de Bocoyna, and about 24 km SE of the Cabecera of the Sección. The cave is reported to consist of a successive series of galleries. A famous legend is associated with the cave which is very well-known (Almada, 1945).

*Cueva del Ermitano.* This cave is found in the Sierra de El Paso immediately south of Ciudad Juárez.

*Grutas La Gloria.* This cave is located in the Sierra del Diablo in the Municipio de Jiménez. The only thing known about it is that is contains notable crystals.

*Cueva de la Mina Lepanto.* This cave was encountered during mining operations in the famed Naica Mines at the town of Naica. Foshag (1927) reports that the cave contains one chamber in which the front and right walls are covered with gypsum crystals for about two-thirds of their height. The crystals from this cave are entirely of the long-bladed type.

*Cueva de la Mina Maravilla.* This cave is also located in the Naica Mines. Foshag (1927) describes the cave briefly and discusses the remarkable crystals found in it. The cave is on the third level of the mine and is guarded by a heavy wooden door. "A short passage leading from the door takes one to a chamber lined on walls and ceilings with numerous colorless crystals of gypsum from six inches to over a foot in length. The floor of the cave is littered with blocks of limestone that have sluffed off the roof and are now covered with a coating of botryoidal calcite and scattered over with long, blade-like or short stumpy crystals of gypsum. In the grottoes be-

tween these boulders of limestone are usually one or more clear selenite crystals like figures in niches.... From this chamber a stairway leads down into an extension where the gypsum crystals have grown to an enormous size. Many of them are four and five feet long and a few probably reach six feet... They grow from the floor of the cave in a manner resembling the maguey plants so common on many of the hills of Mexico.... Further on, the way leads thru a narrow opening, just large enough to permit the passage of a man, completely lined with blade-like crystals and forming a veritable corridor of swords. These crystals reach a length of two to three feet and are opaque white in color. From this passage one descends a few feet into the largest chamber of the cave. The floor ahead rises at an angle of about 30° and is completely banked with myriads of selenite blades one to three feet in length. At the crest of the floor there arises a remarkably fine radiated group of crystals over four feet high, gray in color but tipped with white and glistening brightly in the light of the lamps. Nearby is the only huge crystal of the stumpy type noted, a crystal that must weight sixty pounds. From this single crystal grows a long blade of selenite almost four feet long. Beyond these the cave rapidly narrows until it becomes a mere crack." (Foshag, 1927).

*Cueva de la Pluma Colorado.* This cave is supposedly located south of El Porvenir.

*Grutas de Santo Domingo.* This cave is located near the confluence of the Rfos de Santo Domingo and Placeres in the Municipio de Guadalupe y Calvo. The cave has a small entrance which leads into a 5 m high, 2 m wide passage containing an abundance of nitrates. A sloping floor leads in an east-west direction for 500 m. The passage is at times narrow and at times wider with many cross-passages. After 500 m a gallery with numerous formations is reached. Continuing along this gallery one encounters a large room whose upper part has the form of a half orange of white with numerous small, incrusted black rocks. This cave is reported by Almada (1945) as being one of the "mas grandes maravillas que encierra la Sierra Madre Chihuahuense."

*Caves near Camargo.* Numerous bat caves are reported in the limestone hills east of the highway between Jiménez and Camargo, but none have been visited by cavers.

*Cave in Fern Canyon.* Judd (1967) reports a cave in Fern Canyon about "13 miles northwest of the village of Santa Elena." He reports that it has a ceiling height of about 7 m at a point 10 m from the entrance. The extent of the cave is unknown.

*Other Caves.* The following localities are listed by Almada (1968) as being named for caves. Whether these are true caves, shelters, or mere place names is not known, but some will doubtless prove to be worthy of a visit:

*La Cueva.* Rancho del Mpio. de Belleza, Dto. Jud. Hidalgo.

*La Cueva.* Rancho del Mpio. y Dto. Jud. Camargo.

*La Cueva.* Rancho de la Sec. Mpal. de la Joya, Mpio. de Satevó, Dt. Jud. Morelos.

*Cueva Ahumada.* Rancho del Mpio. de Bocoyna, Dt. Jud. Benito Juárez.

*Cueva Ahumada.* Rancho de la Sec. Mpal. de Tomochi, Mpio. y Dto. Jud. Guerrero.

*Cueva Blanca.* Rancho de la Sec. Mpal. de Escobedo, Mpio. de Hidalgo del Parral, Dto. Jud. Hidalgo.

*Cueva Colorada.* Rancho del Mpio. de Balleza, Dto. Jud. Hidalgo.

*Cueva Colorada.* Rancho del Mpio. de Urique, Dto. Jud. Andrés del Rfo.

*Cueva de Abajo.* Rancho del Mpio. de Rosario, Dto. Jud. Hidalgo.

*Cueva del Cabrestante.* Rancho del Mpio. de Satevó, Dto. Jud. Morelos.

*Cueva del Ermitaño.* Rancho del Mpio. de Morelos, Dto. Jud. Andres del Rfo.

*Cueva del Herrero. Rancho* del Mpio. de San Francisco del Oro, Dto. Jud. Hidalgo.

*Cueva de León.* Rancho de Mpio. de Coronado, Dto. Jud. Jiménez.

*Cueva del Burro.* Rancho del Mpio. de Chfnipas, Dto. Jud. Arteaga.

*Cueva del Epazote.* Rancho del Mpio. de San Francisco del Oro, Dto. Jud. Hidalgo.
*Cueva del Toro.* Rancho de la Sec. Mpal. de Pichachí, Mpio. y Dto. Jud. Guerrero.
*Cueva de Pérez.* Rancho del Mpio. y Dto. Jud. Guerrero.
*Cueva de Puerto Colorado.* Rancho del Mpio. de Guazapares, Dto. Jud. Arteaga.
*Cueva de Tierra.* Rancho del Mpio. de Riva Palacio, Dto. Jud. Morelos.
*Cueva Oscura.* Rancho del Mpio. de Nonoava, Dto. Jud. Benito Juárez.
*Cueva Parada.* Rancho de la Sec. Mpal. de Sisoguichi, Mpio. de Bocoyna, Dto. Jud. Benito Juárez.
*Cueva Pinta.* Rancho del Mpio. de Carichí, Dto. Jud. Benito Juárez.
*Cueva Pinta.* Rancho de la Sec. Mpal. de Pichachí, Mpio. y Dto. Jud. Guerrero.
*Cueva Pinta.* Rancho de la Sec. Mpal. de Yoquivo, Mpio. de Ocampo, Dto. Jud. Rayón.
*Cueva Tiznada.* Rancho del Mpio. de Urique, Dto. Jud. Andrés del Río.
*Las Cuevas.* Rancho del Mpio. de Morelos, Dto. Jud. Andrés del Río.
*Cuevas Blancas.* Rancho de la Sec. Mpal. de Pinos Altos, Mpio. de Ocampo, Dt. Jud. Rayón.
*Cuevas de Abajo.* Rancho del Mpio. de Matamoros, Dto. Jud. Hidalgo.
*Cuevas de Armenta.* Rancho de la Sec. Mpal. de Tomochi, Mpio. y Dto. Jud. Guerrero.
*Cuevas del Cantil.* Rancho del Mpio. de Morelos, Dto. Jud. Andrés del Río.
*Cuevecillas.* Rancho del Mpio. de General Trías, Dto. Jud. Morelos.
*Cuevecillas.* Rancho del Mpio. de Rosario, Dto. Jud. Hidalgo.
*Cuevecillas de Abajo.* Rancho del Mpio. de Hidalgo del Parral, Dto. Jud. Hidalgo.
*Cuevecillas de Arriba.* Rancho del Mpio. de Hidalgo del Parral, Dto. Jud. Hidalgo.
*Las Cuevitas.* Rancho del Mpio. de Batopilas, Dto. Jud. Andrés del Río.
*Las Cuevitas.* Rancho del Mpio. de Casas Grandes, Dto. Jud. Galeana.
*Las Cuevitas.* Rancho del Mpio. de Guadalupe y Calvo, Dto. Jud. Mina.
*Las Cuevitas.* Rancho del Mpio. de San Francisco de Borja, Dto. Jud. Benito Juárez.
*Las Cuevitas.* Rancho del Mpio. de Satevó, Dto. Jud. Morelos.
*Las Cuevitas.* Rancho del Mpio. de Urique, Dto. Jud. Andrés del Río.
*Las Cuevitas.* Rancho de la Sec. Mpal. de Vergel, Mpio. de Balleza, Dto. Jud. Hidalgo.

## DURANGO

*Cueva de la Cucaracha.* This dry cave is located across the canyon from Cueva de los Riscos and at about the same level. It consists of a single room about 15 m in diameter (Fish, 1965). It was explored on 21 July 1965 by John Fish and James Reddell.

*Cueva del Guano.* This cave is probably identical to Cueva de la España, Cueva de los Indios, Cueva "La Joya" de Lerdo, and a cave reported by Baker (1956) as being southeast of Torreón in Coahuila. It is located near the Coahuila-Durango state line northwest of Picardías and about 33 km south of Torreón. The entrance to the cave is an impressive horizontal opening 8 m high and 25 m wide. A passage averaging 10 m wide by 5 m high extends for 100 m before narrowing to 5 m. This entrance passage is floored with guano-covered breakdown and is inhabited by a large bat colony. The narrower passage extends for about 30 m to a major intersection. To the right a steep slope leads down into a chamber 60 m long, 7 to 10 m high, and up to 20 m wide. It slopes steadily down over small breakdown before terminating abruptly. Two passages lead from this room. One to the right extends about 30 m to a Y-intersection. The passage to the right ends after 10 m, while that to the left descends very steeply to an end after about 20 m. The other passage from the large room is a steep slope which leads up and intersects the entrance passage after about 20 m. This intersection constitutes a five-way intersection. Besides the passage back to the entrance and that into the large room, one to the right extends about 30 m

before ending in a small room. The other two passages run parallel to each other. One is about 6 m wide and 4 m high and ends after 35 m. The other opens into a room 35 m long, 15 m wide, and 7 to 8 m high. The cave has a total surveyed passage length of 549 m and the deepest point below the entrance is 59 m (see map, plate II). Air temperature in the bat chamber was recorded at 26.5° C, while that in the larger inner room was 24.5° C.

Cueva del Guano was mined for guano until 1961 when a serious lung disease (histoplasmosis) in the miners (leading to the death of one or more men) resulted in the cessation of mining operations. The cave was explored on 24 February 1966 by Bill Bell and James Reddell. It was revisited and mapped by Ed Alexander, William Elliott, Carl Kunath, and James Reddell on 16-17 June 1972.

The cave is of particular biological interest because it harbors a fairly large population of the relict ricinuleid *Cryptocellus mitchelli* Gertsch. It is also inhabited by the unusual spider beetle, *Niptus abstrusus* Spilman.

*Cueva de los Riscos.* This cave is located about 330 m up on the side of a canyon 4 km south of Mapimí. It has been heavily prospected for nitrates, but was apparently never actively mined. The entrance is a small opening about 2.5 m wide and 1.5 m high. This quickly opens into a large, heavily-decorated chamber more than 20 m wide, 8 to 10 m high, and 120 m long. The floor is very irregular with large breakdown boulders, numerous largely unexplored pits up to 15 m deep, and great masses of flowstone, numerous stalactites, stalagmites, and columns (see Fig. 2). At the end of the main chamber a slope leads up to a continuation of the room. This extends over massive breakdown boulders for about 30 m before terminating in a steep slope of loose rubble. A test pit about 8 m deep has been excavated at the base of the slope. A second passage is also located at the end of the main entrance chamber. This is reached by way of a steep flowstone slope. At the top of the slope a series of small rooms at various levels is encountered. Exploration was ended at the top of a 5 m deep unclimbable pit (see map, plate III). With the exception of the small rooms at the back of the cave, which are somewhat moist, the cave is dry throughout.

Cueva de los Riscos is presumably identical to the cave reported by the Pemex Travel Club (1964) as the "scarlet grottos" of Mapimí. It was first visited by cavers in August 1964 when Bill Russell located and explored it. It was revisited on 19 July 1965 by James Reddell, Terry Raines, and John Fish. The cave was mapped on 15 June 1972 by Ed Alexander, William Elliott, Carl Kunath, and James Reddell.

The inner rooms of the cave contain a rich troglobitic arachnid fauna. Most notable is the highly cave-adapted ricinuleid, *Cryptocellus reddelli* Gertsch. Other troglobites include the spiders, *Leptoneta limpida* Gertsch, *Pholcophora exigua* Gertsch, and *Psilochorus delicatus* Gertsch.

*Cueva de la Siquita.* Cueva de la Siquita is located near Rancho Descubridora about 45 km northwest of Mapimí. A now-abandoned mining road leads to its entrance and it is possible to drive almost to the cave entrance. The entrance to the cave is an opening about 7 m wide and 5 m high located on the side of a large hill. A metal platform has been constructed at the entrance (see Figs. 5 and 6). The entrance opens into a passage 8 to 20 m wide, which descends at an angle of about 55° to a depth of 64 m (see Fig. 7). Although part of this slope is climbable, part of it is not and a rope is required for the descent. Wooden ladders on the lower part of the slope are still usable, but it is easier to descend the entire drop by rope. To the left at the bottom of the entrance drop the passage continues as a high fissure with up to 10 m of fill having been removed from the floor. A continuation of the main passage could be seen high above the floor but could not be reached. A steep slope leads down to a pool up to 1 m in depth and inhabited

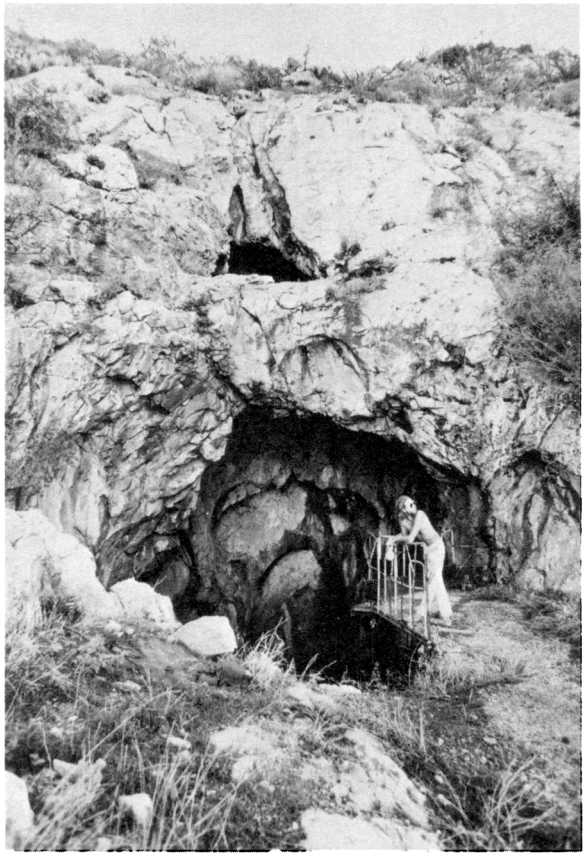


Fig. 3.–Ed Alexander at the entrance to Cueva de la Siquita. Photo by Carl E. Kunath.

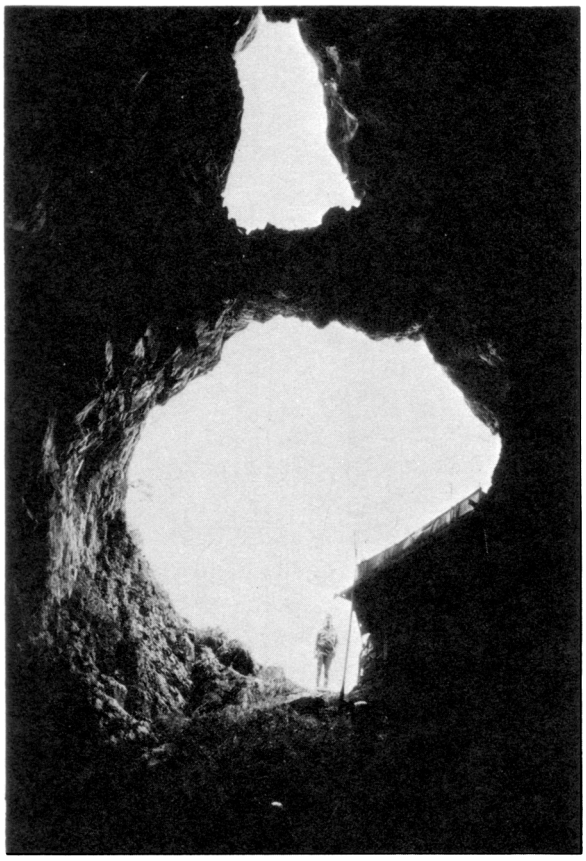


Fig. 4.–James Reddell at the entrance to Cueva de la Siquita. Photo by Carl E. Kunath.

by troglobitic amphipods. To the right from the entrance a passage about 15 m wide and high continues as a fissure for about 40 m before turning sharply to the left. It narrows to 10 m and continues over large breakdown blocks to open into a chamber 10 to 15 m high, 20 m wide, and 15 m long. A passage at the back of this room extends an additional 20 m before ending (see map, plate IV). The larger inner room is inhabited by a large bat population and the floor is covered with guano. The water temperature was 25.5° C, while the air temperature was 22.3° C.

Cueva de la Siquita has been mined extensively for phosphates and much of the original floor of the lower part of the cave has been removed. The cave was located and mapped on 14 June 1972 by Ed Alexander, William Elliott, and James Reddell. The only species of unusual interest found in the cave was the troglobitic amphipod *Mexiweckelia mitchelli* Holsinger.

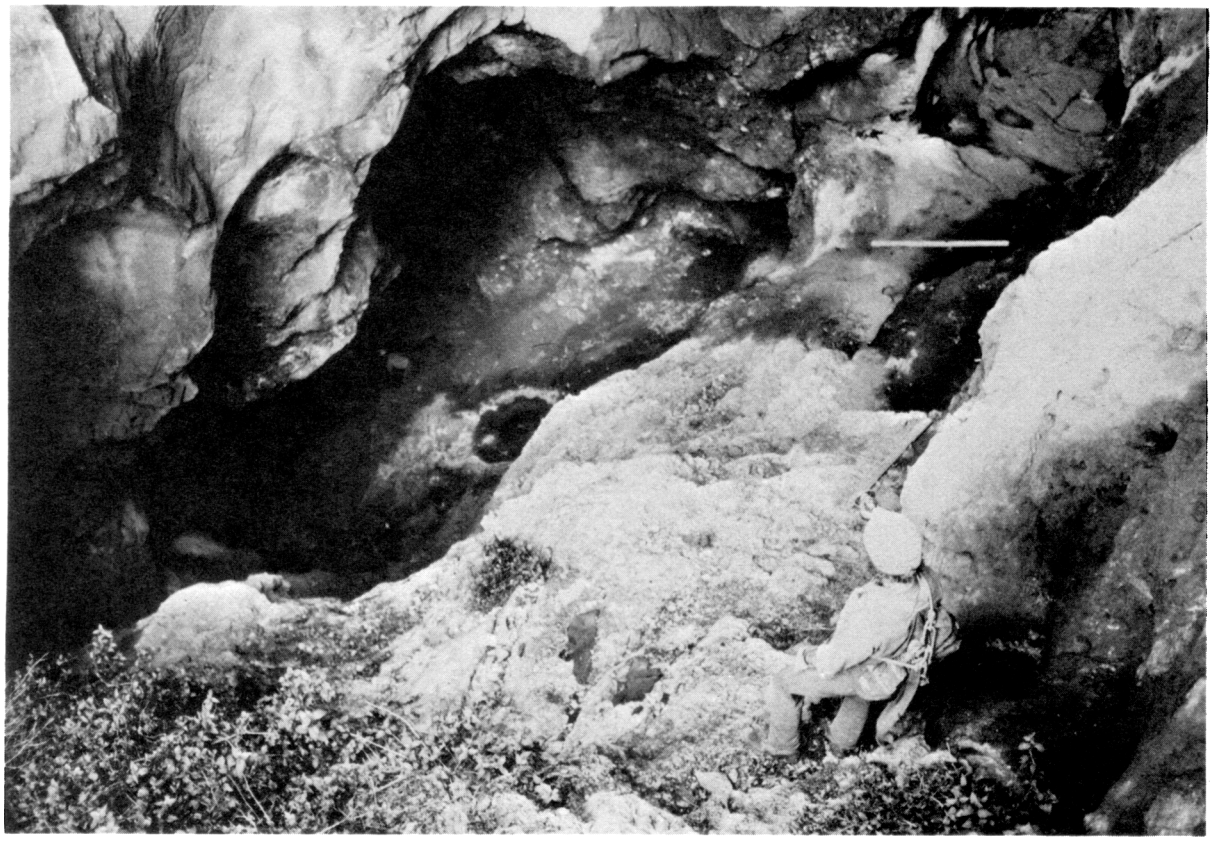


Fig. 5.—Bill Elliott (top) and Ed Alexander at the entrance to Cueva de la Siquita. Photo by Carl E. Kunath.

## Rumored Caves

*Cueva de los Riscos.* A second cave with this name was reported near San Luis del Cordero. It is reported to be entered by a small opening, which then enlarged into an "endless" series of passages and rooms.

*Fissures and small caves near La Pila.* Numerous fissures and small "openings" are reported by Baker (1960) as being located 4 mi SW of La Pila in the Guadiana Lava Field.

*Caves near Mapimí.* Numerous caves have been reported as near Mapimí. A large, possibly natural, opening was seen near the entrance to Cueva de los Riscos. It is the scene of a large mining operation and may be an enlarged natural cave.

*Mine-cave near San Luis del Cordero.* A mine supposedly intersected a large cave a few kilometers from San Luis del Cordero.

*Cave near Santa Ana.* This is reported by Jones (1964) as being a small cave at Santa Ana at an elevation fo 1300 ft.

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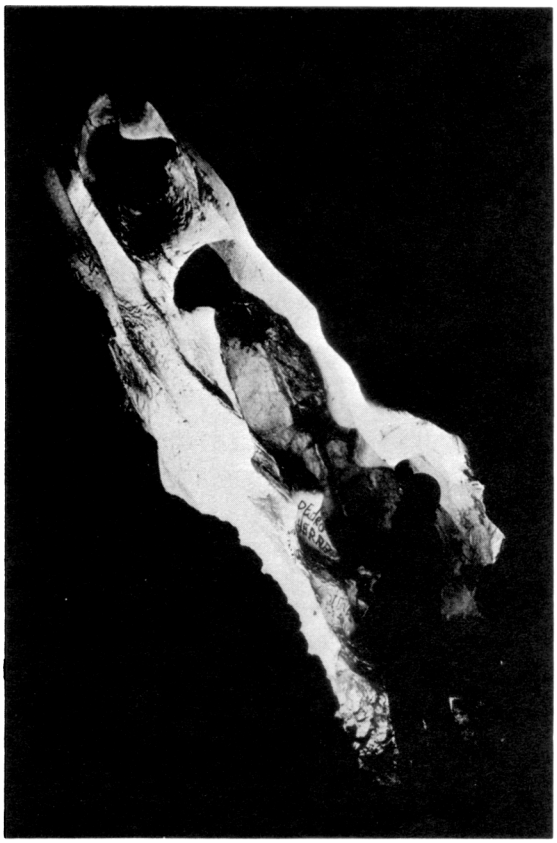

Fig. 6.–Bill Elliott in Cueva del Diablo. Photo by Carl E. Kunth.

## RECENT PUBLICATIONS IN MEXICAN SPELEOLOGY

### Abstracts

Bowman, T. E. 1975. A new genus and species of troglobitic cirolanid isopod from San Luis Potosí, México. Occ. Pap. Mus. Texas Tech Univ., 27. 7 p.

This paper describes a new genus and species of troglobitic cirolanid isopod, *Mexilana saluposi,* from Cueva del Huisache, 4 km NW Micos, San Luis Potosí. This new genus is found to be quite distinctive, but probably derived from an isopod resembling *Speocirolana* or *Creaseriella.*

Bowman, T. E. 1976. Three new troglobitic asellids from western North America (Crustacea: Isopoda: Asellidae). Interŋatl. J. Speleol., 7:339-356.

In addition to the description or redescription of species of isopod from California and Canada, this paper includes the description of *Caecidotea chiapas,* new species, from Cueva de los Murciélagos and Cueva de los Llanos, 15 km ESE of San Cristóbal de las Casas, Chiapas. This troglobite is most clearly related to the troglobitic *C. pasquinii* (Argano) from wells in Veracruz. It extends the range of the family Asellidae south almost to the Guatemalan border.

Brignoli, P. M. 1976. Beiträge zur Kenntnis der Scytodidae (Araneae). Rev. Suisse Zool., 83:125-191.

This review of the family Scytodidae includes the records of all species of the genera *Loxosceles* and *Scytodes* collected by the Italian biospeleologists in México and Guatemala. It also lists all of the species of the family known from the world, including many known from Mexican and Guatemalan caves.

Coons, D. 1976. The river caves. Canadian Caver, 8(1):34-41.

This article recounts the exploration and mapping of Gruta Cacahuamilpa, Cueva del Río San Jerónimo, and Cueva del Río Chontalcoatlán in Guerrero. These famous caves (the later two famed as Las Dos Bocas) form a remarkable system with a total of almost eight miles of surveyed passage. A map is included which shows the three caves in relation to each other.

Delamare Deboutteville, C., and C. Juberthie. 1975. Mission en République de Saint-Domingue et au Guatemala (8 avril au 29 avril 1975). Ann. Spéléol., 30:767-771.

In addition to describing the results of study in several caves in the Dominican Republic, this reports briefly on four caves visited and collected in in Alta Verapaz, Guatemala. Explored were Cueva Chiacam, Cueva de la Candelaria, Jul'Pec Beneack Yaj, and Cueva del Cerrito.

Fernandez Ruíz, G. 1976. Montañas y cavernas. Donde la vida parece imposible. Rev. Geogr. Universal, 1:696-718.

This popular article describes the life of caves and mountains in México. It includes a very brief discussion of the origin of cave life and describes, with excellent photographs, some of the more distinctive species which inhabit Mexican caves.

Gascoyne, M. 1976. M.U.C.C.C. Mexico/Guatemala report, Christmas 1975. Canadian Caver, 8(1):41-51.

This article records the finds of a trip to Chiapas and Guatemala in 1975. The Chiapas part of the trip primarily included cave hunting in the highlands. An 89.1 meter deep pit (Shaft 1) was mapped and the map is included in the report. A map is also included of the "Secteur de la Salida Chicja." Two large sinks, El Ojo Grande and El Ojo Chiquito, were found near Barillas in Guatemala. El Ojo Chiquito is about 200 meters deep, while El Ojo Grande is about 250 meters deep. Both are entered by enormous entrances. Maps of the two caves and an area map is included.

Harmon, R. S., P. Thompson, H. P. Schwarcz, and D. C. Ford. 1975. Uranium-series dating of speleothems. Bull. Natl. Speleol. Soc., 37:21-33.

This important article on speleothem dating includes speleothems from Sótano de Tinaja, Cueva del Arroyo, and Sótano de Soyate, San Luis Potosí, México. The speleothems are dated and their growth rates calculated. It was found that the oldest stalagmite in Cueva del Arroyo was 108,900 plus or minus 4,200 years old.

Hoffman, R. L. 1976. A new lophodesmid milliped from a Guatemalan cave, with notes on related forms (Polydesmida: Pyrgodesmidae). Rev. suisse Zool., 83:307-316.

This includes the description of a new species of pyrgodesmid milliped from Cueva Chirripeck, south of Cobán, Alta Verapaz, Guatemala, as *Lophodesmus petrinus*. The species is also recorded from Cueva Agua Escondida, Huehuetenango, Guatemala.

Kawakatsu, M. 1976. Mexico: Its nature and landscape. The Heredity (Iden), 30(3):34-45. (In Japanese).

This paper by a Japanese flatworm taxonomist relates his experiences and impressions of two trips to México with Dr. Robert W. Mitchell and other Texas cave biologists. His photographs include several of Mexican caves and their fauna.

Opell, B. D., and J. A. Beatty. 1976. The Nearctic Hahniidae (Arachnida: Araneae). Bull. Mus. Comp. Zool., 147:393-433.

This revisionary study includes the description of a new species, *Neoantistea unifistula,* from Sótano de Botella Chica, 2 miles NW of Tequila, Veracruz, México. This species is not adapted for cave life and is probably an accidental.

Rowland, J. M. 1975. A partial revision of Schizomida (Arachnida), with descriptions of new species, genus, and family. Occ. Pap. Mus. Texas Tech Univ., 31:1-21.

This paper includes the description of 4 new species of cave-inhabiting schizomids. A new family, the Protoschizomidae, is erected to include a new epigean genus and the genus *Agastoschizomus. Agastoschizomus* includes the species *A. lucifer* from caves in the Sierra de El Abra and *A. huitzmolotitlensis,* new species, from Sótano de Huitzmolotitla, S.L.P. *Schizomus trilobatus,* new species, is described from Grutas del Coconá, Tabasco; *S. pallidus,* new species, is a troglobite known only from Cueva Macinga, Tlilapan, Veracruz; and *S. lanceolatus,* new species, is known only from Cueva del Diablo, Veracruz.