ASSOCIATION FOR MEXICAN CAVE STUDIES

NEWSLETTER

Volume III Number 1 January-February 1967

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The AMCS NEWSLETTER is published six times a year by the Association for Mexican Cave Studies, P.O. Box 7672 University Station, Austin, Texas 78712, USA. The Association for Mexican Cave Studies is a nonprofit organization whose goals are the collection and dissemination of information concerning Mexican caves. Membership is open to all interested persons at a rate of $5.00 US currency for the calendar year, with memberships starting at the first of each year. Persons joining after the first of the year will receive all publications for that year. Publications of previous years are still available by writing to the AMCS.

Members are urged to submit articles for publication. The article may cover any phase of Mexican speleology. Trip reports are requested from all trips.

NEWS NOTES

- Due to the limited number remaining, Bulletin 1 is no longer available separately. It may be purchased only in conjunction with the 1966 Newsletters at a cost of $6.00 US (heavy paper bound Bulletin) or $9.00 (buckram bound Bulletin).

- Bulletin 2 has just been published and is entitled "Sótano de las Golondrinas". This pictorial folio illustrates and describes the world's deepest free-fall pit. Featured in the Bulletin are a set of eight, 8 by 10 inch full-color photographs, along with a 31 by 33 inch two-color map and a 20 page booklet that describes in detail this tremendous sótano and the surrounding region. Bulletin 2 will be sent free of charge to all 1966 AMCS members and may be purchased separately for $3.00 US.

- 1968 memberships are not being accepted at this time. Do not send dues for this year until further notice.

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NEWS NOTES (continued)

"With respect to caverns in this country, I do not expect to see many, if even any; I have yet met with very little limestone."

Anonymous (1829) 'Extract of a letter to the editor, from a North American resident in Mexico, dated Halcotal, near Temascaltepec, July 13, 1828.' American Journal of Science, Vol. 16, p. 159.

TRIP REPORTS

● Persons: John Fish, Terry Plemons, Ron Ralph
Date: 28 January - 5 February 1967
Destination: Sótano de San Agustín, Huautla de Jiménez, Oaxaca
Reported by: John Fish Austin, Texas

During the semester break, Ron Ralph, Terry Plemons, and I explored and mapped more of Sótano de San Agustín. The sótano was first located in June 1966 (see AMCS Newsletter, v. II, n. 3), and was surveyed down to -920 feet in December 1966 (see AMCS Newsletter, v. II, n. 6). The trip down took place without incident. From Teotitlán del Camino we began the tortuous 50 mile drive to Huautla. The chuckholes in the road had been recently filled with freshly fractured limestone cobbles which had razor sharp edges. Three flat tires and a day later we arrived at our destination, the small village of San Agustín located near Huautla. After acquaintances were renewed and camping arrangements completed, we prepared our gear prior to entering the sótano.

We entered Sótano de San Agustín Tuesday evening, 31 January. Since we were a little short of manpower we decided just to rig ropes past the previous point of furthest exploration, and to check the water conditions of the cave. The usual entrance rigging point is opposite a waterfall which is fed by the stream in the San Agustín dolina. We encountered no problem with the entrance pitch, since the path cut on the jungle-covered slope was still clear. At the bottom of the entrance drop a large fissure slopes down (handline necessary) about 150 vertical feet to a big room. (See photograph on page 4.) The room, which trends in the opposite direction of the fissure, is about 400 feet long, 100 feet wide, and 75 feet high, and has two small streams which join at the lower end. The room abruptly ends and a short small passage intersects a fissure. The fissure may be entered in several places and is a series of short drops totaling 142 feet. Despite the large size of the fissure it is very difficult to keep a carbide lamp lit because of the wind and spray. Near the bottom, it is necessary to get off the rope, traverse around a 10 foot in diameter pool, and then rappel the last 15 feet. Here the cave goes two ways; the water goes to the right down another drop (100 feet plus), while the passage we took continues to the left. The left passage leads immediately to a 52 foot sloping drop, broken by several ledges. A small stream enters the dome above the pit from some other passage, and throughout the rest of the cave we were always following a stream. The cave continues several hundred feet as a stream passage, averaging 5 feet wide and 10 feet high, to a short drop of about 30 feet. The waterfall is unavoidable, but our plastic windbreakers kept our torsos dry. A short distance beyond the drop the ceiling becomes very low and it is necessary to crawl through a few pools of water. The crawlway appears to be a bad sign for the cave, but it quickly opens up into a large fissure passage with numerous domes. As we walked and climbed down the passage we could hear the roar of a waterfall ahead. We climbed up onto a ledge (-849 foot level) and peered into the black canyon below. We could not see the end of the canyon at our level, or the ceiling. After we were properly impressed, I rappelled down the initial 71 foot drop and was followed by Terry and Ron. We found ourselves in a high, narrow canyon that was several hundred feet long, with the floor continuing down a series of drops. We were now at the end of previous exploration (see AMCS Newsletter, v. II, n. 6, p. 163.) Besides the main stream, a small stream

SOTANO DE SAN AGUSTIN. Entrance pit with large fissure leading from bottom. Note person near pool in lower center. Photo by Terry Raines.

issues from a tiny hole in the wall. We continued down the next drop of 27 feet (the surveying was done on our second trip into the cave), and were confronted with a seemingly "bottomless" canyon beyond. A hundred feet above us, a waterfall poured in from some unknown passage. To avoid the waterfalls we climbed along a convenient slot in the wall. The 244 foot rope was tied to a natural bridge in a pothole and Ron rappelled 46 feet between two waterfalls, then swung through one waterfall to a ledge where he retied the rope. Since we had no more rope other than the remainder of the 244, we headed out of the cave. After about 14 hours of caving we saw daylight. again.

Much food and sleep later, we reentered the cave at noon on 2 February, each person carrying 200 feet of rope, mapping equipment, and an extra sweatshirt. We reached the top of the fissure with no problems, divided mapping duties between the three of us, and continued downward. Ron was tape man, Terry sketched, and I ran the Brunton. As we explored and mapped down the fissure, I noted that the cave was developed along a fault dipping about 80 degrees. The fault plane, with about 5 inches of drag folding, was exposed in a couple of places where the fissure ran slightly oblique to the fault for a few feet. This was a good sign because the fault provides a weak zone and the fissure might be very deep. From the bottom of the 71 foot drop, we mapped on down the 27 foot and 46 foot drops until we all three were on the tiny ledge where Ron had stopped on the previous entry into the cave. The fissure widens to about 15 feet at this point. From the ledge we could stay away from the waterfalls as we went down. Ron rappelled and the tape showed the drop to be 76 feet.

At this point the fissure reverses directions and goes back underneath the passage above. By climbing up 15 feet and running along a ledge (while attached to the rope) through the waterfall again, I found a small dry ledge where we could continue down out of the water. Terry and Ron followed right behind. About 50 feet below we could see a large ledge, so Ron started down again with the end of the tape. Only about 15 feet of the 244 foot rope remained. Terry and I quickly joined Ron, and we looked with awe into the blackness below. It was apparent that we were hopping from ledge to ledge down the side of a huge canyon. Here the canyon was about 15 feet wide, and it appeared to widen even more down below. Further ahead rocks bounced until they were inaudible above the sound of the stream. Fortunately we were exploring the cave during a very dry season. During the rainy season it would be unthinkable to explore.

We spied another ledge below, tied off a rope, and Ron went down the 80 foot drop. This ledge was very large and had been left when the stream cut a narrow gorge to a lower level along one wall. Two short drops of 15 feet and 10 feet on the ledge led us to an elliptically-shaped deep pit in the fissure, about 25 feet by 40 feet in cross section. A few feet below a little stream poured out of a tiny hole in the wall and joined the main stream. We tied off a 190 foot rope around a large rock and Ron started down. It was obvious that this big pit was going to present surveying problems. At the end of the 190 foot rope Ron could not see bottom, so Terry went down next with another rope. I found them wedged in a crack in the wall a few minutes later. We tied on a 140 foot rope to the

190 and I continued down, hoping the rope was long enough. We were able to stay out of most of the water by keeping to one side of the pit. Below I could see a plunge pool on the far side of the pit, and also a continuation of the fissure to what looked like an adjacent domepit. I reached bottom with just enough spare rope to tie it off (so it wouldn't hang over the pool), and called for the others to follow. Water from the pool goes underneath a large natural bridge to the next pit about 50 feet away. We gathered around the edge of the pit and again peered into the inky depths. Since we only had a 75 foot piece of rope, all we could do was throw rocks, and throw we did. Some of them fell free for 4 seconds before striking a wall and rattling for a couple of seconds more before hitting a plunge pool. We surveyed over to the pit, then began the long haul out of the cave. I prusiked up the pitch first and was able to shoot a sight all the way from top to bottom. The rope measurement yielded 286 vertical feet. Sótano de San Agustín has now been surveyed about one-half mile horizontally and to a depth of 1473 feet.

We took a rest break at the top of the fissure (849 foot level), then continued out. About 24 hours after entering the cave we finally emerged. The trip out carrying the heavy wet ropes had been a slow process. Again we consumed large quantities of food and took a long rest to revive ourselves. Saturday morning we started back for Austin and arrived Sunday night.

MAPS OF MEXICO

by William H. Russell
Austin, Texas

Accurate and up-to-date maps preform many valuable services other than enabling cavers to find the cave. They serve as a base for resource planning and area development as well as a means to determine the best locations for dams, roads, pipelines and anything else that involves large areas of land. Unfortunately, in a country such as Mexico there are many immediate essentials such as schools and highways that have to come first, so that most of the large scale topographic mapping and aerial photographic surveys are undertaken for a specific project and are limited in coverage. Thus, coverage tends to be scattered and available from many sources. This makes it difficult for the caver to determine even if an area has been mapped, much less to obtain copies, especially when maps were prepared for a specific project and not intended for general circulation. Anyone planning an extensive stay in Mexico is urged to consult the Annotated Index of Aerial Photographic Coverage and Mapping of Topography and Natural Resources - Mexico, prepared by the Organization of American States. This lists all maps and air photo coverage as of 1965.

The most important series of topographic maps is the 1:100, 000 series prepared by the Departamento Cartográfico Militar of Mexico. This series covers roughly the area south of a line extending from the Gulf Coast north of Soto la Marina to just northwest of Cd. Victoria; Tamps., from there south to just west of Cd. Valles, S. L. P.; west from this point to the Pacific Coast north of San Blas, Nay. The southern boundary of this coverage is an east-west line through extreme southern Puebla, except for a strip of coverage extending south to Acapulco, Gro. These maps cover, with a contour interval of 50 meters, many of the major Mexican karst areas from the Sierra de Guatemala, Tamps. and Sierra de El Abra, S. L. P. in the north to Huautla, Oax. in the south. While the accuracy of the contouring is good, the portrayal of the local cultural details, such as trails and the names of rivers, mountains, and towns is frequently misleading. Apparently little money was available for editing the cultural data and only a few places could actually be visited in each quadrangle. Thus, much of the information about the more isolated areas is verbal information that the cartographer applied as best he could. This was sometimes more confusing than if the cultural information had simply been omitted. Many towns and other geographic locations have their names interchanged, or moved a few kilometers from their actual location. These maps, with a scale of about 2 miles to the inch and a contour interval of about 150 feet, are the best available for most of Mexico. It is extremely difficult to obtain copies of these maps from the Departamento Cartográfico Militar; the AMCS soon hopes to have Xerox copies of the cave areas available.

Other topographic coverage is available for limited areas. The Comisión del Papaloapan has 1:100, 000 coverage of the Papaloapan Basin, an area bounded on the west by Orizaba, Ver., Tehuacán, Pue., and

Oaxaca, Oax. The Secretaría de Recursos Hidraúlicos (SRH) is indicated to have detailed coverage of a large area extending from between Cd. Victoria, Tamps. and Cd. Mante, Tamps. south into northern Hidalgo. This coverage is at a scale of 1:50, 000 with a contour interval of 5 meters, and 1:25, 000 with a contour interval of 10 meters. It is not known how accurate these maps are. There are other local areas of large scale mapping but these are the only series covering large areas of interest to cavers. Air photo coverage is available for many scattered areas through Compañía Mexicana Aerofoto.

Road maps of Mexico are not in general reliable except for the main highways. There is no local data-gathering agency to report road conditions, so except for the main state and federal highways there is no accurate data reaching Mexico City where the maps are produced. Also, as Mexico is rapidly building new highways and improving old roads, maps tend to be behind and omit some highways. To compensate for this some maps have shown as complete, highways that were only in the planning stage. And as plans can change, some roads that do not exist may appear on the map. Apparently when one map has a road, the others, not wanting to appear less accurate, include it also. Two of the most important of these imaginary roads are the nonexistent road west across the Sierra Madre from Santiago just south of Monterrey, N. L. and the nonroad between Jalapa de Díaz and Huautla in northern Oaxaca. When leaving the main highway it is always advisable to inquire locally.

Two of the best single-sheet road maps of Mexico are the American Automobile Association Map of Mexico (issued annually in the fall) and the Mapa Turístico de Carreteras (1966) compiled by the Secretaría de Obras Públicas (SOP) and also available through the AAA. (The latter map is included with this Newsletter.) The best road map atlas of Mexico is Caminos de Mexico, third edition, 1967, published by the Goodrich Euzkadi Company and available at most news stands and large hotels in Mexico. This atlas contains 32 road maps of individual sections of Mexico and gives the most complete and accurate coverage of roads, as well as indicating relief by shading. All of the last three maps are relatively accurate, although even the Mapa Turístico indicates a dirt road along the west side of the Presa Miguel Alemán south of Veracruz, Ver. where the country is not even passable on foot. Because many local roads are not shown on any of these maps the best source of information is local inquiry and contact with the AMCS.

BIOLOGY SECTION

MEXICAN CAVE BIOLOGY: ANNOTATED BIBLIOGRAPHY

by JAMES REDDELL
Austin, Texas

1. Allen, Glover Morrill. 1939. Bats. Dover Publ. Co., New York. x - 368pp.
   This classic work on bats, first published in 1939, should be on every caver's book shelf. It contains fascinating readable accounts of the mythology, habits, and classification of bats. Reference is made to several species of bat living in Mexican caves and the account of Ward's 1891 exploration of a cave in Veracruz is reprinted.

2. Baker, Robert J., and Lee Christianson. 1966. Notes on bats from Sonora, Mexico. Southwestern Nat., 11(2):310-311.
   This short paper includes a record of the bat, Pteronotus psilotis, in Cueva la Chinacatera, near Pocitos, west of Pericos, Sinaloa.

3. Barrera, A. 1951. "Notas sobre sifonapteros. II. Descripción de Anomiopsyllus traubi nov. sp. (Siph., Hystrichops.). Ciencia, 11(7-9):197-200.
   A new species of flea, Anomiopsyllus traubi, is described from Cueva de Belén, Zimapán, Hidalgo. The eighth species of the genus was taken from a rodent nest.

4. Chamberlin, Joseph C. 1946. The genera and species of the Hyidae, a family of the arachnid order Chelonethida. Bull. Univ. Utah, Biol. Ser., 9(6):1-16.
   Leucohya heteropoda n. gen. and n. sp. is described from Gruta del Palmito, Nuevo León. A new subfamily, Leucohyinae, is erected to include this unique pseudoscorpion. This distinctive troglobite is known only by one tritonymph. The species resembles European species in the great degree of its adaptation to the cave habitat.

5. Chamberlin, Joseph C. 1947. The Vachoniidae -- a new family of false scorpions. Two new species from caves in Yucatán. Bull. Univ. Utah, Biol. Ser., 10(4):1-15.
   A new family, Vachoniidae, is described to include a new genus and two new species of troglobitic pseudoscorpions. The two species, Vachonium boneti and V. maya, are from Cueva de Sabaca and Cueva de Balaam Canche, Yucatán, respectively.

6. Chamberlin, Joseph C., and David R. Malcolm. 1960. The occurrence of false scorpions in caves with special reference to cavernicolous adaptation and to cave species in the North American fauna (Arachnida--Chelonethida). Amer. Midl. Nat., 64(1):105-115.
This general review of North American cave psuedoscorpions includes reference to the eight species known at that time from Mexican caves.

7. Davis, William B., and Dilford C. Carter. 1962. Notes on Central American bats with description of a new subspecies of Mormoops. Southwestern Nat., 7(1):64-74.
This report on significant new records of bats from Central America includes a record of Natalus mexicanus saturatus in Cueva de La Boca, Nuevo León; of Myotis thysanodes aztecus in a lava cave near Las Vigas, Veracruz; of Plecotus townsendii australis in a small cave 1 mile SSE Almolonga, Guerrero; and of Mormoops megalophylla megalophylla from Cueva del Buen Abrigo, Coahuila, and Cueva de España, Durango.

8. Gates, G. E. 1959. Earthworms of North American caves. Bull. Natl. Speleol. Soc., 21(2):77-84.
This paper reviews all that is known of the earthworms of North American caves. Included are records of four species known from caves in Yucatán.

9. Loomis, H. F. 1962. Two unusual Central American spirostreptid milliped species. Proc. Biol. Soc. Washington, 75:47-52.
This includes the description of a new species of milliped, Orthoporus kiemi, from a cave on Hacienda San Bernardo, between Mérida and Maxcanu, Yucatán. The species is eyed and probably a trogloxene.

10. Martin, Marian, and Paul S. Martin. 1954. Notes on the capture of tropical bats at Cueva El Pachón, Tamaulipas, Mexico. J. Mammal., 35(4);584-585.
This is an account of capturing several species of bat in Cueva El Pachón, Tamaulipas. Several notes on the fauna of this and other nearby caves are also included.

11. Petrunkevitch, Alexander. 1911. A synonymic index-catalogue of spiders of North, Central and South America with all adjacent islands, Greenland, Bermuda, West Indies, Tierra del Fuego, Galapagos, etc. Bull. Amer. Mus. Nat. Hist., 29. 809 pp.
This general catalogue of spiders includes a list and notes on the three species of spiders described from caves in Mexico prior to 1911.

12. Ross, Anthony. 1960. Distribution records for Trichobius sphaeronotus Jobling, with first report for Arizona (Diptera: Streblidae). Pan-Pacific Entomol., 36(2):81-82.

In addition to several United States collections the parasitic bat fly, Trichobius sphaeronotus Jobling, is reported from Carbo Cave, Sonora, Mexico. More than 700 specimens were taken in this cave on August 7, 1959.

13. Ryckman, Raymond E. 1956. Parasitic and some nonparasitic arthropods from bat caves in Texas and Mexico. Amer. Midl. Nat., 56(1):186-190.

In addition to specimens reported from two Texas caves, an unused silo at Mazatlán, Sinaloa, and sugar mill at Boca del Río, Veracruz, a collection is described from a bat cave near Teapa, Tabasco. Two species of bat, a streblid fly, a psychodid fly, a mite, and a whip-scorpion were taken in the cave.

14. Silvestri, F. 1948. Specie di Japygidae (Insecta Diplura) finora raccolti nel Messico. Naples. Universita. Laboratorio di Entomol. Agr. Boll., 8;297-320.

This paper includes the description of Parajapyx mexicanus n. sp., known from surface localities in Quintana Roo and Guerrero and from Cueva de Carroza, Hoctún, Yucatán.

ASSOCIATION FOR MEXICAN CAVE STUDIES

NEWSLETTER

Volume III Number 2

ASSOCIATION FOR MEXICAN CAVE STUDIES

NEWSLETTER

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The AMCS NEWSLETTER is published six issues per volume as frequently as possible by the Association for Mexican Cave Studies, P.O. Box 7672 University Station, Austin, Texas 78712, USA. The AMCS is a nonprofit organization whose goals are the collection and dissemination of information concerning Mexican caves. Membership is open to all interested, conservation-minded persons at a rate of $5.00 US per volume.

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.

NEWS NOTES

- At the time of this publication, all AMCS Newsletters (both Vol. I and Vol. II) have been reprinted to a total of 400 copies per issue. Of these, approximately 300 have been distributed. After considering the time spent on reprinting these issues to meet their demand (time which could have been spent on a new issue), it has been decided never to reprint and to offer the remaining Newsletters on a first-come first-serve basis. It also should be noted that only 10 copies of Bulletin 1, "Caves of the Inter-American Highway" remain. If you desire any of these early AMCS publications, write immediately.

  Vol. I (1965) Publications - 12 Newsletters & Bulletin 1 - $6.00
  Vol. I without Bulletin 2 - $3.00
  Vol. II (1966) Publications - 6 Newsletters & Bulletin 2 - $5.00

- Three well-known Italian biospeleologists, Dr. Valerio Sbordoni and Dr. Roberto Argano of the Instituto di Zoologia in Rome, and Prof. Dott. Vittorio Parisi of the Instituto di Zoologia in Milan, are in Mexico on a two month trip to study different aspects of the biology of Mexican caves. They briefly visited Austin in October en route to Mexico City.

- In June 1966 an AMCS reconnaissance trip to Huautla de Jiménez, Oaxaca, located Sótano de San Agustín. During the following two years several exploration and surveying trips penetrated to a depth of 1473 feet. Then, in December 1968, cavers from Texas, Tennessee, West Virginia, and Ontario combined to reach the bottom of the cave.

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NEW PUBLICATION POLICY

Due to the increasing time lag between the date of a trip and the publication of a report in the Newsletter, the AMCS has completely changed its publication policy. In the future all trip reports will be published in the next Newsletter following their receipt. Volume III will cover no specific time period but will still contain six issues. As a result the Newsletter can present the latest explorations by those persons who promptly send in their reports, while at the same time record the reports that have been delayed for one reason or another. In order that the chronological organization of previous issues may be maintained, and thus minimize confusion, we will annually publish a summary of trips during the previous year. Each entry will have the date of trip, places visited, members of the group, summary of work accomplished, and location of the published trip report. If the report has not been published a blank will be left for later entry by members.

This issue contains the 1967 trip report summaries. The following Newsletter will cover 1968 trips and any 1967 additions promptly sent in by members. If you have made any caving trips into Mexico which have not been reported, please send them in and bring the AMCS up to date. We need your material for the next Newsletter.

NEWS NOTES (continued)

The entrance to Sótano de San Agustín is in the bottom of a large dolina, over 1 mile long and 1/3 mile wide. A stream runs into the entrance and several other streams are encountered below. A complicated system of steep drops and small horizontal passages lead to the top of a large fissure at -849 feet. The fissure descends via a series of waterfall drops to -1736 feet and levels off for 350 feet. A large horizontal passage is encountered at -1786 feet which appears to be blocked by breakdown after about 1500 feet. Where the large passage is first met, the water enters a passage averaging 4 feet wide and 15 feet high, which leads about 950 feet to the lowest point in the cave, 2006 feet below the entrance. Thus, Sótano de San Agustín has become the first cave in North America to be explored and surveyed beyond 2000 feet. Complete details of the exploration will appear in the next AMCS Newsletter.

● Date: 29 March - 8 April 1967
Destination: Sótano de las Golondrinas, Cueva de Ochtalja, Hoya de las Guaguas
Location: Sierra Madre Oriental; Aquismón; Golondrinas, Agua Amarga, Tampaxal. Aquismón, San Luis Potosí
Persons: John and Sandy Cole, Bill Cuddington, Bill Deane, T. R. Evans, Dan Hale, Bob Hugill, Squire Lewis, Jon Morse, Sandino Techo, Nancy Walters, Sid West
Reported by: T. R. Evans

Immediately after returning to Ft. Detrick, Md. after the December 1966 trip to the Aquismón region (AMCS Newsletter, v. 2, n. 6, p. 163), we began making plans to return in order to investigate the Sótano de las Golondrinas that we had been shown. Chuck Borland and Ronald Stearns who were along on the first trip to the area decided that they would be unable to return in April (coincident with the University of Texas' spring vacation); however, there were several other members of the FTA Grotto who could go at that time. We wished to return as early as possible to avoid the rainy season. Thus, four of us planned to go: Bob Hugill, Jon Morse, Sid West and I. We were to be joined by John and Sandy Cole, Bill Cuddington, and Dan Hale from Huntsville, Ala. Bill Deane planned to go from Austin. Cuddington had heard about the pit and offered the use of his rope. The trip would have hardly been possible without it as all of the Austin cavers were planning a big push in the Sótano de San Agustín at Huautla, Oaxaca which would require every foot of rope they could lay their hands on.

Having timed rocks falling down the pit, I was interested in predicting a depth for the pit. Solving a differential equation and running the solution on a computer I found that the pit could not be less that 800 feet deep. We had timed rocks at 10 1/2 to 11 seconds (free fall to bottom... no bouncing) and allowed 9 1/2 seconds for the fall and allowing one second for the sound to reach the top. All concerned waited for the trip with great anticipation.

Bob and Jon had begun caving since arriving at Ft. Detrick, while Sid had been in several caves in California. Sid had done some vertical work but the others from the FTA had not, and I hadn't done much recently. Upon receiving our order from Recreational Equipment we began practicing. Weekends found us at Hell Hole in West Virginia or at Harper's Ferry going off the cliff. During the week we practiced on a 300 foot rope run over a tree limb and were able to Jumar 300 feet at a time in that manner. I saw to it that Bob, Jon, and Sid became proficient at prusik knots as well. I figured if they could make it to the top, they could haul me up. The Huntsville group and Bill Deane were all well-versed in vertical work.

Prepared and ready, we of the FTA got a military hop from Washington, D. C. to San Antonio, Texas courtesy of the Air Force. My father met us there and drove us on to Austin for supper and a repacking session. Later that same night, March 29, I borrowed one of the family

cars and we set out for Laredo. Arriving in the wee hours of the 30th we parked the car and hiked across the bridge to the Mexican customs house and got our tourist cards then went directly to a bus station and got a bus to Monterrey. In Monterrey we made immediate connections for Valles. Around 2 pm while the bus was stopped in Cd. Victoria for a break, we noticed the group from Huntsville driving by and hailed them down. We agreed to meet for supper in Valles and also found out that Squire and Nancy were coming down from the east and picking up Bill Deane in Austin on the way. Later that evening we all rendezvoused at one of the hotels in Valles and planned to meet the next morning to go on to Aquismón.

The Huntsville group went down to Xilitla in order to get a friend of John Cole's, Sandino Techo, who came along and helped us translate. Squire took the rest of us directly to Aquismón where we talked with the Presidente and inquired about getting some mules to haul some of the packs and rope up to the pit. We found that no mules would be available until the following morning. Squire, Nancy, and those of us from Ft. Detrick had planned to hike up with our packs, so gave 500 feet of our rope to the others who were hiking up the next morning with the mules. Squire and Nancy carried the remaining 300 feet of our rope. Bill's "python" and another 1000 feet of rope went on the mules.

Having hiked in the area before and realizing how hot daytime hiking gets, I suggested that we start up that evening around 6 pm or so. After purchasing several liters of caña, an alcoholic liquid distilled from sugar cane that serves as a beverage-maker or fire-starter (it burns with a smokeless blue flame), we started up the trail. By the time we reached La Laja, roughly halfway to the pit, we had been joined by a couple of locals and stopped to have a few relaxing drinks of a caña-refresco variety before retiring for the night in a small hut there which serves as a refreshment stand. In fact, the few drinks developed into quite a party. The following morning we completed the hike to the pit after collecting millepedes near La Laja and having breakfast there.

We arrived in the vicinity of the pit in the early afternoon and arranged to stay at a house about a mile below the pit. We had the woman of the house cook our food for us and prepare the odd pot of coffee. Several chickens, a dog or two, and the odd pig shared the hut with us. There is a small hut at the pit but it was not large enough to accommodate our entire group.

The remainder of the party arrived with the mules and the rest of the gear a few hours later. All had a look at the pit and no one was disappointed. Squire produced his timepiece and we timed several rocks. He got consistent times of 11 to 11 1/2 seconds. Since we were all tired from the hike, we sacked out rather early that evening in preparation for the rigging and descending of the pit the next day.

The following morning, April 2, we rigged the pit with Bill's 2-in-1 Samson, and I being the only one along on this trip who was a member of the discovery group, went down first. Assisted over the edge by several people, I began the descent on a single breakbar rappel. After five feet of virtual free-fall I let my prusik safety catch and again with assistance added another carabiner and breakbar and continued on down. With a double breakbar rig I had no trouble at all; however, as Bob Hugill found out, two breakbars for a light-weight person can cause feeding problems.

Bob had to feed the rope for several hundred feet. The best answer is the rappel rack disigned by John Cole (see NSS News, v. 24, n. 6, June 1964). These racks worked very well.

Reaching the bottom after 1/2 hour I talked with the group on top via walkie-talkie (excellent items to have along) and headed out across the floor of the pit which is all well-lighted by daylight from the top of the shaft. After ten minutes or so, the top called and asked me to return to the foot of the rope to safety Bill Cuddington down. I turned around and couldn't see the rope and after a couple of minutes of looking, still couldn't see it and told the people topside the trouble I was having. Finally I got the wise idea of retracing my footprints back across the dry bird guano and did just that. The immensity of the pit finally dawned upon me. Bob Hugill and Dan Hale followed Bill Cuddington in. With some difficulty a second rope was rigged giving us one for rappelling and one for prusiking or Jumaring. The second rope consisted of three tied together. Bob and I went out the same day while Bill Deane rappelled in to spend the night with Bill Cuddington and Dan Hale. We threw in their down sleeping bags after untying them and they were quite a sight as they drifted down the shaft. It took more than a minute for them to reach the bottom. The following morning John Cole, Sid West, and Jon Morse made the descent. Sandy Cole was busy along with Sandino keeping watch over things topside. Sandy also occupied a lot of her time trying to undo two 500 foot ravels of parachute cord which were to be used in measuring the pit. Squire and Nancy, having helped carry gear up and having assisted during the first day, returned to Aquismón.

By the evening of the third day at the pit (3 April) we were all safely back on top and out of what is certainly quite an awesome pit. The depth of the pit from our rigging point turned out to be 1094 feet. The pit is roughly 200 feet in diameter at the top, belling out on all sides until at the bottom the pit is 1000 feet long and 440 feet wide, containing 10 acres. There is 246 feet of relief on the floor of the pit alone. Virtually the entire floor of the pit is lighted by daylight and a person on the bottom can be seen from the top...as a speck. The tremendous size and depth, the hundreds of green parrots, and the thousands of swallows all contribute in making a trip to the pit worthwhile. One's clearest impression of the size is gained on the way out. No cave passages were found at the bottom. See AMCS Bulletin 2 for a complete description of Sótano de las Golondrinas.

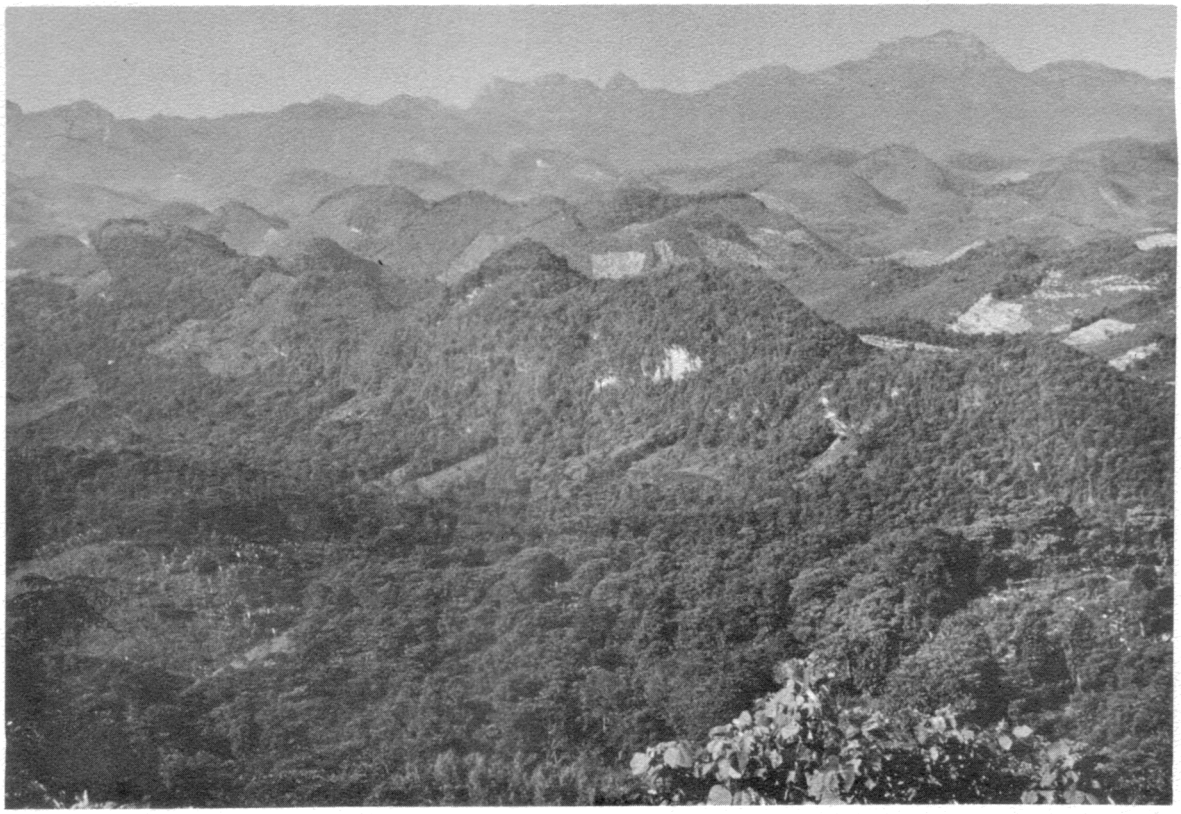
The morning of 4 April found us packing and getting ready to hit the trail. The pit was derigged the previous evening and the ropes fed directly into duffle bags as they were pulled up. The mule driver and mules arrived at 8 am and were loaded up. We from the FTA gathered our gear and headed on to Tamapatz for some more caving. We hired a local Huastecan to carry our 500 feet of rope and draped the 300 foot chain across our shoulders. The others headed back towards Aquismón and thence to Austin and Huntsville.

Bob, Jon, Sid, and I arrived in Tamapatz in the early afternoon and waited for the Jefe to arrive to get permission to explore several caves in the immediate vicinity of Tamapatz. We also arranged to stay at the same shop we stayed at during the December 1966 trip. After talking to the Jefe

we had supper, then that evening went down to have a look at the cave near Tamapatz we found in December with the small arroyo entering it, named Cueva de Ochtalja (See AMCS Newsletter, v. 2, n. 6, p. 166 and photos on page 20 of this issue). Bob, Jon, and Sid rigged a rope at the entrance which is a passage about 30 feet wide and 20 feet high which descends about 75 feet very steeply over polished boulders and flowstone. They followed the passage from the bottom of the entrance several hundred feet to a 15 foot undercut drop which required equipment. They found the cave to be extremely promising and plans for exploring the 6-second pit found in December were cancelled. The following day we returned to the cave for more serious exploration and took some short lengths of rope for small drops. The passage is a stream passage that follows the contact of the El Doctor and Agua Nueva Limestones. The passage averages 20 feet wide and 10 feet high but enlarges in places to 75 feet wide and as high. One large room is developed to the left of the main passage going in, about 300 feet from the entrance. The room is roughly 100 feet long and as wide and 40 feet high with a breakdown slope angling down from the ceiling of one side to the floor of the other. The room contains some formations. Between the main passage and this room is an area of beautiful rimstone pools.

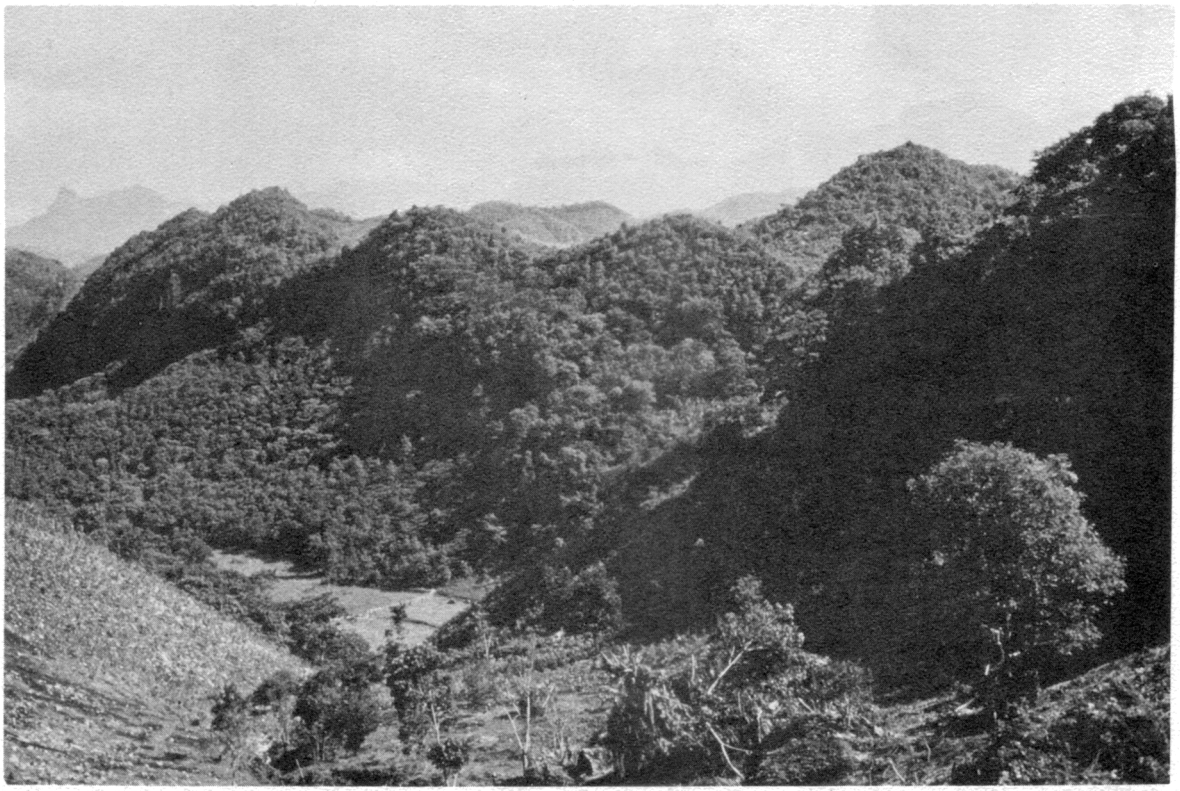
Continuing on to the 15 foot drop, we rigged it and went down. The cave passage enlarges considerably here (from 15 feet wide and as high to 40 feet wide and as high) and continues to enlarge gradually for several hundred feet where the passage abruptly descends at -45° for about 200 feet over cemented boulders and flowstone to one of the smallest parts of the main passage explored -- a tube affair about 10 feet in diameter which continues on down several climbable drops to a lake room 20 feet in diameter and as high. From this room a passage continues about 30 feet to a drop estimated to be 50 to 75 feet which drops into a pool of water. We were not able to descend this drop and dragging 300 feet of rope back to this point to rig a 50 foot drop was not considered worthwhile. This drop is about 1000 to 1500 feet from the entrance.

The next day, 6 April, we got the same bearer that carried our rope from the pit to Tamapatz and headed toward the Inter-American Highway, planning to stop off and have a look at another pit we heard about, the Hoya de las Guaguas. After several hours of hiking we reached the pit. The Guaguas pit is much the same as Golondrinas, large enough to be deceptive. It is 150 to 200 feet in diameter and appears to be 250 to 300 feet deep, but in fact it is nearly 500 feet deep. The bottom of the pit is clearly visible during daylight and vegetation covers much of the floor. Having both a 300 foot and 500 foot length of rope, we played it safe and rigged the 500 foot length and were pretty sure it was on bottom. Sid was given the honor (actually the rest of us were too tired) of going down to investigate. When he was about 1/2 way down, we noticed that there was a four-foot long, black and white animal of some sort wandering around on the bottom. We yelled down to Sid who finally saw the animal and continued on down. Sid never saw the thing after he reached the bottom but saw numerous trails crossing the pit floor. From its markings it is thought that the animal is a tayra, a weasel-type animal that inhabits southern Mexico. The animal's presence in the pit is most striking since the Hoya de las Guaguas is bell-shaped just like Golondrinas. Reaching the bottom after 15 minutes or so, Sid de-rigged



View south from Tamapatz. Limestone mountains in background rise to over 9000 feet. The peak, La Silleta, at left edge of photo.

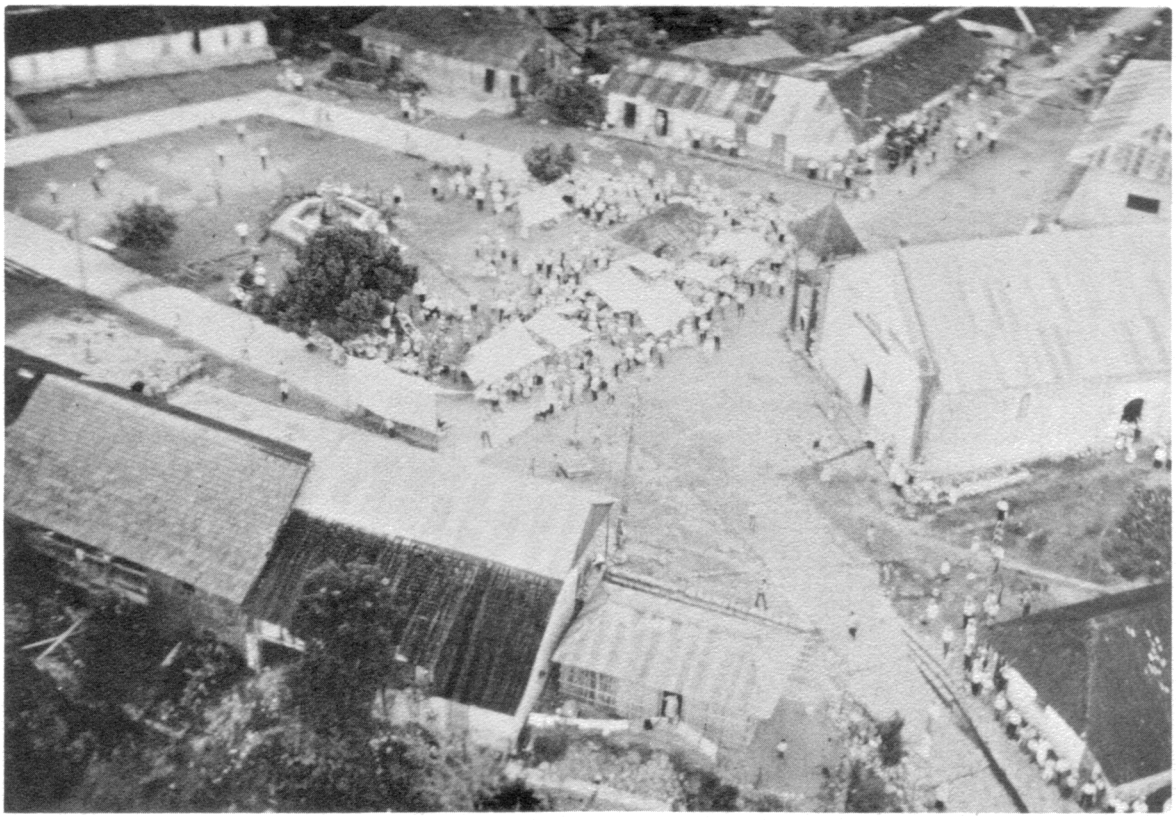
Haystack hills in karst southwest of Tamapatz.



Hoya (dolina) Ochtalja. Cueva de Ochtalja is developed at the base of the mountains in center. Overthrust sheet of El Doctor Limestone forms right wall of the hoya.

Cueva de Ochtalja. Streams drain the relatively impervious Agua Nueva Formation and flow into cave entrance.

One of the many refreshment stands on the Aquismón-Tamapatz trail.



Town of Tamapatz. Aerial view.

EXPEDITION OF '67

Front row: Tommy McGarrigle(r), Jonathan Davis, Bill Bell, Tom Tracy, Laurie Cameron, Terry Raines

Back row: Orion Knox(r), Ed Alexander, Bob "Rooney" Burnett, Bob Thren, John Fish, Dave Brison

to find himself at the top of a long slope. He wandered down the vegetation-covered slope several hundred feet and disappeared into a large opening visible from the top. The floor of the pit sloped into this area and Sid found himself in a room of "Carlsbadian" dimensions...but without a floor. He tried to throw rocks across to the far wall but was unable to do so. The rocks fell to the bottom first, requiring between 6 and 7 seconds. Sid Jumared out and we rechained the rope and continued on down to the Highway, arriving after 3 more hours. We caught a bus to Tamazunchale and spent the night there after taking in a fiesta of some kind that was taking place at the plaza. The next morning we caught a bus to Mexico City for a couple of days of sightseeing, rest and recuperation.

Accomplished on this trip were the exploration of Sótano de las Golondrinas and the investigations of Cueva de Ochtalja and Hoya de las Guaguas. Needless to say, much work still needs to be done in this promising area.

● Date: 1-8 April 1967
Destination: Sótano de San Agustín
Location: Oaxacan Mountain System; Huautla; San Agustín. Huautla, Oax.
Persons: Ed Alexander, Bill Bell, Dave Brison, Bob Burnett, Laurie Cameron, Jonathan Davis, John Fish, Tommy McGarrigle, Orion Knox, Jr., Terry Raines, Bob Thren, Tom Tracy
(see photo on opposite page)
Reported by: Orion Knox, Jr. Austin, Texas

On 31 March, Terry Raines, Tommy McGarrigle, and I left Austin in Terry's truck. We proceeded on past Mexico City with few stops. It was on the road south of Tehuacán that we caught up with Dave, Bob, and Laurie. The weather was fine until we started up into the mountains. By the time we reached Plan de Guadalupe, it was almost impossible to see the road for the fog and rain. We camped beside the road and woke up to rain early the next morning.

Driving on, we arrived at Huautla about noon, drove through town, and finally reached San Agustín after lunch. By now the weather had cleared somewhat which provided a chance to hike in the immediate area before the remainder of the crew arrived. We hiked across to San Miguel then by a round-about way back to camp at San Agustín. Numerous sinks were located.

By the time we returned, John Fish and Ed Alexander had arrived with their vehicles filled with people and equipment. It was too late to start into the cave. Also, we wanted to let the amount of water entering the cave decrease.

Our plans were to assault the cave in teams, with each team carrying equipment in and pushing to the next deeper point. Early in the morning of 3 April Bill, Jonathan, and Tom took the first load of equipment and started rigging the first drops. A few hours later, Roonie, Ed, John, and I started into the cave, while Terry and Tommy followed making photos of the assault on the cave.

Part way down we ran into the first team returning to the surface. Their report was that the water was extremely high all the way down. Hoping to find a way to rig around the waterfall further down, we continued on. The first crew had rigged the pits to the top of the fissure at the -849 foot level and it was here that we were to continue rigging. We paused for a brief lunch, then continued with the rigging of the next drop of 71 feet. Due to the very rough texture of the rock we spent some time placing and padding the rope. We rappelled down the 71 foot drop;then, using the rope as a handline, we climbed down an additional 10 feet to about the 930 foot level. We had rejoined the main flow of water at this point and were at the top of the next drop. The water was flowing through a "V" slot in the floor and on down to the ledge below. We spent much time surveying the situation, trying to figure some way to rig the drop out of the main force of the waterfall. Due to the narrow condition at this point we finally decided that it was going to be impossible. We returned to the 849 foot level and there, after some discussion,decided that due to already large quantities of water flowing into the cave and as it appeared that we were faced with an unusually heavy and early rainy season, it would be best to abandon hopes of going deeper into the system this trip.

Gathering up all the gear we could carry, we started back out and shortly met Terry and Tommy. We explained the situation and then all continued our exit.

The next morning Jonathan, Roonie, Ed, Dave, Bob, and Laurie reentered the cave and exited about noon with the ropes. We loaded all the equipment into the cars and began the long drive out of the mountains. On the way we stopped in Huautla and had a very friendly talk with the Presidente, who said the next time we returned he would show us some pits on his farm.

● Date: 26-30 November 1969
Destination: Previously unexplored caves near Ciudad Mante, Tamps.
Location: Sierra Madre Oriental: Sierra de Guatemala - Chamal and Gómez Farías areas; Sierra de El Abra - Quintero-Pachón area
Persons: Janie Evans, T.R. Evans, Louis Hembry, Ron Rossburg, Carol Russell, Bill Russell
Reported by: Bill Russell Austin, Texas

The trip left Austin about 8 pm Wednesday and drove straight through, arriving at the Nacimiento del Río Frío, 20 miles north of Cd. Mante, about noon Thursday. The rest of Thursday was spent checking the various springs and looking for caves in the area. The Río Frío flows from a large spring, the Nacimiento del Río Frío, and shortly is joined by the Río Nacimiento. The Río Nacimiento flows along the base of the Sierra de Guatemala and is named for a series of large springs, or nacimientos, that combine to form the river. About one-half mile northwest of the Nacimiento del Río Frío is the Nacimiento de La Florida, located where a gully draining the face of the range enters the Río Nacimiento. Another large unnamed nacimiento is located just southwest of the La Florida Nacimiento. The Río Nacimiento itself flows from a spring called simply "El Nacimiento", located 1 1/2 miles northwest of the Nacimiento del Río Frío. We explored a cave at the end of

a gully that leads into the Río Nacimiento for a few feet to where it narrowed to a series of impassably small fissures. This cave appears to discharge large amounts of water during floods. Above the cave another entrance was discovered that a few feet to a fissure dropping about 40 feet to water. This drop was not descended due to lack of equipment.

The weather was unusually cold and the clouds hung low on the mountains, but as it had not rained all afternoon we decided to camp at the nacimiento. We made it through the night with only a few sleep-disturbing drizzles, and left next morning just as a light rain began. The clouds continued but the rain did not last, so we drove west to Chamal (northwest of Mante on the Ocampo highway) and then north and west on dirt roads to Rancho de la Barranca at the southern end of the Sierra de Guatemala, near where it joins the Sierra de Nicolás Pérez. Just north of this ranch a large pit had been spotted from the air in the midst of a thick jungle. After asking directions at the ranch we set out into the jungle. An old, now somewhat washed out, road leads into the canyon north of the ranch and we followed this road up into the Sierra de Guatemala through dense jungle overgrown with bamboo. A short distance into the mountains T. R. noticed a cave entrance in a low cliff above the road and clambered up to investigate. The entrance led to a short climb up into a passage that opened back on the cliff face and continued on into the mountain, averaging 10 feet wide and 15 feet high. A short distance inside a shallow pit temporarily blocked progress, but a way was found to pass the pit and T. R. explored the cave for several hundred feet with a flashlight. He concluded that the cave was promising and returned to the entrance. Following the map drawn from the air and the local instructions, we walked to the lip of the pit. From the air it had resembled a large green funnel, and from the ground it could be seen that the pit was actually larger, as trees and undergrowth grew thickly on the sides and overhung the pit. The top of the funnel is about 500 feet across, and slopes steeply downward. The pit is overhung on the north and east, but by carefully working our way around the side to the south edge of the pit, we found a steep, dry stream channel that could be climbed down 200 feet to underneath the north overhang. Here there is a sort of pocket formed on the top of a massive white limestone and the stream channel drops into a fissure about 10 feet wide, heading north under the overhang. Unfortunately the base of the fissure was over 100 feet below and we had left our rope at the car. It was already late, so exploration had to be postponed. We then returned to the car, ate, and lit our carbide lights to walk back through the night to the cave beside the road that T. R. had located earlier. This cave led through passages from 10 to 15 feet high, except for several domes that extended up out of sight, to an unclimbable 30 foot pit. Returning to the entrance we discovered it was raining, and this caused considerable worry as we had crossed several miles of dirt roads to reach the ranch. Abandoning all ideas of exploring the pit, we drove to Mante and spent a luxurious night in a hotel. The local name of the pit is Sótano de Caballo Moro and the cave, reportedly used by missionaries, is called Cueva de los Misioneros.

The next morning we again braved the weather and this time we hoped to locate a deep pit reported to lead to an underground river. This pit is on the top of the Sierra de El Abra between the small towns of Quintero and

Pachón just south of Cd. Mante. We decided to try to reach the pit from Quintero and found several school kids to guide us. They also knew of a cave that required no rope that was on the way, and informed us the pit was about an hour's walk and the cave was only a few minutes away. However, after struggling up the almost vertical face of the mountain with our 400 feet of rope we revised their estimates. After an hour we reached the cave, a large sink about 1/4 mile southwest of Quintero that had been seen from the air but not yet visited by cavers. This cave, Cueva de las Colmenas, has a large pit entrance about 250 feet across and 75 feet deep with a vine covered pile of breakdown in the center. It was possible to climb down into the pit over breakdown on the northwest side and exploration began. The main cave led west about 100 feet below the surface for several hundred feet. This passage consisted of a series of high rooms connected by low crawlways. On the way back from the end of this passage a small inconspicuous crawlway on the left (going out) was checked. It led into a low room with two small holes that dropped into a pit. Rocks dropped into the holes bounced on down. The pit did not appear deep, but as we only had a single 400 foot length of rope we lowered it down and rappelled in. The two small entrances soon joined and the pit enlarged to about 8 feet wide and 15 feet long and continued on down for 155 feet to an offset, then down about 20 more feet to another offset. At this point rocks bounced on down for several seconds and cound not be heard to hit bottom. As it was late and the trackless top of the El Abra was shrouded in fog, further exploration was postponed and we rechained the rope and headed back. Half-way back our guides conferred and decided we were lost, but by sounds from the highway below, and our compass, and luck, we reached the trail and slid down into town. From Quintero we drove north, heading to Austin.

PHYSIOGRAPHIC DIVISIONS OF MEXICO

by William H. Russell

Many times the usual practice of locating Mexican caves by state and municipio (equivalent to a U.S. county) does not give the required location precision. It frequently groups together caves in strikingly different areas, with different geological and geomorphic histories, or it divides into several groups caves in a single homogeneous region. To supplement the state and municipio locational system, a system based on physiographic regions is outlined in this article. Thus, caves that could be expected to have a similar history are grouped together, and the influence of rainfall, elevation, and other factors can be more easily examined. This system is not intended to replace locations by state and municipio, but only to group together caves in a locally similar area. Both the physiographic and political divisions will be listed in trip reports and in the cave files.

The largest division is the province, a large area of generally similar topography, such as the mountainous Sierra Madre Oriental. The next largest division is the region, usually a large area of continuous outcrop of caverniferous rock, or several closely related outcrops. Regional boundaries enclose areas throughout which there is no sharp physiographic break. When regional boundaries cross caverniferous areas they follow narrow zones of relatively rapid local change, such as a change in elevation, structure, or rainfall. The smallest division is the area, a small region of relatively uniform conditions only a few miles in extent.

PHYSIOGRAPHIC PROVINCES

These provinces are modified from the system proposed by Ramón Alcorta Guerrero in his Esquema Geográfico de México, in Caminos de México. These provinces have been divided into local divisions areas where the AMCS had sufficient field data. (See map on page 29).

1. Northern Basin and Range (Planicie Septentrional) - An area of folded and faulted ranges separated by wide intermountain valleys and basins. Located in north-central Mexico and bounded roughly by Cd. Acuña, Monterrey, Torreón, Parral, Chihuahua, and Cd. Juárez.

2. Central Plateau (Altiplanicie Central) - A high mountainous plateau of central Mexico bordered roughly by Saltillo, Pachuca, Guadalajara, and Durango.

3. Sierra Madre Oriental - A mountainous zone extending along the Gulf Coastal Plain from the Saltillo-Monterrey area south to Pachuca.

4. Gulf Coastal Plain (Llanura Costera del Golfo de México) - A generally level plain with a few relatively isolated mountain ranges. This area extends from Nuevo Laredo and Matamoros south along the Gulf of Mexico, and from the Gulf west to Cd. Victoria and south to near Jalapa.

5. Sierra Madre Occidental - A zone of principally volcanic mountains in northwestern Mexico extending north from east of Tepic to near Cd. Juárez and Nogales. It lies to the east of Culiacán and Hermosillo, and west of Durango and Chihuahua.

6. Baja California - The peninsula of Baja California.

7. Northwestern Coastal Plain (Llanura Costera del Noroeste) - The coastal plain along the eastern edge of the Gulf of California from Tepic to Nogales and Mexicali.

8. Transverse Volcanic Belt (Sierra Volcánica Transversal) - A band of volcanic mountains that extend from south of Tepic on the Pacific Coast through Mexico City to Veracruz and Jalapa on the Gulf of Mexico.

9. Papaloapán-Grijalva Plain (Llanura del Papaloapán-Grijalva) - A generally flat plain along the Gulf of Mexico from Veracruz to the Yucatán peninsula.

10. Oaxacan Mountain System (Sistema Montañoso Oaxaqueño-Poblano) - A mountainous area extending south from Orizaba, east of Tehuacán, and south to beyond the city of Oaxaca.

11. Balsas Depression (Depresión del Balsas) - A relatively low area extending along the Río Balsas from near Tehuacán on the east into the state of Jalisco on the west. Bounded approximately by Iguala on the north and Chilpancingo to the south.

12. Sierra Madre del Sur - Rugged mountains in southwestern Mexico, extending from near Colima along the Pacific Coast south to Tehuantepec.

13. Tehuantepec Plain (Planicie de Tehuantepec or Planicie Costera de Chiapas) - A narrow coastal plain along the Pacific Coast from Tehuantepec southwest through the state of Chiapas and into Guatemala.

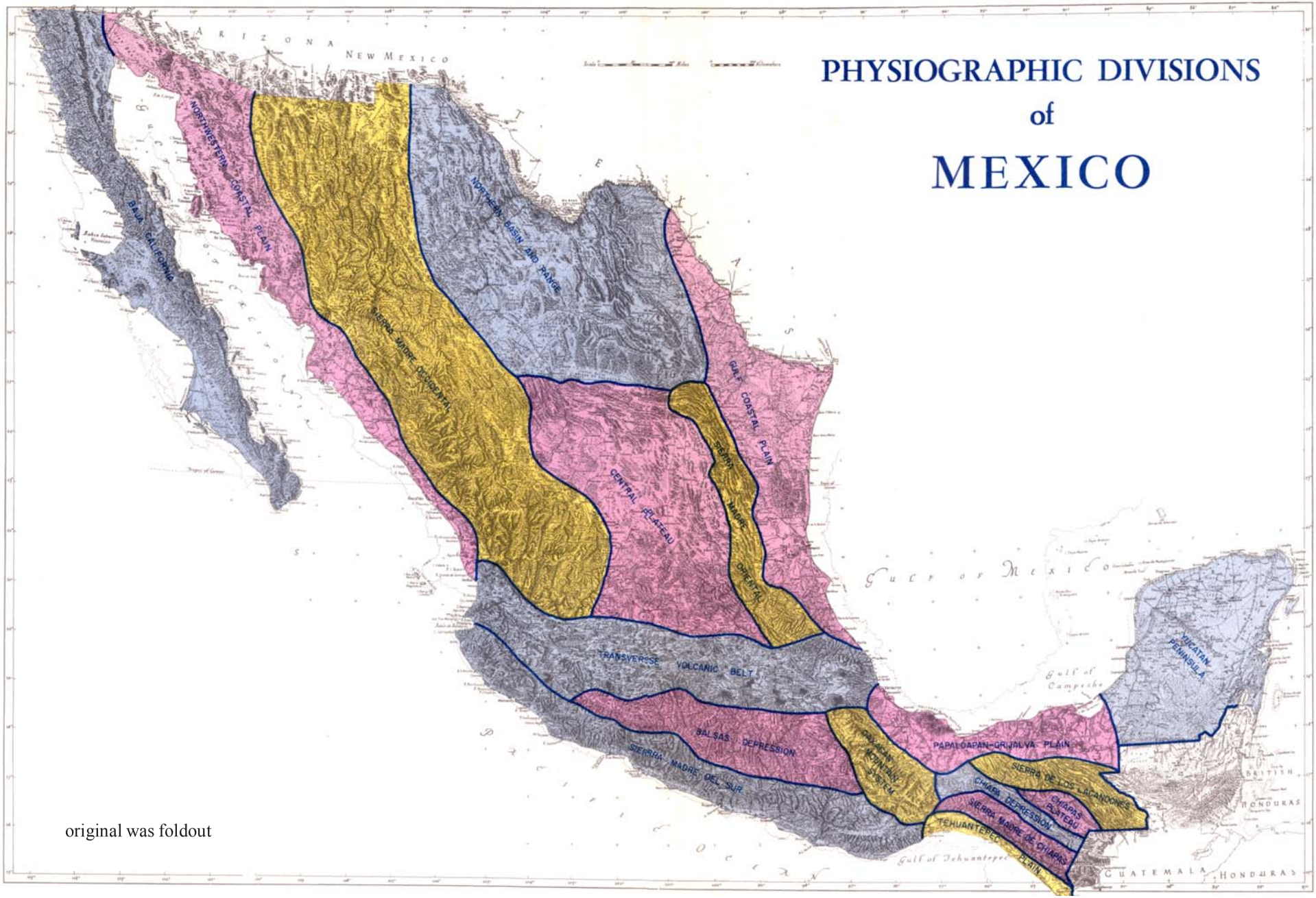
14. Yucatán Peninsula (Península de Yucatán) - The relatively flat limestone plain in Campeche, Yucatán, and Quintana Roo.

15. Sierra Madre de Chiapas - Volcanic mountains extending from southeastern Oaxaca state along the coastal plain southeast into Guatemala.

16. Chiapa Depression (Depresión del Chiapa) - A relatively low area along the Río Chiapa (Grijalva) from northwest of Tuxtla Gutiérrez southeast to Cd. Cuautémoc on the Guatemala border.

17. Chiapas Plateau (Altiplanicie de Chiapas) - A high limestone region extending southeast from San Cristóbal through Comitán into Guatemala.

18. Sierra de los Lacandones.- An area of folded mountains extending from south of Villahermosa southeast into Guatemala.



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Eventually all of Mexico will be divided into regions and areas, though at present no such division has been completed. When division of any province or region is complete, detailed maps showing the smaller subdivisions will be published. The following regions and areas have been established:

1. Northern Basin and Range
   - Sierra de Gomas
     - Bustamante
     - El Potrero
   - Sierra de Lampazos-Sabinas
   - Pico de Carrizal

2. Sierra Madre Oriental
   - Galeana
   - Sierra de Guatemala
     - Chamal
     - Gómez Farías
     - Rancho del Cielo
     - Joya de Salas
   - Sierra de El Abra
     - Riachuelo
     - San Rafael
     - Quintero-Pachón
     - Venadito
     - San Ricardo
     - Yerbaniz
     - Los Sabinos
     - Ventana Jabalí
     - Taninul
     - El Pujal
     - Tantobal
     - Río Coy
   - Aquismón
     - Tampate
     - Tampaxal
     - Golondrinas
     - La Cuchilla
     - Agua Amarga
   - Xilitla
     - Arroyo Seco
     - Tlamaya
     - Huichihuayán
     - La Silleta
   - Jalpan
     - Puerto de Ánimas
     - Ahuacatlán

4. Gulf Coastal Plain
   - Sierra de Tamaulipas
   - Sierra de San Carlos

10. Oaxacan Mountains
    - Orizaba
      - San Andrés Tenejapa
      - Tequila
      - Zongolica
    - Huautla de Jiménez
      - San Andrés
      - San Agustín
      - San Miguel Huautla
      - Puente Fierro

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Alcorta Guerrero, Ramón "Esquema Geografico de México" in Caminos de México, 3rd ed., 1967, Mexico.

Raisz, Erwin. Landforms of Mexico (map), Office of Naval Research, 2nd ed., 1964, Cambridge, Mass.

DATE	NORTHERN MEXICO	SOUTHERN MEXICO
28 Jan - 5 Feb		Oaxacan Mountain System province; Huautla region; San Agustín area. Municipio de Huautla de Jiménez, Oaxaca. John Fish, Terry Plemons, Ron Ralph Exploration and surveying continued in Sótano de San Agustín from -920 to -1473 feet. San Agustín now second deepest cave in North America. AMCS Newsletter v. III, n. 1, p. 3.
29 March - 8 April	Sierra Madre Oriental; Aquismón; Golondrinas, Agua Amarga, Tampaxal. Municipio de Aquismón, S. L. P. John & Sandy Cole, Bill Cuddington, Bill Deane, T. R. Evans, Dan Hale, Bob Hugil, Squire Lewis, Jon Morse, Sandino Techo, Nancy Walters, Sid West First descent of Sótano de las Golondrinas. Cueva de Ochtalja explored for 1000-1500 feet. First drop in Hoya de las Guaguas explored. AMCS Newsletter v. III, n. 2, p. 15.	
1 - 8 April		Oaxacan Mountain System; Huautla; San Agustín. Huautla de Jiménez, Oaxaca Ed Alexander, Bill Bell, Dave Brison, Bob Burnett, Laurie Cameron, Jonathan Davis, John Fish, Tommy McGarrigle, Orion Knox, Terry Raines, Bob Thren, Tom Tracy First organized assult by a large group on Sótano de San Agustín. A drop at the previously-surveyed -930 foot level was reached before high water, due to an early rainy season, haulted progress. AMCS Newsletter v. III, N. 2, p. 23.

June	Sierra Madre Oriental; Aquismón, Golondrinas. Aquismón, S. L. P. Ed Alexander, Jonathan Davis, John Fish, Dick Mitchell, Ted Peters Surveyed Sótano de las Golondrinas. AMCS Newsletter
1 - 6 June	Sierra Madre Oriental; Monterrey region. Central Plateau; Matehuala region. Miles Abernathy, Duane Faith, Bill Miller, Joe Sumbera. Explored Cueva de Casa Blanca and Cueva de Aguila del Oro near Monterrey, explored 1000 feet in Cueva de Matehuala, and visited several gypsum caves. Talked with Mexican caving group in Matehuala. AMCS Newsletter
1 - 7 June	Sierra Madre Oriental; Sierra de Guatemala region; Rancho del Cielo, San José. Sierra de El Abra region; Taninul, El Pujal, Pachón-Quintero. Dr. Francis Abernathy, Dr. Robert Mitchell, James Reddell, Dr. Pierre Strinati. Biological collections in Mine Cave, Cueva de Taninul n. 1, Cueva del Pachón, and Grutas de Quintero. AMCS Newsletter
6 - 13 June	Sierra Madre Oriental; Aquismón; Golondrinas. Aquismón, S. L. P. Ronnie Aycock, Dan Chase, Kirk Holland, Jon Resager, Richard Schreiber, Marion Smith Visited Sótano de las Golondrinas AMCS Newsletter

6 - 18 July

Central Plateau; Jalpan region. Sierra Madre Oriental; Xilitla, Sierra de Nicolas Peréz, and Sierra de Guatemala regions.
John Fish, James Reddell, Philip Russell.
Biological collections. Located numerous caves including Gruta de El Puente near Ocampo and Sótano de El Refugio, a 180 x 150 foot pit, 400 feet on low side and 475 feet on high side.
AMCS Newsletter

30 July - 27 Aug

Oaxacan Mountain System. Chiapa Depression. Chiapas Plateau. Central Plateau.
T. R. Evans, John Fish, James Reddell, Mills Tandy
The principal purpose of this trip was to make biological collections in caves in the general vicinity of Orizaba, Veracruz, and Huautla, Oaxaca, and to make the first reconnaisance by AMCS members of Chiapas. In addition to this the famed Grutas de Tonoltongo, near Ixmiquilpan, Hidalgo, was visited for the first time. Many new caves, some quite large, and several spectacular new pits were located. New biological discoveries included the second blind scorpion in the world and a new species of ricinuleid.
AMCS Newsletter

1 - 10 Sept

Sierra Madre Oriental; Aquismón and Tancoyol regions; Golondrinas, Agua Amarga, Rancho Nuevo, La Cuchilla, La Parada areas.
Bill Calvert, T. R. Evans, John Fish, Terry Raines, Bill Russell
Photographed Sótano de las Golondrinas. Located Cueva de Muhaut, Cueva del Nacimiento de San Miguel, Sótano de San Isidro, and Cueva de Santaxol.
AMCS Newsletter

23 - 26 Nov

Sierra Madre Oriental; Sierra de El Abra region; Tantobal, Los Sabinos, Venadito, Pachón-Quintero areas.
AMCS Sierra de El Abra Project (about 50 people)
Started survey of Sótano del Tigre and Sótano de Venadito, discovered blind fish in Sótano del Tigre, first visited

Cueva de La Florida, and mapped in Cueva de Tantobal.
AMCS Newsletter

20 Dec - 7 Jan

Oaxacan Mountain System; Huautla; San Agustín.
Alan Ball, Bill Biggers, Mike Boon, Ian Drummond, Keith Kennedy, Titch & Monica Morris, Pete Thompson.
Explored the Río Iglesia System to a depth of 1755 feet, a new North American record.
AMCS Newsletter

22 - 31 Dec

Oaxacan Mountain System; Huautla; San Agustín.
Ten persons
Entered Sótano de San Agustín to -1473 foot level and were turned back by high water. Located several new caves and pits.
AMCS Newsletter

24 - 30 Dec

Sierra Madre Oriental; Xilitla region; Tlamaya area. Aquismón region; Golondrinas area.
Jay Arnold, Norm Kettering, Steve Klein, Leigh Lawton, and Bill Tozer.
Visited Sótanos de Huitzmolotitla, Tlamaya, and Golondrinas
AMCS Newsletter

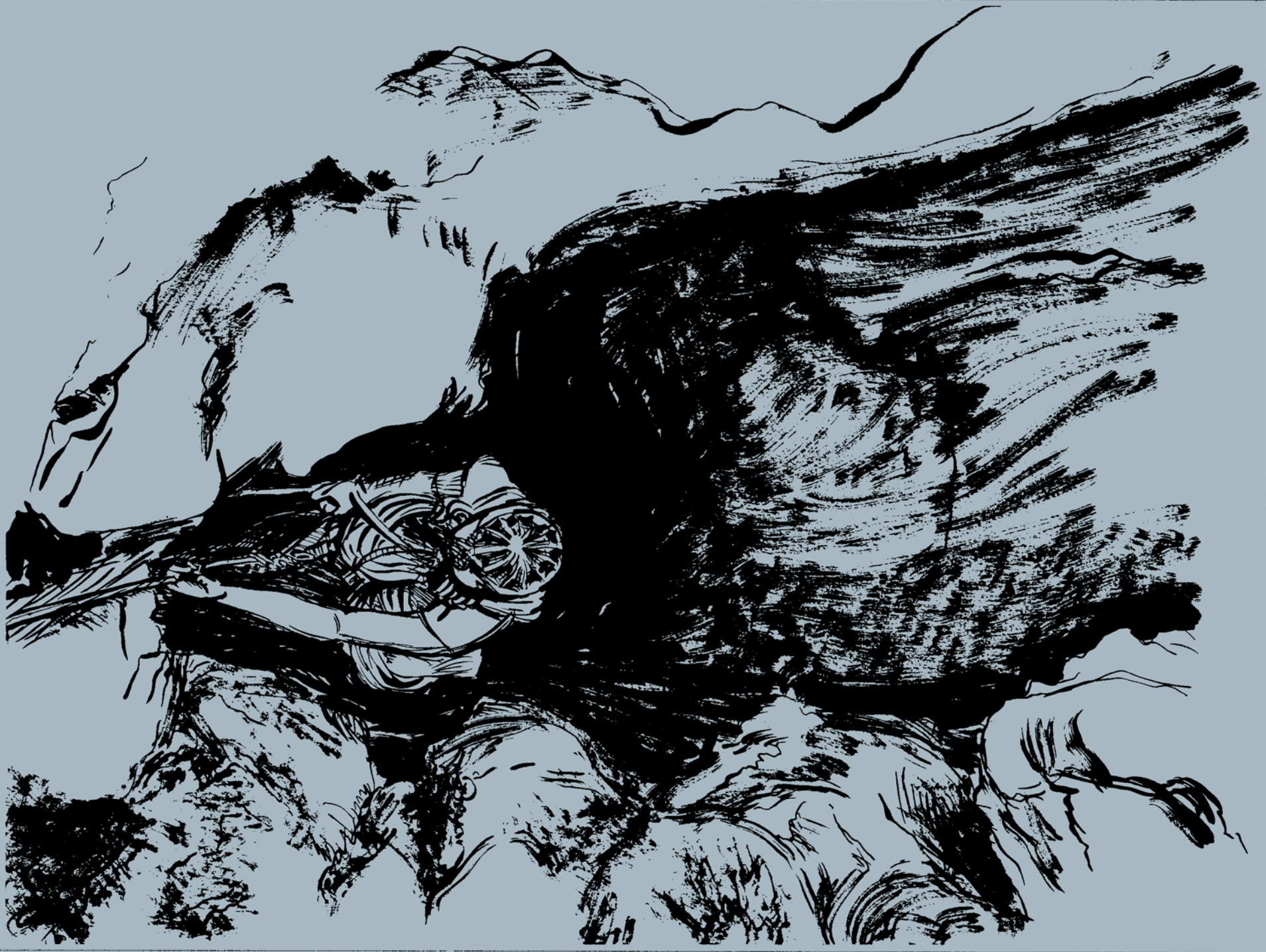
15 - 30 Dec

Sierra Madre Oriental; Xilitla; Silleta.
John McLean, Dave Nelson, Chuck Pease, Cort Schuyler, Cameron Suttles
Returned to Sótano de La Silleta at base of La Silleta pinnacle and explored to an approximate depth of 725 feet.
AMCS Newsletter

ASSOCIATION FOR MEXICAN CAVE STUDIES

NEWSLETTER

Volume III Number 3



ASSOCIATION FOR MEXICAN CAVE STUDIES

NEWSLETTER

Volume III Number 3 Publication Date: May 1971

The AMCS NEWSLETTER is published six issues per volume as frequently as possible by the Association for Mexican Cave Studies, P.O. Box 7672 University Station, Austin, Texas 78712, USA. The AMCS is a nonprofit organization whose goals are the collection and dissemination of information concerning Mexican caves. Membership is open to all interested, conservation-minded persons at a rate of $5.00 US per volume.

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.

Published by THE SPELEO PRESS

NEWS AND NOTES

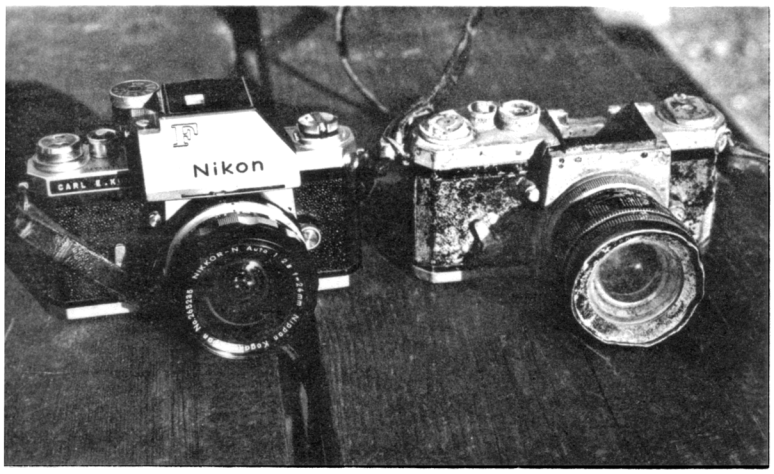
Every Monday night is AMCS Night at 703 Carolyn, Austin, Texas. The idea is to establish a regular meeting time when interested persons can gather for the benefit of the AMCS, i.e. work, with no financial reemburse-ment. It has proven successful since our first gathering last August. Frequently volunteers are rewarded with a slide show and all are welcome to attend. But please note: If no one's at home, we've gone caving!

AMCS Bulletin 1, "Caves of the Inter-American Highway" is completely and totally out-of-print. You'll have to Xerox a friend's copy until we get time to print a second edition. The original is so out of date that it will not be reprinted.

SHORT STORIES

KEITH HEUSS' CAMERA AND SOTANO DE VENADITO

Back during Thanksgiving of '67 Keith dropped his camera. He was a little over halfway up the 182 foot entrance drop when he tied the 50 mm ammo can containing a Nikon on the rope and continued up. Something happened as the rope was raised and the pit echoed from falling camera can. Everyone went home.



One month ago David Honea and crew went to Venadito to push the new section discovered last Christmas. About 150 feet vertically on into the cave from the entrance drop plunge pool he found a camera; aged but recognizable. What fortune.

CONSERVATION

Are these guys for real? When I first read this article I thought it was a joke, but unfortunately I think they're serious. The following is a portion of a trip report published in Georgia Underground, Vol 8, No 1, Jan-Feb 1971, p 13. Members of the group are Joe Carlisle (NSS 7748), Alan Johnson, George Morris, and Jim Youmans (NSS 7004). Their destination: Sótano de las Golondrinas.

"Alan: How did you know the guide's name was Bontarina?

Jim: He wrote it on a cave wall.

Alan: Which cave wall?

Jim: The cave on the trail between Sotano de las Golandrinas and Tamapautz. It had a large walk in entrance and Bontarina entered into the twilight zone and indicated to us that he wanted us to light our carbide lamps and go caving. So we carbided our lamps and started into the cave. Just inside the entrance Bontarina drew his machete to scare off any evil spirits. We walked about 300 feet into the cave and saw some old names in Spanish written on the wall apparently with carbide lamps. So we asked Bontarina if he'd care to write his name on the wall. He said yes, so we make the flame long on our carbide lamp and showed him how to write on it. So he wrote his name on the wall and Neil wrote his name and I wrote my name. We

pronounced our names for him and he pronounced his name for us and he was much pleased that he could communicate with us in such a manner."

And this isn't all. The rest of the article is quite revealing. Definitely worth reading if you can obtain a copy. The next AMCS trip into this area will clean the walls of this cave. In the meantime, Jim and his friends would do better watching TV football on weekends rather than destroying the caves we explore. Although they claim to be in the NSS, do they know what it's all about? Somebody, please let them know!

TRIP REPORTS

Date: 19 December - 5 January 1971
Destination: Various caves in the Sierra de El Abra, S. L. P.
Location: SMO; Sierra de El Abra; Los Sabinos & La Cieba areas.
Persons: Miles Abernathy, John Basset, Craig Bittinger, Steve Bittinger, Don Broussard, Paul Duncan, Mark Minton, Mike Moore, Neal Morris, Buddy Rogers, Tom Wright
Reported by: N. Morris

The first five days were spent surveying the Montecillos System. The survey included Sotanito de Montecillos, Sótano de Pichijumo, the arroyo connecting the tow entrances, and two small caves located in the arroyo, Cueva de las Ratas and Cueva del León.

In Sotanito, we surveyed 5000 feet of passage and rigged four drops. The 110 foot entrance drop and drops in the main passage of 30 feet, 100 feet, and 80 feet put the total depth of the cave at -288 feet. At the lowest level a running stream was discovered flowing through passage 50 feet wide and 80 feet high. On an upper level there was 2400 feet of lake passage which connected to Pichijumo through a siphon. There are still many unexplored side leads in Sotanito that need to be surveyed.

In Pichijumo we again surveyed 5000 feet of passage and rigged three drops. At the bottom of the 45 foot entrance drop three upper level siphons were reached and two of them connected with the Sotanito siphon. The second drop which carries the flood waters of the arroyo was 140 feet to 1500 feet of lake passage and then a 65 foot drop. At the bottom of this drop we rappelled into inner tubes and paddled the last few hundred feet through a large meandering lake to a siphon. The total depth was 328 feet.

In the right side of the arroyo near Sotanito is Cueva de las Ratas. A short entrance passage leads to a 30 foot drop and an 80 foot drop to a mud plug that connects to Sotanito. Cueva del León in the left side of the arroyo is only 100 feet long.

After our five day assault we spread two truck loads of mud and gear across the Los Sabinos campground to dry. The smell attracted at least fifty vultures that circled over our heads for hours.

For a day of rest we drove through Cd. Valles and Tamuín around to the east face of the El Abra and checked the water levels at the nacimientos of Arroyo Seco and Río Tantoán. A small 40 foot sink led to water at Tantoán.

The next day found us in Sótano del Tigre prusiking through a plunge pool. At Los Sabinos that evening there were six truck loads of cavers. In the morning we were once again around to the east face of the El Abra on the Zimapán ranch. Here we were joined by Mike Moore and Mark Minton from Indiana. The first thing we did was to map Cueva de Cieba since the entrance was only a two hour climb from the base of the range. Cieba is only 700 feet long but it has dimensions of 100 feet by 100 feet and three skylights, one of which gives a 175 foot drop. In the middle of the cave is a 300 foot pit which leads to fossil bone deposits and gives the cave a total depth of 647 feet.

Tom, Buddy, and I camped halfway up the east face after rigging the skylight. The next morning we hiked across the range and finally emerged from the jungle 30 hours later to crawl across the Inter-American Highway and hitch-hike into Valles.

While we were crossing the jungle, the rest of the group was chopping a trail across the crest of the range in search of two pits that had been observed from the air. The first pit was reached after two days of chopping and named Sótano de los Loros. The second was actually a large cave entrance which led to a 10 second pit (Hoya de Zimapán). Neither cave was entered due to lack of time.

Eventually we were all united at the AMCS Campground at Los Sabinos where we swapped fantastic tales of the jungle. The Indiana cavers headed for the U.S., but we picked up Paul Duncan, Don Broussard, and Miles Abernathy and spent a couple of days mapping in Pichijumo before we were forced to cut our trip short. Craig caught mono and the Mexican doctors were unable to help him. Rather than let him die in Mexico, we rushed him back to Kingsville and medical aid and started plotting survey notes.

Date: 31 December - 7 January 1971
Destination: Caves along the Inter-American Highway
Persons: Roy Brown, Logan McNatt, Charlie Yates
Reported by: Logan McNatt

31 Dec. Visited Cueva de La Boca and Cola de Caballo. Camped New Year's Eve near Pozo de Gavilán; cold.
1 Jan. Our guide didn't show up due to overcelebration. We spent 3 hours looking for Pozo de Gavilán and finally found it. Roy and Logan entered; water almost completely covered bottom.
2 Jan. Drove to Gómez Farías and entered Sótano de El Molino; blind fish (maybe) in pools in passage at bottom. Drove to Grutas de Quintero and camped.
3 Jan. Entered Quintero and Cueva de El Abra. Drove to Cd. Valles and met Terry Raines and Donna Vaught hitch-hiking west. Next met Miles Abernathy, then group of Californians including Bill Deane, also met Keith Wilson from Penn. Camped at AMCS campground near Los Sabinos.
4 Jan. Drove to Xilitla and then to Jalpan. Hiked to lower entrance of Cueva del Río Jalpan.
5 Jan. Explored lower cave completely. That night attended large festival in Jalpan which was the day of their saint.

Date: 1 - 10 January 1971
Destination: Ahuacatlán, Qerétaro
Location: SMO; Jalpan; Puerta de las Ánimas & Ahuacatlán areas
Persons: Calvin Walker, Mike Walsh
Reported by: Mike Walsh

Finding ourselves without transportation, we took a bus to Mexico City and then on to Grutas de Cacahuamilpa. On 6 Jan we pulled into Ahuacatlán. Several years earlier we had heard rumors of large pits near this town and we decided to check them out. The following day we hired a guide to take us to some of the caves in the area. The first day we were taken to Cueva de los Riscos. The next day, 8 Jan, we went up the mountain behind the town to a small cave. After he informed us that there were no more caves nearby, we paid him. Calvin and I continued up the mountain in disgust. After a while Calvin returned to Ahuacatlán while I kept hiking. As I was about to give up, I encountered a Mexican who said he could take me to several pits. The first appeared fairly insignificant. The 3.5 foot entrance was about 80 feet deep. This was the cave which later proved to be over 1000 feet in depth. After another small pit we went to another which was about 125 feet deep. The next pit had a free drop of over 400 feet. Two more pits and one small cave were visited on the way back to his house. Our bus trip to the U.S. was filled of thoughts of a return during the upcoming spring break.

Date: 16 - 21 February 1971
Destination: Sótano de La Joya de Salas, Rancho La Joya, Tamaulipas.
Location: SMO; Sierra de Guatemala; La Joya area.
Persons: 18 (see below)
Reported by: David Honea

Although Sótano de la Joya de Salas has been known since 1965, it and the Sierra de Guatemala in which it is located have seen little activity in the last few years save for trips to a specialized area, Rancho del Cielo. This obscurity is in part a result of the relative inaccessibility of the area due to bad roads or in fact to a general lack of roads. Recent times, however, have witnessed a renewed interest in working in La Joya and in widening activities in the very promising surrounding limestone areas.

Until December, 1970 the cave was thought to end in a siphon at -892 feet. Up to the siphon, the general character of the cave is entirely vertical, with successive drops of 246, 177, 64, 40, 79, and 230 feet. There is little horizontal passage between the drops and the whole cave corkscrews in on itself so that there is almost no net horizontal displacement from the entrance to the siphon. The first map of the cave was made on the earlier 1965 trips. The trip reports, map, and description may be found in more detail in the AMCS Newsletter vol. I no. 5, p. 54-58; Vol. II no. 6, p. 132-137; and Bulletin I, p. 48-50.

Continued interest and hopes of deepening the cave have been prompted by the excellent potential of the surrounding limestone range, the Sierra de Guatemala. With the cave located at an elevation of about 5500 feet, the limestone depth and thus the potential of the cave is over 1000 meters.

Since the siphon is at -272 meters, it was hoped that it might be only a perched pool and that the cave would continue beyond it. This had generated several ideas by AMCS members for draining the siphon using hoses or dynamite.

With this in mind, Terry Raines, Don Broussard, Blake Harrison, Ron Rossburg, and Mike Walsh visited the pit in September, 1970. It was their purpose to re-examine the siphon in an attempt to ascertain its real nature. They also remapped the cave and explored and mapped a second entrance which intersects the main cave in the second, 177 foot drop. They found relatively wet conditions and it was felt that pushing the siphon would be hazardous at best, as they had no diving equipment.

Having still no reason to believe that the pit should end at this point, a group of Canadian and Eastern cavers assaulted the cave with diving equipment and wet suits during Dec. 1970. After carrying the tanks etc. to the siphon they were surprised to find that the water level was low enough to make it no longer a true siphon. Pushing it, they found only about 6-10 feet of submerged passage, and that the cave continued past the siphon. They explored to the extent of available rope, some 200 feet, found the cave to be still continuing, but were stopped by another drop.

This then was the chain of events leading to the most recent trip, made in February 1971. The continuation of the cave generated much enthusiasm among cavers interested in La Joya and a trip was organized with the threefold purpose of 1) first and foremost, mapping beyond the siphon and pushing the cave, 2) dynamiting the lower wall of the siphon to prevent it from ever totally refilling and 3) filming the whole trip in the cave with a movie camera. As the departure date drew closer, the number of people going on the trip and the estimates of the possible cave depth grew larger. Two vehicles left Feb. 16 and a third Feb. 17, carrying 17 people, all the UTG club rope plus 1800 feet of SWTCC rope, a total of greater than 3000 feet of rope. The vehicles and crews were: Terry Raines in a Dodge Power Wagon with Sherry Greer, Blake Harrison, Hugo Victoria, Keith Wilson, Neil Morris, John Muth and Nicki; Bill Bell in a GMC with Rooney Burnett, Richard Booth, Logan McNatt and Kiki Nicholas; David Honea in a Toyota Land Cruiser with Don Broussard, Roy Jameson, Paulette Just, and Jerry Broadus.

Omitting most of the unpleasantries of border crossing, and vehicle problems on the road, all vehicles arrived some 15-24 hours after their Austin departure time. The last 20 miles requires several hours, due to the poor road and steep climb. Since one truck left a day later, for the first day the full crew was not present. However, the cave was rigged to the siphon and some 250 feet beyond. While several people entered the cave part way, Blake, Don, David, Hugo, Keith, Neil, Roy, and Terry went through the siphon. While the others explored past the siphon, Terry and David star-drilled for about 2 hours in the very hard dolomite which forms the lower wall of the siphon. After everyone had cleared the siphon, Terry set the dynamite charge and retired for the evening.

The next morning found most of the cavers anxious to enter the cave to map and push further beyond the siphon. Prepared for an extended stay and with more rope and mapping gear, the group re-entered the cave about 8:30 a.m. on Thursday, Feb. 18. Much to our displeasure, the dynamite had done virtually nothing. After everyone had packed their clothes in plastic

bags and swum the chilly 65 degree water of the siphon, we examined the blast site, reassembled our gear in preparation for mapping, and sent out an advance crew of Keith and Rooney with rope to explore beyond the last stopping point.

A mapping team of Blake, David and Terry, with the help of Jerry, began mapping at the siphon. Just past the water is a tubelike passage about 3 feet in diameter in the very hard dolomite which forms the constriction creating the siphon. The cave continues horizontally in this bed as a vertical fissure crawl for about 40 feet. The passage then breaks through the dolomite and begins to open up. Here it is some 5 feet wide by 8-10 feet tall and continues as a pool-hopping horizontal passage to the top of the next drop about 100 feet away. Along the way a high dome is encountered which has no obvious leads. The drop is about 60 feet, with passage leading to a 40-foot long chimney over a fissure about 20 feet deep. The chimney ends at the top of the second drop, which falls 110 feet into a large plunge pool which may be avoided by traversing along the left wall. Immediately past the drop, the passage takes off in two directions. The upstream branch leads to an unchecked 80 ft. drop. Mapping continued down the downstream passage. This passage leads to a drop of about 40 feet. From the bottom of the drop two routes are possible: either wading through a low-water passage or crawling through a large formation. These lead to the top of a 15 foot drop into a small room. The passage continues as a climbable scramble-down for 20 more feet to water passage. Mapping stopped at the beginning of this water, due to a lost survey tape. Keith, however, swam down it for about 30-45 minutes until he came to a point where low ceiling and flowstone sufficiently blocked the passage to make a duck-under necessary.

The character of the pit seems to change markedly on the bottom side of the siphon. Up to the siphon it is essentially vertical, dry and scoured, and with only minimal amounts of active deposition. Below the siphon the cave takes off more horizontally with active formations, some moving water, and calcite-cemented fill deposits of water-rounded limestone pebbles.

Above the siphon the pit is warm; below the siphon it is wet and for extended stays, cold without wet suits. Air temperature is in the 60's but a combination of this plus 60-degree water and wet rock will probably necessitate some additional warm clothing such as a wet suit. At the very least, dry clothes on the other side of the siphon are necessary for extended stays.

After de-rigging the pit to Sima Terrible and setting a second charge of dynamite, everyone left for the day. People exited the cave from about 12:00 p.m. to as late as 4 a.m. The next day was spent de-rigging the remainder of the pit and packing up to depart. Descending the mountain that evening, everyone stopped to camp at the river near Encino. The main mishap of the trip occurred on the trip down, when Bill Bell's GMC caught on fire high up on the mountain and had to be towed down. Sunday morning found everyone leaving for Austin with Bill's truck in two. An overly thorough customs search of two of the trucks formed the only excitement of an uneventful return to Austin late Sunday night.

Date: March 1971
Destination: Pozo de Gavilán, N. L.
Location: SMO; Galeana
Persons: Craig Bittinger, Paul Duncan, Tom Wright, Fred Stoviak
Reported by: Craig Bittinger

We left Kingsville Friday night and camped at Bustamante Canyon. In the morning we drove on through the canyon and south down the western side of the range. After 40 miles of dust we reached El Cuarto, where a friendly Mexican told us of a huge cave at the town of Espinazo, N. L. Our party then returned to Bustamante and proceeded to Galeana. Sunday morning we rappelled into Pozo de Gavilán. The bottom was a huge lake with a 10 foot wide, 50 foot long beach. Our party then drove back to Kingsville without delay, basically because of no brakes.

Date: March 1971
Destination: Cueva de Constantin. Espinazo, N. L.
Location: NBR; Sierra de Gómas
Persons: Craig Bittinger, Paul Duncan, Don McCarty, Ruth McCreary, Roger Macmillan, Curtis Roberts
Reported by: Craig Bittinger

We left Kingsville Friday night headed for Austin but then decided to go to Mexico. Our party spent the night on the road between Monterrey and Monclova. In the morning we proceeded to Espinazo where a local guide showed us to Cueva de Constantin. The cave is approximately 2500 feet long with 150 feet of vertical relief and large walking passage throughout. We then returned to Kingsville after spending the night at Bustamante Canyon.

Date: 13-19 March, 1971
Destination: Hoya de Zimapán. Tamuín, S. L. P.
Location: SMO; Sierra de El Abra; Tanchipa
Persons: Pam Alton, Craig Bittinger, Jim Clements, Donna Dierick, Paul Duncan, Brad Hubbard, Neal Morris
Reported by: Neal Morris

Friday after A&I let out for Spring Break, our group headed for Mexico and the two pits on top of the El Abra that trails had been chopped to during Christmas. Except for minor border hassels, we drove straight through to Valles and spent Saturday night camped at the base of the range. While the women spent the next two days and one night alone at the truck, the rest of us climbed the mountain to explore and map the two caves. It was a 6 hour climb to the first pit, Sótano de los Loros. The 100 by 40 foot entrance provides a 200 foot free rappel. At the bottom is 700 feet of well-decorated walking passage. The large parrots inhabiting the entrance inspired the name.

After hiking all day and mapping Loros, we camped for the night inside the tremendous entrance room of Hoya de Zimapán. This room was 500 feet long, 100 feet wide, 100 feet high and divided into two sections by a massive flowstone column. The next morning we began surveying the cave. The big room ended with another massive flowstone formation, but a short crawlway leads through the column to the edge of a 150 foot drop. At the bottom of this drop a flowstone cascade led to another 300 foot drop. Beyond this drop we encountered a room of unbelievable size. We surveyed an 1800 foot loop around its edge mainly because venturing away from the wall meant getting lost, a rapture of the deep type thing. It measured 700 feet long and 300 feet wide with an average ceiling height of over 100 feet. In the center of the ceiling a hole extended hundreds of feet upwards out of the light of flares, apparently another part of the system rather than a dome. The floor of the room was virtually a desert of dry rimstone pools extending out of view in all directions with a small waterhole in the center of everything. The total depth of the cave reached -1050 feet.

The women were pissed when we returned from the mountain and we heard many tales of woe, but all wounds healed quickly. For the rest of the trip we went sight-seeing. One day was spent swimming, hiking, and caving at the Nacimiento del Río Huichihuayán. Also visited was Cueva Pinta at the end of the Montecillos road.

One of the most exciting parts of the trip was our 4-wheeling adventure through Cañón de la Huasteca where our group got to go rock climbing together. Brad's Power Wagon was much appreciated and everyone had fun riding on top of the camper. Pamie said it was just like riding the rodeo. On the way home we stopped at Bustamante. They informed us that there were lights in the entrance room and anyone entering the cave must have a guide. After exploring Cañón de Bustamante we returned to Kingsville.

Although the truck was a little crowded with seven bodies and gear, everyone got along fine. Our only problem was conflicting interests as to things to do, but everyone admitted that it was a great trip.

Date: 13 - 21 March 1971
Destination: Ahuacatlán, Querétaro
Location: SMO; Jalpan; Ahuacatlán.
Persons: (see below)
Reported by: Mike Walsh

On 14 March, two days into our spring break trip, our two buses pulled into Ahuacatlán. The members of the first bus were Scott Campbell, Grayson Knapp, Keith Heuss, Dale Pate, Calvin Walker, and Mike Walsh. In the other VW were Blake Harrison, Kiki Nicholas, Logan McNatt, Diana Porter, Ralph Mayner, and Jim and Julie Rodemaker. With the exception of the latter two, all were members of the Southwest Texas Grotto.

Our group left Ahuacatlán hiking about three in the afternoon. In addition to our personal gear we were carrying about 750 feet of rope. The hike along the arroyo takes about an hour. At the store on the trail we started the long climb up the mountain. About halfway up we were greeted by Ramirez's sons who provided us with burros to carry our equipment.

We had treated Sr. Ramirez with respect when we had first met him and we now had friends for the rest of our stay.

Even though our group was tired when we reached the pit we engaged in a favorite cavers' pastime, that of rock-dropping. The following morning Mike Walsh and Blake Harrison entered. The pit, Sótano del Aguila, had a free drop of 420 feet and a total depth of 435 feet. The same morning Logan McNatt, Jim and Julie, and Blake checked two other pits, one with a 125 foot drop and the other a 100 foot drop. While this was going on, the other group checked out a fairly large sótano with a 30 foot drop. After reaching the end, they started hiking back to our camp near Sótano del Aguila. To the right of the trail they saw a large dolina. Sótano del Macho Rey was at the bottom of this dolina.

That evening we decided to move camp to a location closer to the large dolinas. The move was immediate and on the way I reached a key trail to the right where I waited for the others to catch up. I make one last attempt to relocate that small entrance which Ramirez had taken me to on the first trip. To my surprise it was only 30 yards down the main trail. That evening we rested contently with the knowledge that we now had two major sótanos located, Sótano del Aguila and Sótano del Macho Rey.

Early Tuesday morning a group entered Sótano del Macho Rey. The 300 foot entrance drop was followed by another 300 foot drop. Due to lack of rope they had to return. The cave was entered a second time that day by Blake, Jim, and Julie. It was found to be over 1000 feet deep. The people in the area were unbelievely friendly. They brought us food, sugar cane, and water. With the new pits that they showed us and the others that we had not yet visited we felt overwhelmed by the work ahead of us. It was on Tuesday also that Greyson expressed the desire to explore a new sótano. So, along with Keith and Scott, he went down the hill to explore what turned out to be the major sótano of the trip, Sotanito de Ahuacatlán. Greyson rigged the 71 foot drop and descended through the 3.5 foot entrance. He reported a room about 50 feet in diameter with a hole at the bottom of a slope. The others came down and the rock-dropping began. They knew it was deep but could not comprehend how deep. The group returned to camp talking about a free drop of 200 feet or more. Blake returned to the cave with a 365 foot rope. The drop was rigged and down he went. The knot at the bottom of the rope was reached and several rocks were dropped. Four more seconds free. The news was greeted back at camp with the realization that it was necessary to hike down to Ahuacatlán for the 700 foot rope.

Wednesday, while one group returned for the rope, two other groups hiked across the valley to check a pit which was reported to be over 300 meters deep. After 3 hours of hiking our two groups found that the pit was still several hours away. We left that one for another trip.

On Thursday one group went to map Sótano del Macho Rey. The other group, consisting of Keith, Logan, Jim, Julie, and myself returned to the Sotanito with the 700 foot rope. Logan, Jim and I descended the 71 foot drop, went to the back of the room, and rigged the drop. Logan entered the pit. After a short period we were unable to hear him due to the nature of the pit. Time passed slowly until, about 45 minutes after entry, we heard him again... 700 feet free and still going. After Logan and the rope were out a 50 pound rock was dropped into the pit. It bounced for 2.5 seconds

then we heard noise for 15 seconds more. Perhaps it was deep. With this obvious understatement we knew we had to return as soon as possible. That night we went down the mountain to Ahuacatlán. The next morning the two groups split up. Blake's bus got as far as Cd. Mante where a piston acquired a hole. Those in his bus had to take a Mexican bus to the border then hitch-hike home. Blake stayed with his bus while it was being repaired.

Date: 25 - 27 March 1971
Destination: Ahuacatlán, Querétaro
Location: SMO; Jalpan; Ahuacatlán
Persons: Blake Harrison, Roy Jameson, Terry Raines, Tommy Rimkus, Jim and Julie Rodemaker, Craig Sainsott, Hugo Victoria
Reported by: Terry Raines

25 March - Four of us drove down from Austin and joined Blake, Hugo, Jim and Julie. They had just returned from Ahuacatlán. Now, with a new 1200 foot coil of Goldline, all eight returned to the mountains.

26 March - Our destination was the Sotanito de Ahuacatlán previously entered the week before containing the 700 foot plus drop. The 1200 foot rope was distributed into 5 more-easily carried connected coils. Three hours were required to reach the entrance via a steep mountain trail. Four descended the first 71 foot drop into the entrance room while four uncoiled and fed in the rope from the surface. We lowered it into the pit and tied it off. Blake, who had previoulsy been to the -350 foot level, rappelled first. There is absolutely no communication within the pit, so when tension slacked on the rope I descended. The drop was 15 feet in diameter and completely sheer and free for 946 feet. The bottom was 14 feet in diameter with a small hole to one side dropping another 15 feet to a siphon at -1051 feet (total depth). We came directly out after surveying and photographing. Derigging the entire cave took 2 hours after which we trecked back to Ahuacatlán rather late. A complete detailed report will soon appear on this cave.

27 March - The remaining days of our trip were all down-hill. The day was piddled away on flats, repairs, and driving. When we arrived at Sótano de Venadito's road's end the ticks greeted us. The 45 minute hike took 3 hours. Exhausted at the entrance, the decision was a quick trip to Austin.

Date: 2 - 10 April 1971
Destination: Cd. Valles, S. L. P.
Location: SMO; Sierra de El Abra; Los Sabinos, Taninul, Los Monos, and La Noria areas.
Persons: Don Broussard, Robert Hanford, David and Ann Honea, Sandy Robinson

Leslie Clapp, Rich Cooper, Blake Harrison, Dave Jackson, Roy Jameson, Craig Sainsott
Reported by: Roy Jameson

On Friday afternoon, 2 April, two groups of UTSS cavers left for Valles. One group, led by Leslie Clapp, was to pick up Blake Harrison in San Marcos, before continuing on to Cd. Mante to meet the others Saturday morning. Blake had been down several weeks earlier during the SWT spring break before his VW bus engine had blown up. After spending an extra unscheduled week riding Mexican busses between Valles and Mante attempting to locate parts, Blake was rescued by Terry Raines, myself, and several other new cavers who went down to find Blake and check a deep pit which the SWT cavers had located several weeks previously. Unfortunately, his bus was still in Mante, sitting in the same "garage" it had sat in for several weeks, with engine parts scattered everywhere. Blake had obtained several parts, but still lacked an exhaust valve, so we stopped in San Antonio briefly to pick one up before continuing. The next morning, after having only 2 and a half hours sleep, we met David and his group in the main square in Mante. After breakfast, we joined Blake at the garage where he was already attempting to get the Mexicans to reconstruct his engine in record time.

Since this was the first Mexican caving trip for several individuals, we had elected to begin with horizontal and short vertical work, so, after arranging to check back with Blake that evening, we continued on to Grutas de Quintero, where David and Leslie collected rodent bones for Dr. Lundelius (UT), while the rest of us began surveying a previously unchecked passage. After surveying about 300 feet we came to a practically unclimbable wall, beyond which the passage seemed to continue. By the time this was scaled and we had mapped several hundred more feet it was getting late; so when a short unclimbable drop was reached, we all returned to the vehicles, and drove to the Nacimiento del Río Mante where we cleaned up. After supper in Mante, we noted that Blake was already gone, so we continued on towards Valles and camped at the AMCS Campground at Los Sabinos.

Sunday morning found us at Cueva de Taninul n. 4 collecting more rodent bones. That afternoon we entered Sótano de Pichijumo with the purpose of finding Don Broussard's Kamet "suicide biner" which he had lost attempting to determine the depth of a pool of water, and Miles Abernathy's Foot Jumar, both having been lost the previous Christmas. The supposed 18 meter deep water into which the equipment had fallen proved to be only 8 feet deep, so Don managed to retrieve both items with little difficulty. Unfortunately, considerable more difficulties were encountered in getting everyone out of the sótano, because of a lack of vertical gear, and some improperly constructed equipment. Robert Hanford also graphically demonstrated the need for a safety on Foot Jumars, when his seat sling Jumar came off the rope and he fell 25 feet into a pool of water. Fortunately he was uninjured.

On Monday our two groups split up. Leslie and his group returned to the Pichijumo arroyo and entered Sotanito de Montecillos, while I joined David Honea's group for some lead hunting near Micos. We had all planned to stay together, but it had been raining since the previous night, and Leslie's car could not negotiate the wet roads in the Micos area. So we spent most of the day driving in a light mist, which became rain just long enough to thoroughly soak Don and myself, since we were riding the Toyota running boards. After several hours of driving and asking Mexicans where the sótano we were hunting for was, we were finally led to a 75' climbable pit with no leads in the bottom. So we continued back toward the main highway, stopping long enough to hack our way up to the top of a short hill, hoping to see another sótano which had been spotted from the air. Of course, the

jungle was much too thick to see anything. That night we camped in the rain at Los Sabinos.

Tuesday we left Ann and Sandy, who had been sick since Sunday, in Valles and drove north to El Salvador to survey in Sótano de Venadito. David, Don, Robert, Leslie, and I entered while the others remained above to look for other caves in the area. Our objective was to explore and survey beyond a new pit that Terry Raines had located at Christmas. We spent the day surveying approximately 1350 feet of new passage, much of it in knee deep water. There were numerous places in which it was necessary to swim, and after several hours of being wet we were all ready to leave.

While looking around in one large room, David Honea found a Nikon which had been dropped into the cave three years previously (See Short Stories). The owner had apparently been leaving the entrance drop of 150', had tired of carrying the camera and so tied it (in an army ammunition box) to the rope and then continued up. The ammunition box then fell off the rope, opening and spilling the camera into a plunge pool over a hundred feet below. The Nikon had then been washed over another plunge pool about 100' down a passage to a 100' drop, down it into a room at the bottom about 20 by 20. About 6 feet above the floor of the room in one corner there is a 40' long 3' in diameter tube leading to a 25 foot drop. From here a passage leads several hundred feet to a large room. The camera was found in one corner of the room, at the bottom of about 50' of climb down, complete except for the viewfinder and the lens cap. There was a large amount of sand and mud inside, the hinges were rusted, the body and lens attachment were somewhat battered, but the lens, amazingly enough, was intact--only a few scratches marred its surface.

We also found several one foot long live fer-de-lance in a blind side passage about 450' down. Considering that Venadito takes large amounts of water during heavy rains in the summer, one begins to wonder just what goes on in that cave!

On Wednesday Sandy and I traded cars so that she could return, since Leslie had to be back in Austin by Thursday. Earlier we had arranged with two California cavers, Ernest Garza and Frank Guinney, to meet on the road to Cueva de los Monos area that day, so we started out. Since it had been raining, or threatening to rain for several days, we borrowed some extra ponchos from Leslie. Also. we hoped to be able to sleep in a hut which had previously been occupied by a Mexican and his son. When we reached the area, we found the road continued on past it up a hill towards Cueva Pinta. Don and I had been riding on the outside of David's Landcruiser so we hopped off to check the hut for signs of occupancy. As Don and I entered, everyone else decided to come look too. After several seconds most of us were inside and had decided the hut would offer excellent rain protection--besides, the Mexican was no longer there. Unfortunately for us though the hut was still occupied----by about a billion fleas. Within seconds we were all scratching, running away from the hut madly tearing our clothes off and yelling, "God dammit, where's the sulphur?". David and Ann quickly grabbed the sulphur and jumped in the Landcruiser, then drove it 200 yds. just out of sight of the hut, with the rest of us in quick pursuit. Thirty minutes later we were still picking fleas off each other. Eventually Ann, the only one who didn't enter the hut, claimed to be rid of her fleas. For the rest of the trip she kept her eyes constantly peeled on us, claiming that our fleas were jumping

on her--unfortunately, she was probably correct, since I still had two fleas when I got back to Austin and bathed 3 days later.

After we were all liberally dosed with sulphur (not that it does any good) and looking like walking yellow masses, David, Don, Robert, and I walked on up to find Cueva Pinta. We very quickly decided that it was a much better place to sleep, especially considering that it was dry and had a large flat smooth dirt floor. We returned to the Landcruiser and began lunch, just as Ernie and Frank drove up. No...they didn't stop at the hut.

After informing them about the hut, we decided to return to Pinta and survey it. Later, Frank, Ernie, and I spent about an hour attempting to locate a large clump of trees which we thought might contain a sótano, but we ended up on the wrong ridge and couldn't find it.

On Thursday we hiked up the range to Monos with 800 feet of rope in the hope of checking a lead which William Russell had located at Christmas, but unfortunately it turned out to be only 156 feet deep. When we returned to the vehicles, Ernie and Frank decided to leave since they had a long drive to California ahead of them.

Friday we hiked back up to Monos to map the cueva at the top of the pit while Ann copied the petroglyphs that were present in the cueva for future reference. Later Robert and I entered the pit (464' entrance) to check for possible leads at the bottom but decided that we needed to return with picks and shovels if we were going to go any deeper. That afternoon we left for Austin.

Date: 3-10- April 1971
Destination: Hoya de Zimapán, Sótano de Los Loros, Sótano del Arroyo, Nacimiento del Río Choy
Location: SMO; Sierra de El Abra; Tanchipa, Los Sabinos, Tamuín areas.
Persons: John Bassett, Craig Bittinger, Steven Bittinger, Terry Cox, Peggy Cox, Mark Minton
Reported by: Craig Bittinger

Craig Bittinger and various members of the BIG grotto spent the first night at Nacimiento del Rio Mante. Our group then proceeded to Nacimiento del Río Choy where we mapped the upper skylight. The skylight is a 350 foot drop which we entered through a small cave at the 200 foot level. At the bottom of the drop a deep lake was encountered where the water boils from beneath the El Abra range and flows from the cave forming the Río Choy.

We then proceeded to Rancho del Zimapán. In the morning our party climbed the El Abra and descended into Hoya de Zimapán. The large room at the -1050 foot level was photographed and we finally returned to the truck at 4 AM. The next day was spent in rest and the following morning we once again climbed the El Abra. All descended Sótano de Los Loros, -195 feet, Craig and Steven did a 170 foot free climb to check a lead which turned out to be a 40 foot long dead end. We then descended a dead end, 40 foot pit discovered inside the main wall of the Sótano. Upon returning to the top, a shout was heard and a lost hunter appeared out of the jungle. After drinking two canteens of water, he proceeded to explain that he had been 48 hours without food and water and had wandered off from Los Sabinos. Steve, Mike, and Mark hacked through the jungle until dark looking for an elusive depression.

The rest of the group and the lost Mexican returned to the truck. We then drove into Cd. Valles where the lost Mexican was reunited with his wife, who had thought he was dead.

After a baño, we camped at Los Sabinos. The following day was spent looking at Cueva Pinta and searching for Woyate. That night our group attended the fiesta thrown in our honor by the town of Los Sabinos. Free roast lamb, barbequed chicken, and all the cerveza we could drink soon put everyone in good spirits. The following day we did Sótano del Arroyo. Steve, Craig, Mark and Mike swam the lake at the back of the cave and located the 30 foot drop. It led to a large, deep lake which needed an inner tube for further exploration. A crawlway led to a 40 foot drop which had crawlways leading back to the large lake. Our group then returned to Indiana by way of Kingsville.

ASSOCIATION FOR MEXICAN CAVE STUDIES

NEWSLETTER

Volume III Number 4

ASSOCIATION FOR MEXICAN CAVE STUDIES

NEWSLETTER

Volume III Number 4 Publication Date: February 1972

The Association for Mexican Cave Studies is a non-profit organization whose goals are the collection and dissemination of information concerning Mexican 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 $3.00 US per volume, which includes both the publication and membership. Prices of other publications are available by writing to the Association for Mexican Cave Studies, P.O. Box 7672, Austin, Texas 78712, USA.

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.

Published by THE SPELEO PRESS

NEWS AND NOTES

AMCS Bulletin 4 is now available. Entitled "Studies on the Cavernicole Fauna of Mexico," it is edited by James R. Reddell and Robert W. Mitchell. Price is $8.00.

Latest on La Gruta del Palmito: The cave has been commercialized. Lights have been strung to the Cathedral Room. One still has to hike up to the cave after buying tickets at Palacio Municipal, which are 5 pesos each for groups under 10 and 3 pesos each for larger groups. Also, 10 pesos for lights.

AMCS members have just located, explored, and surveyed a new cave named, "El Sótano". Located in Querétaro, the entrance to the pit measures 700 ft by 1400 ft and tapers toward the bottom, which measures 350 ft by 700 ft. The drop from the north edge, the only suitable

area for rigging, was accurately measured to be 1345 ft (410 m). No other cave drop in the world is presently known to be greater. Complete details will be forthcoming in an AMCS Cave Report Series.

The first issue of the Cave Report Series, Sotanito de Ahuacatlán, was delayed in order that Bulletin 4 could be rushed through. Now that this has been accomplished, we can concentrate on the Sotanito report which will be out this spring.

Sótano del Arroyo has temporarily reached the position of longest surveyed cave in Mexico. Of its more than 20, 000 ft of passageways (the survey notes are not calculated), 95% is walking. The big push was made this past Christmas by 25-30 cavers.

With the connection of Sótano de Pichijumo with Sotanito de Montecillos, This system now exceeds 10, 000 ft and is the third longest surveyed cave in the Sierra de El Abra.

During the year of 1971 the AMCS published 429 pages of speleological information. Compare this with the record of any other publishing organization for the year.

TRIP REPORTS

■ Date: Spring 1971
Destination: Cueva de Constantin
Location: NBR
Persons: Texas A&I Grotto
Reported by: Craig Bittinger

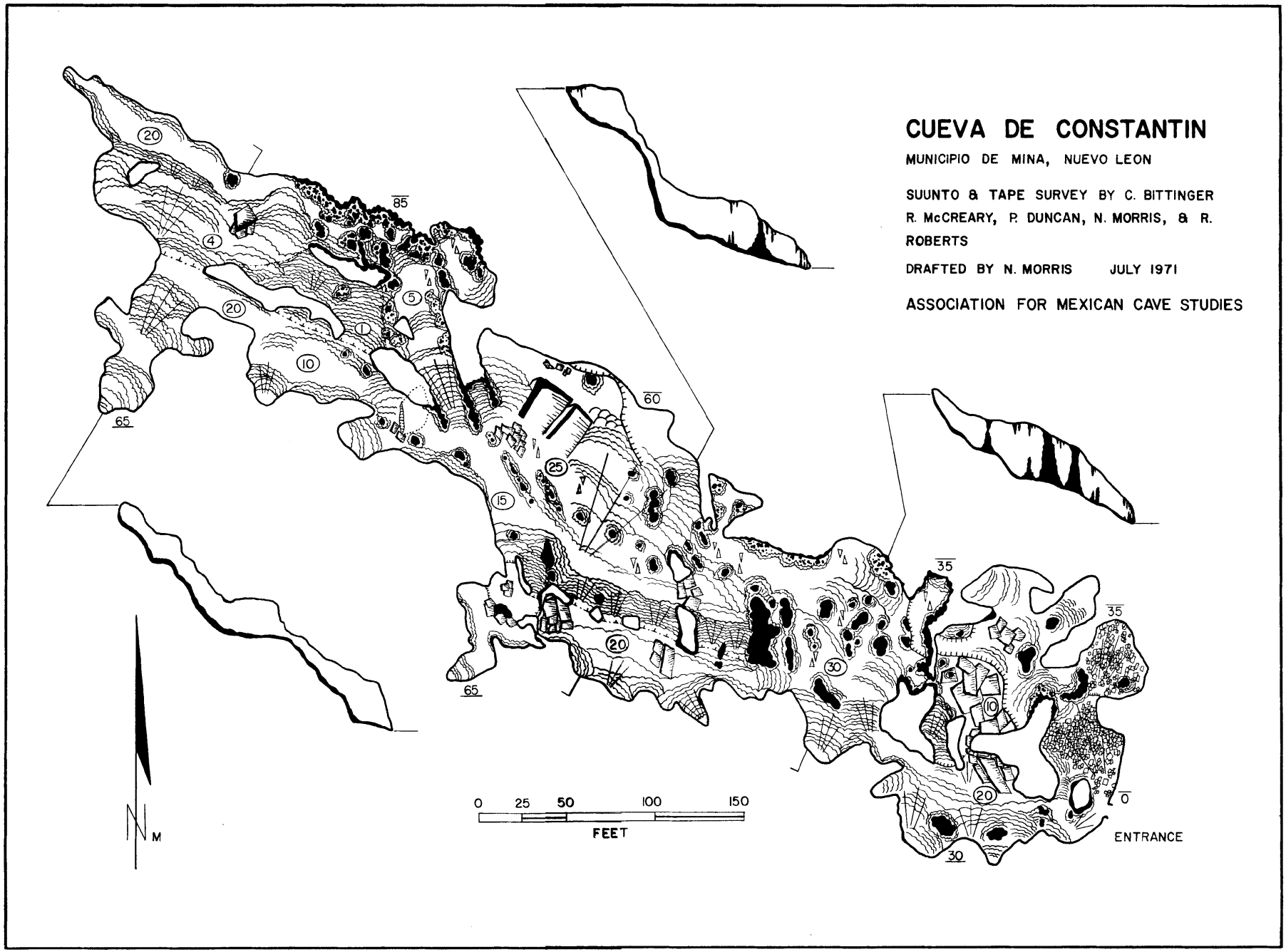
The spring of 1971 saw several weekend trips into the Monterrey area by the Texas A&I Grotto in search of new caves. Driving through the desert finally payed off when they reached the small town of Espinazo. The people there directed them to Cueva de Constantin in the nearby Sierra de Garia.

Constantin was a local folk saint who was brought to this venerable position by his widely reputed healing powers. He is buried on a small hill at the base of the mountains which contain Cueva de Constantin. The grave overlooks the town of Espinazo and the folk saint is believed to extend eternal vigilance over the city. After hiking the most part of five desert miles from town, his grave is a welcome landmark to cavers. From Constantin's grave another cross marking the cave entrance can be seen high on the mountainside. A scanty trail connects the grave site and the cave. After crossing a small arroyo, this trail steeply climbs to the small duckunder which forms the cave entrance. The scenic view from the trail's end makes the arduous trek more than worthwhile.

Immediately after sliding through the small entrance, the caver can follow the left wall along the upper level or walk down a short talus slope into the lower level. The cave is developed along the bedding plane of steeply dipping strata. Essentially it is one long, large room, but because of the near 45° slope of the passage, it can be traversed along the upper wall or through well-decorated galleries along the lower wall. The two levels are connected by steep flowstone cascades. It is possible to traverse the upper level, slide down the flowstone at the back of the cave, and come out along the lower level. The cave is only 1000 feet long but its large rooms are fairly complicated and fortunately there has been very little vandalism by the local people. It is well-worth a weekend trip.

■ Date: 20-29 May 1971
Destination: Pichijumo-Montecillos Cave System, Sótano de Venadito, Puente de Dios
Location: SMO, Sierra de El Abra. SMO, Jalpan.
Persons: Craig Bittinger, Blake Harrison, Roy Jameson, Jan Lewis, Neal Morris
Reported by: Neal Morris

Craig and I left for Mexico with Brad Hubbard who was going into



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the interior in search of adventure after he dropped us at Los Sabinos. Blake Harrison and his VW Bus were only an hour ahead of us although they had left Kingsville 3 days earlier. He lost a couple of days when he had to repair a blown piston--comfortably at his girlfriend's house in the Valley. At Los Sabinos there were a groady lot of cavers: our truck, Blake's VW, several cars from PASS, and Dr. Mitchell, Elliott, Russell, Wiley, and others.

The first day of caving, Craig and I joined Blake, Roy, and Jan in checking leads in Sotanito de Montecillos, First we connected two crawlways in the entrance passage. Then Craig and Roy tried to go down a vampire bat crawlway. They didn't get very far. The next comedy act was Blake as he tried to lasso a formation and check a high lead that didn't go. At this point we left Jan sitting alone for four hours while we surveyed a new route to the lower level and checked some more leads. She was glad to see us when we returned and surprised us with a mud sculpture. Back at camp, we found Elliott and Russell drinking beer and waiting for news of our discoveries.

The next morning we went down a thousand roads trying to find an easy way to Sótano de Venadito. Blake lost his muffler. It's a long hike to that cave but it's a fantastic system. Roy guided us with the intention of mapping some virgin lake passage in the lower level of the cave. We first decided to see what we were up against and explore, "We'll survey out", that's what we said. Many hours, much swimming, and about a mile of virgin passage later, we determined it would take another trip to finish the cave. I think we left two good leads unchecked (good lead, ie the kind you run down for 500 feet and then remember that everyone else is 1000 feet away with no idea where you went.). Coming out was a pain, but it was nothing compared to the hike back to the VW in the early morning hours. Three times we collapsed on the trail and nearly went to sleep. Again Jan was very glad to see us, but we showed her the snake we caught in the cave and she cooled off. To celebrate we went to the Condesa and ate a late dinner.

To rest our bodies the next morning, we went to Tamuín, rode the ferry and looked at the ruins. Then, since it was Sunday, we went to Ventana Jabalí and gave the San Marcos people a lightless tour. On the way back to Valles, we were unable to resist stopping at Cueva de Taninul n. 4. Eventually we ended up back at the Montecillos-Pichijumo System. Craig and Roy dropped into Sotanito de Montecillos while Blake, Jan, and I went to the end of the Arroyo and rappelled into Sótano de Pichijumo. Our aim was to connect three siphons. Blake and I left Jan sitting at one siphon and we went several hundred feet and looped around to the other siphon which we thought connected to her siphon and also a siphon in the other cave. Meanwhile, Roy, Craig, and two inner tubes had gone down 2400 feet of lake passage to their siphon in the other cave and started pounding on the wall. When we got to our side we found that we could talk to Jan and see lights through what was previously a siphon.

A long, dry period had lowered the water level so that there was almost an inch of air space. Jan said that she could hear Roy and Craig five minutes before we got there. So we pounded on the wall with a whale tail. A few seconds later we were elated to hear sharp pounding from Craig and Roy's rock hammer. We hammered and yelled back and forth for about 30 minutes as we determined exactly where the siphon was. Voices were too garbled and distant for communication. Blake dove under the wall once, but it went down steeply and we decided it was too hazardous to swim with no gear. The siphon probably isn't longer than 30 feet and is awaiting the first team to make an entrance-to-entrance traverse. Then Blake and I swam through the near siphon to Jan and checked a lead in the 140 foot pit before leaving the cave. When we got to the other entrance Craig and Roy were just getting off rope and derigging. They had pushed the Vampire bat crawl for nearly 100 feet as the bats were out feeding. They said that crawling through pools of liquid Vampire bat shit is extremely gross. They were forced back by bad air, but said it goes and takes water. Someone needs to push it. Back in Valles we went to Mitchell's rented house and bathed.

The next day we moved camp. First we bounced over to Nacimiento del Río Huichihuayán and went swimming. Then on to Xilitla where we inspected a wierd house under construction. We finally arrived at Ahuacatlán and debated whether or not to go on to Mérida. It rained on us so we all crowded inside the VW and ate bread together. It was delicious.

The sun rose and we bloomed down the trail for Puente de Dios, a fantastic void where the Río Jalpan goes underground. We mapped (ha) it. There is no better place I can think of to go bouldering, tremendous bouldering, boulders 38 feet high that we surveyed over. Blake went insane trying to sketch. Jan spent a hot day in the car and was happy to see us return.

The next day our whole group started off on a two day backpacking trip. We had the foolish idea of an overland survey from the upper entrance to the lower entrance where the river emerges, mapping the lower cave and thus determining the distance between the upper and lower siphons. Too ambitious, but we did survey the lower cave. The first day we went to the upper cave siphon in Puente de Dios where we bolted 40 feet to a lead that didn't go. Coming down from the lead, a bolt pulled out and I fell 20 feet before the belay caught me several inches off the ground. There is now a carabiner hanging 24 feet up on the back wall of Puente de Dios. Because it was close to dark when we emerged, we surveyed up to the main trail from the entrance and started hiking for the lower entrance in the rain. It was a beautiful hike through a dreamlike valley, but Blake had not told us the entrance was so distant and we soon decided that an overland survey was out for this trip. We got to the lower entrance after dark and camped in the cave. The lower cave is railroad tunnel size and sand floored. We got

up the next morning and surveyed 8200 feet in 10 hours. Exhausted, we hiked back through the valley and up the mountain to the car as it got dark. So ended our cave explorations for this trip.

■ Date: May 1971
Destination: SMO; Jalpan; Ahuacatlán area
Persons: Keith Heuss, Stanley Moerbe, Dale Pate, Mike Walsh, Charlie Yates
Reported by: Mike Walsh

Once again we crossed the border with little difficulty. This time the crossing was made at Matamoros. The trip to the cave was rather uneventful. Our target area was the pass across from Sotanito de Ahuacatlán. While waiting for Terry Raines and his group to arrive we went to visit and photograph Cueva de los Riscos and Cueva del Puente de Dios. The entire group except Charlie went on this excursion. Stanley checked the small crawlway in Riscos. Needless to say, it went nowhere. Keith took a series of photographs in Puente de Dios. While there, Dale and Keith checked the large flowstone wall on the left side of the big room. Passages led in several directions but none went very far. We stopped at the pool just above the first large drop. Upon returning to Ahuacatlán we found that Terry and his group had still not arrived. Dale, Stanley, and I started up the river bed toward the store that night. We camped in the ruins nearby. The next morning we hiked up to Ramirez's house to try to get a guide to the deep sótano that we had heard about. We tried several houses but were unable to find a guide. We then returned to the store. About 1/2 hour later Charlie and Keith arrived. We all took the trail that goes up just behind the store. It was our intention to follow the ridge up the hill and through the pass. Charlie and I took a left turn. The others did not see us and went straight up the hill. Once Charlie and I reached the crest we waited for the others. As it later turned out, they went down the hill to the river and then back up the hill toward the green trees. From there they went over the hill and then through the village that Charlie and I spent the night in. Feeling that they were gone forever, we went through the pass. That night we were taken to two small pit entrances. Early the next morning a local took us to what he called Sótano del Coyote. After that we visited another small pit and then we went to a larger one. Our guide then took us to Cueva de la Mesa. He said that Cueva de Agua was only about 30 minutes away but we elected to return to the village. Since Stanley had all of the rope we were not able to enter any of the pits here.

While we were in the hills looking for the pits, the other group passed through town. They took the valley that went to the left from

the village. Charlie and I decided to take the same trail. We must have just missed them by about an hour or so. We were taken to two small pits on the right hand side of the hill. We then followed the valley to where it dropped downward toward the river. At the small village there we decided to take the trail to the left and not to go to the river a thousand feet below. Dale, Stanley and Keith had taken the trail to the river. Charlie and I were first taken to Sótano de Canoas. I went into the cave and was followed by a local. It was basically one large room but had a passage leading downward. I followed it till it closed off. The Mexican came into the room and I circled around behind him. When I yelled, he jumped.

We were then taken to another pit nearby. It sounded fairly deep when we dropped rocks into it. On our way back to the village we were taken to Sótano de Rincon. This was the best one that we had visited. Its 10 foot by 8 foot entrance dropped free for an estimated 130 feet. You could see a large room about 150 feet long and 50 feet wide at the bottom. After we returned to the village we decided to go back to Ahuacatlán. Once we reached the river the hiking was easy. We ran into the other group about halfway to the highway. Our entire group came out at a small town about 3 miles up the highway from Ahuacatlán. The group retreated to Tampico to recover from our mis-adventure. We had not found the new 300 meter pit that was said to be near the village, but we did find enough pits to check into on the next trip.

■ Date: 15-20 May 1971
Destination: Ahuacatlán, Qto.
Location: SMO, Jalpan, Ahuacatlán.
Persons: Arthur Cleaves, Terry Raines, Craig Sainsott, Joe Simo, Richard M. Smith
Reported by: Terry Raines

15-16 May If you desire the details of our drive from Austin to Cd. Valles, read the last 50 trip reports...it's all there. On the 16th we drove from Cd. Valles to Ahuacatlán. With an altimeter we had borrowed, readings were taken at several prominent points between the Huichihuayán bridge and the Ahuacatlán bridge. Beginning at 363.160 m (marked bridge abutment) we drove to over 1900 m, then descended to 1323 m (Ahuacatlán). We camped in the dry bed of the Río Jalpan near town.

17 May The objectives of our trip were to make a field reconnaissance in preparation for a preliminary geologic report on the area and to photograph the entrance room of Sotanito de Ahuacatlán. On this day we began our investigations by driving west of Ahuacatlán approximate-

ly 12 km to Agua del Cuervo. At this point we began working slowly back towards town, attaining a basic understanding of the area geology from our own personal observations and those of Kenneth Segerstrom, which are published in USGS Bulletin 1104.

18 May We completed the hike to the Sotanito entrance. The entrance room photographing required the first half of the afternoon. The rest of the day we hiked trails in the area. An area map was begun by climbing through dense undergrowth to a nearby hilltop and taking azimuth sightings on surrounding landmarks.

19 May There are many caves and karst features in the area, and we wished to record these on our map. Therefore, we devoted the 19th to enlarging our area survey to include Sótano del Macho Rey, and several hills on to the northwest. The local relief in places is up to 250-300 meters, making traversing from hill to hill time-consuming. During the day we familiarized ourselves with perhaps one square kilometer. That afternoon we hiked back down to the highway and camped.

20 May Some of the best exposures near Ahuacatlán are along the highway. We had previously walked the cuts to the west, so this day we concentrated our efforts to the east. Beginning at Puerto de las Animas, we walked the 5 km back to Ahuacatlán, completing the section before dark. After a swim (bath) in the Río Jalpan we drove back to Austin.

■ Date: June-August 1971
Location: SMO, Sierra de El Abra
Persons: see below
Reported by: Don Broussard

These are some of the pertinent things which were done while helping John Fish in the Sierra de El Abra range near Cd. Valles, June through August, 1971.

A stage recorder to measure lake level changes in Sótano de Soyate was installed 30 ft above the water level in the 300 ft long, 60 ft wide lake, in an 80 ft high room which is normally 781 ft below the entrance. (The first drop is 646 ft, second drop about 60 ft, and the third is usually 30 ft to the water). The end of the lake below the recorder is 135 ft deep. The center of the lake is 175 ft deep. On a trip in September to rewind the recorder and replace the graph paper, Steve Bittinger found the recorder full of water. The water level seems to rise quite a bit during times of heavy rain.

Three green snakes (4 ft each) and a fer-de-lance (3 ft) were found swimming in the lake in Sótano de Jos where a second water level

recorder had been installed. This lake is 200 vertical ft and 1300 horizontal ft from the entrance, which is in the bottom of an arroyo. The snakes must have been washed in when the arroyo ran, but were alive and quite healthy when found.

After mapping about 1500 more ft in Sótano de Tinaja (to the right, past the cable ladder drop) we found only one small lead remaining to be checked and mapped. A clay crawlway was followed for about 200 ft to a small room, 10 x 20 x 8 ft high, with the crawlway continuing out the other side.

Near the small village of Alcomunga, way up in the mountains to the east of the road between Tehuacán and Teotitlán, in the state of Oaxaca, John had heard of a cave which had a river flowing into it. From aerial photos he estimated 25 sq miles of drainage feeding the river, which sinks at a contact between two limestone formations. We drove four hours toward the first town, rode a Carta Blanca truck the remaining 6 hours, thenthe next day walked 6 hours to the second small village of Alcomunga. About 300 ft along the horizontal entrance passage, a mud and tree-filled sump was encountered. The stream flowed beneath the mud. The sump completely blocked further progress on our part.

There are many sinks in the immediate area, and aerial photos indicate other leads in the general area. But good caver-locals relations need to be maintained. The people of the first town told us that those of the second were bad people. ("Son mala gente. No hablan español. Mataron!") and we almost could not get guides to show us to Alcomunga. But once there we found the people curious rather than hostile, and had no problems obtaining permission from the presidente.

■ Date: 6-20 August 1971
Destination: Mexico
Persons: Pam Alton, Sandra Bills, Craig and Steven Bittinger, Don Broussard, Jim Clements, Paul Duncan, T.C. Ferret, John Fish, Blake Harrison, David Honea, David and Dan Johnson, Clark Lillie, John Mikels, Dottie Morris, Neal Morris, Craig Sainsott, and Mike Walsh
Reported by: T.C. Ferret

Two vehicles left Kingsville the Friday of the 6th. Clark Lillie, Sandra Bills, Craig Bittinger, Pam Alton, and Neal Morris in the Batmobile and Blake Harrison, Dottie Morris, Craig Sainsott, and Paul Duncan in the Harrison bus. Somewhere near the border, we lost each other.

The Harrison bus dropped Dottie at her house in the Valley and after waiting for the Batmobile to show up at John Mikels' house in Mission, they drove to Laredo and crossed into Mexico, where they

camped at Ojo de Agua.

Meanwhile the Batmobile had meandered to Reynosa looking for the Harrison bus. Leaving Reynosa, we took the wrong road and ended up in Monterrey. Leaving Monterrey, we took the wrong road and went through Cerralvo, headed for Mier on the border. On the map we noticed a shortcut from General Treviño to Sabinas Hidalgo (Map legend called it "other roads"). Forgetting that it had been raining for two weeks, we took it. It was a good paved road until we came to a bridge with a flooding river washing over it. After determining that only 3 ft of water wouldn't wash us away, we slowly made our way across, with water rushing under the doors, and while Mexicans on both sides of the river cheered and placed bets on our survival. Once across into the town of Paras, we woke up the girls and told them they could stop worrying. They were unimpressed. At Paras the pavement ended. It was dawn and we had been driving for 12 hours. After going down every gully in town, an old lady directed us to the other road which headed into the desert. It was half water holes and mud and half washed away. It wasn't long before we found ourselves sliding sideways into trees and getting stuck in long lakes which covered the road, but nothing could stop us.

Meanwhile, the Harrison bus had given up hope of our arrival in Sabinas, so they drove to Bustamante Canyon and investigated several springs in the canyon wall and went swimming in the river.

Back on the other road, the Batmobile was struggling for traction. Soon we met a pickup truck. We asked the Mexican driver if we were on the right road to Sabinas Hidalgo. He never would answer us. He just kept laughing, pointing at our tires, and repeating the cryptic words, "un pocito, un pocito". Then he drove away and we saw the chains on his tires. Soon we came to a small village; upon asking if this was the right road to Sabinas everyone ran away laughing and hid. Still we drove on, pushing the truck through numerous mudholes. Then we came to an intersection and asked a little old man directions to Sabinas. All he could do was point and mumble "Bad road, bad road". All we could see ahead was a mile of rutted three-foot deep mud with 10 ft banks on either side ready to plunge an unfortunate truck into several feet of water. Clark raced the engine, spun the tires, and we plunged into an ocean of mud from a sea of mud. 50 feet later we were stuck. The old man was still standing in the same place staring in disbelief. With everyone pushing, an hour later we had gone almost a mile when we sank into an incredible mire. We sat down in the muck exhausted, when we saw two oxen coming down the road. Since a local Mexican had told us it was only two miles to pavement, it wasn't long before we had two oxen and an ox cart chained to the front bumper. Two straightened carabiners and two strained oxen later, we reached the pavement. Soon we were to Ojo de Agua, had a flat tire, cleaned

the mud off everything, put on clean clothes, and started off in search of the Harrison bus again. At Villaldama the bridge was out. We soon were stuck on a detour. It took 24 Mexicans (two families) and a truck to pull us out of a ditch. Finally in Bustamante we caught up with the other group. They didn't believe a word of our story. Together once again, our two vehicles went into Bustamante canyon, looked at some springs, and camped for the night. Unfortunately we had to cancel plans to climb La Candela.

Early Sunday morning Blake and Craig Sainsott started up the canyon wall in an attempt to traverse the canyon rim. We had to return home, but first we drove out the other end of the canyon sightseeing, where we noticed a tire going flat. Without a spare, we turned around and started racing back through the canyon for town, but we bottomed out in a dip and ripped the gas tank off. We jumped off the truck, and ran back to the gas tank in time to save several gallons of gas. The rest had leaked out numerous holes and filled the dip with several inches of gasoline. After tossing a match and watching 30 ft flames, we rigged a siphon from the gas pump to a gallon jug and drove back to Villaldama and fixed our two flats, then to Sabinas Hidalgo, where we got a 5 gallon can for our siphon hookup. Then we put Craig and Paul on the bus for Valles. Before going home, we went to the park, went swimming, rode horses, and Pam sprained her ankle when she fell out of a tree.

Meanwhile, Craig Sainsott and Blake had discovered that the canyon rim was a knife edge with a 200 ft drop on one side and a 60° slope on the other and a home for rattlesnakes. After straddling the rim for awhile they turned back. Then they started for home. About 30 miles out of Sabinas, Blake's bus started making funny noises and the green oil light came on. Immediately Blake stopped (finally). Since it was after dark, they lined oil cans along the highway and decided they would have to hitchhike home.

Meanwhile the Batmobile left the park and headed for Laredo. At every gas station we would stop and fill up our five-gallon gas tank. We couldn't believe it when we passed Blake's bus broken down by the road. Blake and Craig couldn't believe it either. To get both vehicles back to Laredo, we siphoned Blake's gas into 5 gallon cans and towed the bus behind the Batmobile. At customs, we carried Pamie and set her on the table with a sprained ankle, and then we carried our gas tank and set it on the table. They told us to go on through. At Hebronville we hassled some border cops for directions and gasoline. Finally at 5 a.m. Monday morning we arrived in Kingsville and Craig and Blake hitched on to San Marcos.

Meanwhile, Craig and Paul arrived in Valles at 6 a.m. and found nine cavers sprawled over the floor of John Fish's hotel room. It was a day of rest in Valles and the Fish expedition, which had been studying

the geology of the El Abra all summer, went to the movies.

Tuesday they pushed Sótano de los Monos with drops of 464, 180, 15, 15, 15, 15, and 77 ft. Total vertical extent of the cave is approximately 950 ft, but it is still going. John Fish, Don Broussard, and Dave Honea made up one mapping team, while Craig and Steven Bittinger and Paul Duncan made up another team.

Wednesday was a day of rest and Thursday they rewound the stage recorder in Sótano de Jos. Friday Craig, Steven, Paul, Don and John did Soyate and wound its stage recorder. Then they went to the waterfalls at Micos to wash rope. Saturday was another day of rest, with the group going swimming at Nacimiento del Río Choy, where they took water samples.

Meanwhile Blake Harrison was towing his bus back to San Marcos. Meanwhile Jim Clements, Neal Morris, and Pam Alton left Kingsville Saturday evening and camped at Ojo de Agua on their way to check a lead in Bustamante canyon. That same evening a tremendous storm hit Bustamante canyon, and Sunday morning the Clements van came along to find the road destroyed by numerous landslides and great washouts. The parts of the road left now had streams flowing down them. We were the first people into the area as we hiked through the destruction and marveled at the thousands of waterfalls which now tumbled down the canyon walls; the river was flooding above its banks. We almost backpacked into the area to check our lead, but decided we had best be getting down to Valles. After some minor car trouble and a tow into Villaldama, we drove all day.

Meanwhile the group in Valles went up to the Xilitla area and did Sótano de la Joya. John Fish and Paul Duncan went to Mexico City to return a van loaned to the expedition by Mexico. Late Sunday night our group arrived in Valles and crashed in the overcrowded hotel room with people from PASS and UT.

Monday morning John Mikels, David and Dan Johnson, Craig Bittinger, Pam Alton, Jim Clements, and Neal Morris went to the Montecillos system. An overland survey failed to produce any evidence of another entrance. David and Dan, Jim and Neal did Pichijumo on a hand line, took photographs of the cave, and checked the siphon. The evening was spent studying aerial photographs.

Tuesday morning John Fish and Steven Bittinger left for the U.S. and the rest of our group went on a long hike into the chapel area of the El Abra with a Mexican guide. In the 50's there was an air crash which killed several people and injured fifty in the El Abra. To evacuate the injured, the Mexicans built a road to the crash. Later a chapel was built to mark the site of the crash. In this same area there are numerous large depressions that John Fish plans to explore this Christmas. The trail hasn't been used in over ten years and our guide became lost after many hours of chopping, and we turned back.

Meanwhile that same day, Mike Walsh and Blake Harrison came through Valles headed for the Jalpan area to check their roadlogs for the upcoming SWTG Mexican caving publication.

Wednesday we drove to Mante and went swimming at the nacimiento. Then we went over to the East face of the El Abra over some very bad roads to the Nacimiento de Santa Clara and went swimming again. An incredibly bad night was spent camped at the base of the range.

Thursday we spent 12 hours chopping a trail up the mountain in preparation for an assault on the Caldera this Thanksgiving. We chopped all day, came down at night, and tried to drive out the bad roads in the dark, whereupon we hit a 500 lb rock and broke the right tie rod. We were so exhausted that we spent the night sleeping in the ruts of the muddy road.

Friday morning Craig, Paul, and Jim started walking to Mante. They were fortunate enough to hitch a ride with a wealthy local Mexican who took them to Mante, helped them buy the parts we needed, picked up a mechanic and drove them all out to our immobile van. The mechanic replaced the tie rod and then the Mexican escorted us back to Mante and got us a discount on the car parts. Then he refused to accept payment for his services and drove away. From there we headed home, arriving in Kingsville early Saturday morning.

■ Date: 7-10 August 1971
Destination: Sótano de los Monos
Location; Sierra de El Abra, S.L.P.
Persons: Don Broussard, Steven Bittinger, Craig Bittinger, Paul Duncan, John Fish, David Honea, Ann Honea, Bill Russell, Carol Russell
Reported by: Dave Honea

Sótano de los Monos is a large pit located about 5 miles east of Highway 85 on the crest of the Sierra de El Abra Range. A one-hour hike up the western face on a large woodcutters' trail brings one to the pit. Immediately adjoining the pit and with a window into the main shaft is a small cave containing various petroglyphs of probable Huastecan Indian origin. The main pit is a large shaft about 75 ft in diameter with an entrance drop of 464 ft at the rigging point. On the first trip to the pit in the summer of 1970, Don Broussard went to the bottom of the entrance drop, made a sketch map and noted a possible lead in a room to the side of the shaft.

In April, 1971, Don Broussard, Robert Handford, Dave Honea, Roy Jameson, Frank Binney and Ernie Garza visited the pit to map the cave and to determine if the lead was passable. Only Robert and Roy

were able to enter, due to excessive fraying of the Samson rope used. With the aid of the entrance rope they were able to climb up 15 ft on a wall in the adjoining room, then descend a 15 ft drop to a small passage. After about 25 ft, it was found that the narrow passage was effectively blocked by a formation. Just past the column was a pit, in which rocks bounced for about 5 seconds.

Carrying a rock hammer and extra rope, Don Broussard, Steven Bittinger, John Fish and Dave Honea returned August 8, 1971 to follow the lead. While work was in progress in the pit, Ann Honea and Carol Russell were taking notes and sketches of the petroglyphs (Ed. note: Very good sketches of the petroglyphs, and photographs, were made by David McKenzie on the summer 1970 trip.) and William Russell was searching for more leads in the area. After about 1 1/2 hours of chipping, the column was removed sufficiently to allow passage and a bolt was set at the top of the first 15 ft drop for rigging. The pit immediately past the formation proved to be 180 ft with a ledge 48 ft off the floor.

A window in the 15 ft diameter room at the bottom leads directly to a 30 ft drop, followed immediately by several small climbs and finally to two 12 ft pitches requiring handlines. This brings one to approximately -700 ft.

One finds oneself in a narrow, dirt-floored room with two passages taking off. One soon ends and the other continues as a dirt-floored crawl which opens up to approximately 500-1000 ft of chimney, climbing, and passage which drops about 100 to 125 ft. This passage leads to a wetter section of the cave where a downstream passage branches off and the upstream passage ends after a couple of hundred ft. The downstream passage goes directly to an unclimbable 15 ft drop into another passage. Having no more rope, exploration was halted, and the pit left rigged for our return.

That night we were joined in Valles by Craig Bittinger and Paul Duncan and plans were laid for pushing the pit. After a day's rest and leaving the girls in Valles, we returned August 10 to push the pit and map as much as possible, while Bill Russell took the train to Micos to check fish cave leads.

As it requires about 2 hours to reach the pit from Valles, we got up about 5 a.m. Aug 10, much to the displeasure of some. After a hearty breakfast and a fast trip, we reached the cave about 9 a.m. The road was quite slippery due to the summer rains. Descending as rapidly as possible, the group split up to cover both passages. Steven, Craig and Paul took the upstream passage and began mapping out. Don, David and John rigged the downstream pit. An upstream passage soon pinches down to an unexplored crawl and the downstream passage continues as a scoured floor to a sump pool. However, a lead above the pool continues as a narrow fissure into a small room. From this room

a very narrow fissure leads to a 77 ft drop. Don descended the drop with the one set of vertical gear present at this point.

Another passage leads away at the bottom to a point some 200 ft from the drop where it pinches down to a window about 10 inches x 16 inches, half covered by water but continuing beyond. Having no extra carbide and a sputtering lamp, Don halted at this point and we started mapping out. This level is at about -900 ft.

After mapping to the intersection of the first 15 ft drop and the 800 ft level, we then passed the other mapping crew working in that passage and went to the -700 foot level to begin mapping the drops to the entrance, and carry out extra rope. Work progressed smoothly and the second team reached the entrance drop level as Don and David were just out of the entrance to the surface. While John came out, a re-survey of the bottom of the entrance was made and all the rope tied to the entrance rope. After Craig, Paul, and Steve prusiked out, the rope was hauled up and coiled with great rapidity inspired by large rain clouds and lightning. A hurried hike down the mountain and a quick packing of the car ensued as the first drops fell. About halfway out the rain became very heavy, making the road quite slippery. We finally reached Valles about 1:30 a.m. and sacked out.

■ Date: 15 August 1971
Destination: Grutas de San Sebastián (de los Fustes), Municipio de Sola de Vega, Oaxaca
Location: Sierra Madre del Sur
Persons: Ann and David Honea, Bill and Carol Russell
Reported by: Bill Russell

Grutas de San Sebastián (de los Fustes) is located south of the city of Oaxaca to the west of the Puerto Escondido highway, at the edge of an apparently large limestone outcrop. To reach the cave, drive south from Oaxaca for 83 km to the small village of El Vado, where the road crosses the Río San Sebastián. Here turn right on the gravel road that follows the river upstream. At Km 10 from the highway there is a forestry department checkpoint, and at Km 11 a turnoff leads a short distance to the village of San Sebastián (de los Fustes). Just before Km 12 the road crosses the river on a small bridge and just past the bridge a road through the fields leads right to the source of the river, a large spring surrounded by cypress trees. From the spring (Nacimiento) the lower entrance to the cave can be reached by a short trail leading west and up the mountain for about 300 m. The upper entrance to the cave is a large sinkhole easily visible about 300 m to the right of the road past Km 13, as the road climbs into the pine covered limestone uplands.

The lower entrance to the cave was originally a small dome that intersected the surface at the apparent end of a large passage, but a short tunnel has been dug to provide access to the cave. From the tunnel the passage slopes gently downward for a horizontal distance of about 200 m to a "pit" leading down to the river level. The section of cave before the "pit" is a well decorated passage from 25 to 40 ft high and 15 to 30 ft wide. There appears to be a passage at the level of the stream about 30 feet below the main passage, but the passage was not entered due to lack of equipment. Beyond the "pit" is a large, dry room about 200 ft long and 150 ft wide and 50 ft high. A 25-30 ft high passage continues from this room over large piles of breakdown for about 200 m to where it is necessary to climb up to a slightly higher level, where the passage appeared to continue. Time forced exploration to end here. The upper entrance of the cave is reached from the large, dry room via a passage along the left side (after passing the "pit") of this room and then to a low passage with a trench dug in the floor to provide clearance. This low passage opens into the side of the large room at the base of the upper entrance sink. This room is about 200 ft across and 300 ft long, and 100 ft high, and slopes steeply upward to the left over breakdown to the base of the surface sink. Near the bottom of the room is a large formation topped with a precariously placed cross.

This would be a good area for research, as the road to the cave is easily passable by pickup and could probably be negotiated with care by an older car. The apparent horizontal control of cave development would seem to indicate extensive shallow phreatic development at two different, well-defined base levels. This condition could result in a large horizontal system.

■ Date: 16-21 August 1971
Destination: Ahuacatlán, Qto.
Location: SMO, Jalpan, Ahuacatlán
Persons: Blake Harrison, Keith Heuss, Dale Pate, Mike Walsh, Charles Yeates
Reported by: Dale Pate

With a few hassles at the border we arrived at Cd. Valles about noon and ate lunch. From there we headed to Ahuacatlán, our destination, and by the next morning we were backpacking into the mountains. Blake, Keith, and Mike headed up the mountain to check out a small cave located in the Macho Rey dolina. Charlie and I headed west over the two main passes to Rancho de Derramadero. The next morning we all met at the Rancho. Blake's group had found two sótanos that looked promising, while Charlie and I hiked all day.

After meeting we split up and Mike and I checked three pits (the deepest being about 120 ft), while Blake, Keith, and Charlie checked

several small sótanos also. We compared notes and none of the caves were very good, so we decided to head back to the highway. The next day found us in Ahuacatlán and headed back to the states via Valle de los Fantasmos, S. L. P., and the mining district of Real de Catorce.

ARTICLES

VERTICAL TECHNIQUES:

Hair Removal

In the course of vertical caving one will eventually encounter a situation where someone gets their hair caught in a rack or break bars. The simplest solution to this problem is to eliminate it before it occurs by advising everyone to tuck their hair under their hardhat. However, when someone's hair does get caught in their rack a problem immediately arises: How is the hair to be removed? A bottom belay should be applied to prevent the rack from getting any closer to the person's head. At this point a decision should be made as to the importance of the involved hair. If it is of minimal importance then the person should pull out a pocket knife and cut his hair free from the rack then rappel on down. However, if the hair is of major importance and worth a lot of trouble, then the rappeller can save his hair.

If the person is strong enough he can do a one-handed pullup, thus getting the tension off the rack and allowing an opprotunity to extricate the hair with the other hand. Unfortunately, this solution is impractical for most cavers and therefore a more involved technique must be used. An experienced caver could follow the steps listed below.

1. Bottom belay
2. Attach foot Jumar to rope below rack
3. Attach another Jumar to seat sling with strap allowing it to be attached over the rack
4. Stand in foot Jumar and slide up top Jumar thus transfering the person's weight from the rack to the Jumar
5. Free entangled hair
6. Stand up, unclip top Jumar, put weight back on rack, unclip bottom Jumar
7. Rappel on down

This method has been used previously and works because the play in the rack's carabiner from vertical to horizontal allows the tension to be transfered from the rack to the top Jumar. Any similar system which allows the removal of the person's weight from the rack would probably work equally well.

Unfortunately, this method is generally not applicable to beginners who might panic or otherwise need assistance. In a case such as this another rope should be rigged adjacent and an experienced caver should descend and help the person to free his hair. If another rope is not available a caver on the bottom could climb up below the person whose hair is caught and rig them up to extricate themselves. This solution, however, involves another problem because there shouldn't be any tension below the rack once the person's weight is on the top Jumar. This means that the second caver should climb around the first and have his weight above the stranded person during this phase.

Removing hair from a rack is difficult but can be done if a person truly values his hair. To reinterate, the whole problem can be avoided if a caver's hair is out of the way during the entire rappel. Don't get caught.

Craig Bittinger

LA GRUTA DE CARRIZAL
ACCIDENT REPORT

Thursday morning, 25 November - Friday morning, 26 November 1971: groups from Dallas, Houston, San Angelo, and Lubbock, Texas arrive in the Bustamante, Nuevo León area of Mexico and make camp in Bustamante Canyon. Much of Thursday is spent in riding motorcycles through the area and it is decided to visit nearby Gruta de Carrizal on Friday.

Friday, 26 November 1971

1:30 pm — The various groups arrive at the cave. Some enter and go to the Baño Caliente (warm water) siphon (see maps).

2:30 pm — Jon Everage (Houston---leader of the Houston group) makes several unsuccessful attempts to swim through the siphon. On the third or fourth try, he fails to reappear immediately. Ronnie Fieseler, Bill Elliott, et al, watching the action, become concerned and send for a rope. Everage returns after about 15 minutes. It is noted at this time that the water is up slightly, and thus the siphon is considerably longer than usual. Everage reported that on his final attempt, he had first come up in an air pocket before finally reaching the air filled room on the other side of the siphon.

3:00 pm — Chris Cleveland enters the water and disappears into the siphon. His intent to enter the siphon was apparently not clear to those watching from the bank.

3:05 pm — The rope arrives.

3:10 pm — Bruce Stone ties into the rope with a bowline. Phil, a Houston boy is to belay Bruce. Signals are arranged---1 tug on the rope will indicate trouble, and two tugs will mean that all is well. Apparently, no one comments that the signals are reversed according to common practice. Bruce then enters the siphon.

3:15 pm — Several tugs are reported felt on the rope as the last of approximately a 50 foot length is paid out. Shortly, the rope goes slack and is pulled back. Thoughts at this time are that all is well.

3:20 pm — Elliott and Fieseler leave the cave. Remainder of the Houston group keeps watch at the siphon.

3:45 pm — Everage, concerned at the long absence (no time had been established for the length of any of the stays beyond the siphon) enters the siphon again.

4:30 pm — Everage returns and reports that there is no evidence that either Chris or Bruce ever made it through the siphon (no tracks on mud floor, etc.). Meanwhile, the remainder of the group not suspecting that anything is amiss leaves the area and returns to camp in Bustamante Canyon.

9:00 pm — The group camped in Bustamante Canyon becomes concerned and starts to return to the cave only to immediately meet a group of the Houston people coming to get them. The Houston people had been lost 2-3 hours en route. Everage and others had stayed at the siphon with lights hoping to guide the boys back. The group divides, some remaining at camp and others returning to the cave.

10:30 pm The group arrives at the cave and enters. There has still been no sign of the boys. A short conference is held in the cave and continued outside. The decision is made to call for help. At this point, approximately 8 hours have passed since Chris entered the siphon. Two people are left to keep watch at the siphon.

Saturday, 27 November 1971

12:05 am Arrive Bustamante. No people are about. No phone avaliable.
12:15 am Arrive Villaldama. No people are about. No phone avaliable.
12:45 am Arrive Sabinas Hidalgo. Find telephone at Bus Station. Calls: American consul, Nuevo Laredd(no answer), American consul, Monterrey (no answer), American Embassy, Mexico City (no answer---the operator explains that although they have a special night phone, "They never answer the night phone."), Luther Bundrant (Texas Speleological Association Rescue Coordinator), San Antonio, Texas (no answer).
2:30 am Contact Carl Kunath in San Angelo, Texas and partially explain problem. Request that Kunath locate cave divers and try to get them there as soon as possible. Plan is for some to return to the cave, some to be posted at Bustamante-Candela turnoff, and some to remain by the phone in Sabinas Hidalgo.
2:45 am Kunath calls Bundrant. No answer.
3:00 am Kunath calls Rane Curl, Ann Arbor Michigan. Curl is current NSS president and past NSS Safety Chairman. Obtain names and addresses of several people and organizations that might help.
3:15 am Kunath Calls Kenneth Laidlaw, Berkeley, California. Laidlaw is current NSS Safety Chairman. No answer.
3:25 am Kunath calls Southern Arizona Rescue Association, Tucson, Arizona. Most of their divers are elsewhere, but they will try to locate and will call back.
3:40 am Kunath calls Bundrant. No answer.
3:45 am Kunath calls John McLean, Albuquerque, New Mexico. John is not a diver but will call around and return the call.
4:00 am McLean calls Kunath. Had located only one diver and he did not feel qualified to lead such a rescue.
4:15 am Kunath calls James Storey, Atlanta, Georgia. No answer. Storey is active in cave diving.
4:20 am Kunath calls Norman Robinson, Austin, Texas. No answer. Robinson has done some cave diving.
4:30 am Kunath calls George Yeary, Dallas, Texas. Yeary had done some cave diving, but said that his gear was not in condition. He could not help and didn't know anyone that could. Meanwhile, all but two of the group have returned to Bustamante Canyon from Sabinas Hidalgo. The group divides, some remaining at camp, others camping at the highway intersection leading to the cave, and still others returning to the cave.
4:35 am Kunath calls Tommy Phillips, Austin, Texas. Reaches wrong Tommy Phillips and can get no other number. Tommy is an experienced cave diver.

4:40 am Kunath calls National Cave Diving Association, Miami, Florida. No answer.

4:45 am Kunath calls Donna Mroczkowski, St. Louis, Missouri. Reaches wrong party, gets correct number and talks to Mroczkowski who says she knows several cave divers. She will check around and return call.

5:00 am Arizona Rescue Association calls Kunath. Says one diver has gone caving in Grand Canyon, another diver is diving near Guaymas, Mexico. They will keep trying and will return call.

5:10 am Conway Christensen, Kirkwood, Missouri calls Kunath after having been contacted by Mroczkowski. Christensen says he can get a group of divers together quickly. Kunath tells him he will try to arrange transport for him and will call back.

5:15 am Kunath calls Goodfellow Air Force Base, San Angelo, Texas. Talks to duty officer.

5:18 am Kunath is switched to Randolph Air Force Base, San Antonio, Texas. Explains situation again.

5:35 am Kunath is patched through to Scott Air Force Base, St. Louis. Explains situation again, emphasises need for quick action, and listens as the buck is passed all the way to Washington, D.C. Many people come on the line to ask questions. Most want to know if help is needed for military personnel. Only the party at Randolph expresses any concern over the situation.

6:00 am Kunath is told by official in Washington that Air Force will not provide transport so long as there are commercial flights available.

6:10 am Kunath obtains phone numbers of U.S. Senators from Texas.

6:20 am Conway Christensen calls Kunath. Says he thinks he can get a National Guard plane to fly them as the National Guard had previously assured him that they would provide this service in case of emergency. Christensen says that they will need official confirmation of the emergency and is given Bill Elliott's name and his location and phone number in Sabinas Hidalgo.

6:30 am Mroczkowski calls Kunath wanting to know situation. Is told.

8:00 am Christensen calls Kunath. Says National Guard will not provide a flight, but that Eastern Airlines will. Says that the Sheriff of Webb County, Texas will send someone to talk to Elloitt in order to confirm the emergency and that they will be in the air soon after the confirmation is received by Eastern Airlines.

8:05 am Kunath calls Elliott. Tells him that the Christensen group will be on the way soon and that Elliott should stand by in order to provide information to the local Jefe. At this time Kunath learns that Everage had been through the siphon the second time and had seen no traces of the boys. Elliott and Kunath agree that there is little chance for the boys to be found alive. At this time, over 16 hours have passed since the first boy entered the siphon.

8:10 am Chief of Rural Police in Sabinas Hidalgo talks to Elliott who explains and asks for assistance with U.S. Customs for the St. Louis group.

8:25 am Bill Elliott and Ronnie Fieseler go to the Sabinas Hidalgo Police station and call the American consul who tells them to call the American consel in Nuevo Laredo. The American consul in Nuevo Laredo, Lee Cotterman, says he will try to assist at the border.

9:00 am Elliott and Fieseler return to the Bus Station.

9:30 am Chief Deputy Sheriff of Webb County, Texas(Laredo, Texas) calls Elliott and says that he has a local rescue team lined up. He says "They been in all them caves." Elliott questions the prudence of this since he has never heard of the group, but can do nothing to stop their coming.

9:45 am Elliott calls Kunath and passes on the news of the Laredo group. Kunath has no knowledge of the group and shares Elliott's feelings about them. Both agree that the St. Louis group is still needed.

9:50 am Kunath calls Christensen and tells him of the Laredo group. Kunath says that the St. Louis group is still needed and says that no one has yet been by to get confirmation from Elliott. (It is uncertain if either the Webb County Deputy Sheriff or the Sabinas Hidalgo Policeman was doing this.)

10:30 am Jerry Lindsey, leader of the Laredo group calls Elliott. Elliott is somewhat reassured after this conversation. Lindsey says that they will be on the way in 20 minutes.(The Laredo group had some trouble obtaining air, eventually putting out a call on the local radio station and leaving with only three bottles.)

10:55 am Elliott returns to the Police Station to arrange for transport of the bodies in the event this is necessary.

11:00 am Fieseler takes the bus to Laredo, hoping to meet the St. Louis group at the border and guide them to the cave.

11:25 am Elliott returns to the Bus Station.

11:30 am Arizona Rescue calls Kunath. They have located one man and are continuing the search for others. Will continue checking in.

12:05 pm Fieseler's bus breaks down near the 20 K checkpoint (Aduana). Fieseler walks to checkpoint. His papers show that he has taken a vehicle into Mexico and the Officials will not let him through the checkpoint without it. Fieseler finally talks them into calling Cotterman. No answer. Next, they call the assistant consul in Nuevo Laredo, a Mr. Gardner. Gardner had not even heard of the accident and said he would call back.

1:00 pm David Keeper, father of one of the Houston boys, calls Elliott requesting details of the situation. Elliott tells him most of the story. (It is not known at this time how Mr. Keeper was able to obtain Elliott's location, or even how he heard of the accident.)

1:10 pm Elliott leaves for the cave. Stops in Bustamante and sends others to stand by the phone in Sabinas Hidalgo.

1:30 pm Fieseler is permitted to pass through the checkpoint after Gardner calls and talks to the officials. Fieseler hitches ride to Laredo.

2:00 pm Christensen calls Kunath. Says that Eastern Airlines flight has been confirmed. St. Louis group will leave at 4:30 pm and fly to Corpus Christi, Texas. A helicopter will take them directly to the cave the following morning.

2:10 pm Kunath calls Bus Station in Sabinas Hidalgo, but Elliott has left. Meanwhile, Fieseler has reached the Laredo/Nuevo Laredo border and met the Laredo group. Fieseler gives them the complete story and they leave. Fieseler calls Cotterman and tells him the latest. Cotterman says we may not need the St. Louis group now and requests that Fieseler call them and discuss the situation. Fieseler calls Christensen but the line is busy. Fieseler calls Kunath and explains the situation. Both Fieseler and Kunath agree that the St. Louis group should still come as the Laredo group is not known to be competent and even so, they may need assistance.

3:00 pm Fieseler calls Cotterman again and learns that Cotterman has just been talking to St. Louis group (thus the busy phone when Fieseler called), and has cancelled them (cancelled their flight through Eastern Airlines). Cotterman maintains that the Laredo people can handle it and still doesn't seem to understand exactly what is involved in a situation such as this. Meanwhile Louise Power (Houston) has just heard a small news spot about a caving accident in Mexico involving Houston boys and calls Kunath to see what he knows. She is told the full story.

3:10 pm Elliott arrives at the cave with the news that two rescue teams are on the way.

3:15 pm Christensen calls Kunath with the news that Cotterman has just cancelled their flight. Both are thoroughly disgusted with Cotterman's actions, and fear that a worse emergency may be in the making.

4:10 pm Power calls Kunath requesting news. Nothing new.

5:00 pm Laredo team arrives at the cave.

5:15 pm Laredo team enters the cave and establishes a line through the siphon. No sign of the missing boys. At this time, 26 hours have passed since the first boy entered the siphon.

5:50 pm Blair Pittman (Houston Chronicle photographer and caver) calls requesting news. Is told bare facts. Names of missing boys are withheld.

6:25 pm Fieseler leaves on train for Candela, Coahuila (a few miles from the cave).

6:45 pm Power calls Kunath requesting news. Nothing new.

7:00 pm Laredo team ends diving for the day, having made a second dive searching deep and to the left. One of the boys' flashlights was found but the water became too murky (visibility less than 1 foot) to continue diving. At this point, the divers were short of air and expressed doubts as to their ability to carry on with the rescue.

8:40 pm Houston Chronicle calls Kunath for news. Is given nothing.

8:45 pm Laredo divers go to Bustamante to eat. They are looking forward to the arrival of a second team.

9:00 pm Fieseler arrives Candela with the news that the St. Louis group is not coming. Morale reaches all time low at this point.

10:15 pm Houston Post calls Kunath (It is not known how they obtained his number and the caller refused to give any information as to his sources). Post had correct names of the boys and wanted confirmation which was not given.

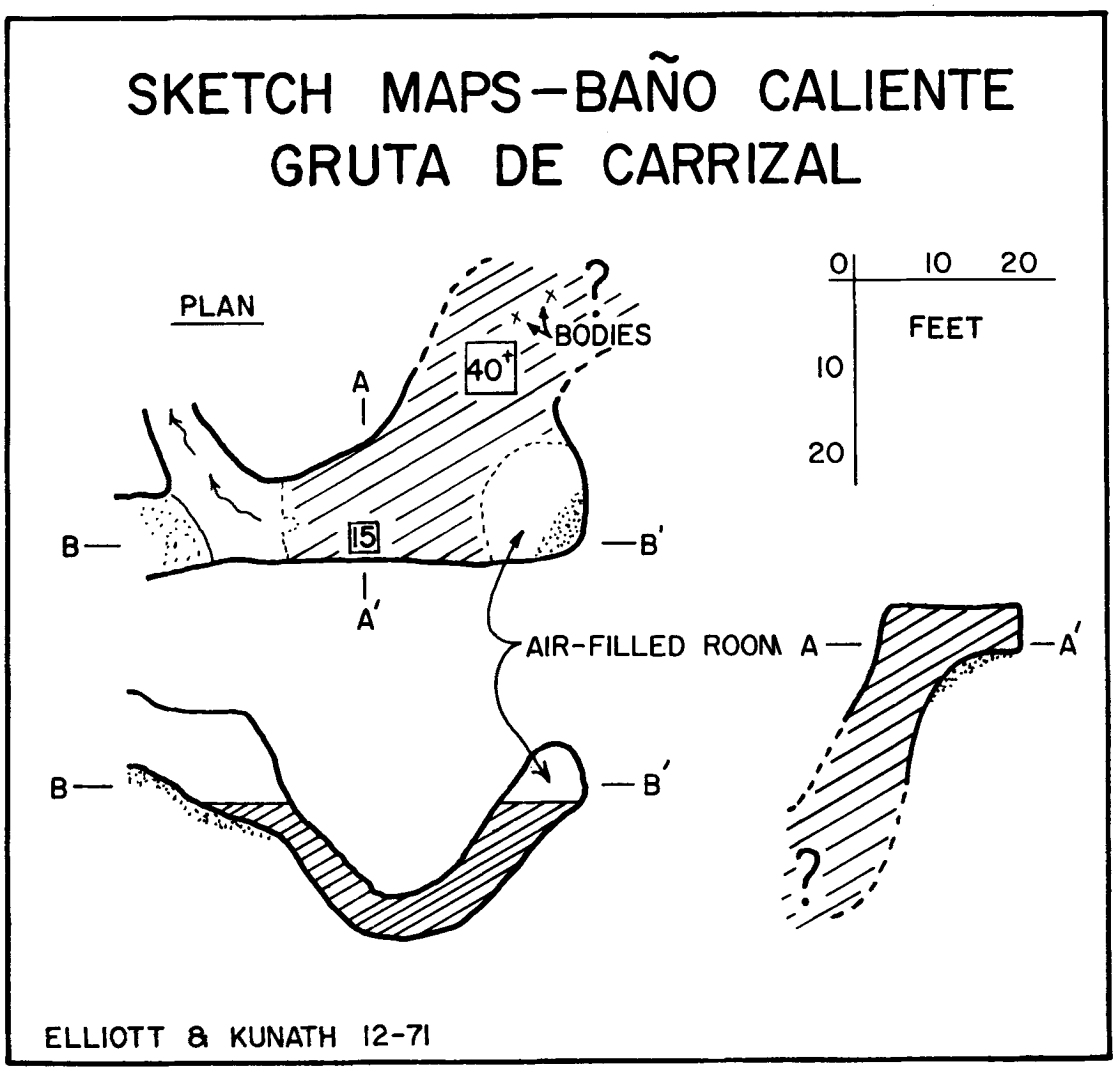
11:15 pm Houston Chronicle calls Kunath for news. Is given nothing new.
11:20 pm Power Calls Kunath requesting news. Nothing is new.
11:30 pm Divers return to camp at the cave and all retire for the night.

Sunday, 28 November 1971

2:30 am Members of group stationed in Sabinas Hidalgo return to the cave.
7:30 am Laredo divers re-enter the cave and enter the siphon again.
8:30 am Bodies of the two boys are located near the ceiling about 40-50 feet from the entrance to the siphon. (41 hours have passed.)
9:00 am Word is passed to those waiting outside the cave and they enter to assist in removing the bodies.
10:00 am All bodies and equipment out of the cave.
11:00 am Some take bodies to Candela to complete necessary paper work while others return to Bustamante Canyon to organize remainder of Houston group and prepare to leave.
12:30 pm Group arriving in Bustamante Canyon finds group there in mass confusion and seemingly unconcerned about recent events. Their vehicle has a broken axle and must be abandoned.
12:40 pm Power calls Kunath with the news that both Houston papers have printed the names of the boys in some rather inaccurate stories. She has been in contact with the parents of both boys.
12:55 pm Power calls Kunath with the news that both boys are dead. She was informed by the parents of one of the boys who had just been notified.
1:00 pm Entire group leaves Bustamante area. Kunath calls Christensen and cancels with thanks. Kunath calls Arizona Rescue. No Answer.
2:00 pm Group stops in Sabinas Hidalgo to pack the bodies in ice.
2:10 pm Kunath calls Arizona Rescue. No answer.
2:15 pm Elliott calls Cotterman. No answer. Calls Gardner (Assistant consul, Nuevo Laredo) and requests police escort to border and assistance in clearing US Customs. Gardner is still uninformed and is noncommital and unconcerned about the whole affair. After several lengthy pauses on Gardner's part, Elliott hangs up in disgust.
2:25 pm Group leaves for Laredo.
2:30 pm Houston Post calls Kunath for details. Are told they can have the complete and accurate story as soon as he knows it.
4:30 pm Group reaches the border. No escort has been provided and Gardner has not so much as called to tell U.S. Customs the group was on the way.
5:00 pm Group clears Customs.
5:30 pm Ambulance arrives to take bodies to local funeral home.
7:10 pm Kunath calls Arizona Rescue and cancels with thanks. Total elapsed time between group entering the cave and clearing U.S. Customs: 52 hours.

COMMENT

Siphon diving in itself is dangerous. The Carrizal siphon is especially treacherous in that it is not a simple tube that one can follow blindly. To reach the air-filled room one must stay to the right. At low water stages, it is about 10-15 feet horizontal distance to the other side. When the water is only a little higher, the length of the siphon is greatly increased. At the time of this incident, the water was up perhaps a foot, but the siphon was about 25 feet long. To reach the other side, one must dive at least 10 feet deep and follow the ceiling. The water on the right side is about 15 feet deep. To the left, the floor drops off to at least 40 feet deep and there are several small air pockets in the ceiling. The bodies were found to the left, 40-50 feet from the entrance to the siphon. Stone's body was floating against the ceiling. Cleveland's body was within 15 feet of Stone's and was neutral in the water. See maps below.



ERRORS DIRECTLY CONTRIBUTING TO THE ACCIDENT

1) The group from Houston was large and inadequately supervised. Everage was responsible for 14 people. They were also ill-equipped and inexperienced and were entirely too casual about going to Mexico, more so about caving in Mexico.

2) Everage, group leader of the Houston group, set a poor example in diving the siphon without taking the slightest safety precautions.

3) Cleveland, a near novice caver, attempted the same feat as Everage. Everage said that he did not know Cleveland was in the water or of his intentions and that at the time he was dressing on the bank with his back turned.

4) Stone, a complete novice on his first caving trip, was allowed to enter the siphon, his intentions perfectly clear. A rope was used, but was entrusted to a completely inexperienced belayman, and the signals which were arranged were backward. Again, no time limit was discussed for their proposed venture.

5) So far as can be determined, at no time was either of the boys instructed as the the physical nature of the siphon, nor did they inquire.

PROBLEMS COMPLICATING THE RESCUE EFFORT

1) Few cavers go to Mexico with adequate contingency plans in case of an emergency. After the incident, the Houston group was helpless and could have done little to organize a rescue. Luckily, some of the non-Houston group spoke Spanish and knew what to do.

2) Communication problems.
   a) The accident was in Mexico, but Americans were needed to help.
   b) This was a major holiday weekend for Americans. Many of the people who might have been able to help were unavaliable, being involved in various holiday trips themselves(this was only the second time in 8 years that Kunath had been home during Thanksgiving).
   c) A lack of information about who might be qualified to help, and the absence of any back-up numbers for some key people (Laidlaw, Florida Rescue, Bundrant, etc) who might have been able to help.

3) The help received from the American Government was worse than useless. The American Embassy in Mexico City has an emergency phone, but no one would answer it. After wasting an hour of Kunath's time, the Air Force refused to fly the St. Louis divers, even to Laredo, so long as any commercial transport was avaliable. The American consul in Nuevo Laredo (Lee Cotterman) cancelled the St. Louis diver's flight when the Laredo divers were contacted---this could have been a serious mistake should help have been needed. Once the bodies were recovered, the assistant consul in Nuevo Laredo (Gardner) was contacted and asked to provide a police escort to Nuevo Laredo and through the heavy holiday traffic. He was also requested to assist the group in clearing U.S. Customs. He did

nothing. The man appears to have been either stupid or drunk---he asked ridiculous questions, repeated himself many times, and lapsed into lengthy silences. In short, the Air Force is unsympathetic and the American officials in Mexico are inept political fixtures. It is obvious that we need to find someone in the government with responsibility and the initiative to help in situations like this one.

4) The simple fact that cave divers were needed. It is hard enough to find people who are qualified to make the "standard" cave rescue (ie. search a horizontal cave for a lost or injured person and evacuate if necessary), let alone try to find people qualified to perform a "pit" rescue, but when you need cave qualified divers, you narrow the list to a precious few. Local Sheriffs, Jefes, etc. are apt to think that anyone with an aqualung can do the job, while this is very seldom true. It was extremely fortunate that the Laredo group was avaliable and able to help---no one knew they existed. When we were told that "They been in all them caves", we cringed. What if they had been incompetent? The tragedy could easily have grown larger. As it was the situation was none too secure. However, the Laredo divers were very competent, cautious, and they did a good job. They were: Jerry Lindsey, Dennis DeKneff, Manuel de la Fuente, Dario Gutierrez, Bill Ashe, and Dave Worthington (the last two did the actual diving).

Some may ask why Fieseler and Elliott, supposedly competent cavers, sat on the bank of the siphon and watched the whole thing without stopping them. Elliott says:

> I have only a weak excuse to make. From almost the very moment we arrived in Bustamante Canyon on Thursday, we noticed how irresponsible many of the Houston group were. Some of them took a shovel from Vinson's truck and after using it, left it lying some distance away. I gave the ones who did this a verbal lashing, but it seemed to just bounce off. On the way to Carrizal the following day, most of us rode our motorcycles and put our ice chests in Fieseler's truck, which he allowed the Houston kids to drive to the cave. They passed us on the road at high speed, tossing out empty beer cans, some of them hanging on top or out the back. When we arrived at the cave, we discovered that nearly all of two six-packs had been consumed by members of the group. Again, I gave them a tongue lashing, with the result that a few of them shrugged their shoulders and one of them returned two beers. I was already convinced that any warning to most of this group was futile. When I got to the siphon, Everage was already trying to dive the siphon. What could be said to him the supposed leader of the group?
>
> I have learned my lesson. Speaking for myself, if I ever become entangled with a group like this again, I will try to leave before something happens. From now on, when someone I am with does something stupid in a cave, I will physically restrain them if necessary, no matter who they are or what I think about them. I went through hell for two days because of someone else's stupidity, and I got what I deserved for remaining silent.

RECOMMENDATIONS

1) Cavers should stay out of the Bustamante-Carrizal area for some time to come. Some will disagree, but we feel it is best to avoid any possible friction with the local people in the immediate future.

2) Any group that goes caving in Mexico should have some members who are fluent in Spanish and who have some idea of Mexican politics and customs.

3) If you are ever in a situation such as this, try to handle things as much through private channels as possible. You will of course have to notify local Mexican officials. You will risk being thrown in jail if you do or if you don't. Don't expect the Mexicans to be too much help, but they can help by cutting "red tape." We were lucky that this happened in Coahuila and Nuevo Leon. The Police Chief in Sabinas Hidalgo and the Presidente in Candela were very cooperative---it would probably have been a different story in a state such as Oaxaca where there has been considerable friction with the local people.

4) The AMCS should now begin collecting telephone numbers of all it's members and of all the competent cave divers and rescue teams who could help with future accidents. We had best assume that there will be future accidents. For many years, AMCS cavers have been saying that a serious caving accident in Mexico was inevitable, but most thought it would be a pit accident. A pit accident would have probably been an easier situation than this one. Everyone is urged to send the names and phone numbers of competent rescuers so that a list may be compiled and distributed to all concerned persons. This list should be up-dated as often as possible and should be carried on all caving trips, whether to Mexico or not.

CONCLUSION

Both boys were probably dead within minutes of entering the siphon though other unlikely possibilities exist. Having no knowledge of the physical characteristics of the siphon, they continued straight or to the left rather than keeping to the right along the ceiling. Thus, they found no air-filled room---only water. Prompt action, even to the extent of having diving equipment immediately at hand, would have been to no avail. Nevertheless, it is chilling to realize that in a situation where prompt action might save a life, that life would be jeopardized by apathy, ineptness, and bureaucratic "red tape"on the part of the American Government and certain of it's representatives in Mexico.

7 December 1971
ck: Carl Kunath, Bill Elliott, Ronnie Fieseler, Jon Vinson

The following stories appeared on the UPI teletype Saturday:

SABINAS HIDALGO, MEXICO--A SEARCH IS UNDERWAY IN MEXICO ABOUT 70 MILES SOUTH OF THE TEXAS BORDER FOR TWO HOUSTON YOUTHS WHO ENTERED A CAVE YESTERDAY AND FAILED TO REAPPEAR. THE UNIDENTIFIED YOUTHS DISAPPEARED IN A CAVE NEAR SABINAS HIDALGO, MEXICO--WHICH IS 70 MILES SOUTH OF LAREDO, TEXAS. THE YOUTHS ARE BELIEVED TO BE AN 18 YEAR OLD HIGH SCHOOL BOY AND A 20 YEAR OLD RICE UNIVERSITY STUDENT.

TWO HOUSTON AREA YOUTHS..MISSING (FEARED DEAD) IN SABINAS HIDALGO MEXICO...
AUTHORITIES NEAR THE BORDER REPORT THE PAIR ENTERED A CAVE AND FAILED TO REAPPEAR.. THE CAVE ABOUT 70 MILES SOUTH OF LAREDO, TEXAS.
THE UNIDENTIFIED YOUTHS DESCRIBED BY AUTHORITIES ONLY AS AN 18 YEAR OLD HIGH SCHOOL YOUTH AND A 20 YEAR OLD RICE UNIVERSITY STUDENT.

The source for both of these stories appears to have been the American consul in Nuevo Laredo and/or the Sheriff's office of Webb County, Texas.

Blair Pittman edited the article at the right. This is the best of any that either of the Houston papers printed.

★★★★ HOUSTON CHRONICLE Sunday, November 28, 1971

2 Houston Youths Disappear Into Cave in Mexico

Two Houston youths disappeared into a cave in northern Mexico Saturday, and a search party was attempting to rescue them.

The youths were identified as Chris Cleveland, 18, a freshman at Rice University and the son of Mr. and Mrs. Robert M. Cleveland of 5839 Ettrick, and Bruce Stone, 18, whose local address was not determined.

The elder Cleveland said his son went to Mexico Wednesday on a cave-exploring expedition.

On Saturday, the sheriff's office in Laredo was notified that two youths had entered a cave about 80 miles south of Laredo near the village of Bustamante in Nuevo Leon state about 60 miles west of the city of Sabinas Hidalgo.

The cave, in the base of a mountain, has been explored and mapped by Texas cave buffs. It has two siphons, or areas where the ceiling of the cave lowers below water.

A man identified as William Elliott telephoned the sheriff's office in Laredo from Sabinas Hidalgo to notify them of the disappearance of the youths.

The sheriff's office dispatched a team of rescuers from Laredo. They were expected to arrive at the cave Saturday night, but o word had been received of their progress early today.

Cleveland is a graduate of Westbury High School.

Page 2/B
★★
THE HOUSTON POST
SUNDAY, NOVEMBER 28, 1971

Houston teens lost in cave

By BILL FURLOW
Post Reporter

Rescue efforts continued Saturday night for two Houston boys lost Friday while exploring a cave in Mexico.

The boys were identified by the American Consul in Nuevo Laredo as Bruce Stone and Chris Cleveland, both in their late teens. They were with a group of young spelunkers from Houston who were spending the Thanksgiving holidays roaming caves near Sabinas Hidalgo about 80 miles south of Laredo.

A member of the party told relatives this story:

While exploring a cave that has different levels, one of the boys dived into some water, hoping to surface in another room of the cave.

When the boy did not return, the second boy tied a rope around his waist and dived in also. The group thought the second diver signaled to them with his rope that he had reached the other side. He apparently untied the rope, and it was pulled back.

Another man then swam through to the next room but found no trace of the boys.

There was reportedly a large number of Americans exploring caves in the area, and they joined in the search for the missing boys, whose addresses were not immediately available.

A Webb County sheriff's deputy in Laredo said a rescue team from St. Louis and several skin divers and spelunkers from Laredo were called in to help with the search.

THE HOUSTON POST
MONDAY, NOVEMBER 29, 1971

Bodies of 2 Houston boys found in Mexico cave

By SUSAN KENT CAUDILL
Post Reporter

The bodies of two Houston boys, victims of a Mexican cave exploring mishap, were found by searchers about 9 a.m. Sunday in a cave south of Laredo in the state of Nuevo Leon.

Bruce Stone, 17, a Bellaire High School student, son of Mr. and Mrs. Herbert Stone of 2811 Conway, and Chris O. Cleveland, son of Mr. and Mrs. Robert M. Cleveland of 5839 Ettrick, apparently drowned in a water-filled tunnel inside the cave.

A party of about 20 Houston spelunkers started out for the range of Mexican caves near Candela and Sabinas Hidalgo late Wednesday.

The expedition and the rescue team crossed the border into Laredo late Sunday bringing the two bodies.

The rescuers, largely members of the Laredo Speleological Society, pieced the story of the other Houston cavers together this way.

One of the boys, Cleveland, dived into a water-filled tunnel or siphon without a rope or a light shortly after an adult leader had successfully done the same thing, also without a rope or scuba gear late Friday night.

When Cleveland did not return Stone went in after him with a rope tied around his waist. The rope went slack and was pulled back empty.

The first boy plunged in fully clothed in Vietnam combat boots, a rescuer said.

The boys apparently missed the turn of the tunnel ending in an air-filled chamber, rescuers said.

Both bodies were found on the tunnel floor about 50 feet from the entrance to the siphon.

Jerry Lindsey, a member of the rescue team, said no experienced spelunker would go into the siphon without a

Please see Crews/page 3A

Crews find bodies of 2 drowned boys in Mexican cave

Continued from page 1

rope, light and preferably scuba gear.

Cleveland, a member of the Rice University Speleological Society, had several months caving experience, Miss Louise Power, a society officer, said. "He had a cool head and was learning very rapidly," she said.

Stone, an Explorer Boy Scout, had no caving experience, his father said in Houston Sunday.

The expedition apparently had no sponsor although several members of the Rice club went on the trip.

Stone said his son went on the expedition as part of a spelunking program associated with Explorer Post 43 and the Central Presbyterian Church.

"This was Bruce's first trip. He's always been interested in things like this. We didn't realize it was quite such an expedition," Stone said.

Stone said his son was an Eagle Scout and in excellent physical condition.

About 9 members of the Explorer Troop and its leader went on the Mexico expedition, Stone said.

Dennis De Kneef, a member of the Laredo Speleological Society who helped coordinate the rescue attempt, said the bodies were found in a cave called "El Carrizal."

Lindsey, who was with the rescue team at the cave, said Airman 1st Class Dave Worthington and Sgt. Bill Ashe, both from the Laredo Air Force Base, recovered the bodies with scuba gear. The men were also members of the Laredo caving society.

Lindsey said the siphon can be treacherous if the caver does not keep to the right following the wall into the open cavity.

A wrong turn means an almost endless water-filled tunnel, he said, which has never been charted.

"If you are going to go in, you should have somebody on a lifeline outside the water," Lindsey said.

Veteran spelunker De Kneef said the cave where the boys drowned "is a fairly easy cave to go in.

"But there are water traps all over the place. Still, it's not especially dangerous. No one has ever been killed in that cave that I know of.

"If you don't know where the siphon goes, you wander around under water until you can't breathe anymore," De Kneef explained.

The bodies were taken to the Jackson Funeral Home in Laredo.

Monday, November 29, 1971 HOUSTON CHRONICLE
Section 4, Page 9

Bodies of Two Cave Victims Are Returned

A plane today returned from Laredo the bodies of speleologists Chris Cleveland, 18, and Bruce Stone, 17, who drowned in a northern Mexico cave while exploring.

Cleveland, son of Mr. and Mrs. Robert M. Cleveland, 5839 Ettrick, disappeared Friday when he dived into water encountered in El Carrizal cave near Sabinas Hidalgo in Nuevo Laredo state.

Young Stone plunged in to try to find Cleveland and failed to come up.

Eight cave explorers recovered the bodies Sunday.

Cleveland was a freshman at Bellaire High School and an Explorer Scout.

They were with a party of 15 cave explorers who left Houston last Wednesday to explore the cave, located between Laredo and Monterrey, Mexico.

The cave, at the base of a mountain, had been explored before.

The explorers found a new spring in the cave where the ceiling dips below the water. It was to investigate this find that Cleveland plunged into the water, friends said.

The following story was realeased to the San Angelo Standard Times Monday afternoon 29 November 1971 by Kunath, Elliott, and Vinson, but was never printed.

Friday 26 November 1971, about 4:00 pm, Chris Cleveland 18, and Bruce Stone 17, both of Houston, Texas and both inexperienced cavers drowned while attempting to swim through an underwater passage about 25 feet long in order to reach another room in a cave about 80 miles South of Laredo, Texas.

A rescue attempt was begun within an hour when both boys failed to return and it was decided that experienced cave divers would be required to reach them. The party reached a phone about midnight Friday, and after several attempts to reach the American consels in Nuevo Laredo, Monterrey and Mexico City met with no success, they (Elliott, et al) telephoned a caver in Texas (Kunath) and asked him to contact some cave divers. Finally, a team of divers from Laredo, Texas, led by Jerry Lindsey, was located and arrived at the scene by car about 5:00 pm Saturday. Two initial dives were unsuccessful due to murky water. The rescue attempts resumed Sunday morning and the bodies were recovered about 9:00 am Sunday.

Both boys were members of a larger group of cavers from Houston, Dallas, San Angelo, and Lubbock who were in the area for the Thanksgiving holidays.

ASSOCIATION FOR MEXICAN CAVE STUDIES

NEWSLETTER

Volume III Number 5

Keith Heuss

SUMMER CAVING

ASSOCIATION FOR MEXICAN CAVE STUDIES

NEWSLETTER

Volume III Number 5 Publication Date: July 1972

The Association for Mexican Cave Studies is a non-profit organization whose goals are the collection and dissemination of information concerning Mexican 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 $3.00 US per volume, which includes both the publication and membership. Prices of other publications are available by writing to the Association for Mexican Cave Studies, P.O. Box 7672, Austin, Texas 78712, USA.

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.

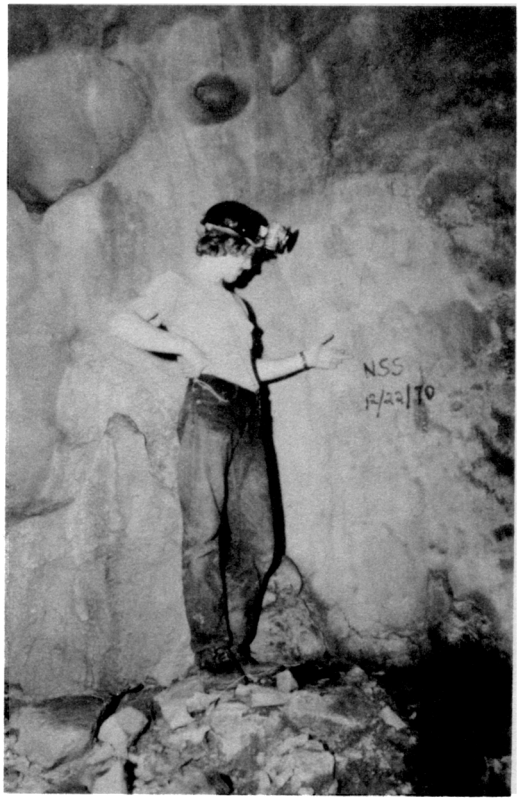
Published by THE SPELEO PRESS

NEWS AND NOTES

In addition to the persons listed above, several others very actively support the AMCS. Helping with this issue were Roy Jameson, James Jasek, Ann Lucas, and Carol Russell.

Speleological activity so far this summer has been moderate. During June a group reached the terminal siphon at a depth of 1500-1600 ft. in Sótano de El Buque. This system is located in the La Ciénega Area near Jalpan, Qro. In July approximately 10,000 ft. in Sótano de Japonés was surveyed. Anticipated in August is a French expedition led by Claude Chabert of the Spéléo Club de Paris.

CONSERVATION



The AMCS has been proud of the low level of vandalism which has been maintained by its members. But as the popularity of Mexican caves increases and the influx of extraneous cavers grows, incidents occur. It is difficult to tell who's who. People hear about our group, send in their money for publications, and become supporting members. We trust them. Some are independents, but most are affiliated with organized caving. And of all the groups known to you, which do you expect could be trusted most? We thought the NSS, with its "Take nothing but pictures, ...," but we were wrong.

During Christmas of 1970 Gary Schaecher (NSS 10116) led a group of three on a brief reconnaissance of a pit just to the west of Gómez Farías, Tamps., and of an area to the northwest. On 6 May 1971 he contacted the AMCS by letter, describing the Christmas trip, informing us of a "large caving trip" they were organizing, and requesting information on the area. The AMCS responded with a letter detailing most of the available material concerning the Sierra de Guatemala. As time passed, Gary's group was granted the status of "NSS Expedition, Tamaulipas, Mexico" by the Board of Governors on 19 June 1971. Planned was a four month stay from December 1971 to March 1972. Then, during the fall, AMCS cavers surveying in the Gómez Farías area entered the cave previously visited by Gary's group. Here was discovered the vandalism illustrated in the photograph. Upon returning to Austin, a certified letter was sent to Gary requesting an explanation of their actions. This was on 3 November, six months ago. To date no correspondence has been received. For some reason the "expedition" never materialized, which is probably just as well considering the above information. It is only hoped that the other caves visited during the Christmas trip did not similarly suffer.

What can be done? In this case a wire brush will take care of the cave and perhaps pressure from this article and friends will correct Gary's behavior. But most important is to keep up a protective awareness and strong conservation attitudes toward all caves. Vandalism in Mexico is nil except for a few classical examples such as the engraving feats performed by the Mexican outing clubs in Gruta del Palmito. Let's keep it that way.

TRIP REPORTS

When first viewed by Logan and Craig, El Sótano was 14 km away rather than 5 km as in this photograph. Using binoculars, they could see that the cliff face was curved and indeed part of an incredibly large pit. Rancho El Barro is located in the midst of the corn fields in the valley below.

Date: 17-21 January 1972
Destination: Cave hunting near Ahuacatlán
Location: SMO; Jalpan
Persons: Craig Bittinger and Logan McNatt
Reported by: Craig Bittinger

On January 17, 1972, Logan McNatt and Craig Bittinger caught a second class bus out of Ciudad Valles headed toward Ahuacatlán. We had just finished twenty days of Mexican caving in the Ciudad Valles area and we were looking forward to several more weeks of adventure. John Fish and the rest of our caving companions had just left for the U.S., so we felt that we were on our own. Logan had been in on the exploration of Sotanito de Ahuacatlán and knew of several unchecked pits in the Ahuacatlán area, along with rumors of a huge pit twelve hours away over the mountains, so we had decided to return to the area.

The bus slowly worked its way south, stopping innumerable times to pick up every Mexican along the road. Finally, around 3:00 p.m., after 5 hours of twisting mountainous roads, we arrived at Jalpan where we were informed we had a 3 hour layover. We bought a meal at a local restaurant and then sat around the town square waiting for the next bus to arrive. We heard the bus coming two minutes before it burst into view and soon we were under way again. Twenty-five minutes later we arrived in Ahuacatlán and proceeded to hike up the arroyo toward the Sotanito de Ahuacatlán. Our entire day of bus riding had cost us 2 dollars each, and nearly exhausted our energy. We set up camp on a flat spot above the arroyo and were lulled to sleep by the barking of the local dogs.

We woke up around six in the next morning, and after a quick breakfast, hit the trail. After about an hour of hiking, we arrived at a local store and the end of the fairly level part of the trail. Logan bought a can of Mexican sardines which we proceeded to eat in order to stave off our hunger. After two sardines Logan noted something strange in the bottom of the can and proceeded to pull out a large chunk of fish net from in between the remaining sardines. After mumbling a few words about Mexican canning factories we proceeded on up the trail.

Two hours of steep climbing brought us to the vicinity of the Sotanito where we hired 2 Mexican kids to watch our packs in return for a few hand fulls of animal crackers. We hiked over to the Sotanito where we did the 70 ft entrance drop, threw rocks down the 946-foot drop, and then returned to our packs. Thirty minutes later we arrived at the Montoya's house where we were welcomed with open arms and a hearty "Mi casa es su casa." The Montoya family gave us a place to stay, food, and a guide to more virgin pits than we could possibly explore. The Southwest Texas Grotto had done such a good job of public relations on previous trips that their house was like a second home where we were to be honored guests. That afternoon we went to what we thought was a 120-foot pit. Unfortunately after Logan descended to the end of our 150-foot rope he realized that the pit was closer to 300 ft deep, so we decided to wait until the next day to bottom it. While we were coiling the rope, Craig asked our guide if he knew of any deep pits in the area. He proceeded to point at a white spot visible on the side of a mountain in the far distance.

That night the Montoyas gave us more beans and tortillas than we could possibly eat; in return we gave them one of our dehydrated dinners, so it turned out to be an unusual meal for all.

In the morning we were awakened by the sounds of dogs, chickens, burros, pits, and roosters all trying to drown out each other. The Montoyas pointed out the white spot on the side of the mountain again and through our binoculars we could see the curve of the entrance of what we knew must be a huge pit. The entrance intrigued us, so we decided to hike over and have a look at the pit. The Montoyas had never been to the pit but they assured us that no one could possibly throw a rock across the entrance of the pit, and that it was fairly deep. About 10:00 a.m. we left their house carrying only our day packs and about 25 pesos between us. We assured them that we would be back late that night and asked them to watch our equipment. At six o'clock that evening we arrived at the base of the mountain containing the pit. We had been hiking at a steady 2 1/2 to 3 miles an hour pace all day long and we were totally exhausted. The local people told us that we should go to Rancho El Barro to talk to the local judge, who could give us permission to go into the pit. Eventually we arrived at the judge's house, and after explaining who we were and that we would like to see the pit, we were once again welcomed with open arms. The judge, Gregorio Rodriquez, gave us a bed to sleep on, 2 serapes, and a meal of beans and tortillas. We went to bed almost immediately but couldn't fall asleep due to the judge playing his radio over the local loudspeaker system.

We woke up about 6:00 a.m., shivering with cold and eager to get to the pit. After giving the judge one of our canteens to express our gratitude for everything he had done for us, we headed up toward the pit. Unfortunately, there was a dense forest in between us and the pit, and there were no obvious trails. Soon we heard shouts from below telling us that we were lost. Before long the judge's son, Ramón, appeared to guide us to the pit. After 2 1/2 hours of hiking, we arrived at a grassy meadow and five minutes later we burst through the jungle and there in front of us was the largest pit either one of us had ever seen. We quickly picked up a rock and threw it into the pit. After what seemed like an interminable wait, we heard a tremendous noise from below. Neither of us had a watch, so we had to resort to timing the rocks by slowly counting, thousand-one, etc., until we reached thousand-eleven. Ramón was totally mystified as to why these two crazy gringos were jumping up and down, screaming and excitedly shaking hands. We proceeded to jungle crash approximately half of the way around the pit to a cave located on one wall of the pit. The cave was apparently inhabited by javelinas as their tracks and dung almost completely covered the floor of the entrance. Unfortunately, the cave was only a rock-shelter, so we decided to leave the pit and return with rope and a well-equipped caving group. As we hiked back down the mountain we started to consider our situation. The Montoyas were expecting us back any minute, we were virtually out of food and money, and we were totally exhausted.

Luckily, Ramón knew of a closer way to get back to the highway where we could catch a bus back to Ahuacatlán and our equipment. We gave Ramón a pocket knife in payment for his services as a guide, said goodbye, and then set out toward the canyon which he assured us would take us directly to the paved highway. After an hour and a half of jungle crashing, we reached the canyon only to find Ramón sitting patiently at the edge of the stream waiting to guide us out through the canyon.

We followed the small stream for 4 1/2 hours as it wound its way between 1,000-foot tall cliffs. We finally emerged upon an ancient aqueduct which led us directly to the town of Ayutla. The local people informed us that the last bus of the day would be by in a half-hour, so we sat down to enjoy a refresco and rest our weary bodies. Suddenly someone yelled, "Here comes the bus," so we started moving straight uphill toward the road only to see the headlights flash by and vanish in the distance. Fortunately, it was only a car, but the bus appeared 2 minutes later and took us back to Jalpan. We were then informed that no more buses went to Ahuacatlán that night so we would have to spend the night in town. A hotel room would definitely cost more than the 5 pesos we had left; it appeared that we would have to sit in the town square if we could have a ride to Ahuacatlán. He said if we could wait for half an hour he would take us up there. Three hours later we climbed in the back of his truck and watched him accelerate up the mountainous road. The truck continued accelerating as we started down the far side. We both hung on for our lives and watched the truck stay on the wrong side of the road for nearly half the trip. Fifteen minutes later we were in Ahuacatlán marveling that we were still alive.

We lit up our carbide lights and started the 3-hour hike to the Montoyas' house. Two and 1/2 hours later we were totally lost in the pitch black night, virtually on top of a mountain and shivering with cold. We decided to build a fire and wait for morning instead of wandering aimlessly through the night. Five hours, and a lot of wood-gathering later, the sun came up and we discovered the main trail 20 yards away.

The Montoyas were surprised to see us and when we left two hours later there were twenty people waving goodbye and telling us to come back soon. From Ahuacatlán we caught a bus to Valles, and then straight on through to the U.S. Our conversations kept centering on the pit, and how we were going to break the news to the people back in Austin.

Date: 17-22 May 1971
Destination: Ocampo, Tamps.
Location: SMO; Sierra de Guatemala and Sierra de El Abra
Persons: Ken Gordon, David Johnson, Kenny Johnson, Mary Ann Kelly, John Mikels, Nick Morales, Mike Padgett, B.B. Russell, J. Carr Strutz, David Waddell
Reported by: John Mikels

A man at Ocampo, Tamps., agreed to guide us to a cave. A 5 mi hike got us to the entrance. It is located in a very steep and deep canyon approximately 10 mi SE of Ocampo. The entrance is near the floor of the canyon which apprently conducts great volumes of water at times. We located several large deep lakes in the canyon floor. Our guide said the cave was named La Gruta de la Sierra Tamalabe (this cave is more commonly known as Cueva del Puente). The cave is approximately 1000 ft long and U-shaped. The main entrance is 50 ft by 100 ft and mostly breakdown. The cave enters the canyon wall and curves back to another smaller entrance 200 yards down the canyon. The cave is essentially one big room divided up by flowstone and breakdown. It was quite dry and dusty. The entire cave can be negotiated without ropes, although some difficult free climbing is available. The entrance is or was mined, apparently for phosphates. The only noted life was bats, including vampires.

Next day we hit the Monos road just north of Cd. Valles in search of Montecillos. Too far down the road, we stopped at the trail to Soyate and started down it, but at the time we didn't known Soyate was there and passed it by. On down the trail we stumbled onto an inconspicuous pit with a 3 ft by 5 ft entrance. It proved to be a 180 ft single drop with a ledge halfway down. At the bottom was a live, decorated room 6 ft by 30 ft. Another small room was off to one side about halfway down. We named it Sótano del Lagarto for the lizard we found in the bottom. David Johnson's camera fell 90 ft to its death; luckily it was an Instamatic. Then we came out and some of us took off in search of other caves. About 7 p.m. everyone went to Valles and the Condesa. There, a headcount showed one was missing. Seems that I (John) had been left in the jungle, so after a hot liesurely meal they set off in search of me. Meanwhile, I wandered down the Soyate trail after dark, with no light, for 3 hours until meeting the rescuers. Camped at Los Sabinos.

Next day we successfully found Sotanito de Montecillos and spent about 6 hr within. Later we viewed the entrance of Sótano de Pichijumo. The following day we left for home, making a brief visit to Cueva de El Abra.

Date: 1-3 October 1971
Destination: Sótano del Anticlino and Cañón de la Huasteca
Location: SMO; Cola del Caballo and Cañón de la Huasteca
Persons: Craig Bittinger, Steven Bittinger, Donna Atkins, Jan Lewis, Terry Raines, Hugo Victoria
Reported by: Terry Raines

Following directions given us by James McLane of Houston, we drove to Cascada Cola del Caballo, arriving late in the night. Continuing on the next morning, we arrived at a point 10.6 miles from Highway 85 and just to the west of the high point reached by the road. Immediately above the road and a culvert, to the north, is the entrance to Sótano del Anticlino. Although it is not visible from the road it is easily located once you start hiking around. The entrance is a climb-down sink about 8 m in diameter which leads into a room 25 m by 8 m with a ceiling height about 5 m. The floor is old guano-covered breakdown. At the far end of the room is a pit 60 m deep. At the top it is 3 m wide but it rapidly opens to about 10 m in diameter. The pit floor is a 46^{o} slope which leads directly to another pit of 28 m. At the bottom is the terminal room, a silt-floored chamber 10 m by 15 m. Total depth is 132 m and length is 37.8 m. After the survey and biological collections were made we continued on to the town of La Ciénega. At this point a rough, gravel road descends into Cañón de La Huasteca. We hesitated because of high water but forged ahead, with water entering the truck cab at times. The night was spent deep within the heart of the canyon.

As we drove down the river canyon the following day, a lookout was kept for persons in the area and consequential cave leads. Just before Grutas de San Bartolo (see map, p. 141, AMCS News, v.II) one gentleman informed us of a cave one hour's hike away and said he could take us there the following day. Time did not permit, so we continued on to Bartolo where we made biological collections before returning home.

Date: Thanksgiving, 1971
Destination: Southern Sierra de Guatemala, Tres Manantiales, Micos
Location: SMO; Sierra de Guatemala; Barrancas
Persons: Frank Binney, Steven Bittinger, Bill Deane, Bill Russell, Carol Russell
Reported by: Steven Bittinger

Our main objective was to check out the cave at Tres Manantiales which had been previously entered twice by AMCS cavers. James Reddell and Robert Mitchell first entered in 1966 for biological collecting and were stopped by the cold water in the first lake. Later Bill Russell and Bill Elliott visited the cave, crossed the lake, and reported a large passage up to a handline drop. After an uneventful drive from Austin, we found that our first big problem was merely getting to the cave. A recent forest fire had downed many large trees across the crude road, so we spent the first day chain-sawing trees and generally rebuilding the road. Finally we had to admit defeat and decided to pack our gear the remaining two miles to the cave.

The cave is situated at one end of a large valley and serves as the only source of water for several nearby houses. It appears that during flood times the cave takes some surface drainage and a considerable number of vadose features were noted throughout the cave. Of the approximate mile of passage found in the cave, the large majority seems to follow a prominent series of joints.

Just inside the entrance of the cave is a 20-foot handline drop to the edge of a waist-deep lake. Walking size passage continues past this for nearly 1000 ft to a second lake where it is necessary to swim for about 20 ft. Shortly thereafter the passage splits, a large canyon continuing to the left down a 150-foot handline drop soon followed by a 15-foot rappel. The other branch is somewhat inconspicuous, being straight ahead and high up, and after 200 ft it connects with the main passage below the 15-foot rappel. This main passage then continues for several hundred feet to another fork. To the left is over 1000 ft of downstream walking and crawling passage where exploration was finally halted at a siphon in a small crawlway. The right branch continues several hundred feet past a neck-deep lake to an 85-foot drop where a bolt was set. At the bottom of the pit is several hundred feet of walking passage with a few shallow lakes which finally ends in a dome with possible high leads. Directly opposite the top of the 85-foot pit are two small crawlways which were not found to extend for any signficant distance. Total depth of the cave is approximately 200 feet.

We re-entered the cave the next day to de-rig our ropes. A small crawlway was entered on the right side of the passage 500 ft after the first lake. In this short crawl and in the main passage nearby we began to notice large numbers of pottery fragments. Frank was fortunate enough to locate a piece with a very distinctive face etched into it. We believe that this would indicate that the cave was also known and used by the preconquest Indians as a source of water. Any future visitors to the cave should be cautioned not to remove or to disturb any such artifacts which may be of archeological importance.

The following day we made an unsuccessful search for some rumored blind fish caves west of Micos but did eventually locate a small cave containing some rare asellid isopods. That evening we met David McKenzie in Cd. Mante. Bill Russell joined him for an additional week of reconnaissance while the rest of us returned to Austin.

Date: 18-21 November 1971
Destination: Cave hunting west of El Barretal, Tamps.
Location: SMO
Persons: John Mikels, Nick Morales, David Johnson, Mike Padgett
Reported by: John Mikels

18 November. Drove to a small village to the west of El Barretal, Tamps., and near the base of the SMO. Crashed.

19 November. Take 7 hours to drive 26 miles up into the SMO on a narrow, rutted lumber road. We are trying to get to the town of Las Minas and a huge sink nearby (over 800 ft diameter and very black) that was spotted from the air. After these 26 miles we find ourselves in a small lumber mill village. We inquire and find we can't reach Las Minas easily or in the time we have. So we get a local to show us some caves in the area. He guides us to a couple of sótanos within a few hundred yards of a "side side-road." The two pits are about 100 yds apart and both are dead-end 110-foot drops, locally known as Sótanos de Contabanda. With the arrival of dusk the day's explorations were terminated.

20 November. At the lumber village we located a Señor Gremaldo, an elderly man, who agreed to show us some more caves. First, a rather short hike, but with fantastic scenery (elevation was 6000 ft or more), brought us to another pit just like those of the day before. They were about 100 ft and dead-end. Next he took us to a horizontal cave about 100 ft off a small side road. It was approximately 500 ft long and well decorated and active. About half of the floor was white flowstone with numerous rimstone pools. We took some pictures and mapped it. Locals call it Cueva de la Cojada. We left and talked more with Sr. Gremaldo. He told us of numerous caves and pits, "muy grandes y bonitos," further up in the mountains, but they would involve long hikes and backpacking. He was most hospitable and gave us some fruit as we talked about the area. We promised to return in the near future. Our friendly attitudes did pay off on a future trip to the same area when he helped some sick cavers get over Moctezuma's revenge. After bidding goodbye on the afternoon of the 20th we began the long drive back to the highway. There we went to Cd. Victoria and Peregrina Canyon to join the PAU Geology Club field trip.

Date: 25 November 1971
Destination: Lead west of Bustamante now known as "Lote la Gruta"
Location: NBR
Persons: Ronnie Fieseler, Jon Everage, David Temple, Billie Fieseler
Reported by: Ronnie Fieseler

We left Cañon de Bustamante to check a cave lead of Charles Fromén, et al. In the Sierra de Enmedio 12-15 miles west of the Cañon and about in the middle of the range, is a prominent series of switchbacks which reportedly leads to a cave or a mine. They are easily visible from a long distance.

Leaving the Cañon we passaged through 2-3 gates, riding on our motorcycles. We had not gone far before encountering a huge swamp. We were barely able to get ourselves and our bikes out of the bog, which was a couple of miles across. We asked directions at a Tequila factory and rode closer to the range. Soon we could see the switchbacks despite the

haze. At a small village a man told us that they led to a big cave and the only way there was by road from the big ranch. Fromén and crew had been refused access to this road on another trip so we asked the Mexican if it might be possible to ride bikes across country to the cave. He thought we could.

Soon we were crashing through a piece of desert covered with almost solid growths of agave, lechiguilla, etc. It was so bad we almost gave up. One bike had a flat when we finally reached what passes for the road. It took about 3 hours to cover the 3-4 miles of desert. Misery.

All but Billie started up the switchbacks. They lead into a high canyon and stop. A foot trail leads further up into the canyon. After about a half mile hike the cave was found by Ronnie almost at the end of the canyon. He took some pictures and entered the cave. Exploration did not take long as it consists of a single tube-like passage with no obvious side passages. Measured by paces, it was found to be about 900-1000 ft long. The first 2/3 of the cave averages 20-40 ft wide and 20-30 ft high. The last part contains some stoopways and more walking passage. The cave ends in a face where an ore deposit is being mined. The cave contains some medium-sized formations which, though not spectacular, are pretty.

The entrance is an inverted V arch with a large rock in the middle of it. A passage just to the left inside the entrance is seemingly man-made and leads to a vertical shaft, also man-made. It was not explored. A marking stone stands just outside the entrance and reads:

ML
LOTE LA GRUTA
SUP. 4 H's
EXP. 1844
AG. MONTERRYE
N.L.

There is also what looks like a survey or datum point in concrete at the entrance with the initials "P.P." in the concrete.

David joined Ronnie for another quick look inside before leaving the cave and rejoining Jon back at the bikes. They were sad that it was late in the day and they had no time to check out two very promising leads across the canyon. One is a giant arch-shaped depression with trees and brush growing in it and a big dark hole in the back. The other is a very nice looking hole on a cliff face–very promising but very hard to get to except for the chance that another smaller hole in the same bedding plane and accessible might connect.

We made our way slowly back to the Cañon due to the bike with the flat and arrived a little after dark. This is a very rough trip across the desert by bike but it is the only way unless the rancher will allow use of his road. He might even own the cave and the canyon. But the Mexican we talked to seemed to think it would be alright for us to go there, and he worked at the ranch. But it would still be best and safest to try to get permission at the ranch, which is on the north-east side of the mountains.

The cave has been mined for something–probably phosphates. Yet the amount of work seen does not rate the road of switchbacks (which could easily accomodate trucks). The shaft may lead to more extensive workings or there may be another mine in the canyon that we missed. The road certainly indicates a larger operation and was doubtless built for

vehicular use. It has not been used recently though and was in a moderately bad state of repair. It would be very interesting to find out more information on this canyon and it's associated activities, maybe from the rancher, if he would talk. There's bound to be a good story about it if it could just be found.

Date: 17-26 April 1972
Destination: Ayutla, Qto.
Location: SMO; Jalpan
Persons: Craig Bittinger, John Greer, Clark Lillie
Reported by: John Greer Austin, Texas
Craig Bittinger Kingsville and Austin

17-19 April. Left Kingsville Monday night, crossed at Reynosa, rode buses to Ayutla. Walked part way up canyon south toward Rancho El Barro from Ayutla and spent Tuesday night in a haunted rockshelter next to river (nacimiento). Wednesday we continued on up to El Barro and found Ramón -- Craig's previous guide and good friend (Ramón Gonzales, Santa Maria de los Cocos, Ayutla, Querétaro, México). That afternoon we hiked on up to El Sótano (entrance drop 1345 ft) just to look at the huge pit. Leaves covered the trail and we ended up jungle crashing through thorns about half the way. Spent the night in El Barro.

20 April. Thursday morning we left at 8:00 for La Florida, "3 hours walk" west of El Barro (faster to come straight in off the highway from west of Ayutla). Checked several 25-35 foot pits in a large sink area on the way (between La Huasteca west of El Barro and the Puerto Cudisia east of La Florida). In the pass before dropping down to La Florida we checked the Sótano del Puerto Cudisia – 4.9 sec. initial freefall, bounces to ll sec., then we just couldn't hear the rocks anymore (estimated over 600 ft deep). We got into La Florida at 3:00 p.m. exhausted. Heard of many more pits. Checked one pit (ca. 120 ft) about halfway up the hill south of town (15 minute run from the church). About 70 yards NE of the church are two pits: ca. 150 ft, ca. 120 ft, both apparently drop to a dirt floor. Reported is a huge cavern north down the valley toward the highway, contains a stream or lake; should be checked for sure. Also reported was a deep pit north of Lagunillas toward Rancho Carrizal, possibly at Rancho Carrizal (our informant had seen the pit -- said it was huge, over 500 m deep, and well known). Another very deep pit reported on Cerro del Pajaro south of town. We were the first norteamericanos in La Florida and were well accepted. We fixed the electrical generator for the church (except for the tornillos to connect the motor with the generator in place of a clutch). Spent the night at the church after an exceptionally fine meal with the padre (Javier Ferros Moya, La Florida, Municipio de Arroyo, Seco, Querétaro, México).

21 April. We left Friday morning with two guides and checked out two pits on top of the hill NE of La Florida. Sótano de la Mora, 3.6 sec. entrance drop to dirt floor. Sótano Conrado, 6.5 sec. drop to dirt floor. Area is apparently all internal drainage with some really large sink areas. Headed back toward El Barro again, stopping by Sótano del Puerto Cudisia. Clark fixed another radio. Stopped by another pit (ca. 110 ft) in the sink area on the way back down the hill between Puerto Cudisia and La Huasteca. Back at El Barro we were temporarily harassed by drunks, who then began fighting among themselves with

knives. Ramón went over and broke it up. Then the army happened by and hassled, interrogated, and arrested us and put us under strict armed guard with machine guns for the night. Trying to urinate with armed escorts turned out to be quite a new experience.

22 April. Saturday morning, following orders from Querétaro headquarters, the commander released us (after 18 exciting hours); we took pictures of everyone, had a few laughs, etc., before leaving. Since the day was shot, we just lay around, except for a short walk to the river (3 miles) to take a bath.

23 April. We left at 5:30 a.m. with Ramón for La Cienega, across the river up past Naranjo SE from El Barro. We were also the first norteamericanos in Naranjo and La Ciénega. While we were waiting for some beans and tortillas to be heated for us, we visited two pits: ca. 90 ft and ca. 250 ft. Informants said the whole hill is covered with pits. We ate and left with our guide Luis Arriega of La Ciénega. Later Elias Sanchez (who lives up on the hill west of La Ciénega) joined us. We climbed the hill west of La Ciénega and checked several excellent pits in the upper regions of the hill. Of particular interest was a drainage terminal which we called Cueva del Perro Muerto for obvious reasons -- probably an extensive system begins here; there is a large drainage pattern and no resurgence activity on the hill at all. This is not far above the store and below the house of Elias Sanchez. Hoya de Callejón is quite a way above Sanchez's house and at the edge of an upper field. Entrance drop probably well in excess of 600 ft. Huge rocks drop for 14 seconds before they just go out of hearing range. This and most other pit entrances on the hill around generally about 3 x 4 m, mas o menos. Near the top of the hill is Sótano del Bernal (at this point we were above and just west or WNW of the rock finger which is easily visible, but small, from La Ciénega), which is said to be the deepest in the area, apparently because a man went down 60 m without reaching the bottom. The pit opened up 30 years ago when a man was walking home from his corn field -- the ground opened and swallowed him up. The whole hill is hollow and walking across some fields, one can actually hear echoes down probably 200 ft. Apparently the hill has a hollow mantle and may contain an extensive system. These pit entrances are probably easily 3000 ft above the entrance to Sótano de la Paila (to be mentioned later), which leads to some interesting possibilities. Our guide also mentioned that other pits were present on the hill higher than Bernal; certainly the karst continues higher (there is also a house about 300 yards or so up to the NNE where presumably one could acquire another guide). The possibilities here are staggering. From Sótano de Bernal we continued on around the hill and started down, always checking insignificant pits of about 25 to 150 ft deep. We stopped by a cavern entrance where people today get water. Old flowstone covered footholds indicate that the cave has been used for a considerable period. The bottom of a 100-foot pit in the entrance room should be checked for artifacts which might indicate how long the cave has been used. We continued down to the bottom of the hill and visited Las Tranto, a cave into which a whole valley runs. It should be checked for sure, and might easily be found to connect with the huge Sótano de la Paila which lies about one-half mile to the northeast. Sótano de la Paila is an extremely large pit with a mouth about 300 x 200 ft; the shaft narrows about 200-250 ft deep to about 65 x 20 ft. We dropped rocks from about 100-150 ft below the rim (one can climb down somewhat on the north side). The following times were recorded (running times are for individual bounces with elapsed times in freefall): (a) 3.4 sec. initial, bounce to 5.0, 5.0-9.0 freefall,

11.0 total; (b) 3.4, 6.8, 9.0, 11.5, 20.0; (c) 3.6, 5.5, 7.0, 8.5, 12.0 (thought we heard a later one but not certain); (d) untimed rock with a distinct, very faint bounce very deep after about 10 sec. freefall following the usual several seconds of entrance bounces; (e) 3.4 initial, bounce to 12.0, 12.0-16.0 sec. freefall, no more sound. We hopefully estimate the pit at around 1500 ft. After this excitement, we returned to La Ciénega and back to El Barro (arrived 9:30 p.m.) -- a 16 hour trip.

24 April. Left El Barro and went back to Ayutla, then to Valles, and out to Los Sabinos for the night. A welcome sight.

25-26 April. Came back into Valles. Messed around, rented a house for summer headquarters, and headed back for Kingsville.

TRIP SUMMARY

Craig Bittinger, John Greer, Clark Lillie
17-26 April 1972

Notes: No pits were entered. Times are from stop watch for falling fist-size limestone rocks. Depths are estimated. Most entrances are in general about 3 x 4 m.

EL BARRO

Visited -- El Sótano (previously explored and mapped by AMCS, January 1972)

Trail, LA HUASTECA to LA FLORIDA

Visited --

1. Pit, 25 ft (est.)
2. Pit, 30 ft (est.)
3. Pit, 35 ft (est.)
4. Pit, 110 ft (est.)

LA FLORIDA

Visited --

1. Sótano del Puerto Cudisia, over 600 ft (est.) -- 4.9 sec. to first bounce, 11 sec. total drop before going out of hearing range. In main saddle east of town.
2. Pit, 120 ft (est.) to dirt floor. Hill SE of town.
3. Pit, 120 ft (est.) to dirt floor. NW of church.
4. Pit, 150 ft (est.) to dirt floor. NW of church.
5. Sótano de la Mora, 3.6 sec. to dirt floor. Top of hill NE of town.
6. Sótano Conrado, 6.5 sec. to dirt floor. Top of hill NE of town.

Reported --

- Many pits (some deep) all around La Florida and in the surrounding hills; good leads for the area around Cerro del Pajaro SE of town.
- Very deep pit reported on top of Cerro del Pajaro.
- Cave with good yellow calcite crystals just WNW of town; also nearby elephant bones (portion of exceptionally well preserved mastodon molar was examined).
- Very large, long cavern containing a river or lake, north up the canyon toward the highway from town.
- Deep pit (over 500 m) between Lagunilla (on the highway NW of Ayutla) and Rancho Carrizal. Very large and well known.

LA CIENEGA

Visited --

1. Pit, 90 ft (est.). South side of town.
2. Pit, 200-250 ft (est.). South side of town.
3. Cueva del Perro Muerto (our name). Cavern on opposite hillside just west of town. 20 ft climbable drop to horizontal passage. Drains a very large area. Should be a very deep system.
4. Pit, 100 ft (est.) to breakdown slope. Just above house of Elias Sanchez on opposite hill west of town.
5. Hoya de Callejón, over 600 ft (est) – 3 sec. freefall, 2 sec. bounce, 2 sec. freefall, fast bounces at least 6 more seconds (out of hearing range).
6. Pit, 40 ft (est.)
7. Pit, 120 ft (est.) – 3.0 sec.
8. Pit, 30 ft (est.) to breakdown room.
9. Pit, over 200 ft (est.) – (a) 2.8 sec. freefall, fast double bounce, 5.0 sec. total; (b) 2.8 sec. freefall, several bounces, 7.5 sec. total.
10. Pit, 50 ft (est.)
11. Sótano del Bernal, over 500 ft (est.) probably into an extensive system in the hollow mountain – 11 sec. bouncing before rock goes out of hearing range. Near top of the hill.
12. Pit, 80 ft (est.) – 2 sec. to dirt floor.
13. Pit, 30-35 ft (est.).
14. Pit, 30 ft (est.).
15. Cavern entrance with some formations into a small room; on right side of room a pit drops about 100 ft (est.). Ancient footholds to allow water collection are partially covered with flowstone.
16. Las Tranto. Long horizontal passage draining an extensive area. In bottom of valley about 2 miles south of town. Very likely connects with Sótano de Paila in an extensive system.
17. Sótano de la Paila, probably over 1500 ft (est.), bounce times up to 20 sec. before rock goes out of hearing range. Example of running times for bounces with intervening freefalls: 3.4, 6.8, 9.0, 11.5, 20.0 sec. (rocks dropped from 100-150 ft below the entrance lip). Very large entrance; drains an extensive area.

Reported --

- Numerous pits all around and practically in La Ciénega. Apparently hill is covered with pits.
- Upper portions of hill opposite La Ciénega to west, where we checked our pits, is covered with sinks and pits. Only a few were checked.
- Large pit less than an hour walk up the valley (south) from the cave Las Tranto.


ARTICLES


Logan
Tom Blake
David
Terry John
Peter J
Frank Roy
Craig S. Steven
Craig B. Donna

PRELIMINARY REPORT ON THE INITIAL EXPLORATION OF EL SOTANO

by Terry W. Raines

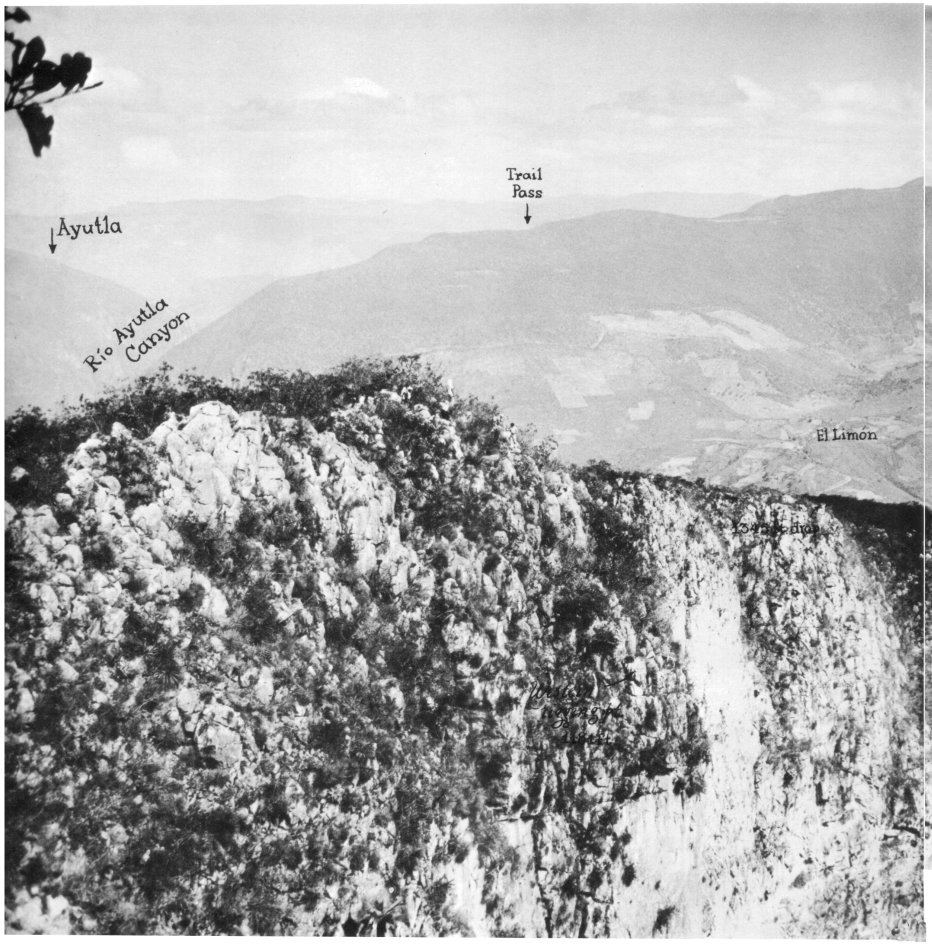
Although the existence of a large pit in the Jalpan Region was a known fact, none of the earlier cavers visiting the area had the persistence to continue on to the entrance until Logan and Craig's hike in January of this year (see Trip Report, p. 93). Once news of a definite sighting reached Austin, 2 days elapsed before an "expedition" of 14 members headed south. Equipped with over 4000 ft of rope, backpacks, and provisions for up to a week, the group traveled in three vehicles to a rendezvous in Ayutla, Qro. From this small town a mountain trail climbs to Cerro de la Tinaja, descends to Río de la Atrejea, then climbs again to the entrance of El Sótano. The activities of this five day adventure are recorded below.

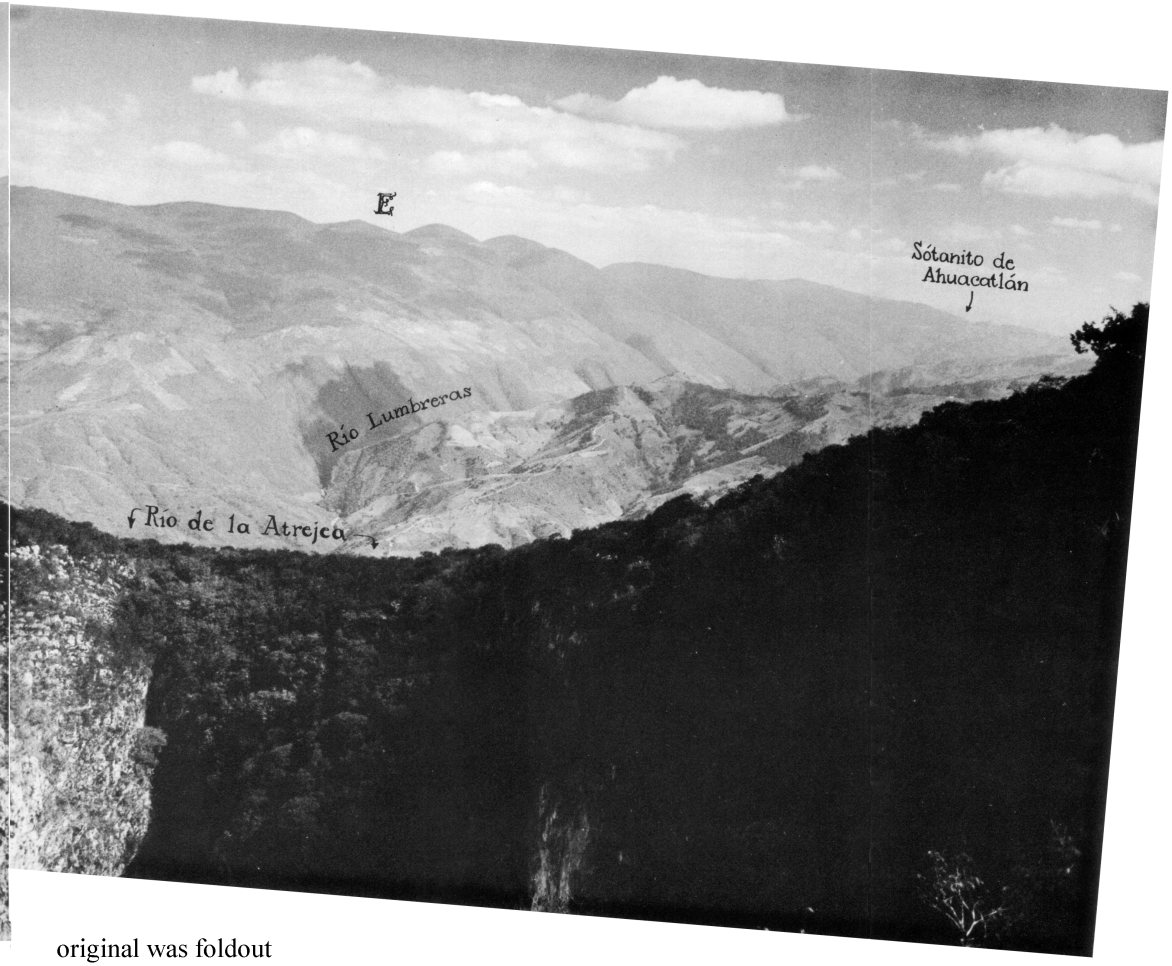
27 January - Hike to Rancho El Barro from Ayutla

Two vehicles arrived late the previous evening containing Logan McNatt, Terry Raines, John Fish, Jan Lewis, Craig Bittinger, Frank Binney, Blake Harrison, Craig Sainsott, and Peter Strickland. At that time arrangements were made for 3 burros to carry 6 duffel bags to the pit at a cost of 12 pesos/burro/day. These arrangements fell through the following morning and we had to seek out another driver-guide. By 9:40 a.m. another truck had arrived with Donna Atkins, Steve Bittinger, David Honea, Roy Jameson, and Tom Wright and the hike was begun. Leaving the upper edge of town, the trail follows a small arroyo for a short distance then cuts up onto a river terrace. The crossing of the gently sloping terrace required one hour after which the trail began climbing steeply up the east flank of the Cerro de la Tinaja. This particular cerro is the first of a series of linear ranges which characterize the region. It is approximately 20 km long and 5-6 km wide and the trail between Ayutla and El Limón crosses at a point 3160 ft above Ayutla (see photograph, which shows almost the entire length of Cerro de la Tinaja). From the pass we hiked down to El Limón, located on a low plateau formed by a rock formation change. Another hour's hike brought us to the Río de la Atrejea, only 612 ft above our beginning point at Ayutla. This is the primary drainage course in the area. As is frequently true throughout Mexico, its name changes from area to area. Below Limón it is the Atrejea while only a few kilometers away the river is named Río Ayutla, below the town of the same name. The last leg of the day's hike took us back up again to Rancho El Barro, located on a small plateau area corresponding to that of El Limón. The elevation here (above Ayutla) was 1557 ft and arrival time was 6:30 p.m. The people living at the ranch were very friendly and generous and allowed our group to spend the night in the school house.

28 January - Hike to El Sótano and descent

Arrangements were made with Ramón, son of a local official, for burros to carry the equipment to the pit entrance. The population of El Barro was on hand to watch us reload our packs and wander off in groups of 2 and 3. From the ranch, located on the lower east flank of the second range, it is a continuous hike upward to the entrance. This mountain has been refered to by local sources as Cerro de la Mesa and Cerro del Charcos. It would require 2 hr and 45 min over a network of muddy paths to reach the cave. Fortunately, Craig





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and Logan had been guided to the pit earlier and were now able to mark the way accurately for the stragglers. About 1000 ft above the ranch the trail angles toward the south but we still could not see the entrance or had any idea where it was located. In fact, it would be hidden until the last moment. The Mexicans continually advised us as to the pit's proximity. The last stretch led up a linear valley carved by Arroyo del Ojo de Agua. At a nondescript point the stream bed was crossed and a short hike led us to La Joya de Los Nogales. Here a depression has been filled to form a level, grassy surface, perfect for camping. And from here, only 7 minutes away, is El Sótano. Hastily abandoning our packs, we climbed the low ridge above the joya and suddenly found ourselves on the edge of a true precipice. We could not contain our excitement. People were carefully running from one vantage point to another, exclaiming at the voluminous, wonderful pit but not really comprehending the immensity... not at first anyway. Organize and drop rocks was foremost. The watch was ready, the rock was ready, and when the first 13 sec free-fall resounded previous excitement seemed minor.

One hour later it was noon, a bright, sunny day, temperature 57°F, and the burros still hadn't arrived. We were anxious to get on with the rigging but also grateful for the rest. Shortly, Ramón did appear with burros and equipment and activity resumed. Each person organized personal gear and made general preparations. Then the main lines, still in the duffel bags, were carried to the pit edge. Two points would be rigged, which would allow Logan and Craig Bittinger to make an initial, simultaneous rappel. On the north wall an area protrudes inward providing the only practical rigging points around the whole perimeter. Here work was begun clearing vegetation and dislodging loose rocks. Handlines were rigged for safety. When all was ready, rope pads in place, the lowering process was begun. To the west descended a continuous length of 11 mm braided nylon, while to the east three lengths of Bluewater, 600 ft, 600 ft, and 300 ft were rigged. By this time it was 3:00 p.m. and Logan and Craig were eager to descend.

As they dropped over the edge, everyone waited with anticipation. For the first 60 ft the ropes hung against the wall and were on either side of a buldge. Then, the drop became completely free with the ropes mutually visible and 65 ft apart. Logan rappelled 1181 ft and Craig 1239 ft. The difference was due to their landing points on the bottom. Logan arrived at the very top, western-most end of a talus slope while Craig landed in a tree downslope. We were in contact via walkie-talkie throughout most of the rappel.

What had appeared to be a smooth, even covering of vegetation from above turned out to be a rugged topography of rocks, ferns, and trees. From the landing point at the far western end of the pit, the explorers saw a steeply dipping floor descending to a linear trench and then climbing up again to approximately the same level, 700 ft away. The width was 350 ft. Further exploration produced a cave on the south wall that was 150 ft long. There were no other leads showing any promise.

The radio gave us the details and go ahead for more of the group to enter. Frank, Roy, Stephen, Tom, and Donna descended and further checked the bottom but found no continuations. As most of the bottom group carried sleeping bags, they spent the night on the flat floor of the 150 ft cave. Meanwhile, back on top, John, David, Terry, Jan, Blake, and Craig Sainsott surveyed about 2/3 of the north half of the entrance before dark.

29 January - Survey of pit floor completed

Very early in the morning all prusiked out except Logan and Craig B., who remained to survey the north edge of the bottom. This survey was completed as Blake reached bottom. He was the first to rappel in on the second day of exploration and was followed by Peter, Terry, David, Craig S., and John. Terry and David photographed the pit as the others entered and upon John's arrival surveying began. Proceeding east along the south wall, only a few hours elapsed before closure was made to Logan's and Craig's earlier survey. With information gathering activities completed, the cavers, who had not already exited, did so in turn.

While this was going on, other members topside were lowering a calibrated wire to record the pit's depth. Readings were taken at two points, one at the eastern rigging and the second on farther to the east. Results were 1239 ft and 1345 ft respectively. This latter point is located where the lip is still at the top of a sheer drop and immediately before it recedes from the pit. It is here that a plumb line intersects the talus floor furthest downslope. All other approaches to the pit, except the rigging area, are characterized by densely overgrown slopes of increasing magnitude. For this reason, it is only practical to rig the pit in that one area.

30 January - Survey of entrance completed and hike to El Barro

On the morning of the 30th the only task remaining was the completion of the entrance survey. Frank, Steve, Roy, Donna, and Tom had left the previous day for Austin which left 9 cavers at El Sótano to finish this last part of the survey. Beginning at the last station, the remaining 1/3 of the north half was completed and triangulation stations established. It was then possible to survey the heavily overgrown south half of the entrance perimeter by sighting on persons perched above the pit at closely spaced intervals. All was completed by noon, camp broken, and that afternoon everyone arrived in Rancho El Barro where the night was spent again in the school house.

31 January - Hike to Ayutla

At 9:00 a.m. hiking began; down to Río de la Atrejea, up to Cerro de la Tinaja, and down to Ayutla, with arrival at 4:40 p.m. A quick return to Austin was made.

Pit Statistics

To reach the entrance from Ayutla would require a nearly continuous hike of 9 hours, assuming a pack of 20-30 pounds was carried. This hike would involve changes in elevation totaling 9021 ft. Elevations measured by altimeter:

Ayutla	2699 ft
Trail pass	5859 ft
Río de la Atrejea	3311 ft
Upper edge of El Sótano	6624 ft

The entrance perimeter measures 700 ft by 1400 ft, while the pit floor measures 300 ft by 700 ft. The longest drop is 1345 ft. No other pit in the world is presently known to be deeper.

A LETTER FROM RICK RIGG

Just finished reading the excellent Carrizal accident report in the last AMCS newsletter, and the suggestions and discussion at the end got me thinking about cave rescue for the first time in a while. That accident had almost all the elements one could imagine for a stateside rescue, plus the additional complications of an international border. I was particularly impressed by the relatively small portion of the total hassle that was caused by the border problem. I'd like to debate some of the conclusions that were drawn from the incident, however.

I'm willing to concede that accidents are probably inevitable, especially in Mexico, and that the number will increase as more and more cavers of less and less competence go there. The situation probably is the same here in the U.S. But I'm still not convinced about the practicality of outside rescue. Consider:

1. There aren't going to be enough rescue situations to keep a "special Mexican cave rescue team" together and operating, unless they go into the practice rescue business full time like typical other U.S. rescue organizations. Even the mountain rescue people, who get a lot more business, spend most of their time practicing and having meetings just to maintain the "critical mass" of population and interest.
2. There is almost never enough time to bring in outside help for saving a life if an injury is involved. Certainly not enough time in a diving situation. Even the above accident took more than 24 hours to get outside help, and it was only about 120 miles from the rescue group. Injured people don't survive in a cave environment that long except under very special circumstances. Rescuers have more time if they're just looking for lost people, but maybe we don't need to worry about that.
3. The only people who are willing to take the time to set up and organize, or even find out about a rescue organization are those who are least likely to need outside help in the event of an emergency. The Carrizal incident with competent cavers around when an incompetent group got into trouble, was the exception rather than the rule.
4. Setting up and maintaining a rescue group is a lot of hassle and bother, and requires the full-time efforts of a lot of people. Who's going to do it?
5. Is it worth it?

The above is all negative, and may appear to lead to the conclusion in the accident report; i.e., make up a list of people who might be able to help and carry it with you. That approach has a lot going for it, but I don't think it's the answer.

positive

1. It's simple. Everybody fills in a questionaire and somebody compiles the results and publishes it in the Newsletter. A more complex system takes more time to set up and operate, and may have lower reliability.
2. It puts the people at the site in direct contact with cavers who can help out (if it works).

negative

1. How do you decide who's qualified to be on the list? The number of people who could ad-lib a rescue organization as well as Kunath did is probably pretty small. You're looking for an awful lot of attributes (vertical caver, diver, rescuer, organizer) in one person.

2. This accident shows that you can't get in touch with most individual cavers on a big weekend, when the accident probability is highest.
3. It requires a lot of calls to be made out of Mexico. I've never tried, so I don't know how hard it is.
4. Somebody has to keep the list updated and republished, and the people on the list have to be responsible enough to keep sending in changes of address and phone numbers. Good luck!
5. Without being "official," you'll never get government cooperation (Mexico or U.S.).
6. Most people aren't ready to leave on a rescue even if they are home.

Conclusion: Maybe it's the thing to do for the time being, but I don't think it's a good long-term solution.

What is a good long-term solution? It's awful difficult to move people and equipment around in a hurry (especially across borders) unless there is some sort of "official" sanction. This can only dependably be secured for an "official" group with all the hassle and effort and time that that implies. I don't see any way around having such a group in a reasonable long-term solution.

advantages

1. "Officialness"
2. Twenty-four hour phone, especially if it is associated with a sheriff's office somewhere, as most western rescue groups are.
3. Personnel experienced at working together.

disadvantages

1. May not have any caving competence, unless it's a bunch of cavers to start with. Most rescue groups have some vertical competence.
2. May not be reliable.
3. May not have any real interest in cave work.

Where is such a group going to come from? Maybe an existing group, like the Laredo rescue group if they have any interest. Maybe it's time to get the NSS rescue operations more organized, and then use that. Maybe Christensen in Missouri or Jim Storey in Atlanta. I don't think the AMCS or any small caving area could keep a reasonable group going; historically lots have started but few survived. The important thing isn't so much which group as a group that has become committed to the idea of rescuing people in Mexican caves. There may be even some Mexican rescue group that could be used, though I find it difficult to believe that one could operate interstate down there. Ken Laidlaw has been in the "official" rescue scene for quite a while and may have some ideas.

Suggestions

If you go with the "list" approach, you might separate the "organizer" and "rescuer" function. Print a list of nice, competent, stable, stay-at-home cavers who know Mexico and could organize a rescue if they had to (or a long list of such cavers who normally don't stay home), and then give them the necessary information to get the particular technical expertise required. There's probably enough vertical competence in Texas to keep the call list "local," but you might have to go further for divers. I recently put out a 'Caver Information Series' blurb on cave diving, and Dave Jagnow suggested in reviewing it that we put

divers phone numbers in for rescue purposes. I didn't, but maybe I should have. The nearest divers I can think of are Jagnow in Albuquerque, New Mexico, and the Hondo group (Christensen) in Missouri, but there must be some in Texas. Going further afield there's Jim Story and group in Atlanta, or Jack Hess and myself in western Pennsylvania, or Ken Laidlaw in Berkeley. I really think you need to get some sort of official group involved to make it work. Would like to hear if anything develops out of all this.

Following the accident at Carrizal, many concerned cavers met in Texas to discuss the event and to formulate future rescue plans. Below are the results.

CAVE RESCUE

Call Collect – Request

(817) 772-0110

AIR-PAGE ANSWERING SERVICE

Waco, Texas

CAVE RESCUE PROCEDURE

When it is necessary for a cave rescue, do the following:

1. Make a collect call to the Cave Rescue number in Waco, Texas. This number is 817-772-0110 and is the phone number of Air-Page Answering Service. The operator will answer the phone by stating the number 772-0110.
2. Tell the operator that you need a cave rescue. She will accept the collect call.
3. Give her your *name* and *phone number.* She will then call the rescue co-ordinators and have them contact you. Stay by the phone until you receive the call.
4. In the case of a very "light" rescue you may call the operator to find out the names of the co-ordinators on the call down list. Please do this at your own expense, unless it is absolutely necessary to do otherwise. Air-Page Answering Service will provide us with a no-charge number until it is used. Then the TSA will be charged for the collect calls plus $10.00 service charge. So let's not use the service unless it is absolutely neccessary.

WARNING TO NAME DROPPERS

Once I was talking with a Mexican anthropologist friend of mine who told me about this experience in the highlands of Chiapas:

"One time when I was walking along a trail with an Indian we passed a large cave on the side of the trail. I stopped and looked into the mouth and then asked the Indian what the name of the cave was.

"The Indian just shrugged and looked impatient, so I forgot about the whole thing and continued down the trail.

"About a kilometer down the trail the Indian asked me if I still wanted to know the name of the cave. I said I did and the Indian gave me the name which was in the local Mayan language. Then I asked him why he hadn't told me the name when we were at the entrance. Then he replied that the cave was named for the spirit which lived in it and that the spirit would get mad if you spoke its name within hearing range of the cave. So he waited until he was well out of the spirit's hearing range to avoid the consequences of getting the spirit mad."

Felipe

ASSOCIATION FOR MEXICAN CAVE STUDIES

NEWSLETTER

Volume III Number 6

ASSOCIATION FOR MEXICAN CAVE STUDIES

NEWSLETTER

Volume III Number 6 Publication Date: August 1972

The Association for Mexican Cave Studies is a non-profit organization whose goals are the collection and dissemination of information concerning Mexican 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 $4.00 US per volume, which includes both the publication and membership. 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. Send all material to: Association for Mexican Cave Studies, P. O. Box 7672, Austin, Texas 78712, USA.

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NEWS AND NOTES

In addition to the persons listed above, several others very actively support the AMCS. Helping with this issue were Chuck Bryan, de de Esparza, Roy Jameson, Pam Lynn, John Mikels, Nick Morales, Olga Reyes, Carol Russell, and Jack White.

Two lifeless bodies drifting in the opaque waters of the Carrizal siphon should have been enough to convince people that ill-equipped siphon diving just isn't profitable. But not Don Broussard and John Fish. Both were supposedly sane cavers, but after the recent incident in Tinaja one begins to wonder. As evidenced by the report below, one never knows what to expect. For this reason, cavers should refrain from plunging into any water-filled passage unless the most sophisticated diving equipment is in use and, most important, the persons involved are *experienced.*

ACCIDENT REPORT

NEAR DROWNING IN SOTANO DE LA TINAJA

as told to Ronnie Fieseler by Don Broussard and John Fish

About 1 July 1972 a group of cavers entered Sótano de la Tinaja for the purpose of pushing a siphon in an attempt to connect the cave with Sótano del Arroyo. At the siphon, Don Broussard prepared to enter the water. He was wearing a diving mask and had a flashlight tied to his waist. A safety line was also tied to his waist and he was to be belayed by John Fish.

Don entered the siphon and after swimming a short distance came to an air pocket where he took 3 to 4 deep breaths. Evidently, the pocket contained very little oxygen and a high concentration of carbon dioxide and Don passed out. John Fish and others saw the light from the flashlight sinking to the bottom and rapidly pulled Don out of the water. At the edge of the siphon Don showed no signs of breathing. Acting rapidly, the cavers present lifted Don upside down and poured water out of him. Pounding produced a large amount. He was then given artificial respiration until he began to cough. After coughing up more water Don slowly began to regain normal breathing and the group exited the cave after Don had recovered sufficiently.

After a day's rest Don was his normal self except for very bloodshot eyes, which have since then improved. This is essentially the story told to me while I was in Cd. Valles, shortly after the accident.

TRIP REPORTS

Date: 22-24 October 1971
Destination: Cueva de Constantín and Gruta de García
Location: NBR
Persons: B. B. Russell, John Mikels, Nick Morales, Aubrey Washington, Tom Solis, Carlos Barrera, Jodine Galion, Joe Kostyo, and Carolyn Smith
Reported by: John Mikels

B. B., Nick, Aubrey, and I split for Monterrey in B.B.'s Scout to drive through to Espinazo and redo the road-log. Since I was only one who had been there before the trip was also a tour and photoing excursion. The other group went to Monterrey to catch a train for Espinazo to see if such a way was worthwhile. Meanwhile we drove through to Espinazo and carefully logged the road all the way from Monterrey by Saturday morning. We waited around town awhile for the train group, but they didn't show up, so the four of us went to the cave to take pictures and check a lead. Not many pictures because of camera problems. We managed to drive approximately 3/4 of the way from town to the mountain. We spent about 4 hours in the cave. When we got out we found the other group waiting for us at the base of the mountain. They had been unable to catch a train until Saturday morning. They reached Espinazo a little before noon. So taking the train there is risky because of uncertain schedules. Well they didn't really want to do the cave, so we all piled in the Scout and returned to town. Messed around awhile and split for Monterrey. A local told us of another cave on the opposite side of the mountain from Constantín. Got to check that one of these days. We got to Monterrey Saturday night and crashed in some little park outside town. Next day we arose and went to Gruta de García. Paid our way in, but split from the commercial tour quickly and spent about 2 hours prowling in the cave. Really nice. Then out and to a Colonel Sanders Kentucky Fried Chicken in Monterrey. After eating we headed home and got in late Sunday night.

Date: November 1971
Destination: Caves south of Micos (Municipio de Valles) and caves in the vicinity of Cartabranchal (Municipio de Jaumave)
Location: SMO, Tamasopo Region–Micos, Morita, Otates and Minas Viejas areas, Sierra de Guatemala Region, Cartabranchal Area.
Persons: David McKenzie and Bill Russell
Reported by: Bill Russell

The group returning from Tres Manantiales met David McKenzie at the Hotel Mante. That night David and Bill Russell drove south toward the village of Micos, about 20 k NW of Cd. Valles, to visit a blind fish cave previously investigated by the German biologist Horst Wilkins. This cave had originally been located by biologists from the joint Mexican-American Vampire Control program. The owner of the Don Tomás ranch at Micos had told us on an earlier visit that the fish cave was located at the end of a mountain ten miles southwest of Micos, so we drove to a small ranch near the end of the mountain and asked about the cave. The cave proved to be well-known and a guide was soon obtained who led us to the Horst Wilkins fish cave, as well as two other smaller caves nearby. The next two days were spent mapping the cave (named by the Germans Cueva del Río Subterráneo) and investigating the other nearby caves. Cueva del Río Subterráneo proved to be 1230 feet long and divided into two sections, one of which may continue. The cave is located at the end of a long arroyo that drains about ten km^2 of the swampy valley to the east of the cave. The main section of the cave is entered by climbing down over breakdown at the end of the arroyo. The upper section

of the cave is reached through a tunnel that opens at the base of a cliff above the arroyo entrance. This tunnel is 20 ft high and 15 ft wide and ends in a 30-foot pit. We crossed the pit by lassoing a formation on the far side of the pit, but 50 ft further on was another 30-foot pit that we could not cross. We could see a passage continuing on the other side. The passage leading to the main cave goes steeply down over large breakdown to a depth of 70 ft, where there is a temporary siphon that blocks access to the cave during wet weather. Beyond this small section of cave, a steep slope of washed and rounded cobbles leads up to a larger horizontal passage. This passage ends in a 10 foot climbable drop into the river passage. Here a stream flowing about 20 gpm was encountered, probably derived mostly from the surface arroyo that sinks before the cave entrance. The stream passage can be followed through waist-deep pools to a large room 100 ft long, 40 ft wide and 30 ft high. The stream crosses this room and siphons just beyond, 95 ft below the entrance. From this room, 30 ft above the siphon level, a passage scoured by flood waters leads to a second room 240 ft long, 40 ft wide, and 30 ft high. A short passage leads from this room and ends in a second siphon. Both siphon pools contain numerous blind fish, and some blind fish as well as eyed fish are present in the stream. After returning to Austin it was discovered that the cave had been visited three days before by another Austin caving group. (See trip report by GB Enquist, Gregg Thompson, etc.)

Another cave about one km to the west of Cueva del Río Subterráneo proved to be a small shelter with a passage at the back leading steeply down to water. This cave, named by us, Cueva del Lienzo, also contained both eyed and eyeless fish. We were also shown a cave one mile to the east of Cueva del Río Subterráneo at the end of a small arroyo. By climbing over breakdown and then descending a 15-foot vertical drop, we reached one end of a long stream passage from 4 to 10 ft high, with several rooms. This passage was followed for about 1000 ft to where the air became so poor (probably CO_2), that exploration was abandoned. The cave, named by us Cueva de Otates, contained not only blind and eyed fish, but numerous crossbreeds with partially developed eyes.

From the Micos area we drove north on the dry-weather-only road leading west and then north from Micos along the Río Naranjo, toward the town of El Naranjo on highway 80 west of Antiguo Morelos. Just south of El Estribo Arch, a road leads across the Río Naranjo and south to Quinientos and from there back to Micos. Six and a half miles from the arch a side road leads west into the foothills to the village of Minas Viejas. Here we asked about caves and were led to several caves near town and were told, as usual, of large caves high in the mountains. One pit we did visit was near a beautiful 100 ft waterfall, about ten minutes walk from the road. The Minas Viejas area is promising, but apparently it would take several days on foot to reach large caves and return to Minas Viejas.

From Minas Viejas Dave and I drove north through Mante and then to Encino, the Gateway to the Sierra de Guatemala. We had heard of a large deep pit in the northern Sierra de Guatemala, and planned to walk to Cartabranchal, the only inhabited place in the northern half of the range. On a previous trip I had walked north along the road that followed the Río Sabinas valley. This road leads north from the west end of the low water bridge west of Encino, goes by the Nacimiento del Río Frío, 300 m northeast of the village of La Puerta, through Ejido El Encinito (called La Flor), and ends at San Pedro La Colina. From here a trail leads up to the Village of Monte Cristo, and from Monte Cristo an abandoned trail zig-zags up the face of the range for about 2000 ft vertically to the abandoned lumber camp of Monte Carlo, now only an overgrown clearing. Monte Carlo was the furthest point north cavers had previously reached in the Sierra de Guatemala and with David's Blazer we planned to drive as far as possible along the old road that leads to Monte Carlo. This road leads north from Julillo, so we drove west from Encino across the Río Sabinas and up the steep east slope of the Sierra to Julillo. Here we turned north and

kept right at the fork to Las Canoas and Joya de Salas, and finally reached the clearing with the cement water tank which is all that remains of the large lumber camp, La Cueva, 6.3 mi north of the Joya de Salas Road. Beyond La Cueva we had to clear the road as we went by tying a cable from the Blazer to the logs and dragging them back along the road until they were parallel with the road and we could drive past. Finally we came to a large tree that couldn't be moved, and since it was an otherwise pleasant spot, we camped for the night. At eight the next morning we left on foot for Cartabranchal, traveling fast and light. We walked through Monte Carlo (10:00) and following the long-abandoned road, we made good time, as much of the time we were walking relatively horizontally along the top of the range. The old road finally ended (11:50), and a trail continued. At 1:00 we came to a junction, where the trail to Cartabranchal turned left, and to the right was the trail to Cañon Diablo, the narrow gorge cut by the headwaters of the Río Sabinas. We arrived at Cartabranchal about 2:00, and found that the ranch consisted of one extended family, with several generations occupying two houses. We passed time waiting for the man of the house to arrive by asking about pits in the area, then one of the women would point and we would walk in that direction until we found a pit. We found four pits in the vicinity of the ranch house: two close together to the west of the house, one 150 ft deep (Sótano Rojo after the red soil), and the other (Sótano Contigo) dropping about 30 ft to a slope. The most promising was Sótano del Tanque across the stock pond from the ranch house, which is a pit dropping 80 ft to a sloping floor. West of this pit is a small pit, Sótano del Caracol, in the bed of a small draw. There is also a 30-foot deep mud-choked sink into which most of the water in the main arroyo sinks after rains. When Sr. Alvino Ríos returned we asked him about the big pit. His answer was that it was a disappointing 20 ft deep and he could see no leads, though there might be some in the breakdown on the bottom. Hurriedly returning to our car, we camped and then returned to Austin the next day.

Date: Thanksgiving holidays, 1971
Destination: Cd. Valles, San Luis Potosí
Location: SMO
Persons: Blake Harrison, Mike Walsh, Keith Heuss, Robert Hemperley, Sandi Luker, Stanly Moerbe, Dale Pate, Jeri Jones
Reported by: Blake Harrison

We left San Marcos in two VW busses, and arrived in Ciudad Valles in record time for a VW. It took us about 7 hrs from the border. We met at the Hotel Covadonga, south of the city. We were hoping to acquire the use of a private plane there, but were out of luck at that time. There were several in the group that had not seen Cueva de Taninul n. 4, so we spent the afternoon visiting it and taking pictures. We then drove to Xilitla after regrouping at Valles. We visited Cueva del Salitre, the large-mouthed cave seen just below town. It is quite an impressive, easily accessible Mexican cave. After this we drove to the Englishman's house west of the town and spent the night there. The next morning we were fortunate enough to meet and talk to the owner of the house, a very fine person. That day was spent with one group attempting to get another airplane to fly over the Ayutla, Querétaro area, and another group visiting Huitzmolotitla and entering Sótano de San Antonio, a 386-foot drop near Xilitla. A third group looked for Cueva de Christian, located in Arroyo Seco. The next day after failing to get an airplane at the hotel again, our groups headed to Sótano de Venadito, north of Valles. We wanted to get in some vertical work and attempt to

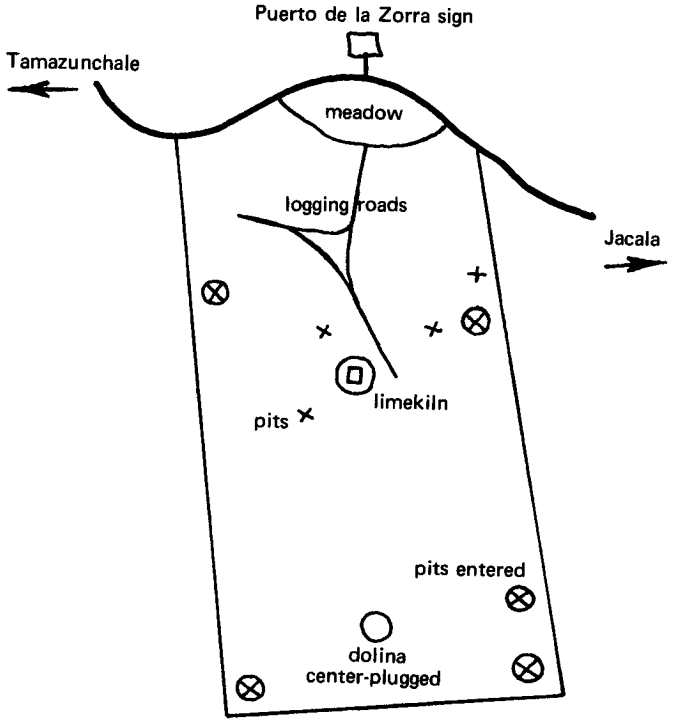
locate and possibly map a new section located earlier by Terry Raines. After a 45 minute hike we were at the cave and soon had every one in the cave. Robert and Blake started looking for the room in the given area. After some climbing and checking, Robert soon found exactly what we were looking for. It was quite an impressive room and had several leads in it. After checking the leads, we found that the room looped back over the main passage. We took some pictures and began the climb out. Our tired group headed back to the Los Sabinos campgrounds. We were so tired that both of us missed the turnoff the first time. We crashed about 3 o'clock that morning. The next day we drove up the Micos road following Bill Russell and David McKenzie. We stopped and had a nice swim in the El Salto river. After this our groups split up. One went back via Valles, etc., and the other went back via San Luis Potosí and Laredo.

Date: July and December 1971
Location: SMO and Chiapas Plateau
Reported by: Skip and Kathy Roy

Here are some trip reports culled from our Mexico trip. I've left out things like Taninul n. 4, Bustamante, and the summer caving with Fish in Valles. Also the Christmas Arroyo stuff - figure that Broussard's journal has all *that* nitty-gritty.

July 1971: Steven Bittinger, Kathy Roy, Skip Roy
Puerto de la Zorra, Interamerican Highway about 10 mi north of Jacala.

Two short sessions of walking produced about a dozen small diameter pits, none very fantastic. Maximum depth of 140 ft. This area is part of a group of large dolinas, and has a fair amount of promise for deep stuff. The area checked is to the right of the road heading south and is about 350 m by 800 m. Area outside of rectangle is unchecked.



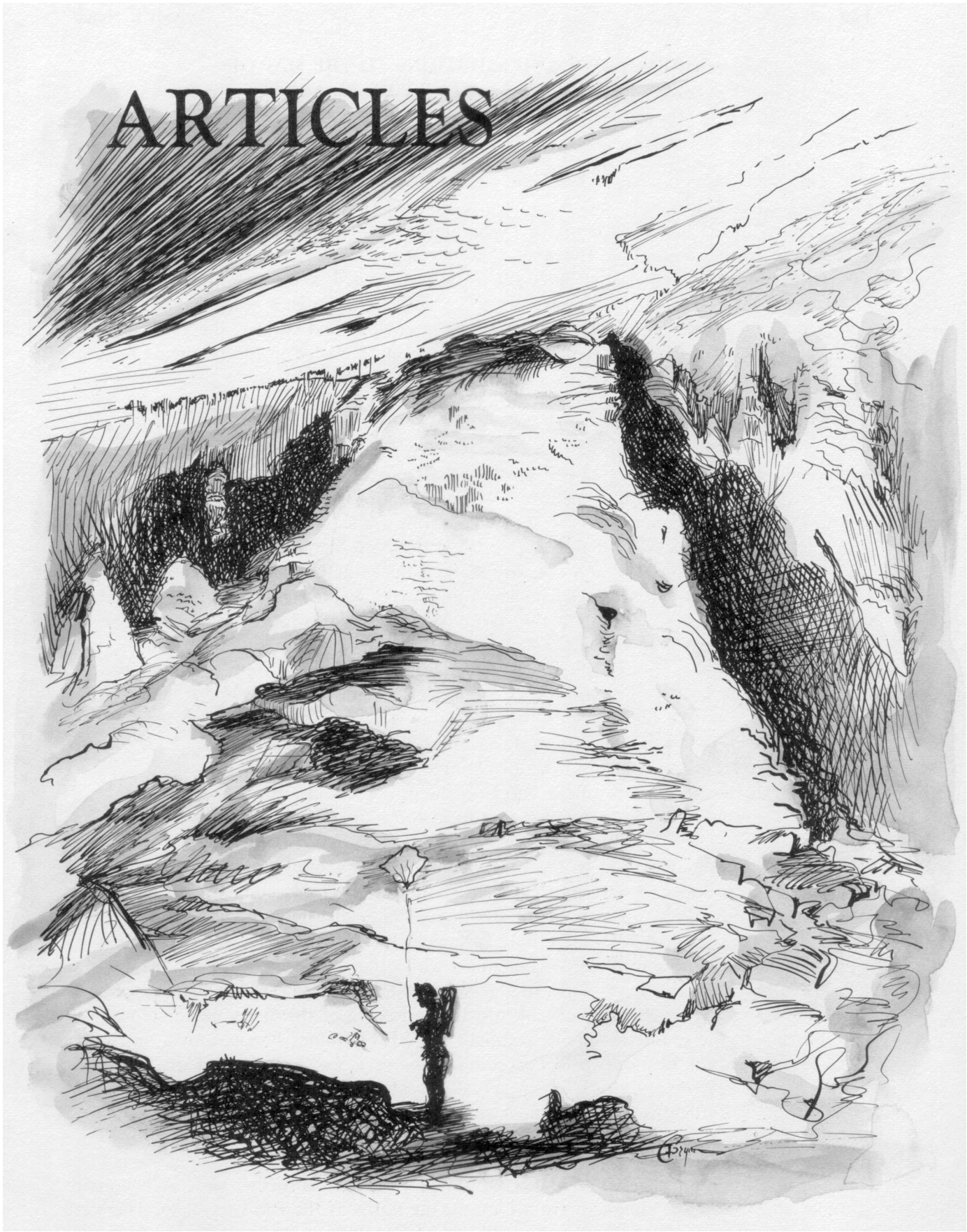
December 1971: Bill Steele, Skip Roy
Cueva de Rancho Nuevo, San Cristobal de las Casas, Chiapas

This cave is 300 m south of the dump 3 mi south of San Cristobal, about 200 m west of the main highway. Unfortunately, we couldn't figure out which hole the water sinks in near the entrance; it's a fair piece to base level - at least 2000 ft. We did walk through about 3000 ft of big (20 ft x 50 ft) canyons with gloomy black walls. Two reliable Americans say they found another passage with an additional 1500 ft. Near the end of the part we saw the passage changes to 45° bedding plane passages. This cave is well worth both a survey and a good hard check-out – we just sort of wandered around.

Date: 30 March - 3 April 1972
Destination: Various caves in the Sierra de El Abra
Location: SMO; El Abra, Xilitla, and Jalpan
Persons: Randy Fugate, Bob Henry, Stewart Martin, John Graves, Scott Harden
Reported by: Scott Harden

The first night we camped in the AMCS campground at Los Sabinos. The next morning we drove to Xilitla and looked around. John and I did the first drop in Sótano de Huitzmolotitla (350 ft) near Tlamaya. The group got little sleep that night as Bob's tarp is not waterproof. On the morning of the 1st we drove toward Jalpan. It was a great relief to get out of the wet, chilly mountains. We did Cueva de Puente de Dios and were greatly impressed. It was dark when we exited and walked back to the truck. A nice fiesta was going on in Jalpan. Our tired group collapsed at a good campsite near Ayutla. On Easter day we had our first drink of pulque, drove to Río Verde and then back to Valles where we participated in another great fiesta. Once again we camped in the AMCS campground. On the last day of the trip, I went in Cueva de El Abra while the others waited at the truck. We encountered Roger McMillan and crew in Cd. Victoria. He had been near Ocampo and found a 400 ft pit. We picked up some hitchhikers who had been from Alaska to Yucatán and took them all the way to San Antonio, arriving about midnight.

ARTICLES



CORRECTIONS AND ADDITIONS TO THE MAP OF "LA REGION DE LA SIERRA DE EL ABRA"

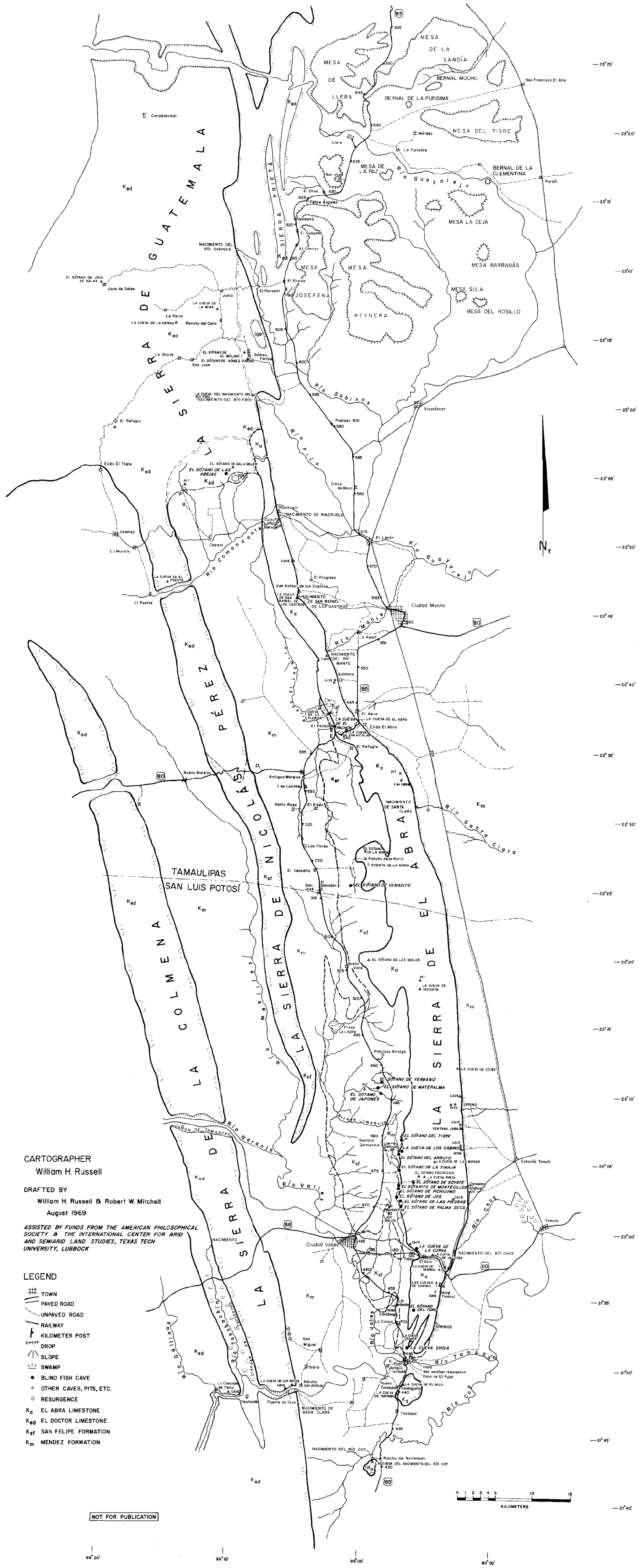
by William H. Russell

This map was compiled in 1969 and since that time much has been accomplished in the El Abra Region. Many new caves have been located and explored, including some very significant ones in the higher parts of the range, and mapping and exploration in the more accessible caves has continued. However, there are still large areas in the Sierra de El Abra and the Sierra de Guatemala that have yet to be investigated, and many of the more promising caves located from the air have yet to be visited. Although a new map is now being prepared that will contain numerous corrections in geology and culture, the 1969 map is still useful. Some of the more important corrections are included in the following list, but all the additions and corrections are too numerous to list, and visitors to the area should contact the AMCS for complete information.

The highway kilometer markers throughout the area have been changed; north of Cd. Valles along Highway 85 subtract 465 from kilometer numbers shown on the map to change to the new system. Along the east face of the Sierra de El Abra, the important town of Las Flores just south of Cementos Anáhuac NW of Tamuín has been omitted. About ten km to the north, the two pits and the cave above the spring are shown about 3 km south of their actual location. The western of the two "pits" is Hoya de Zimapán, Cueva de la Ceiba is the cave to the north of the pits, and the cave marked Cueva de Ceiba on the map is Cueva de las Cuates. About 10 km north of Estación Tamuín the main road actually leaves the railroad and continues north almost to the state line. The Nacimiento of the Río Tantoán has been omitted; it is located where the San Luis Potosí - Tamaulipas state line crosses the east edge of the Sierra de El Abra, and the Río Tantoán forms the state boundary to the east. The unnamed village just south of the Río Santa Clara is Ejido Felipe Angeles; the unnamed village on the railroad south of Cd. Mante is La Gavia, and the road from this town to El Abra is now paved. Grutas de Quintero was omitted and is located 13 km SW of Cd. Mante, 1 km south of the town of Quintero.

North of the Nacimiento of the Río Frío the geology is in error and should be disregarded. There are several nacimientos that form the source of the Río Frío. The two main nacimientos are the Poza Azul, or the Nacimiento del Río Frío, and the Nacimiento del Río Nacimiento, about 1.5 km to the NNE. Gómez Farías is built along a lava capped ridge and igneous rock does not outcrop to the NE as indicated. The Nacimiento del Río Sabinas is not located directly at the base of the Sierra de Guatemala, but rather 1 km to the east, at the north end of a canyon which the Río Sabinas has cut through a low east-west limestone ridge connecting the Sierra de Guatemala with other limestone ridges to the east. The Río Sabinas channel continues north of the Nacimiento to the lower end of Cañón del Diablo, a deep, very narrow canyon cut into the east slope of the Sierra de Guatemala.

Further to the south the lumber camp 10 km NE of Gómez Farías, shown on the map as La Perra, has been changed to El Porvenir and the cave, La Cueva de la Perra, is now known as La Cueva de la Capilla, and is actually located 1.5 km west of El Porvenir. The pit south of El Refugio is Sótano de Guacamaya (also called Sótano de El Refugio). The town of Chamal is now officially López Mateos, but this name is not in use locally. The pit 8 km NNW of Chamal is Sótano de Caballo Moro. The canyon NW of Valles is not Tamasopo Canyon, but Cañón de Micos; Cañón de Tamasopo is further west. A new road is under construction leading east from Llera to the north of the Río Guayalejo. There are numerous local roads to the west and northwest of Cd. Valles not shown on the map. Additional copies of this 1969 map may be obtained through the AMCS for $1.50 each.



LA REGIÓN DE LA SIERRA DE EL ABRA

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ALPHABETICAL LISTING OF CAVES OF THE SIERRA DE EL ABRA
EL ABRA LIST NUMBER ONE, JULY 1, 1972

by William H. Russell

Alphabetized according to shortened form of name with articles and adjectives omitted. Sótano, sotanito, cueva, cuevita, gruta, río, arroyo, mina, nacimiento, grande, chica, joya (hoya), puente, puerto, boca, and rancho are omitted when there are following words. San, Santa, Don, and Doña are considered part of the shortened name. A plus before the depth indicates elevation above the lowermost entrance, a plus after the length or depth indicates the cave is only partly explored. An E means the depth is estimated from the air. Parentheses indicate an unnamed cave listed below a geographically adjacent cave. Unnumbered names are alternate names.

	Name	Area	Length	Depth	Prefixes
1.	Abra	Quintero	1460	389	Cueva de El
2.	(pit above)	Quintero	10	91	
	Agua	Taninul	See Curva		Cueva del
3.	Aguacate n. 1	La Noria	100	12	Cueva de Joya de
4.	Aguacate n. 2	La Noria	30	6	Cueva de Joya de
5.	Arroyo[1]	Los Sabinos	21000+	400	Sótano del
6.	Caldera	La Gavia	400	240	La
7.	(pit on trail)	La Gavia	8	25	
8.	(pit to north)	La Gavia	80	200E	
	Campana	Quintero	See Pachón		Cueva de la
	Capilla	Tanchipa	See Tanchipa		Cueva de la
9.	Ceiba	La Ceiba	737	647	Cueva de la
10.	Chica	El Pujal	1000+	35	Cueva
11.	(cave SE)	El Pujal	300+	20	
12.	Choy	Taninul	400	+200	Cueva del Nacimiento del Río
13.	(fissure cave)	Taninul	150	100	
	Cieba	La Ceiba	See Ceiba		Cueva de la
14.	Cincuenta y Seis	Taninul	40	511	Sótano
15.	Collins	Los Sabinos	10	130	Sótano de
16.	Colmena	Taninul	300	150	Cueva de la
17.	(pit by Soyate)	Taninul	50	100	
18.	(pit near road)	Taninul	10	40	
19.	(pit with vine)	Taninul	40	50	
20.	(walk-in cave)	Taninul	150	20	
21.	(short cave)	Taninul	20	10	
22.	Colmenas	Quintero	800	250+	Cueva de las
23.	(pit NE)	Quintero	12	25	
24.	(pit SW)	Quintero	50+	50E	
25.	Coy	Salsipuedes	270	100	Cueva del Nacimiento del Río
26.	Cuatas (Este)	El Pujal	15	90	Las
27.	Cuatas (Oeste)	El Pujal	300	90	Las
28.	Cuates	La Ceiba	300	+200	Cueva de las
29.	Culebra	Los Monos	20	420	Sótano de la
30.	Curva	Taninul	700	124	Cueva de la
31.	Doble Norte	Los Monos	40	74	Sótano
32.	Doble Sur	Los Monos	25	30	Sótano
33.	Don Pedro	La Noria	10	120	Sótano de

	Name	Area	Length	Depth	Prefixes
34.	Escalera	Taninul	200	96	Sótano de la
35.	(horizontal cave)	Taninul	400	40	
36.	(pit near hut)	Taninul	10	40	
37.	(pit by trail)	Taninul	10	70	
38.	Escondido	Los Sabinos	400	50	Sótano
39.	(north of road)	Los Sabinos	30	25	
40.	(south of road)	Los Sabinos	40	50	
41.	Este	Los Monos	40	156	Sótano del
42.	Fer-de-Lance	El Pujal	?	?	Sótano del
	Ferrocarril	Taninul	See Curva		Sótano del
43.	Florida	Quintero	5300	90	Cueva de la
44.	Fósiles	Quintero	150	250	Cueva de los
45.	Gadsden	Taninul	15	443	Sótano de
46.	(power line pit)	Taninul	10	100	
47.	(field pit n. 54)	Taninul	15	20	
48.	(field pit n. 55)	Taninul	8	40	
49.	(pit to S n. 58)	Taninul	25	30+	
50.	Grande	El Pujal	1520	90	Cueva
	Guano	La Ceiba	See Ventana Jabalí		Cueva del
51.	Higuerón	Los Monos	550	208	Hoya de
	Jabalí	La Ceiba	See Ventana Jabalí		Cueva del
52.	Japonés	Yerbaniz	10200+	300	Sótano del
53.	Jos	Los Sabinos	1108	277	Sótano de
54.	Lagarto	Los Sabinos	40	180	Sótano del
55.	Lajita	Los Sabinos	35	20	Sótano del
56.	León	Los Sabinos	110	30	Cueva de
57.	Loro	Los Monos	700	195	Sótano de
58.	Mante	El Pujal	150	50	Cueva/Sótano de
59.	Mante	Quintero	110	+60	Cueva del Nacimiento del Río
60.	(small room cave)	Quintero	20	10	
61.	(siphon cave SW)	Quintero	100	60	
62.	Manuel	El Pujal	1000	35	Sótano de
63.	Mariposa	Taninul	75	10	Cueva de
64.	Matapalma	Yerbaniz	5649+	283	Sótano de
	Matepalma	Yerbaniz	See Matapalma		Sótano de
65.	Monos	Los Monos	2771	951	Sótano & Cueva de los
66.	(pit by trail)	Los Monos	15	25	
67.	(pit by trail)	Los Monos	10	30	
68.	Montecillos[2]	Los Sabinos	10073	374	Sistema de
	Montecillos[2]	Los Sabinos	See Montecillos		Sotanito
69.	Nilo	Tantobal	50?	3	Cueva del
70.	Nopal Grande	Los Monos	45	289	Sótano del
71.	Noria	La Noria	120	100	Sótano de la
72.	Noria	La Noria	50	30	Puente Natural de la
73.	(pit by road)	La Noria	10	20	
74.	Ojites	Los Monos	350	200	Cueva de los
75.	Orquidea	Los Monos	225	135	Sótano de
76.	Pachón	Quintero	893	12	Cueva de El
	Pachón	Quintero	See San Lázaro		Cuevacita de El
77.	Pajaros	Quintero	330	53	Cueva/Túnel de los

	Name	Area	Length	Depth	Prefixes
78.	Palma Seca	Los Sabinos	490	172	Sótano de
79.	Palmas	Taninul	100	25	Cueva de las
	Pechojumo[2]	Los Sabinos	See Montecillos		Sótano de
	Pichijumo[2]	Los Sabinos	See Montecillos		Sótano de
80.	Piedras	Los Sabinos	1500	160	Sótano de las
81.	Pinta	Los Monos	725	84	Cueva
	Preisser	La Ceiba	See Ceiba		Sótano de
82.	Pujal	El Pujal	75	20	Pozo de El
83.	Quilas	San Ricardo	150	200	Sótano de las
84.	Quintero	Quintero	4400	60+	Grutas de
85.	Raíz	San Ricardo	135	91	Sótano del
86.	(adjacent pit)	San Ricardo	25	36	
87.	Raíz	Tantobal	150	25	Cueva del
88.	Ranas	El Pujal	20+	4	Cueva de las
89.	Ratas	Los Sabinos	150	40	Cueva de las
90.	Riachuelo	Riachuelo	200	20	Cueva de
91.	Roca	Los Sabinos	30+	130	Sótano de la
92.	Rodeo	Yerbaniz	50	50	Sótano del
93.	Sabinos[1]	Los Sabinos	5000	390	Cueva de Los
94.	San Lázaro	Quintero	300	20	Cueva/Mina de
	San Luis	La Ceiba	See Ventana Jabalí		Mina de
95.	San Nicolas	Quintero	800	25	Cueva de
96.	(cave east)	Quintero	30	15	
97.	San Rafael	San Rafael	20	5	Cueva del Nacimiento de
98.	San Rafael	San Rafael	150	150	Sótano de
99.	Santa Elena	La Noria	600	200	Cueva de
100.	Seco	Tantoán	60+(?)	15	Cueva del Arroyo
101.	Seco	Tantoán	100	20	Cueva Chica del Arroyo
102.	Seco	Tantoán	375	60	Cueva Grande del Arroyo
103.	70 Foot Pit	Los Sabinos	10	70	
	Sotanito	Los Sabinos	See Ratas		Cuevita de
104.	Soyate	Los Sabinos	675	781	Sótano de
105.	Tanchipa	Tanchipa	400	400	Cueva de
106.	(pit north)	Tanchipa	60	200E	
107.	Taninul n. 1	Taninul	553	41	Cueva de
108.	Taninul n. 2	Taninul	1008	160	Cueva de
109.	Taninul n. 3	Taninul	150	5	Cueva de
110.	Taninul n. 4	Taninul	660	40	Cueva de
111.	Tantoán	Tantoán	10	40	Sotanito de
112.	Tantobal	Tantobal	400	60	Cueva de
113.	Tarantula	La Noria	20	110	Sótano de la
114.	Tigre	Los Sabinos	10000	530	Sótano del
115.	Tinaja[1]	Los Sabinos	14300	275	Sótano (Cueva) de la
116.	(waterfall cave)	Los Sabinos	50	30	
117.	(pit in arroyo)	Los Sabinos	15	30	
118.	(pit above)	Los Sabinos	10	150	
119.	(Ediger's pit)	Los Sabinos	20+	30	
120.	Toro	El Pujal	205	25	Sótano del
121.	Valdosa	Taninul	400	40	Cueva de
122.	(pit across hwy)	Taninul	10	30	

Name	Area	Length	Depth	Prefixes
123. Venadito	La Noria	5000+	500	Sótano de El
124. Ventana Jabalí	La Ceiba	1275	550	
125. Verde	San Ricardo	30	10	Cueva
Virgen	Taninul	part of Choy		Cueva de La
126. Yerba	Taninul	150	40	Cueva de la
127. Yerbaniz	Yerbaniz	5300	312	Sótano de
128. Zimapán	Los Monos	1690	1050	Hoya de

[1]Cueva de Los Sabinos, Sótano del Arroyo, and Sótano de la Tinaja can be considered as one system of over 40,000 ft, since Arroyo and Los Sabinos are separated by a short section of water-filled passage, and Arroyo and Tinaja are separated by an even shorter siphon. Strong airflow near the Arroyo - Los Sabinos connection indicates the possibility of a traversable connection.

[2]Sótano de Pechojumo (Pichijumo) and the Sotanito de Montecillos form the Sistema de Montecillos. Voice and light communication were made across a small siphon. Sotanito de Montecillos has 5708 ft of passage and Pechojumo has 4365.

COMMENTS

The number of caves is somewhat arbitrary, as to be included on the list a cave had to meet one of the following requirements: (1) have a name, 2) have actually been entered, or 3) have been seen from the air to be a major cave. Only one cave, Sótano de Fer-de-Lance (for obvious reasons) has been named and not entered. Three major pits located from the air but not yet visited are included. Not included are 4 pits (3 just east of Cueva Chica) accurately located but not entered plus four definate cave entrances located from the air but not entered, as well as about 15 probable cave entrances, some of which will be only overhanging cliffs. These leads are rapidly being checked and most of these uncertainties will soon be eliminated.

Uncertainties as to the number of caves also arise due to questionable connections such as siphons, small holes, and breakdown or flowstone blocks that may or may not be considered to divide a cave into two or more caves. Sótano de Pechojumo (Pichijumo) and Sotanito de Montecillos have been connected by voice communication above a short siphon. Sótano del Arroyo and Cueva de Los Sabinos are probably connected by about 200 ft of water-filled passage, and Arroyo also approaches Sótano de la Tinaja closely, and air flow indicates a connection. Most caves in the region are so widely scattered that there is little likelihood that many on the present list will be found to connect. There are at least 20 major karst features (sinks, fissures, dolinas, solution troughs) seen from the air and as yet unvisited. Most of these features appear to be part of locally intense areas of solution promising many new caves. The next list of El Abra caves will certainly be considerably longer.

GEOGRAPHICAL CHECKLIST OF THE CAVES OF THE SIERRA DE EL ABRA

by William H. Russell

In order to facilitate the study of the caves of the Sierra de El Abra the range has been divided into sixteen local areas of similar geology, topography, climate, and geomorphic history. Thus the caves of one area can be compared with those of another, and the factors that influence cavern development conveniently examined. A list of caves arranged by these small geographic regions makes finding information on a cave when only its location is known much less difficult, as only a short list need be searched. As is obvious from a brief review of the following list, many areas of the Sierra de El Abra have yet to be thoroughly investigated. The greatest lack of knowledge is in one of the most promising areas of the entire range, the high central part of the range in the Tanchipa and La Gavia areas.

This list tends to emphasize the smaller caves, as a detailed description of the larger caves would require several pages each. Individual large caves and areas will be described in future articles. So little is yet known about the El Abra that it is likely that the second hundred caves to be discovered will be as large at the first hundred. The names of the local areas from north to south in the order listed, together with the number of caves known from each area as of July 1, 1972 are: Riachuelo 1, San Rafael 2, Quintero 16, Tantoán 4, La Gavia 3, La Noria 9, La Ceiba 3, Tanchipa 2, San Ricardo 4, Los Monos 14, Yerbaniz 4, Los Sabinos 23, Taninul 28, El Pujal 11, Tantobal 3, Salsipuedes 1. Numbers following the name of a cave refer to the alphabetical listing preceding this list.

Riachuelo Area: From the northernmost part of the Sierra, where it joins the Sierra de Guatemala, to two kilometers south of the Servilleta Canyon.

Cueva de Riachuelo (90) is located on the north side of the Servilleta canyon about 200 yds from the east end of the canyon. The main passage is about 150 ft long, 15 ft wide, and 10 to 20 ft high. Near the entrance a side passage leads sharply upward to another entrance, and near the back of the cave a side passage leads to the right for 75 ft. The cave is dry and has been mined for phosphates. The Nacimiento de Riachuelo flows from a pool (no cave) about 0.5 km to the north of the cave.

San Rafael Area: The segment of the range near the village of San Rafael de los Castros, from the Riachuelo area to 5 km south of San Rafael.

Cueva del Nacimiento de San Rafael de los Castros (97) is a small cave at the nacimiento on the south edge of the village of San Rafael. The cave consists of a downward-sloping tube about 4 ft in diameter that siphons after 10 ft. An underwater passage can be seen to continue. Sótano de San Rafael (98) is located a few hundred feet above the nacimiento. The entrance is a fissure 60 ft long and 20 ft wide that drops 60 ft to breakdown. Crawlways lead to lower level rooms.

Quintero Area: The area from about 3 km north of the Nacimiento del Río Mante south past the towns of Quintero and Pachón, to about 4 km south of the El Abra pass where highway 85 crosses the range southwest of Ciudad Mante.

Cueva del Nacimiento del Río Mante (59). At present the level of water has been slightly raised by a diversion dam downstream from the nacimiento and only two small caves are accessible. The largest is a fissure trending south from the cliff at the west end of the nacimiento. This fissure is about 150 ft long and there are two skylight entrances. The floor of the cave is covered with breakdown blocks and deep pools of water. A cave (60) consisting of one small room is located at the north edge of the nacimiento. It is possible that before the diversion dam

was built a larger cave was accessible. Alejandro Prieto in his book, *Historia y Estadística del Estado del Tamaulipas,* describes his exploration of a cave at the nacimiento in 1860 as "going through two or three feet of water for 20 meters to where it was too dark to proceed farther." This was apparently upstream in the main nacimiento.

Cueva de los Fósiles (44) is primarily a large room from which much fill has been removed for its mineral content. From this entrance room a side passage leads to a skylight. This cave is reported to be about 1 mi SW of the nacimiento. At the same approximate location a cave opening was seen from the air at the base of a cliff on the east face of the range. Also a small cave (61) about one-half mile SW of the nacimiento was reported to lead downward to a siphon after about 100 ft.

Cueva de las Colmenas (22) extends west from an impressive sink about 400 yds SW of Quintero on the flat top of the range. The entrance sink is about 200 ft long, 100 ft wide, and 60 ft deep, but can be entered down a breakdown slope. From the sink a steep slope leads downward to a horizontal passage extending for about 300 ft through several crawlways. Near the end of this passage a small squeeze to the right leads to a pit over 200 ft deep, as yet undescended. Another sink (24), somewhat smaller than the Colmenas sink was seen from the air about 200 m to the SW. A small climbable sink (23) 100 m NE of the Colmenas sink was explored downward for about 25 ft to where a rock blocked the top of a 25-foot pit. The range above Quintero is spotted with sinks and pits. Alejandro Prieto, who laid out the village of Quintero in 1860, reported finding a pit above the village of Quintero in which rocks fell for 12 sec (probably not free) until they produced a sharp crack "like a body opening a way into the water."

Grutas de Quintero (84) is located about 2 km by road south of the town of Quintero, where a stone stairway leads to the entrance. The frequently visited main part of the cave consists of a spacious passage 30 ft wide and 20 to 40 ft high. Immediately inside the entrance the passage divides and rejoins after 300 ft just before a skylight. Beyond the skylight the passage continues for 1450 ft to a 30-foot pit. This section of the cave contains numerous travertine dams and several short side passages leading to pools. Throughout this area phosphate miners have dug pits and built trails, and the operations have damaged many of the travertine dams. Beyond the pit is a short wet passage, which enlarges to 10 ft wide and 8 ft high and continues past a right fork for 2000 ft to a flowstone mass that almost blocks the passage. A hole too small to traverse continues. The right fork leads to an almost unclimbable 8-foot wall and extends for 650 ft to a small pit as yet unexplored.

Cueva de San Lázaro (94) is a walking size tunnel in the north side of an arroyo about 1 km N of Cueva de la Florida. The tunnel jogs right after about 200 ft and ends in a flowstone block. The entrance of the cave is about 20 ft above an arroyo and the cave follows the strike of the steeply dipping beds along the west flank of the El Abra anticline. Cueva de la Florida (43) is located 1 mi N of the village of El Pachón, on the west slope of the El Abra Range. Just inside the entrance the cave divides into almost separate systems. The right-hand tunnel is a sinuous passage averaging 10 ft wide and 15 ft high. There is one major side passage and several interconnections, and a crawlway that leads to a blind 60-foot pit. The main right-hand passage ends in a steep upward slope of flowstone, and above this a small water-crawl extends for several hundred feet. The larger left-hand tunnel leads through several rooms, the innermost containing numerous bats, and finally comes to a slope leading down to a pool of liquid guano. Beyond the pool is a steep climb over flowstone and the passage ends in an unclimbed dome. A few hundred feet down the left-hand tunnel from the entrance a tortuous passage, mostly of crawlway size, leads to a small entrance on the side of an arroyo. The main entrance to the Cueva de la Florida is in the north end of a

shallow sink. From the south end of this sink a small entrance leads to the "Parrot Tunnel" or Cueva de los Pajaros (77) that opens on a cliff overlooking an arroyo 200 ft to the south.

Cueva de El Pachón (76) is an 800-foot long cave above the village well at the south edge of the village of El Pachón. The cave has also been called Cueva de la Campana after a formation at the end of the cave that rings like a bell. From just inside the entrance a mud-floored passage 20 ft wide and from 8 to 16 ft high extends for 600 ft to a lake 100 ft long. The cave ends beyond the lake in a mud slope. Water apparently flows from the cave after heavy rains. Cueva de El Abra (1) is a large frequently-visited cave and is visible from Highway 85 in the El Abra pass SW of Cd. Mante. The 70-foot wide, 60-foot high entrance opens into a large passage leading 600 ft to an 89-foot drop to the lower level with a skylight high above. This pit drops into the center of the 650-foot long lower level which slopes steeply upward to the north and downward to the south. Above the cave near the power line is a 91-foot pit (2). Cueva de San Nicolás (95) is located just above the north rim of the El Abra pass about halfway through the pass. The cave is about 800 ft long and consists mostly of wide dirt-floored passage from 6 to 10 ft high. A test pit dug in the floor passed through an estimated 40 ft of fill. Just to the east of Cueva de San Nicolás on the north side of a small sink is a short cave (96), really more of a shelter.

Tantoán Area: The steep east slope of the Sierra de El Abra from west of La Gavia to 5 km south of the San Luis Potosi - Tamaulipas state line.

Cueva Chica de Arroyo Seco (101) is located west of the Ejido Felipe Angeles at the base of the range just above a permanent pool at the head of the normally dry Arroyo Seco. The cave entrance is about 20 ft above normal pool level and floodwater at times apparently flows from both the pool and the cave. The cave is 15 ft high, 20 ft wide, and about 200 ft long. Toward the back the cave narrows and two fissures lead down to water at about pool level. Cueva Grande de Arroyo Seco (102) is located about 100 ft above and slightly north of Cueva Chica de Arroyo Seco. Its inconspicuous entrance leads to a room 20 ft high and 40 ft in diameter. Two fissures lead from this room: one goes over a handline drop to a deep pool, and the other extends 250 ft to a pool formed along a series of parallel fissures, some partially dissolved partitions rising like knife edged icebergs from the lake. A small 40-foot pit (111) to water exists near the Nacimiento of the Río Tantoán, and about 3 km south of the Río Tantoán, Cueva del Arroyo Seco is located at the head of another normally dry arroyo. This cave is locally reported to be long but, it has been visited only when the arroyo was flowing and any possible passages were blocked by high water.

La Gavia Area: The high, relatively flat crest of the range from 5 km south of the El Abra pass to near the San Luis Potosi - Tamaulipas state line.

This large area is poorly known, with only the large sink, La Caldera (6) having been visited. La Caldera is 1200 ft long, 300 ft wide, and 200 ft deep with nearly vertical walls except toward the south where it is deeply undercut. Crawlways lead to about 300 ft of small cave. About 2 km north of the Caldera is a pit seen only from the air. This pit (80) appears to drop about 200 ft to a vine-covered floor.

La Noria Area: The western slope of the range from east of Antiguo Morelos to the San Luis Potosí - Tamaulipas state line.

Cueva de Santa Elena (99) is located at the west edge of the El Abra Limestone outcrop and has a large, shelter-like entrance, one end of a once larger room. A crawlway spirals downward from this room to a 20-foot drop into a dome room. Beyond the dome room are two 30-foot drops, the last dropping into a large room over 200 ft long and perhaps 100 ft high. Mudbanks indicate this room floods, but it is possible to squeeze down

through breakdown for at least 50 ft. Sótano de la Noria (72) receives drainage from several large fields. The inconspicuous entrance (located at the edge of a field 1 km north of the La Noria ranch 'house') drops 20 ft to an offset, where another drop leads down past a natural bridge into a prominent fissure. Another pit drops 30 ft, but beyond this drop the main fissure was blocked with debris. It would be worthwhile to clear this fissure as it should lead to much more cave. Sótano de Tarantula (113) is across a field and just into the woods SE of the La Noria ranch 'house'. This pit drops 60 ft to a breakdown plug, then offsets into a parallel pit and goes down 50 ft to a dead-end. Puente de la Noria (72) is a natural bridge 30 ft long spanning a small sink. There is also a small 20-foot pit (73) north of the road just before the ranch. One km south of the ranch 'house' and just SE of the bend in the road is a NE trending line of sinks as yet unvisited.

San Ricardo Area: The western slope of the range from the state line south to near K 19 north of Valles, essentially the Ponciano Arriaga Ranch.

Sótano de las Quilas (83), located east of Buena Vista, is a pit dropping 180 ft into an irregular room about 100 ft long. Sótano de la Raíz (87), located NE of the Ponciano Arriaga ranch headquarters, has developed where a small gully drops 86 ft into a narrow fissure, then flows about 100 ft under two skylights and sinks into mud. Another pit (86), 20 ft away and 36 ft deep, is possibly connected through small cracks. Cueva Verde (125) is a 10-foot high horizontal passage about 50 ft long.

Tanchipa Area: The high, relatively flat crest of the range from near the state line south to directly east of K 25 on the highway north of Valles.

Cueva de Tanchipa (105) is located 300 m south of the chapel built at the site of an airplane crash. A breakdown slope extends from the entrance down to the cave's upper level, a room 30 to 75 ft high and about 300 ft long. From this room a fissure can be followed down a series of pits to a depth of about 400 ft where a narrow constriction has blocked exploration. Below this constriction is a drop of over 50 ft. Airflow and geology indicate the cave will continue. About 1 mi north of the chapel is a deep pit seen from the air (106); near this pit are several promising sinks and large dolinas.

La Ceiba Area: The steep east slope of the range from 5 km south of the state line to near the Cementos Anáhuac Plant.

Cueva de las Cuatas (28) opens on the east face near the north boundary of Rancho Zimapán and is a fissure about 300 ft long and 30 ft wide with a high skylight and a relatively flat floor. The main passage of Cueva de la Ceiba (9) is a nearly horizontal passage 50 ft wide and 730 ft long ending in a high dome and a skylight. Two hundred feet from the end a pit in the center of the passage goes down 300 feet over a series of drops to a terminal room 370 ft below the entrance. This room contains bones in a clay fill. Ventana Jabalí (124) offers one of the most satisfying sights in Mexico when, during the summer months, beams of sunlight from the 503-foot skylight shine past a high natural bridge onto the floor of the cave. The cave is essentially a 1200-foot long solution tunnel 40 to 90 ft wide and very high. The floor of the cave rises toward the back and at the end a small hole connects with a high dome room. The 60-foot high entrance to Ventana Jabalí is visible from the road north of Estación Tamuín.

Yerbaniz Area: The area west of Highway 85 drained by arroyos Yerbaniz and Japonés.

Sótano de Yerbaniz (127) is located about 1 km west of highway 85 at K 22.8 north of Cd. Valles at the end of the Arroyo Yerbaniz. All the water flowing down the arroyo enters the pit except during the largest floods, when it is possible that some water is able to bypass

Sótano de Yerbaniz and flow down the valley and enter Sótano de Matapalma (64) 2 km to the SW. The Arroyo Yerbaniz has only recently begun to flow into Sótano de Yerbaniz and the old arroyo leading to Sótano de Matapalma is only a few feet above the new arroyo leading into Sótano de Yerbaniz. The Yerbaniz entrance is a slot 40 ft long and 10 ft wide that drops 200 ft to the first level, a low room with many pillars and alcoves. Several pits connect the first level with the second level, also a low irregular room. On the second level, passages extend to the edge of a mud-floored room 360 ft long and 100 ft wide, whose floor is about 60 ft below the second level. A lake at one end of this room is the lowest point in the cave, 312 ft below the entrance. A passage also leads from the second level to a drop into a large passage that soon siphons, and from the large mud room a passage leads to a lake at the 312-foot level. Flood debris is present throughout the cave. Sótano de Matapalma (64) is entered by a 180-foot drop at the end of a short arroyo. Below the entrance pit is a breakdown-floored room 350 ft long and 90 ft wide. A passage 20 ft wide and from 10 to 30 ft high goes south 1200 ft to a junction. To the left a large, unexplored water passage offers a challenge to surveyors. The main passage continues north and then turns SW, finally ending in a siphon 4300 ft beyond the water passage. Sótano de Japonés (52) is the southmost of the large Yerbaniz area caves and the easiest to reach. Follow Arroyo Japonés from where it crosses the highway at K 19.4 about 1 mi to the west where it drops into the sótano. One main passage is most easily reached by climbing down a small hole on the left side of the arroyo just before the main pit. This hole eventually drops into a fissure passage that is several thousand feet long. At some points it is possible to chimney down to deep water. From the bottom of the main entrance pit passages lead to a maze level with several thousand feet of low rooms and interconnecting crawlways. Several pits drop from the maze level into unsurveyed lower levels where long stream passages are reported. More than 10,000 ft of passage have been surveyed, and no surveys have yet reached the lowest stream level.

Los Sabinos Area: The west slope of the range from east of K 19 north of Ciudad Valles, to near the power line NE of Cd. Valles.

Sótano del Tigre (114) is now approachable by a rough road that passes within a hundred meters of the entrance. The 265-foot entrance drop is located at the end of an arroyo about 2 km long that has cut down to the El Abra Limestone through the overlying non-cavernous rock. The entrance drop is broken by a ledge with a pool about 190 ft below the lip. From the bottom a large passage leads 200 ft to a junction. Here a passage turns right 200 ft to a 30-foot drop into the Ricinuleid Passage, an upstream silt-floored passage about 1000 ft long inhabited by a large colony of ricinuleids, rare tick-like arachnids relatively common in the Sierra de El Abra. A complex of passages interconnect the entrance pit and the ricinuleid junction. From this area the main downstream passage extends first as a high fissure, then continues through shallow water to a lake 800 ft long with ceiling heights of only a few feet. This passage finally ends in a large mud-banked terminal siphon room. Sótano de la Roca (91) is located just above the arroyo bed, downstream from a large boulder in the main arroyo east of the village of Los Sabinos. The pit receives water only during major floods. A 10-foot drop leads into a small dirt-floored room, where a small hole opens into a 120-foot pit. At the bottom a muddy fissure drops 8 ft into a small but promising crawlway with air flow.

Sótano del Arroyo (5) is located at the end of a large arroyo that drains the valley north and northeast of Los Sabinos. This easily accessible cave was one of the first large El Abra caves to be explored, but until recently only a small part of the cave had been visited. Over 21,000 ft of passage have been mapped, making it presently the longest surveyed cave in Mexico. The cave is part of a system of over 40,000 ft of passage, being separated only by a section of water-filled passage from Cueva de Los Sabinos. The cave also probably connects with Sótano de la

Tinaja 1.6 km to the south. The ends of major passages in Arroyo line up with major passages in Tinaja, and a strong air flow toward Tinaja indicates a physical connection. The 50-foot entrance drop into Sótano del Arroyo is reached by a short handline drop in the arroyo bed. The entrance is essentially a large slot about 150 ft deep except where the arroyo enters. The main passage from the entrance slot goes several hundred feet to a junction. Here a long water passage circles to the right and eventually connects with the entrance, 30 ft below the arroyo. The main passage continues over two 40-foot drops, the last into a triangular room with a lake at the far corner. From the bottom of the drop into the triangle room a fissure leads up into a passage that extends almost to Cueva de Los Sabinos, but ends in a pool before connecting. Across the lake at the low end of the triangle room a passage leads to a 30-foot drop into a pool. Beyond this pool several thousand feet of passage trend south and almost intersect passages in Sótano de la Tinaja. Several passages end in siphons or breakdown and flowstone blocks, but some drop into a large lower level passage that has not been explored due to high levels of CO_2 caused by decaying debris brought in by floods. Above Sótano del Arroyo an unnamed 70-foot pit (103) has been located near the entrance.

Cueva de los Sabinos (93) is entered through a 100-foot high, 50-foot wide entrance in the side of a large sink 700 m east of the Sótano del Arroyo. No water flows into this opening. From the entrance a steep breakdown slope leads to a junction. From the junction area several smaller passages continue along parallel fissures, but the main passage goes 400 ft toward the north and also back to the left under the entrance, where there is a ladder leading to the lower level. Below the ladder the passage enlarges to 40 ft wide,20 ft high, and extends toward Sótano del Arroyo, ending in a siphon. Two hundred feet from Sótano del Arroyo extensive water passages at this level also siphon.

Sótano de la Tinaja (115) can be entered without equipment, by climbing over rocks and ledges in the arroyo. The main passages in Tinaja form a rough square. The entrance passage trends east for about 1500 ft to a 30-foot drop into the Sandy-Floored Passage, which averages 30 ft wide and 10 to 15 ft high. This passage trends generally north for 2000 ft to the Lake Passage, which continues west for 1000 ft more. From the entrance a water crawl leads north almost to the lake passage. A downstream passage carries floodwater from the south end of the Sandy-Floored Passage over a series of drops and obstructions to a large, deep siphon. Passages from Sótano del Arroyo extend into the area between the lake passage and the water crawl and strong air currents indicate the likelihood of a connection. Up the arroyo a few hundred feet from the entrance to Sótano de la Tinaja is a waterfall, part of whose water by-passes the falls by means of a short cave (116), and further upstream is a pit in the arroyo (117) now plugged at 30 ft. A pit (119) with a probable passage was discovered above Tinaja, and in returning to it a blind 150-foot pit (118) was located. Farther away is another blind pit (15).

Sótano de Soyate (104) is located 500 m south of the road to Cueva Pinta. The entrance is 50 by 20 ft and the pit drops vertically 646 ft, slightly inclined to the vertical, so that descent is against the wall. A fissure leads from the bottom of the pit to a 35-foot drop to a ledge overlooking a large lake. The lake is 400 ft long and 100 ft wide, and is 173 ft deep at normal water level. From the ledge it is normally a 35-foot drop into the water (only 135 ft deep at this point), but after heavy rains the water level rises above the ledge. South along the trail past Soyate is Sótano del Largarto (54), a 180-foot fissure located just west of the trail. Cueva Escondida (38) is reached by a short road leading north from the Cueva Pinta road. The cave has several hundred feet of rooms and small passages that have been mined for nitrates. East of the Cueva Escondida turnoff are two small pits within 10 ft of the road, one to the south (40) and one to the north (39). Both might be pushed with effort.

The Sistema de Montecillos (68) is formed by the Sótano de Pechojumo (Pichijumo) and the Sotanito de Montecillos, which are separated only by a short siphon. The Sotanito forms the largest part of the system and is entered through a 110-foot pit half-hidden under a large rock in the bed of the arroyo upstream from the Pechojumo entrance. From the bottom of the Sotanito a passage 10 ft wide and 20 ft high goes 400 ft to a complex T-intersection. To the right is a half-mile of sinuous lake passage some 40 ft wide and 5 to 20 ft high, which is dry at first, but gradually the water deepens and the passage finally ends in a siphon. This siphon is only a few ft long and during low water, voice and light communication are possible from this point to Pechojumo passage. Left from the T-intersection up a flowstone bank, a passage 20 ft long and 30 ft high leads to a chimney and a 100-foot drop into a smaller passage, which enlarges and finally drops into a canyon 50 ft wide, 150 ft high, and 200 ft long. A small squeeze crawl leads to a 60-foot drop into water from a slot in the ceiling of a room 100 by 160 ft. A flowing stream can be followed upstream from this room through large rooms to a siphon. The Pechojumo entrance is 60 by 40 ft, and 45 ft deep on the arroyo side, but much higher elsewhere. Back under the arroyo on the upper level a right fork leads to a mud siphon, and the two left forks form a loop that almost connects with the downstream passage in the Sotanito. From the downstream side of the Pechojumo entrance a large passage slopes downward to a 140-foot pit. From the bottom the Lake Passage, 40 ft wide and 10 to 20 ft high, goes 1100 ft to a division. Both passages eventually drop into a high canyon 200 ft long ending in a deep siphon. Beside the trail leading north by the Sotanito in a flat sheet of limestone is the small pit, Sótano de La Lajita (55), a 20-foot drop into a small room. In the side of the arroyo between the Sotanito and the Pechojumo entrance is the 110-foot long Cueva de León (56), a good dry camping place, and near the Sotanito is Cueva de las Ratas (89). Sótano de Jos (53) is another opening in the bottom of an arroyo, the pit apparently taking all the water even during large floods. The cave is essentially one large fissure. A 100-foot entrance drop is followed by an offset through a hole into the top of a 120-foot fissure. This fissure averages about 50 ft high and 10 ft wide, being at one point partially blocked by flowstone. At the end the fissure widens and a short drop leads to a siphon pool. The cave is photogenic, with shallow pools and clean walls. Sótano de las Piedras (80) is located at the end of the now abandoned section of the arroyo downstream from Sótano de Jos. A 60-foot drop leads to a large passage, which ends in a 90-foot drop into a smaller passage leading to a lake. Extending from the lake, a passage 30 ft high by 30 ft wide ends in a siphon. The southmost of the Los Sabinos caves, Sótano de Palma Seca (78), is at the end of a now abandoned arroyo that no longer carries water, since the rainfall sinks into cracks. A 100-foot entrance pit enters one end of a mud-banked room 150 ft long and 30 ft high. There is one side passage 300 ft long.

Los Monos Area: The relatively flat, central portion of the range from east of K 25 to near the powerline which runs NE from Valles to Cementos Anáhuac.

Sótano del Loro (57) is located on the top of the range west of the southern boundary. The entrance to this cave is 40 by 100 ft and drops 195 ft to a small talus slope, which leads to a room 80 ft wide and 60 ft high. From this room a passage extends NW for 700 ft, gently rising and ending in a flowstone plug. The cave is well-decorated. Hoya de Zimapán (128) is just west of Sótano de Loro. The entrance, located at the end of a large sink, is 30 ft high and 100 ft wide, with a 60-foot cliff above the entrance. A breakdown slope leads into the entrance room, 100 ft high, 100 ft wide, and 250 ft long. A large column partly blocks the passage, after which it opens up to 100 by 100 ft. The next column completely blocks the passage except for a small water-scoured hole leading to a 154-foot drop, after which a steep breakdown slope leads to a flowstone cascade sloping steeply to a 270-foot drop. At the

bottom a large tubular passage goes to a 226-foot drop into the end of a room 700 by 300 ft and 150 ft high. The floor of this room is covered with small travertine dams. There are also some blade-like projections of rock, all that is left of walls that once divided the room.

Cueva de los Monos and Sótano de los Monos (65) are connected and so are considered as one cave. Cueva de los Monos is a horizontal cave about 200 ft long, with monkey-like petroglyphs that give the cave (and area) its name. The horizontal cave is perched over and opens into the sótano, a minimum 464-foot drop. The Sótano can also be entered through holes in the floor of the cave. The Sótano is a shaft approximately 100 by 50 ft, and from the bottom a 20-foot climb-up and a squeeze lead to a 180-foot pit and three 15-foot drops to a generally walking-size passage 1200 ft long. Toward the end the cave becomes smaller and a 73-foot drop leads to a lower level. Both levels end shortly, the lower in a small flowstone-blocked pit. Total depth, including the upper horizontal cave, is 951 ft. Sótano de Orquídea (75), 100 ft north of the pit, drops into a complex of fissures and small rooms. Near Monos are several small pits: the deepest, 400 yds NE, is Sótano de la Culebra (29), actually two parallel shafts. To the east along the trail are Sótano Doble del Norte (31), which drops 40 ft to a hole too small to enter; 20 ft to the south is Doble del Sur (32). East of the double pits a trail leads past 2 small pits (66) (67). To the ENE across a shallow sink is Sótano Este (41). Two hundred m NE of Monos is Hoya de Higuerón (51), entered by a circular, vertically-walled sink 150 ft in diameter that can be climbed, thanks to convenient vines. From this sink a slope leads down 100 ft into the cave, which is essentially one large silt-floored room, 120 ft wide and 500 ft long. Just south of the Monos dolina is Sótano del Nopal Grande, a 289-foot blind pit developed along a fissure that has produced a line of small sinks.

Taninul Area: The area south of the powerline which goes NE of Cd. Valles to east of Hotel Covadonga.

Sótano Cincuenta y Seis (14) is an inconspicuous pit at the south edge of a field near the power line above the village of Las Palmas. The entrance is small and drops 31 ft to an offset, then to a 295-foot drop. Total depth is 511 ft. One hundred meters to the south is Sótano de Gadsden (45), a somewhat larger pit 10 ft by 15 ft dropping over a series of ledges to a natural bridge at about 300 ft and finally ending in a small room at 443 ft. South of Sótano de Gadsden is a 30-foot incompletely checked pit (49), and to the north under the power line is a 100-foot pit (46). South of the power line are two pits (47) (48) in the same field with Sótano Cincuenta y Seis. There are six recorded caves at the La Colmena mines NW of San Felipe. The largest is Cueva de la Colmena (16), the SE-most known cave at the mines. The entrance is a sink 20 ft wide and 40 ft long, barely climbable at one corner. A steep slope leads down to a hole in the right wall, taking a sharp left turn and continuing down to a 20-foot drop into a series of fissures that form the main cave. Near the road is a 40-foot pit (18), behind that is a short cave (21), and under a nearby ledge is a walk-in cave (20) 100 ft long with 50 ft of side passage. Above the ledge, 100 ft west, is Vine Pit (19), leading to a short horizontal passage. Farther west, 150 ft from the road, is a pit (17) by a soyate. There are several deep pits dug by phosphate prospectors along the road to the west. Cueva del Nacimiento del Río Choy (12) is composed of pits interconnecting two horizontal sections, an upper dry level (locally Cueva del Virgen from a formation thought to resemble the Virgin of Guadalupe), and the lower river level where the Río Choy flows from a deep lake over several travertine dams before it leaves the entrance. Both levels are about 200 ft long; the upper level is about 100 ft above the lower. The area surrounding the entrance has been landscaped as a private park. Just to the north of the cave is a fissure cave (13) about 150 ft long. Cueva de Valdosa (121) is a 400-foot long,

generally walking-size tunnel with some small side domes. The cave is located in the center of the El Abra Pass and the entrance is visible north of the highway. Across the highway from Valdosa is a small 30-foot pit (122). Cueva de Taninul n. 4 (110) is one of the speleologic sights of the El Abra, as it is easily accessible by a path from the highway just west of the railroad tunnel. No lights are needed to traverse the cave's 600 ft of passage, since numerous skylights light the way. Cueva de Mariposa (63) is a small cave across the highway. Cueva de Taninul n. 3 (109) has not been visited by AMCS members, but Bonet's map shows it to be composed of two passages: one 30 m long with a skylight and the other 15 m long with a smaller skylight. This cave is about 1 km south of Taninul n. 4. Taninul n. 2 (108) is about 300 ft north of Taninul n. 1 and 250 ft above the foot of the hill behind Hotel Taninul. Near the entrance a side passage trends north, but the main cave goes west and crosses a fissure 200 ft inside the cave. Taninul n. 1 (107) is directly behind the Hotel Taninul, only a few feet from the swimming pool and fed by a nearby sulphur spring. The entrance has been converted to a dance pavilion with tables and a bar. The unaltered portion is about 300 ft of small passage eventually becoming too small to traverse.

El Pujal Area: The extreme southern portion of the range south of Hotel Covadonga to the end of the range at El Pujal.

Sótano del Toro (120) is a small cave located east of La Caldera, consisting of a fissure at the bottom of a shallow sink that drops 10 ft to where water fills the fissure. Blind fish can be seen swimming by daylight. Two low crawlways extend south from the sink. Cueva Grande (50) is located 5 km north of El Pujal on a brush-covered slope. The cave is divided into two parts: a crawlway about 500 ft long, and a larger 400-foot passage with two skylights. Sótano de Manuel (62) is about 2 km north from Cueva Chica in a shallow arroyo: two passages lead from the base of a climbable 15-foot sink and total about 1000 ft. Sótano de Fer-de-Lance (42) is located in brush about 1 km north of Cueva Chica and has not been entered due to the snake which gives it its name. Cueva Chica (10) is located at the end of a shallow arroyo 2 km N of El Pujal. In this cave the blind cave fish of the El Abra were first discovered. From the entrance an almost horizontal passage 20 ft wide and 10 ft high leads south for 350 ft to a series of rooms with deep pools which extend 400 ft to a terminal siphon, lying at about the level of the river at El Pujal. There are also several incompletely explored crawlways along the west side of the main passage. A small sink about 300 m SE of Cueva Chica provides the entrance to a tortuous crawlway (11) at least 300 ft long. The crawlway is difficult to traverse, but getting through the breakdown at the entrance is even more difficult. A few hundred meters farther south are Las Cuatas, the twin pits that both drop 90 ft to water. The entrances are about 20 ft apart in the bottom of a sink, but the northeasternmost (27) drops into one end of a breakdown-floored passage, while the other (26) is a blind pit. Two meters south of Las Cuatas is Cueva or Sótano (it is locally called both) del Mante (58), about 100 m N of where the range disappears under the alluvium of the Río Tampaón. Cueva del Mante consists of a short passage sloping steeply downward to a room 30 ft wide, 40 ft long, and 20 ft high, bordered with mud banks. A small crawlway, probably normally flooded, leads to another room of about the same size. A small water-filled passage continues. Pozo de El Pujal (82) is a cave at the bottom of a shallow well (really an artificially covered sink) in an isolated hill of limestone on the east edge of El Pujal. The cave is essentially a low room; the well water is not recommended for drinking.

Tantobal Area: The isolated outcrop of limestone along highway 85 south of the Río Tampaón between Santiaguillo and Tantobal.

Cueva del Nilo (69) is east of the highway just north of Santiaguillo; and water from this short stream passage is used for washing. On the hill just south of Santiaguillo is Cueva de Tantobal (112). Here two sink entrances connect with a fissure. A 20-foot vampire bat guano-covered drop leads into the fissure, and smaller upper level passages also connect with the top of the fissure; other passages across the fissure are unreachable without climbing equipment.

Just south of Cueva de Tantobal at the bottom of a sink, a small gully sinks in breakdown and a little work would open up a cave. Across the highway from this sink is Cueva del Raíz (87), a sloping sink to a horizontal passage with a large root following it.

Salsipuedes Area: The isolated limestone hill west of Rancho Nacimiento.

Cueva del Nacimiento del Río Coy (25) is located about 50 ft above the nacimiento. An entrance 5 by 4 ft quickly enlarges to a large passage leading down to a room with a skylight. From this room a passage climbs over a pile of breakdown to a lake of swiftly flowing water.

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PROJECT AT LA CIENEGA, MUNICIPIO DE PINAL DE AMOLES, QUERETARO

by John W. Greer

In April 1972 Craig Bittinger, Clark Lillie, and I conducted an initial reconnaissance in the La Cienega area south of El Sótano (AMCS News, v. III, no. 5, p. 100). The area is due west of Ayutla, north of Ahuacatlán, south of the river, and bordered on the southwest by the high sierras. The initial survey located a very high density of pits, many of which were quite deep, and what appeared to be a couple of possibly long cave systems. Plans were made for a return to the area the end of May when school let out, as part of the AMCS summer activities from their field headquarters in Cd. Valles.

As time for the project neared, preliminary arrangements were made by Frank Binney, Barbara Vinson, and Walt Rosenthal. This consisted of acquiring the necessary letters of introduction and permission from the governmental officers in Pinal de Amoles and Ahuacatlán, and making arrangements with the local juez in La Cienega. They also did further limited reconnaissance in what here is called Area B, the high Cerro Mula ridge west of La Cienega.

On May 28 a large group of AMCS cavers invaded La Cienega by mule train from Ahuacatlán and made headquarters at the school. Field work was carried out for the next 2 weeks, with what seemed a constant influx and exodus of cavers. The following local groups were represented: University Speleological Society of Austin, Texas; Southwest Texas Grotto of San Marcos; Dallas - Ft. Worth Grotto, Texas; Texas A & I Grotto of Kingsville, Texas; Pan American Speleological Society of Edinburg, Texas; Southern California Grotto of Pasadena; Dogwood City Grotto, Georgia; Huntsville Grotto, Alabama; and McMaster University Caving and Climbing Club of Hamilton, Ontario.

From La Cienega, one-day reconnaissance teams continued to locate speleo features, primarily vertical pits. A numbering system was begun with an AMCS series of cave numbers for Mexico. Numbers on small aluminum discs were nailed to rocks or trees at most of the pits which were entered. In most cases, sketch maps (including plans and or profiles) were made when a pit was entered and notes were taken of observed features. In addition to the speleo survey, individuals also conducted research on geographical, geological, and archeological projects.

For convenience, the La Cienega region is divided here into three areas: *Area A*, La Cienega proper and the areas up the valley above town; *Area B*, the high hillside area of Cerro Mula across the canyon west of La Cienega; and *Area C*, the drainage of Cañade de las Tinajitas, a large, deep canyon containing Sótano de Buque southwest of La Cienega.

Following is a general summary of the findings in each area. Future reports will detail such subjects as pit exploration by the project, Sótano de Buque, geological notes, and archeological reconnaissance.

Area A (*entered)

AMCS No.	Length	Depth	Description and Remarks
*1	?	155	Pit (Sótano Tapado)
*2	15	98	Pit
*3	120	485	Pit (Sótano de Paila); entrance drop 470 ft.
*19	?	60	Pit
*20	?	50	Pit
*21	?	223	Pit
*22	?	90	Pit
*23	225	0	Horizontal cave (Las Tranto)
50	?	50	Pit
—	?	100	Pit
—	?	70+	Pit (Sótano de Lagunita)
—	?	200+	Pit (Sótano del Raizal), tapado
—	?	125	Pit (Sótano de Ladera de Jose Espinosa)

Area B (*entered)

AMCS No.	Length	Depth	Description and Remarks
*4	12	200	Pit (Sótano de Puerto Coyote)
*5	20	120	Pit (Sótano de Pino)
*6	?	339	Pit (Sótano de El Pino)
*7	50	35	Pit
*8	20	120	Pit
*9	175	116+	Cave with vertical drops (Joya del Ranchito de la Mesa)
*10	?	80	Pit
*11	15	120	Pit
*12	40	50	Pit
*13	10	132	Pit
*14	50	55	Pit
*15	55	490	Pit (Sótano de Callejon), entrance drop 435 ft)
*16	?	240	Pit (Sótano de Bernal)
—	??	175+	Pit

Note: Many other pits are located all over this hill. Many were visited on the initial and second reconnaissance trips, but they were not adequately recorded to be included here.

Area C. Speleo Summary (*entered)

AMCS No.	Length	Depth	Description and Remarks
*17	115	123	Cave with pit (Cueva Encantada)
*18		1549	Long vertically oriented floodwater cave (Sótano de Buque). Believed to be the fourth deepest cave in Mexico.
*29	312+	20	Cave
*30	32	34	Pit
31	20+	20+	Pit
32	?	30	Pit
*33	250	177	Horizontal cave, dipping.
34	?	175+	Pit
*35	18	12	Pit
*36	150	74	Pit with some passage
*37	40	131	Pit (Sótano de Tinaja Verde)
*38	160	336	Large pit (Sótano de Mexo), entrance drop 275 ft.
*51	54	42	Pit
52	?	200+	Pit
53	?	15+	Pit
—	?	30+	Pit
—	?	60	Pit
*—	40	?	Horizontal cave, dipping
—	?	80+	Pit (Sótano de Roble)
—	?	150+	Pit (Sótano Carbonera)
—	?	175+	Pit (Chiniyal n. 1)
—	?	100	Pit (Chiniyal n. 2)
—	?	60	Pit

Area C. Archeological Summary

1. Seven stone ruins, either individual houses or more complex groups.
2. One probable stone tomb or walled entrance to a small horizontal cave.
3. Several portions of old stone walls.
4. Four nonvertical caves with pottery (two others were reported, one also with human skeletons). Most apparently were used as water sources.
5. Several rockshelters with pottery.
6. One cave with a deep internal pit with pottery in the pit.
7. A pit with lower passage containing several whole ceramic vessels -- six jars and one bowl.
8. Deep freefall pit with charcoal and possible old torches in the bottom. An old stone house is adjacent to this pit.
9. Bedrock tinajas and old fields with surrounding pottery shards and obsidian flakes.
10. Mercury mine with ore suitable for red paint.

"LEAVE ONLY FOOTPRINTS"

by Ulises E. Victoria

"Take only pictures," this is one of two sentences that form a commandment recited by certain young people on leaving a place they have just visited. In truth it is a "commandment" as we know it in the religious sense of the word, and it is above all an idea full of a philosophy which we do teach, but which we have forgotten or perhaps never practiced.

The authors of this saying are a group of young people, students of the University of Texas, with whom I was in contact on one of my last trips to the capital of Texas, the city of Austin. They are dedicated to the exploration of caves, grottos, caverns, fissures, and cracks in the earth's surface. This enthusiasm is derived from two sources: interest in adventure and interest in geology. They enjoy studying how the earth was formed and at the same time, living in contact with nature in its impressive works of architecture, artwork, decoration and construction over millions of years, left there in a cave so that one day humans would come to rejoice their sight and spirit with the contemplation of such marvels. These young men are true naturalists. They are also hippies.

When they finish the exploration of a grotto or cave, on reaching the exit, ready to climb once more into their vehicle and enter into ordinary daily life, they pause. As if they were taking inventory. They all check among themselves for the following: If they left any forgotten object, IF THEY LEFT GARBAGE OR RUBBISH, or cans, or anything else not part of the natural setting of the place. On ascertaining that all is in order, then they say, "We leave only footprints."

Then comes the other part of the saying, likewise of great importance. We all are given to taking with us some memento of whatever place we visit and if we enter a cave, well then, we see an opportunity of taking with us a stalactite (those which grow from the roof downward) or stalagmite (those which grow from the floor up). The fact is that these young people see in a cave a species of temple full of natural relics which deserve all our respect. We may touch them, caress them, look at them, photograph them, BUT NOT DESTROY THEM. There they were placed by Nature, and there they should stay. This is the other thought they have at the exit, and it is then they say, "WE TAKE ONLY PHOTOGRAPHS."

How much learning in these two phrases! All of us, the clean ones, we who bathe daily, we go to a forest and we leave it inundated with paper, trash, etc. The same thing happens at the beach, in the country, at the riverside, and in whatever place we visit on excursions. Ah, I forgot: we go to the cinema and fill the floor with bits of paper, boxes, package wrappings, cigarettes, etc. When we go to a cave, we leave all the junk we have extra or that gets in our way, while THE HIPPIES LEAVE ONLY FOOTPRINTS. And there is more against us: this stupid custom of putting our names on the walls of such places, leaving proof that we were there. In our majestic Sierra de Chipinque, there are many true natural monuments or works of art. But on them are the names and dates of Miss and Mr. So-and-so that happened to be there one day. These people bathe daily, but leave their names there, while the hippies have left only their footprints. Frequently I cross Loma Larga by the highway that goes to Chipinque. There one finds an excellent natural book about how the hills and mountains were formed. It is an excellent view for the geologist and the tourist. But the fact is that political parties always have painted all over it with their useless propaganda. This lesson of the hippies goes for them, too.

In the "residential" section of Colinia del Valle, one always finds broken glass thrown in the streets. One night, I was walking in one of these streets BECAUSE THERE ARE PRACTICALLY NO SIDEWALKS (nor lighting). (For this reason the quotation marks and the interrogative sense to the word "residential.") I was walking, I repeat, and there passed

close to me a truck full of young men and women (presumably of those which we call GOOD) and their amusement was to go along throwing out empty soft drink bottles to watch them explode. Here is the explanation of that ever-present glass. I stood watching these "good" kids who had bathed this morning and would do so the next morning and mentally I also saw a truck full of hippie kids who passed through the same street and THEY LEFT ONLY FOOTPRINTS.

Personally I don't agree with hippies. But we ought to remember that it was they who lit the fuse on the question of atmospheric pollution and awoke the world to the dangerous problem of environmental pollution in general. Or it may be that these citizens, in their role of true naturalists, wish to defend all nature. But the fact is that now they have given us another lesson and a very good one: we should avoid littering and conserve the beauties of nature.

I believe that some newspaper, some institution or the government itself should initiate a campaign which would be of greatest benefit for all of us based on these two phrases: "WE LEAVE ONLY FOOTPRINTS; WE TAKE ONLY PHOTOGRAPHS."

El Porvenir Viernes 18 de Junio de 1971.-2-B

Dejamos Sólo las Huellas

Ulises E. Victoria

"Sacamos sólo fotografías". Estas dos frases forman una oración que dicen unos muchachos al abandonar un lugar que acaban de visitar.- Realmente es una "oración" como lo conocemos desde el punto de vista religioso y es, sobre todo, un pensamiento lleno de filosofía que nos enseña algo que tenemos olvidado o que quizás nunca hemos practicado.

Los autores de esa oración, son un grupo de muchachos estudiantes de la Universidad de Texas, con quienes estuve en contacto en alguno de mis últimos viajes a la Capital de Texas, la Ciudad de Austin.- Ellos son unos entusiastas de la exploración de grutas, cuevas, cabernas, grietas y fallas de la corteza terrestre. Esta afición les viene por dos lados: por la ventura y por el interes en cuestiones geológicas.- Les gusta estudiar cómo fue que se formó nuestra Tierra y a la vez vivir en contacto con la naturaleza en sus formidables trabajos de arquitectura, orfebrería, decoración y construcción a lo largo de millones de años, dejados ahí en alguna cueva para que un dia viniéramos los humanos a regocijar nuestra vista y nuestro espíritu con la contemplación de esas maravillas.- Esos muchachos son unos naturalistas consumados.- Además, son hippies.

Cuando terminaron la exploración de una cueva, o gruta, al llegar a la salida para tomar de nuevo su vehículo e incorporarse a la vida diaria, hacen una pausa. Como si hicieran un balance. Checan todos entre sí los aspectos siguientes: Si dejaron o no algún objeto olvidado. SI DEJARON BASURA O DESPERDICIOS, o envases o cualquiera otra cosa que no estaba en forma natural en aquel lugar.- Al comprobar que todo está en orden, es cuando dicen: "Dejemos solo las huellas".

Viene después la segunda parte y de suma importancia también. Todos somos muy dados a llevarnos algo de recuerdo de cualquier lugar que visitemos y si entramos a una gruta, pues veremos la manera de sacar con nosotros alguna estalactita (las que crecen del techo hacia abajo) o una estalagmita, (las que crecen del suelo hacia arriba).- Es el caso que estos muchachos ven en una gruta una especie de templo lleno de reliquias naturales que merecen todo nuestro respeto. Podemos tocarlas, acariciarlas, verlas, fotografiarlas, PERO NO DESTRUIRLAS.- Ahí fueron hechas por la naturaleza y ahí deben quedarse.- Esta es la otra reflexión que hacen a la salida y es cuando dicen:

"SACAMOS SOLO FOTOGRAFIAS".

¡Cuánta enseñanza en esas dos frases! Todos nosotros, los limpios, los que nos bañamos a diario, vamos a un bosque y lo dejamos inundado de papeles, desperdicios, etc.- Igual sucede en la playa, en el campo, en el río y en cuanto lugar a que vayamos de excursión.- ¡Ah!. Se me olvidaba: vamos al cine y llenamos el piso de papeles, cajas, envolturas, cigarrillos etc. Cuando vamos a una cueva, dejamos todo lo que nos sobre o nos estorbe, MIENTRAS LOS HIPPIES DEJARON SOLO LAS HUELLAS.- Y hay más en contra nuestra: esa estúpida costumbre de poner nuestros nombres en las paredes de esos lugares. EL DEJAR ahí constancia de que estuvimos.- En nuestra majestuosa Sierra de Chipinque, hay más de un verdadero monumento u obra de arte natural. Pues ahí están los nombres ~~de fichas~~ del fulanito y la fulanita que tal día estuvieron ahí. Estos "fulanitos" se bañan a diario, pero dejaron ahí sus nombres, mientras los hippies hubieran dejado solo sus huellas. Con frecuencia cruzo la Loma Larga por la carretera hacia Chipinque. Ahí se encuentra un excelente libro natural de cómo fue que se formaron las lomas y los cerros. Es una excelente vista para el geólogo y para el turista. Pero es el caso que los partidos políticos siempre lo han pintarrajeado con su INUTIL propaganda.- Para ellos va también esa enseñanza de los Hippies.

En la "Residencial" Colonia del Valle, siempre encuentra uno vidrios tirados en las calles. Una noche, caminaba yo por una de las calles PORQUE CASI NO HAY BANQUETAS (Tampoco hay alumbrado. Por eso las camillas y la interrogación a lo "residencial"). Caminaba, repito, y pasó junto amí una camioneta llena de uchachos y muchachas (supuestamente de los que llamamos BIEN) y su diversión era ir tirando botellas de refrescos vacíos para que explotaran. Ahí está la explicación de los siempre presentes vidrios. Me quedé viendo a esos "muchachos bien" que se habían bañado esa mañana y lo harían a la mañana siguiente y mentalmente vi también a una camioneta llena de muchachos y muchachas hippies que pasaban por la misma calle y DEJABAN SOLO SUS HUELLAS.

Personalmente yo no estoy de acuerdo con los hippies. Pero debemos recordar que fueron ellos quienes prendieron la mecha en la cuestión de la contaminación atmosférica e hicieron despertar a todo mundo sobre el peligroso problema de la contaminación ambiental en general. O sea que estos ciudadanos, en su carácter de naturalistas consumados, quieren defender todo lo natural.- Pues es el caso que ahora nos han dado otra lección y muy buena: Debemos evitar el problema de la basura y debemos conservar las bellezas naturales.

Creo que algún periódico, alguna Institución o el propio Gobierno debería iniciar una campaña que sería de sumo beneficio para la colectividad, basada en esas dos sentencias: "DEJAMOS SOLO LAS HUELLAS. SACAMOS SOLO FOTOGRAFIAS.

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Abbreviations Used:
C. - Cueva
Nac. - Nacimiento
S. - Sótano