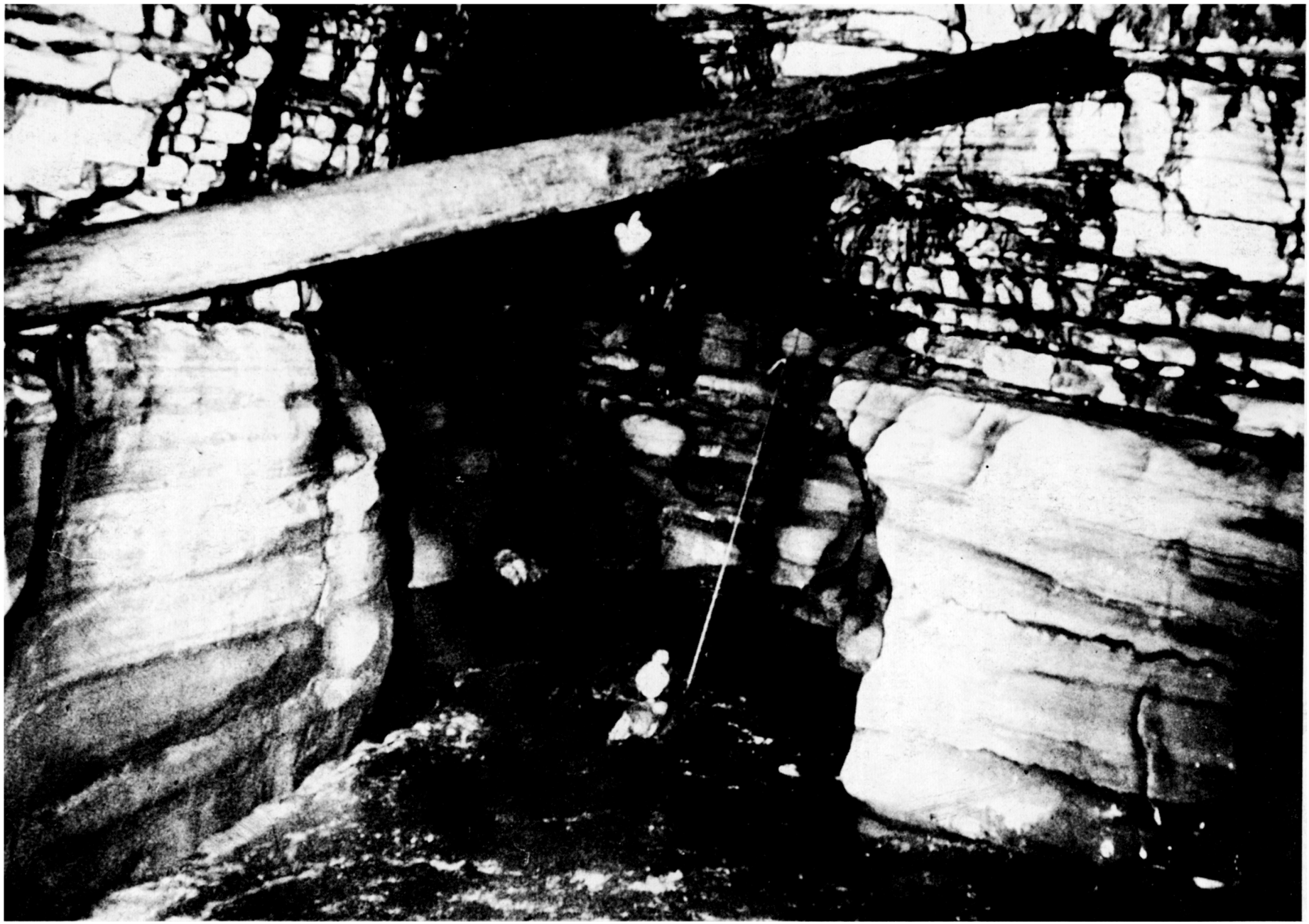
AMCS



AMCS ACTIVITIES LETTER

Edited by Bill Russell

LETTER No. 6 **MAY 1977**

Issue Staff: PAT BITTINGER, TERRI TREACY, JANET HONEA, DAVID HONEA, BILL STONE, BILL STEELE, PETER SPROUSE

HUAUTLA ISSUE

This sixth Activities Letter features accounts of the exploration of caves in the Huautla,Oaxaca, area in southern Mexico. This area has some of the most challenging caves in North America. Here the natural hazards of the underground are accentuated by the clash of cultures on the surface. The Huautla area was first located through a search of the 1:100,000 topographic maps of Mexico when they were received by The University of Texas Geography Department. While no individual caves could be located, the area was obviously a karst area of high cave potential.

A reconnaissance trip by Bill Russell, Tom McGarrigle, and John Kreidler indicated the area was promising and on a return trip with more Austin cavers they drove through Huautla to San Miguel and asked a local if the large closed valley below town had a cave at the bottom. He said, "Yes, all of the water goes into a sotano." Hearing this, four of us raced down the side of the dolina. It must have been a strange sight -- four gringos in rain coats running full tilt down through the corn fields. Upon seeing anyone we would yell "Sotano?" and point downhill. The answer was always yes. Within the next four hours we located the entrances of three of the deepest caves in North America — but to realize this depth took years of effort by cavers from around the world.

FRONT COVER
Pool above Fool's Falls in Sumadero Yochib. Photo by Blake Harrison.

BACK COVER
Drawing by Dino Lowery entitled "Caver Beware."This lair belongs to the Indian gods. Indians dressed in this manner should be approached with caution.

The cover photo on Letter Number 5 -- looking out of Hoya de La Luz -- was taken by Roy Jameson. Photo credits were unfortunately omitted. Apologies to Roy and thanks for the fine photograph.

ASSOCIATION FOR MEXICAN CAVE STUDIES

Copyright AMCS Membership Committee 1977

April 1, 1977, marks the 10th anniversary of the first descent into the Sotano de las Golondrinas, Aquismon, San Luis Potosi, Mexico. On April 1, 1967, T.R. Evans was the first person to rappel into Sotano de las Golondrinas and set foot on the bottom of the world's most spectacular free fall pit. The members of the Association for Mexican Cave Studies would like to take this opportunity to both recognize the many hours of effort that T.R. Evans has done in Mexican caving and to express our gratitude to T.R. for his instrumental part in making Mexican caving what it is today.

The discovery and descent of Sotano de las Golondrinas meant much more than breaking the depth record for a free fall pit at that time. It marked the emergence into the world scene of the Austin caving community. Golondrinas still has the longest known free drop; but, more importantly, its overwhelming impact makes it the focal point for deep pit caving in Mexico.

Now, looking back ten years, it seems clear that the strides made in caving in the last decade have been due in large part to the quality and strength of the foundations laid down by T.R. Evans and the many others who created the AMCS. The integrity of their speleology and publications, the exuberence of their caving, and their constant vigilance for safety should be a guiding force and inspiration for the future.

On the eve of another promising decade, it is hoped that all cavers will strengthen their mutual bonds and realize their common goals. Much of the world looks to the AMCS for the standard by which to measure its progress in caving. We must reflect that trust in the quality and integrity of the work that is done.

David Honea Peter Sprouse
Janet Honea Terri Treacy

THE FIRST DESCENT OF SOTANO DE LAS GOLONDRINAS

by Bill Deane

In December, 1966, T.R. Evans, Randy Sterns, and Charles Borland hiked up into the mountains west of the small town of Aquismon in Mexico to investigate the area for its caving potential. They followed a well-traveled mule trail leading to the town of Tamapatz. While on the way, Indians told them of a deep pit with many birds living in it. It was called the Sotano de las Golondrinas.

Arriving at the awesome entrance, the three cavers were stunned when they found that a rock dropped into the pit took more than ten seconds to reach bottom. This indicated a depth of over 800 feet. The pit was not entered at this time due to the lack of a long enough rope.

The morning of March 31, 1967, found twelve of us arriving in Aquismon. Squire Lewis and Nancy Walters had come down from Pennsylvania and had given me a ride from Austin. T.R. Evans, Jon Morse, Sid West, and Bob Hugill had come from Maryland; Bill Cuddington, John and Sandy Cole, and Dan Hale had come from Alabama. Sandino Techo, a friend of the Coles, had come up from Xilitla, Mexico.

Soon we were packed and began the hike. It is only 15 kilometers from Aquismon to the Sotano. However, we found the going to be slow due to the heat. That evening, the twelve of us gathered at the edge of the Sotano. Words cannot fully describe the impressive entrance. It is an immense hole descending into nothingness surrounded by jungle.

Squire took out his railroad watch and began timing the large rocks we were dropping into the pit. It was amazing to watch them fall and fall and fall. Then we would hear a distant boom as they hit bottom and Squire would announce "11-1/2 seconds." This was rather amusing since T.R. had told us it was a 10-second drop. This extra 1-1/2 seconds meant that the pit was 200 to 300 feet deeper than the 800 feet we had expected.

Arising early the next morning we began our preparations for the descent. Our main task was to rig the rope into the pit. Bill Cuddington had brought his 1180-foot section of one-half inch diameter Samson, 2 in 1, Nylon Braid Rope. Braided, the rope was about 40 feet long and 7 inches in diameter. It looked like a giant white python. We carefully unbraided it and laid it around the edge of the pit and secured the other end to a 70 foot rope wrapped twice around a limestone outcropping. The operation required most of the morning. We could see that the rope touched bottom. We knew that 1165 feet of rope was actually hanging in the pit.

Since it was the efforts of T.R. that led to the discovery, he had the honor of being the first down. T.R. put on his rappelling equipment and sat by the edge. Bill and John pulled up several feet of rope to create slack so he could rig on and ease over the edge. Great care was needed since the weight of the rope, 65 pounds, made it very awkward to handle. Once over the edge, T.R. arranged his pack and began the rappel. He carried one of the walkie-talkies with him, but we had agreed beforehand that except for emergencies there would be no radio contact until he was on bottom. About 20 feet down, he pushed aside a small tree limb. This was the last thing he was to touch besides the rope for the rest of the rappel. From there on, the walls continually recede away as you go down. When you land on bottom, the nearest wall is 200 feet away.

Our proceedings had been watched very quietly by about 20 Indians. The Sotano had been a common feature of their lives and I doubt if they had ever considered that someday someone would go down it.

The minutes passed slowly. I kept myself busy photographing the descent. It was fantastic watching T.R. disappear into the blackness below. Finally after 30 minutes we could see that he had reached bottom. A few more minutes passed while he derigged. Then came the radio call we were waiting for. A very astonished T.R. informed us, "You won't believe the size of this place!" After giving us a brief description of the bottom, he began walking around looking for leads.

In June, a second AMCS team conducted the plane table survey. They found that the minimum possible drop happened to be where we had rigged the second rope and was 1094 feet. It was a 1098 foot drop where we had rigged the first rope. This broke, by 64 feet, the existing world's record held by the Lepineux entrance of the Gouffre de la Pierre St. Martin in France. Mexico had produced her first world's record.

(Excerpted from NSS NEWS, Vol. 26, No. 3, March, 1968. by David Honea. Reprinted from the UTG Vol. 8, No. 2)

TRIP REPORTS

Destination: Cueva del Brinco, Tamaulipas
Date: March 11-20
Persons: Jerry Atkinson, Sheila Balsdon, Gill Ediger, Robert Hemperly, Katy Knighton, Thomas Moore, Peter Sprouse, and Terri Treacy
Reported by: Peter Sprouse

Our purpose on this trip was to push the leads left in Brinco from the previous Thanksgiving trip (see AMCS Activities Letter #5). With the height of the dry season approaching, we hoped for some good caving. Crossing at Brownsville Friday night was easy, except for finding our way through Matamoros, that is! We pulled into Victoria in the morning (March 12) for breakfast and headed north to Barretal for the long grind into the mountains. We made it up to Conrado Castillo in a quick 5 1/2 hours from the highway.

After morning R&R on March 13, two teams entered Brinco. Thomas, Robert, Jerry, and Katy headed to the area past the waterfall. They pushed upstream from the Laguna Verde Cutoff and explored several hundred meters of new passage. Trash in the streamway hinted of another entrance but if so the cavers stopped before reaching it. On the way back, they took a wrong turn, accidently discovering a new and bigger streamway! They explored down this until Katy took a 3 meter fall into a deep pool. She was unhurt but shaken, having lost her helmet (poor chinstrap) and light into the 4 meter deep pool. Meanwhile, Terri, Sheila, and I continued the survey from Eternity Junction, the cave's deepest point at -162 meters. Our survey ended at -179 meters where we encountered sump mud all over the walls in the dead end Pig Wallow. We wrapped up leads on the way out.

The next day was pretty much an R&R day. In the afternoon Terri and I sketch-mapped and partially explored Cueva X, a higher, vadose cave which may connect with Brinco. On March 15, caving spirit ran high in camp as Ediger, Jerry, and Robert prepared for a survey trip upstream from the Laguna Verde Cutoff. Sheila, Terri, Thomas, and I set off to explore the entrance in town discovered the previous trip. The first team mapped over 300 meters upstream (but not the downstream way where Katy fell) to a point only 15 meters lower than the entrance. This continues and could add depth to the top of the cave when surveyed. Our team found that the arroyo cave in town had a quick end in dirt and debris fill, so we decided to enter Brinco (sans Terri) to survey from the Laguna Verde, the best lead. This is a place where a low crawl leads to a waterfall room with a stream (the Rio Verde) passage taking off; it had 2 cfs flow in November but only a garden hose's flow in March. We mapped 40 stations downstream through well-decorated passage with deep green pools, dropping steadily. I explored on past the end of the survey to a narrow squeeze with a goodly breeze going into it. The next day our same team, plus Robert, returned to the Rio Verde. We surveyed down to a constriction which had to be enlarged with a rock to allow passage. I explored on alone through a sharp, swiss-cheesy area. Soon I noticed it was different than up to that point: the water, flowstone, and air movement were missing. So I backtracked until I found a small hole going in the proper direction. This dropped down several climbdowns to a low rimstone area. Following the air I entered a low pool which I never reached the end of. Five to ten meters wide and with water often over my head, I followed The Canal for nearly 200

meters to where the ceiling narrowed in a constriction that threatened to blow out my light with its howling gale. Ahead in the distance was the powerful roar of a great waterfall. Returning to the others we decided to map down to the beginning of The Canal and then quit for the day. Our last station was 180 meters below the entrance, making this new section the deepest portion of the cave.

The following day, March 17, was to be our last day of caving in Brinco. Ediger, Robert, and Jerry set off to try to connect their downstream passage (Katy Fells) with the Laguna Verde, while Terri, Sheila, and I returned to try to survey The Canal. Ediger's survey party mapped 26 stations to a point which turned out to be close to Laguna Verde, but a connection remains to be realized. Beyond the last station, it was dropping down and heading in the right direction. For our group, The Canal was a cold survey. Even in wetsuits we were shivering. At the constriction where I had stopped, our lights did get blown out as we surveyed and swam through. But strangely enough, once on the other side the roar of the impending waterfall was suddenly behind us! What had sounded exactly like the roar of a distant waterfall was actually the wind in the constriction. A few shots later The Canal ended in a blank wall with the only way on being up. We ended the survey and explored ahead, Sheila and Terri checking one passage while I took another. Soon we joined up again, with the others reporting having passed several side leads. Although the passage was still climbing, it still seemed like downstream. Soon I left the others behind, running down virgin passage following the air flow. Finally ahead I could hear the sound of echoing water-not wind this time! Continuing on, I entered a room with a stream, the largest in the cave and scoured clean and wet to the ceiling! After looking a short ways to the right and left, I returned and met the others a short way back. Together we explored left in the trunk, the direction of the water and air flow. We went for over 100 meters to where swimming was once again unavoidable. Upstream also led to swimming. We dubbed this new section "The World Beyond" so unlike the old cave it was. We left the cave with shredded hands and wetsuits.

We had a leusure journey back to Texas, stopping on the way at El Chorrito, where thousands of Christian pilgrims had gathered in a festival to worship the Virgin who had appeared in travertine in the cave.

So Cueva del Brinco continues to yield amazing discoveries. In four days of caving we had extended the cave's length from 2.1 kilometers to 3.2 kilometers (making it the 12th longest cave in Mexico) and also increased its depth. Take the air and water flow, add in the likely resurgence 1400 meters lower and I think you can say that Brinco is just beginning.

ATEA RIVER CAVE PUSHED - An Australian expedition to New Guinea led by Mexico veterans Julia James and Neil Montgomery in summer 1976 found fossil passages connecting into the river system, enabling them to survey 2-1/2 miles of the cave. The river passage itself was explored for half a mile but it still continues.

PERUVIAN EXTENSION - A French expedition to the Tarma area of Peru has succeeded in pushing the siphon in Huagapo Cave (see Canadian Caver). They discovered 200m of new passage, adding 33m of depth to the cave.

Destination: Sierra las Alazanas and Cueva los Hundidos, Coahuila
Date: February 10-14, 1977
Persons: Sheila Balsdon, David Honea, Janet Honea, Peter Sprouse, and Terri Treacy
Reported by: Sheila Balsdon

The objective of our trip, besides having fun, was to check several sinks (Hoya la Loba, Hoya Armenia, and Hoya lo Sartenejas) in the Sierra de las Alazanas, near the town of San Antonio de las Alazanas. The town is located about 60 km SE of Saltillo. Driving as far as possible, we parked at an elevation of about 7000 feet. We continued hiking for several hours up an old logging road eventually reaching a high ridge at about 11,000 feet. We camped in the first sink, Hoya la Loba, for two nights. Drinking water was not available on the ridge and had to be brought up from the stream about 1000 feet below.

Although the ridge top is a reasonably developed example of Alpine Karst, no caves were located in any of the sinks. This was most likely due to heavy sedimentation in the sink floors and to the general youth of the development. Frost fracturing seemed to be an important mechanism in the karst development.

One family resides in Hoya la Armenia. Vegetation was typical of high altitude areas and included pine, spruce, and aspen trees. Numerous trees had broken limbs or trunks suggesting a recent heavy snow. On the second afternoon of our stay, it snowed 1-2 inches. The high altitude record for snow frisbee was set at 11,000 feet on February 12. The sunrise on the snow the next morning was spectacular as was a leisurely hike back to the vehicle.

Driving about 15 km S of San Antonio brought us to the vicinity of Cueva los Hundidos. After waiting in the tents for a rain shower to pass, we took the appearance of a brilliant double rainbow as a good omen. A 30 minute hike brought us to the cave. We were not disappointed. The cave is developed in gypsum, the walls and ceiling show beautiful marbling of gray and white bands. The large trunk passage reaches dimensions of as much as 150 feet wide by 30 feet tall, ending in breakdown. The cave was surveyed, with a length of about 500 meters. We returned to the car after an exciting midnight hike through the desert chaparral to the tune of coyote howls.

We drove to Monterrey on Monday, the 14th. After visiting the Cetenal office to purchse maps, we gorged on cabrito and left for the border.

Letter sent May 2 from the French Readers Digest requesting slides of Sotano de las Golondrinas. Interested cavers with slides of Golondrinas should contact them soon.

We are looking for our book "Natural Wonders of the World" for transparencies showing "Sima de las Golondrinas in Mexico." Would you be able to send us a choice of transparencies on the subject or if not could you tell us an address where to make our request? Looking forward to receiving soon your answer.

C. Van Hieu
Documentation Photographique
Selection du Reader's Digest
5 & 7, Avenue Louis Pasteur
92 - Bagneux
FRANCE

HUAUTLA PROLOGUE

To those unfamiliar with the Huautla region before reading this article, I believe it only fair to present a view from the other side of the fence. The Mazatecs have traditionally been one of the most isolationist oriented groups of the post Mayan-Aztec people. The building of the road to Huautla by the Mexican Government threatened their isolation causing severe resentment towards outsiders.

However, the communities within a reasonable distance of the roads soon learned Spanish and their children went to Mexican schools. Hostilities to outsiders eventually diminished in these areas. Unfortunately, new ideas spread at a considerably slower pace in areas not in close proximity to the roads and resentment remains high. The Fissure lies some 2km from the main road in just such an area.

Traditional Indian religion in the Sierra Mazateca applied great significance to caves. They were the portals to the underworld. Accordingly, a man would want to enter a cave for one of two reasons: 1) to commune with the devil or 2) to search for his soul which he had lost in some unfortunate manner.

With this perspective, one might imagine the Mazatec reaction when Huautla became the mushroom capital of the world. Every true hippie within 10,000 miles came to Huautla between 1965-1970 before the federales stopped them by roadblocks at Teotitlan del Camino. Visualize an Indian watching a spaced out hippie eating a live turkey in the town square, as occurred in 1964, and you might understand their further intolerance of gringos. Much of the problem which still plagues cavers in this area were brought about by the Hippie Era. Unfortunately, it was about this time that Russell, Evans, Fish, and other cavers were discovering Huautla.

It is a growing realization that the region is far from finished and that we are faced with the monumental task of reconstructing public relations. The question most often asked of our expedition Christmas was "Why do you do it?" In answer, we printed up 150 four page PR sheets in Spanish with maps and pictures. We explained the purpose of the AMCS in Huautla. In addition, the March expedition has the proper credentials and the outward appearance of a serious exploration team. Anything less would negate whatever progress we made last Christmas.

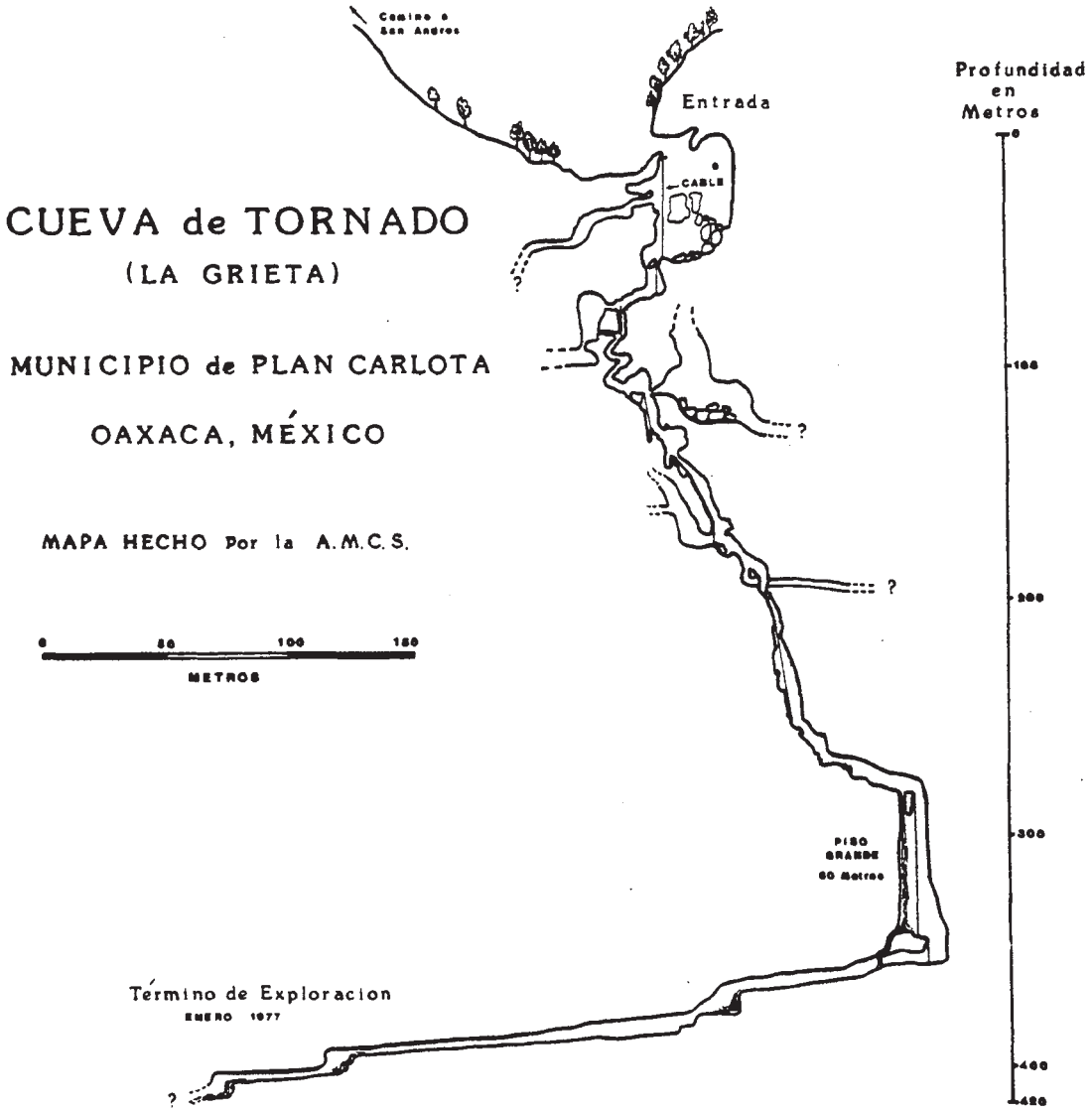
A DAY AT THE FISSURE

by Bill Stone

In December of '76, Frank Binney, Jeff Horowitz, Roy Jameson, Patty Mothes, Alexia Cochrane, and I left Austin for Huautla to connect with Richard Schreiber's crew in pushing Sotano de San Agustin. Schreiber's group had arrived a week before in San Agustin, promptly rented a house, surveyed to the -648m point in the cave, left a major going lead and were preparing to split when we arrived. Don Broussard and Jim Smith decided to join our group as Schreiber's crew pulled out.

We immediately set about warming up and acclimatizing in some smaller area pits and decided to push Don's infamous 'La Grieta,' otherwise known as the 'Fissure.' A description of the cave's notorious history would be proper for providing the correct setting for that which we were about to experience.

The Fissure was located by T.P. Evans in 1965 on one of his preliminary scout trips. In 1969 Don Broussard, David Honea, Meri Fish, and others were exploring down several drops with a limited amount of rope. Don remained topside to watch the rope. Throughout the day, many locals stopped to chat and at no time seemed hostile. The whole scene changed abruptly when one of the locals decided to assert his dominance. After he gave several Mazatec expletives and pointed to the rope, Don decided the situation was getting serious. As he turned to yell into the pit to the group below, a machete flashed, the rope was cut, and ten Mazatecs were sprinting down the trail. Meri Fish, who was climbing out on the rope, fell roughly 5 feet to the first ledge below the entrance. Had she been 10 feet lower on the line, she would have dropped close to 100 feet down the second pitch. Though shaken, no one was seriously injured. Don returned after a 4 mile dash for another rope and they hurriedly exited.



In 1970 a small group returned and mapped to the -400 foot level without incident. But due to further hostilities generated from near San Andres, cavers decided that the Huautla area wasn't worth the hassle at that time, and the Fissure project was scrapped.

So, six years later, we were back in Huautla at the Fissure. We rigged the entrance and Jim, Jeff, and Alexia rappeled in. Surely, the bad local feelings had ebbed we thought. As I was preparing to descend, one of the teenagers in the small group of locals that had gathered asked, "What will you do if someone cuts the rope?" That was all I needed to be convinced we needed a guard. While the others rigged in, I stayed and chatted with the friendly local that happened by. All seemed well.

About mid-afternoon two husky Mazatecs came down the trail with loaded burros. They immediately stopped, stood up belligerently, and said,"What do you think you are doing there?" I gave them my standard AMCS introductory speech. They replied,"Where is your permission?" Since we had only verbal permission from the Presidente of Huautla and had left the consulate papers in San Agustin, I was at a loss to present them with anything. They promptly demanded 50 peses, which is a lot of dinero to produce pitside. Naturally, I had nothing to give them and said so. I was immediately informed that they were going to cut the rope.

Well, I couldn't begin to write down the rash of thoughts going through my head at that moment. Neither of the culprits stood taller than my chest and couldn't have weighed more than 110 lbs. each. I convinced myself that both could be flipped into the cornfield if anything was seriously threatened. Nonetheless, that was to be a last resort as 20 peasants were watching from the far trail. In the meantime, one of the two was scrambling to untie or cut the rope, while the other was attempting to throw a noose over my head or whip me with his short rope.

About this time, they threw my pack into the pit. Visualizing my <u>last</u> Justrite lamp smashed to bits was the last straw. Apparently realizing this, they snatched a 10m rope and ran like hell. I chased them 30 meters and gave up. Through all this the rope didn't get cut or thrown in.

Had our problems ended then, it would have made an interesting campfire story. Two hours later, four somewhat smaller Mazatecs arrived and said the Presidente wanted to see me immediately. They didn't seem too hostile and I convinced them to wait an hour. Finally I heard Jim's voice below. All were up shortly and we had a quick conference. It was decided that Jim and Jeff would take all the gear and entrance rope and head for the house with instructions to contact the Huautla police if Alexia and I weren't back by morning. Alexia and I then hiked to Plan Carlota, arriving in a courtyard as darkness fell. One man produced a set of keys and unlocked a small door. Alexia looked at me and we both decided we weren't going in there until the Presidente had entered.

Shortly the political entourage came and all entered the small room whereupon a candle was lit and the kangaroo court convened. An old man read an official letter stating that all hippies in the region, especially those possessing such "cosas ilictas" as marijuana and hongas (psilcybin) were to be hassled and could be fined up to 1000 pesos and imprisoned. They then demanded 500 pesos! The situation was serious as they spoke very little Spanish but were making the case clear that if we had nothing of value we would spend some time getting acquainted with their jail. They even went as far as to suggest Alexia provide some "services" for the Presidente. We stated our case for about an hour and for some reason (Christmas Eve, Belief, Boredom? ?) they let us go after we promised to return the next day and pay the 500 pesos. We hiked back to the house and a heavy conference insued. There was too much equipment to abandon the Fissure, as it was left rigged, so it was decided to pull a political power play.

The next morning Francisco "Kissinger" (alias Frank Binney) met with the Presidente of Huautla armed with a leisure suit, a briefcase, and 2 copies of Inside Earth. Four letters were procured, addressed to the towns surrounding San Agustin. The letter to the "agente" of Plan Carlota was direct and explicit: These scientific technicians are not to be hassled and it is your responsibility to see that their work continues with no further obstruction. Frank and I hiked out to Plan Carlota where the edict was read aloud both in Spanish and Mazatec. The liason apologized for the hassle and the rope rip-off and said we were free to visit the cave. No money was exchanged, although we did give the Presidente a bottle of brandy.

In much higher spirits, we returned to San Agustin thinking that the matter had been settled. The Fissure was entered and pushed to -420m and still going. Activity was then switched to Sotano de San Agustin, leaving Roy, Patty, and Jeff to return to the Fissure to finish the survey and left no guard at the entrance save the bolt with chock backup we had set 3m below the lip. The first person up the drop was very consternated to find the rope cut just above the bolt, while in the cave, and the chock missing too! The locals were plainly not to be trusted. (Between skirmishes we did manage to push San Agustin to -2625 ft)

EPILOGUE

Eight cavers and one rider left Austin for southern Mexico on May 14th in Bill Stone's truck, "The Bozo Bus". They plan to spend three to four weeks in Mexico, first in the Huautla Area checking the Fissure, then moving north to near Zoquitlan to explore two poentially deep river caves. The cavers are: Bill Stone, Bill Steele, Cindy Coeburn, Cathy Roundtree Jeff Horowitz, Steve Zeeman, Ernie Garza, and Terry Johnson, along with Cindy who is riding part way down.

BRITISH MAP ECUADOR'S LONGEST AND DEEPEST - A July, 1976, British Army expedition set off to investigate Cueva de los Tayos in southeastern Ecuador. The cave was reputed by Eric von Danekin in his book "Gold of the Gods" to have been created by extraterrestrial beings, as evidenced by the rectangular passage cross sections. The group of civilian cavers and scientists that entered the cave found no evidence to support his claim -- the rectangular passage being formed in thin bedded, well-jointed limestone. Archeological materials were found near the entrance, identified as Pacific Coast materials about 3500 years old. The cave itself is quite extensive -- surveying showed it to be 4.9km long and 186m deep. Along on the expedition was American Neil Armstrong, the first man on the moon, who got in his first taste of caving. Perhaps he would like to go to Mexico?

from BCRA Bulletin 14

SUMIDERO YOCHIB

by Bill Steele

Blake Harrison's caver truck, the "Hog of Steel," pulled out of Kirkwood on March 4 occupied by Blake, Jill Dorman, Joe Lieberz, Carmen Soileau, Mike Van Note, Jim Smith, and myself. A 55-hour through drive netted the crew the desired rendez-vous date in Yochib village, north of San Cristobal las Casas, Chiapas, Mexico.

Mike Boon and Wes Davis from Calgary, Alberta, had been at Yochib for three weeks prior to our arrival. They worked on rigging the cave in preparation for the expected large turnout of AMCS cavers intent on finishing off the cave. This was the fifth expedition to Yochib.

Sumidero Yochib is an intelligent cave. Each step one takes in it must be calculated and confident. The water that flows in the entrance has been estimated at 40 cfs during its lowest ebb, enough to never allow swimming upstream against the flow, but enough to allow strong deep water that can pull the unwary over an edge.

Joining us when we arrived at Yochib were Norm Pace, Jean Jancewicz, Warren Anderson, and Chris Albers from Colorado. During the time spent preparing gear and settling into a camp, Wil Howie from Mississippi and Gareth Davis from Wales joined us, bringing our number to fifteen persons.

The Canadians had rigged to the drop prior to Camp I. Boon and Wes had had a rough time of it entering with duffle after duffle of tackle necessary to rig this vertical river cave. Some things had changed. Beneath the first drop where we had swum a choppy lake the year before, now we could wade chest deep rough water guided by a rope. The long canal soon after this lake was waded through in '76, now it was over one's head, requiring a 75m rope rigged to exit this trough.

Along in Boon's gear was a phone line he had picked up to install to a prospective Camp II at the terminus of previous exploration. This consisted of one mile of wire on a foot diameter spool, two phones, and a six-volt battery power source. The two riggers had brought the line to the end of the 75m canal. It was felt by Boon that it wouldn't be feasible to camp underground without daily word from the surface as to what the rain prospects were apt to be.

The first day of cave entry by AMCSers saw three separate groups entering with the purpose in mind of securing both traverse rigging and phone lines all the way to a speculative camp II on some flowstone deep in the cave. Hammocks were taken in to be strung. The camping team was to be Gareth Davis, Howie, and Boon. Four days was to be the length of their intended stay.

The initial rigging team consisted of Van Note, Jancewicz, Smith, Howie, and myself. Boon's desire had been for us to rig down to a Camp II, taking all gear found on the way with us. This turned out to be too much to handle. By the time we had reached Camp I, we had more gear than we could carry, let alone swim and maneuver. At Camp I, we deliberated and concluded that we should take only gear we knew to be needed to get to Camp II, leaving the campers to carry their own gear down or camp at Camp I if the rigging wasn't completed. The phone line was being brought into Camp I by Soileau, Anderson, Albers, and Pace. Beyond Camp I, Boon, Davis, and Davis were going to carry on with it to Camp II.

From Camp I we headed down rigging into Bad Dreams. We found here that the rocks we had stepped on previously to cross the river were gone and the water deep. For moments it seemed we would need to cross way above and bolt downwards. Van Note saved the occasion with a superb dive on gang belay by four ready haulers. The wave he caught took him into a cul-de-sac where he

could scamper up a wedged log and lead climb to a bolt on the other side. We rigged a 22m tyrolean traverse and avoided the floor thereafter in this spot.

Given the obstacle in Bad Dreams and the awesomeness of the first visit to such a cave by four of our five, we made it not to Camp II but to a point three pitches short of it. The camping team chose therein to stay at Camp I and work from there. Leaving Howie there, we exited the cave in time to hear the horror story of Pace being swept over a waterfall. He was alright, but for a time his comrades had felt certain he was drowned as they gazed at his unmoving electric downstream beneath a falls.

The following day those on the surface stayed there. It was assumed that the undergrounders would rig on to Camp II, so given two days, Jancewicz, Smith, and I entered prepared to camp as well. We carried rucksacks containing all of our own sleeping bags, food, clothes, stoves: self-contained. Upon getting to Camp I we learned that those in the dark had only succeeded in getting one trip in from there and had rigged on three drops and two canals to Camp II. After three days they were burned, ready for exit. Smith went out too, leaving Jancewicz and me to mind camp in the large lake chamber of Camp I. Twenty-four hours passed before we awoke to the whoops of Van Note and Smith entering for a push. They were fed and tended to in the homeiness of our flowstone perch. I joined them then, and we headed in for what we anticipated to be an enjoyable, highly technical bit of exploration.

It was a long one. Down across the tyrolean, rappelling, swimming, traversing, hauling. At the top of Froth Pot we encountered new cave and set about in the slow reasoned approach to descending a drop where so much water pours. It took two bolts, a pendulum cast off from an unseen boulder beneath a waterfall, and just the right projection to grab. We were hot and finding large majestic cave. It went; wind, water, passage.

Beyond a couple of swims and rigged cascade downclimbs, the river narrowed to a roaring gorge. We bypassed a couple of falls in an overflow with deep clear pools. The descending water narrowed more and we ascended the wall on the right, staying high. They were all lead climbs, three lead climbers one after another where you don't dare fall. On one flush wall climb where our lamps cast downward could just light the foam of white below, we thought of who may follow on later trips and rigged a long line for a hand safety. We also had to return.

Eventually our exploration led us down to near river level once again. We had rigged what we had to and were down to one ladder and one rope. Our looks at the river showed the water slowly running to a wall and flowing beneath with no apparent air space. The ladder was dropped to water level and Jim descended on the end of our final rope. He had an innertube for safety and we payed out the line as he called for it. "One foot of air space," he reported as the current pulled and he disappeared. We fed him the line as his calls for rope kept up. Soon he was a loud shout away but it seemed to be an echoy one. In what was only moments Smith returned with a beaming smile. "Big cave, come on." Van Note and I entered the water and pulled ourselves through the duck to what could have been the outdoors for all the ceiling told us.

I climbed up to the left, coating my soaked wetsuit with fine sand. The others took to the right wall. We walked away from each other for moments, then followed a curving wall downstream. The passage was at least 80m wide and certainly half as high. High on the walls we could see large white columns standing like supports. The room was silent. For the first time in Yochib there was no shouting for the least communication. The river calmed and ran level amidst large breakdown in the middle of the chamber. We walked the perimeter of the room and curved around to join each other at the far end. The river ended here at a rather large, 10m wide, deep sump; Yochib's end. Logs were all about on the shore of the sump. The water idled, benighly moving toward the wall with motion hard to detect. I climbed around to look along the wall the water ran benaath and spotted my canteen that had avoided my grasp a year before. It bobbed in the slight current here at the sump end of the cave.

Boon's feeling had been that convection currents brought rains in late afternoon making that period one to avoid for caving. We had planned on heading back to Camp I by 11A.M. but given the final room had stretched this time to 1 P.M. before we headed back up. The going was smooth though quite wearisome to pull oneself up against the fierce currents and across the tyrolean traverse.

Jean had been occupying Camp I during our absence. On my advice, she had not joined us exploring into Yochib. Instead, she had spent nearly fifteen hours in camp alone, feeling out the darkness. For hours on end during this time her ear had been against the receiver of the Camp I phone in hopes of voices from the entrance. Times had been scheduled for phone transmission but all failed due to the one underground wrist watch having not been wound by the first camping crew and the light bulb pager on the phone line not working.

Smith and Van Note exited in a procession that was an entertaining show to view from the elevated perch of Camp I. First, they scampered far below across breakdown to the shore of the lake. Crossing this, they climbed a ladder on the far side, 70m away, and then lit a throbbing waterfall going upstream. For a half hour their lights rhythmically receded upstream, climbing, swimming, leaping -- then the two of us were alone.

In the course of the following 24 hour period we were visited by two pairs of cavers passing through trying their hand at seeing a bit of Yochib, now that it was rigged. Both of these pairs made it only to Bad Dreams below Camp I and decided independently that a guide was a necessity, even given a rigged cave.

Word was sent out for surveying equipment to be brought in and those interested in photographing below to come in as well. The following day our camp solitude was pierced by the calls of several approaching cavers. It turned out to be all those from the surface that felt they wanted to see the whole cave. As the group filed into our flowstone home, I saw Liebera, Boon, Howie, Soileau, and Cavanagh. We joined them in wetsuits, gave them a headstart, then traversed downstream to catch them. Coming up behind them right before Froth Pot, I was able to explain the rigging and necessary moves coming up in the cave only three of us had seen before. Fairly smoothly, the 250 meters of recently explored cave was traversed by our party of seven, to the large sump chamber. Here we spread out and thoroughly checked out the final grandeur of Sumidero Yochib, converging on the sump. The idea was to survey the perimeter of the large sala, beginning at the sump, circling to the sump, then heading up river.

This idea was thwarted given an undamped Suuanto. Jean and I began the lead out while Lieberz, Howie, and Boon slowed themselves by photographing along the way. All went smoothly through the new cave but concern was in the air about the violent canals still above us, both before and after the drop named "the Stinger." While moving one at a time upstream toward the base of "the Stinger," Soileau ran into difficulty with the rigging, catching her gear at a most inopportune spot. Standing waves threw her about, knocking her helmet back, cowboy riding style. With one inhalation of water, she began to sink with the look of drowning on her face. She was given enough assistance to make it on through the canal. The call was too close to accept and had left Carmen fatigued. On upwards to Camp I, she was belayed in any tight spot as our tattered crew gained in elevation. Camp I still had plenty of provisions so Carmen chose to hold up there, watching all the rest of us leave the cave in procession.

The following day Boon and Gareth Davis entered on a "mission of mercy," bringing the over-extended Soileau to the surface. We were all together now, the cave was rigged all the way to the sump, and a large portion still remained to be surveyed. Smith, Van Note, and Harrison spoke up and headed in. In the course of an 18 hour trip they surveyed all the new cave of 1977, finishing the survey of Sumidero Yochib. They also derigged all the way to Parachute Corner.

Derigging remained. Two teams were decided upon, entering the cave hours apart. Lieberz volunteered to be independent, derigging the phone line from Camp I out the entrance. Pace, Van Note, Howie, Jancewicz, and I headed in first to derig below Camp I. Two duffles awaited us where we began upwards movement. It took us five hours to get our accumulating gear and rope coils up to Camp I. Here, we weren't met by the second group so we broke and cleaned up Camp I, then continued. Before reaching Fool's Falls, we were met by the second group of Dorman, Harrison, Liebman, and Wes Davis. Efficiently and safely we derigged out from there, ending at the entrance with five full duffle bags of equipment. Yochib had been explored to the end, ending five separate expeditions to explore the cave. The survey was completed and the cave derigged. No one had suffered any injuries but not to say scares hadn't been experienced.

EPILOGUE Rigging Sumidero Yochib in 1977, we had 27 vertical rope pitches, 23 rigged canal lines, and 11 ladder pitches. Ladders were used with ropes alongside for self-belay or no rope in the case of ladder pitches where pools below eliminated the danger of falling. We had no ladder mishaps but did have two ladder peels due to fatigued arms. Michael Boon, a caver of international experience, twenty some odd years of caving, and a veteran of every trip to Yochib, announced that he never wanted to tackle another like it. His feeling was that it was the most technical cave, requiring the most caution and thought of any cave in his repertoire. The Canadian Caver has published accounts of the exploration of Yochib as it has happened, and will be publishing the completed map in the near future.

An excerpt from a letter from Mark Stock to Bill Mixon. Reprinted from the Windy City Speleonews, Volume 17, April 1977.

Last December I went to Sotano de San Agustin with Richard Schreiber, Jim Smith, Steve Knutson, Don Broussard, E.T. Davis, and Phil O'dell. The first day we rigged down to about the -1250 foot level. The next day we got to Schreiber's lead (he had been there with some Canadians several years earlier) at the -1850 foot level. While Jim and Richard were looking at Richard's lead, I found an obvious route through the breakdown, which went to a passage going downstream. I worked my way back to the others, who then started on the route I had found. We only got about 500 feet further because we ran out of rope after two drops.

We had a day of rest, then E.T., Jim, Steve, Richard, and I took several more ropes down to continue. Since we had more than enough people for a mapping crew it was decided to have a two-person push crew. Steve and E.T. volunteered to be surveyors, while the three obnoxious bastards (Richard, Jim, and I) were forced to flip coins to see which of us would be stuck surveying. I lost. After a couple of hours of surveying (the passage was narrow and sinuous), we heard Jim and Richard. They came back reporting having found a huge lake which was a terminal siphon. Richard took my place on the survey crew so I could snoop out the lake. Jim carried the extra ropes back to Richard's old lead. I followed the passage down to the lake and swam across it. It's kind of wierd swimming across a large underground lake when you're solo. When I got to the other side (only about 100 feet, actually), I started poking around in the breakdown. After about 45 frustrating minutes worth of dead ends, I found a way through. I got into a 15 foot wide, 40 foot high passage with four times the amount of water that we had seen in the stream at any other point in the cave. I progressed downstream, lowering myself on the lips of pot holes. I reached a point, about 20 vertical feet below the lake, where I wasn't sure I could make it back. That is where I wimped out. The field calculated elevation of the surface of the lake was -2150 feet.

After a day's rest, we derigged the cave. Richard wanted to leave Huautla a bit early because he wasn't sure that he could get his van out on the horrible roads. When we arrived back at the surface, we found that a group of Texans had arrived.

Our group, except Jim Smith, left the next day. Bill Stone drove his monstrous truck back with the van to help pull Richard out of mud holes. His help was both necessary and appreciated.

After we left, Jim, Bill Stone, Frank Binney, and Roy Jameson re-rigged San Agustin and pushed the route I had found. They reported huge borehole passage with much water. At the end of what they found, there was a fissure taking three times as much water as I had seen. At this point they wimped out (at least I don't think that they were out of rope). They claim that the surveyed depth of San Agustin is now over 2500 feet, but then that may have to be rounded downward knowing the Texas exaggeration factor. The cave was definitely continuing at that point, but drier weather would make things more pleasant. There is a very good chance of connecting in higher entrances, perhaps as much as 1000 feet higher. Supposedly, the cave can go 1500 feet deeper as well. Maybe North America will finally have something to match Europe !

Mark Stock

NEW YEAR'S DAY IN SAN AGUSTIN

On the afternoon of December 27, Shela and Tracy Johnson and Gary Stiles arrived from Acatlan. Activity was shifted from the fissure to San Agustin and many discussions were held concerning the various aspects of the base camp and the assault plan. After a days rest and rope sorting Gary, Jim, and I rigged down 15 pitches to Camp II at -530 meters. The round trip took only 7 hours and was especially delightful to Gary and I who hadn't before seen those magnificent waterfall pitches in the fissure passage.

The next day was a rest day and menus for the push crew were planned for the main assault. By 3:00 P.M. December 30 all was ready. Laden with monstrous duffle bags of equipment, rope, and food, our supply train descended. Frank, Roy, Jim, and I comprised the push crew, while Alex, Jeff, Patty, and Gary the support team. What had been a delight to negotiate on the rigging trip became an obstacle course with our bulky gear sacks. Most of us rappelled with the duffle slung off a two meter teather attached to the rack. Even so the unbalance was annoying, especially on the tyroleans. Land ho! We soon arrived at Camp II -- a 6 by 12 meter spacious flat sand bank elevated several meters above the cobble floor. The passage was perhaps 15 meters wide and 20 high. Nearby the roaring water from the fissure dropped through the floor into the canal leading to the 2009' level. After some hot tang, the support crew bid adieu and head out. We would not see them again for 3 days, if all went according to plan, at which time they would bring an additional 2 day's food and more rope. We then set about the task of housekeeping at -530 meters. Home sweet hole! Since we had been up for a considerable time we decided to take a sleep shift and begin work the next day (night?). No one had a watch so this was bound to be an interesting experiment. There was little to do around our cook rock except eat and sip an occasional capful of New Year's cheer (Aguardiente), so when that was done, we crashed.

I awoke first to the persistant roar of the waterfall and the green glow of the cool-lite marking the bog (our outhouse). Discretely firing up a carbide lamp, since I really had no idea if I'd slept 5 hours or 15 hours, I commenced work on my ratty Nam boots with a knife and a sewing awl. Oh, yes, another thing we learned...even the fine citizens of San Agustin will appropriate the shirt off your back -- while you're still in it! After many warnings from Epifonio (our landlord) to lock things up, we still hadn't learned. As a result, my new pair of Nam boots disappeared from the doorway they were drying in, the day before the push. All I had left were soles and uppers (not really in one piece) of my veteran Montana boots. Two hours later they were almost serviceable.

After breakfast we crawled into our slimy, cold wetsuits amid many expletives and bounced down the passage with all the rope we could carry. In short order, we had rigged to the 2125 level and swam across the lake. Not really knowing where Mark had gone, we split up. Jim and Frank went through the dry breakdown while Roy and I swam several canals and arrived at the same place. A powerful waterfall was audible in the distance. This had to be it. Thirty meters of raunchy breakdown crawling and we arrived at the gorge. I cannot use enough superlatives to describe this magnificent passage. Fifteen cusecs of water thundering down a six meter wide thirty meter high passage. The multicolored walls were perfectly smooth, polished like lab specimens. The pools were aquamarine blue and crystal clear. Wherever a handhold or tie off was needed there was always a sculptured solution hole. Beautiful cascades and sporting free climbs added to the excitement. On one pitch, the grand cascade, the water arched out 5-6 meters into a 15 meter void. An exciting tyrolean along the side of

the falls had to be done with electric lights due to the high wind. After an endless series of climbs, cascades, and swims the passage enlarged to 30 meters by 15 meters. Another 30 meter swim and we arrived at a major junction -- 30 meter X 30 meter passage -- going both directions -- with a minor river in the down dip direction and a dry fossil river passage going up. We followed the river for 300 meters to a narrow canyon. Another 8 meter pitch and we're looking at the most sporting drop we'd seen yet. An additional 15 cusec stream came roaring out of the right wall and plunged into the pit adding its fury to the white water from the main stream. Sporting indeed! Jim volunteered to check it. With some difficulty he reached a ledge over-looking the next pitch -- nothing but blackness and spray. How deep? Maybe 10 meters -- maybe 100. At any rate, considering all the factors we decided to stop there and begin surveying. Later calculations showed this point to be about 800 meters down (2625'). We established a permanent station some 30 meters above this point and commenced surveying out. We stopped shortly to check out an immense side room. Leading up from the main passage, it was up to 120 meters wide in places, perhaps 30-50 meters high. We barely scratched it in over 20 minutes, but checked it enough to ascertain that it would serve us well as Camp III, should it be needed. After 10 more stations the survey was aborted. Judging from our carbide supply we had been at it for over 20 hours and split for camp. A fine sight indeed. What a joy to shuck those wetsuits for some nice dry jeans and a wool sweater. After a fine dinner and more Aquardiente (we figured it was New Year's Eve), the sand seemed far more comfortable than our first night.

The next morning I was at it again with the boots and several packs also needed sewing. Between sewing and sipping, it became apparent that no one really wanted to go caving and a rest day was declared. After half the Aguardiente was consumed we went about a lazy-crazy photo trip -- down route '68. How brave. A lazy trip at -1800' !

The next day Frank decided to remain at camp to welcome the support team. The rest of us surveyed in from the 2125' level and connected the two surveys. We decided we could best utilize our free time then to scout for a dry bypass to the main canyon rather than attempt a frontal assault. The left hand trunk passage was more complex than we expected. We walked up several hundred meters of one branch of it till we hit a stream. Jim and I followed this for 200 meters or so to a sump. We swam through all sorts of interesting portals and ducks, but no leads were to be found. All the passage in this section was just as finely polished and multicolored as in the gorge, but seemed more recent. All the edges were razor sharp in contrast to the rounded knobs in the gorge. Another side passage off this stream connected us back into the trunk. Amazing. Well over a kilometer of virgin cave, with no doubt much more if we had continued in the main trunk. Downstream, we found where the additional waterfall originated. A short side passage led to a large stream resurgence, perhaps a pirated portion of the main stream. We followed this to where it dumped into the final drop, so it looked like no dry bypass was in order. After roughly 16 hours we returned to camp. The support crew had made their scheduled supply run almost a day late, leaving us with two more days food and 300' of rope. However, upon inspecting our carbide supply we found it to be dangerously low. There was not enough left, even with our nicad packs to risk another survey trip. Thus, this small oversight along with ebbing enthusiasm led to the decision to leave the following morning. Frank and Roy started after breakfast while Jim and I cleaned up camp. Two hours

later Jim and I began the long climb. Ascending with those soaked duffle bags proved to be even worse sporting than rappelling with them. I became so overheated on the 200' pitch that I shucked my wetsuit top for the rest of the trip. At each ledge we coiled the ropes to keep them out of the driving waterfalls. Thus, the cave was left pre-rigged with cut to length ropes below the 800' level to await the return expedition. All rope above the Canadian camp was derigged. A full moon was shining in the entrance when we finally exited. Topside we heard familiar voices: Blake Harrison and Jill Dorman, who had arrived from Acatlan the day before, had seen lights in the sinkhole and came down to help. A party soon commenced back at the house. After several hours of swapping stories we faded off to a well-earned nights sleep.

The rest of the trip was understandably anticlimactic. The fissure was finally derigged by Jeff, Gary, Blake, Dave Kramer, and Dan Watson. Several days of scouting netted few going holes and a general impression that anywhere outside a 1/2 mile radius of San Agustin was hostile territory. An overland survey connecting Sotano del Rio Iglesia, Sotano de San Agustin, Cueva de San Agustin, and Deer Cave was completed. Deer Cave (Cueva de los Pajaros) was located by Frank Binney on one of the early day hikes and proved to have more paleontological significance than depth potential. Numerous skeletons of what appear to be a large deer were found at several locations, well within the cave. How they survived three drops to reach the big room at the bottom was not readily apparent.

An exciting day was spent fixing the Bozo Bus springs as most all of them on the left side had broken during our many shuttles to Huautla and back. After another day of packing our small convoy of one overloaded VW bus and one crippled truck left Huautla. Within 5 miles we had broken more rear springs. Things were looking grim. We loaded 3 more people from the truck to the van and continued at a slow pace. The two remaining springs miraculously held. Again we figured we just might make it. Then Dan smashed his oil filter on a rock. With the bus now out of commission the only way to continue was for the truck to tow it. And tow we did. By all rights both vehicles should still be on that road, but we somehow made it all the way to Tehuacan, a spring shop and a VW dealer.

Bill Stone

Remember the 1978 NSS Convention is near Mexico. Many of the Mexican cave areas are high in the mountains and cool in the summer, so make plans for a summer trip in 78.

THE FORBIDDEN LAND.....RETURN TO HUAUTLA

by Bill Steele

The revisit to San Agustin at Christmas time by AMCS'ers and others from the USA showed that indeed the deepest known cave in the Western Hemisphere was deeper. Georgia's Richard Schreiber had in mind ever since the 1968 survey party he was on, the lead high at the end of the large walking passage taking off at -536 meters. When his team once again entered the Huautla area, rigged down to this lead and began poking around, they found going cave dropping mas abajo. Schreiber's Christmas crew was replaced upon leaving by Stone and company from Austin. This crew camped in Camp II at -536 meters, exploring downward through a gorge named the Cascada Grande. They found some large chambers going off at -750 meters. These leads remained as well as the enticing downstream pit lead that they gazed down beyond these side leads in the main stream passage.

The Chancho de Acero's (Hog of Steel) crew consisted of Blake Harrison, Mike Van Note, Jean Jancewicz, Bill Steele, Jill Dorman, and Jim Smith when we arrived at San Agustin one day prior to our rendez-vous date of 25 March. Our meeting was to be with Richard Schreiber's crew consisting of he, Marion Smith, Steve Knutson, Gerald Moni, Warren Heller, and Don Broussard. This group had arrived two days earlier, 22 March.

On the evening we arrived, only Knutson and Gerald Moni were at the rented house standing on the south edge of the large doline of San Agustin. The others were underground, rigging and hauling in camping and food supplies for a planned five day stay at Camp II. They all exited mid-evening after having gotten their things to the -400m level.

Early next day found those of our crew that had never before seen the Huautla area in astonishment at the scenery. Dolines couldn't be that big. The only flatness to be found were the floors indoors. Water? Oh, just go by the church and take the trail down to the entrance of Rio Iglesia, only 175m vertically downhill.

Schreiber and Heller entered San Agustin late in the day of March 25 planning on taking their food on down to Camp II, beginning the camp stay. After nightfall they returned to camp stating their psyche's hadn't been ready so they exited to try again another day.

The six of us from the Hog were as a majority feeling ill. Three weeks into high powered caving, we were suffering from far reaching ailments of cuts and abrasions, sore throats, TP consumption, trashed gear, love triangles, and road weariness. Slowly we sewed up packs and wetsuits, boots and harnesses, charged up batteries, packed up food, and attached shoulder pads to duffle bags. The earlier arrivals were ready to go so on 26 March, a Saturday, Marion Smith, Gerald Moni, and Warren Heller entered to carry on down to Camp II. The following day, 27 March, saw Schreiber, Knutson, and Broussard enter.

The Hog crew was alone. All were ready to go in as well on the 27th except for Van Note. He had injured his ankle while swimming in some rapids and asked for an additional day for regrowth. Early on 28 March the six of us that had come from Chiapas were ready to go into San Agustin. A note was left inside the window of the Hog for Liebman's truckload coming in an unknown numbers of days. It stipulated how to enter the rented abode, what we were up to, and that they should prepare their gear for an underground stay. The note was left on a Monday stating we would exit at latest on Friday and they should wait for word on what was happening exploration wise.

Our group of six intended on rappelling down with camping provisions for five days, going past Camp II, and establishing a Camp III in the Sala Grande de la Sierra Mazateca at -750m. This was quite an undertaking considering that this was much deeper than any of us besides Jim Smith had ever before been. Things went smoothly, descending. Jim Smith led the way following by Jancewicz, Steele, Dorman, Harrison, and Van Note.

At -400m we encountered a tricky maneuver at the base of the last drop in the fissure series. Smith stayed to advise all what to do so Steele led on down the 318' to keep momentum flowing. While Jancewicz was coming down the 318, Harrison suffered an injurious fall at the tricky maneuver preceding the drop. Confusion ensued due to the impossibility of communicating up and down the pit. Not realizing anything other than a delay was happening, Steele and Jancewicz went on down to Camp II to wait there for the other four. Up top at the 318, things were hectic. Harrison's fall dropped him to eight meters. At first diagnosis it was felt he had a possibly fractured collar bone, pelvis, fingers, and skull. He was given to bouts of delirium. Seeing his condition, Dorman became hysterical and the decision was made for Smith to ac company her topside and return with a packframe to support the injured Harrison. Those below had no idea of these incidents.

Upon reaching the surface, Smith found that Liebman's truck had arrived giving enough personnel to manage a rescue. In the ensuing 31 hours, Lieberz, Liebman, Cavanaugh, Smith, and Van Note rescued Harrison from -400m and got him to the hospital in Huautla. It turned out he had only a broken finger, cracked rib, and general soreness. This is the deepest rescue accomplished outside Europe.

When Jancewicz and I arrived at Camp II we found it empty of cavers. All were on a trip deeper. We waited beneath a space blanket four hours for our teammates, finally assuming a minor accident had occurred and they were assisting someone. It seemed minor because there were only four of them, no one on the surface, and eight of us below for assistance. We bedded down in Camp II, anticipating the others to come back the following day.

Well into a night's sleep, Schreiber's crew returned from below. My question as to what they found netted only a sump for reply. They'd gone two additional drops and had hit deep water with no outlet. Schreiber, Moni, and M. Smith had done this while Knutson, Broussard, and Heller had surveyed in another area near the bottom. There were still leads but the report was that the cave appeared to be bottomed. On the day before this trip, Sunday, Heller had led the climb at the end of Camino '68 and the crew had found three drops and a long breakdown slope led to the lake leading on below. The torturous breakdown down-crawl that Mark Stock had pioneered and had led to the lake area at Christmas time had been bypassed. This good news was greatly outweighed by the sump news.

Still, no one from the surface. A full day had passed. Jancewicz and I decided to head up the 175 meters to the top of the 318 for provisions from the others' packs, if there, and perhaps to piece together what had happened. I arrived there first and began to notice clues. First, Smith's pack lay there with items on the ground as if he'd dug into it swiftly. Dorman's pack was unopened. Climbing along the traverse to the bottom of the next pitch, I saw a spent carbide trail. It wasn't a powder streak, but spots here and there, good carbide that had been spent from moisture;

a pack had fallen and spilled out its contents. Leaning out and looking far below, some eight meters, I spied a pack frame. Climbing down to see it closer, I came upon the scene. Blake's pack, a full duffle bag, lay unopened. Van Note's had been emptied in haste, the contents damp and strewn about. A shirt with small blood stains below the nape of the neck was there. Then, Harrison's vertical gear. He was hurt. He hadn't gotten himself out of the cave. But how? The packframe had a name label on it with Bill Liebman's name. Odd. How had he gotten there? Why hadn't they come for us? How badly was Harrison injured? There was no note to be found. We were 400 meters below the entrance, the accident was 28 hours past, and we had not expressed any plans to leave the cave with those at Camp II. We were only to get what we needed and go back down. It felt like grave robbing to go through Blake's duffle bag.

In Camp II, speculation ran rampant. Why, how, and how badly? Someone will be in tomorrow. Maybe we should exit. Who wants to cave? We bedded down for another night hoping to see some surface people upon waking. Waking up brought us to the 30th. The plan for the day was for all people in Camp II to go to the bottom area. Dividing into two groups, one group would continue the survey to the sump found on the last trip, the other would go into the left hand trunk passage and survey it and side leads.

In the bottom area the left hand trunk was surveyed into by Schreiber, M. Smith, and Moni. Marion's underground journal entry reads:

> Richard, Gerald, and I mapped c 1590-1800 feet in branching borehole passages to the left as you go into the cave. We also followed an incoming stream a ways until we encountered some very steep climb-ups. We mapped several side leads off this main left branch. At survey station S44 Knutson's Suuanto compass got too cloudy to read. Finally, at 7:10 P.M. we headed to Camp II.

Broussard, Knutson, Jancewicz and I took the survey to the sump, plumbing its 29 foot depth as our last survey point. I climbed into a tight chimney type fissure for over 30m above the sump but found no way beyond. We then began a survey upstream a ways into the Sala Grande de la Sierra Mazateca. Broussard led the way up into the void of this gigantic room and we followed with the survey. It was immense. We stayed on the left wall deciding to survey around the perimeter to do it justice. The floor was a steep average of 25 degrees. Don could be seen way above as a shrinking form. The ceiling of this passage continued at the same angle above a 22 meter high crumbly dirt wall that ceased our advance. At the top of this wall the passage appeared to continue on. I attempted the climb, getting halfway up to a committment move and backed down. It would take long mud pitons -- maybe made of re-bar to aid the climb up.

Our survey down-climbed the opposite wall heading for a side room containing a waterfall descending from the ceiling. We ended our survey

here and poked around for leads. This could very well have been the last trip into the area so we wanted to make sure of all possibilities. Jancewicz and I followed the stream into breakdown below the waterfall, finding a gorgeous passage adorned with banded swirls of stone and solutioned flowstone. The others had said we had a half hour to check it, so we explored to our dissatisfaction, vowing to return and survey.

Arriving in Camp II on the heels of the other party, we learned that Heller had left a note stating he was exiting, heading home to Boston. We hadn't realized he was doing so. Marion writes of the next morning:

> Don soon came, aroused our camp, and said he and Steve were leaving. At c 11:15 Gerald said he was also leaving. So those who were planning to leave slowly packed. Gerald started first with Richard. Richard was planning to take some ropes to the top of the 318 and get some canned goods and return to camp. By about 2 P.M. Don and Steve had gone also. I shot the breeze in camp with Bill and Jean eating gorp. At 3:30 P.M. Richard returned to camp saying, "People we have a serious problem," meaning that apparently Heller had pulled his pack up the 318 and that the rope did not get back down! We were trapped until someone from the surface came in. Richard had freeclimbed maybe 50' up and didn't even see the rope. Also he swam the pool at the bottom looking for the rope. Don and Steve took quite a look also. Soon everyone was back in camp -- all seven of us at Camp II. The situation was compounded by the fact that today Don had taken his last insulin shot. The whole trip seemed to be quite strange and uncoordinated, especially because we don't know what's going on on the surface, how badly Blake was hurt, and it or when wnyone would come into the cave. Don said that tomorrow he'll start feeling the effects of having no insulin and after three days probably wouldn't be able to get out on his own. The group immediately elected to watch food consumption more closely.

The following day, April Fool's Day, we awoke with endless speculation about what to expect from the surface. My note (Steele) left when we entered the cave had stated that at latest we would exit on this day. Heller however who had exited two days before knew there was plenty of food at the top of the 318, left by the accident crew. It was of course out of reach for it was at the top of the ropeless pit. A trip to the bottom was decided upon. Jancewicz, M. Smith, Schreiber, and I took three hours from Camp II to where we carried on in the left hand trunk area at -750m. Three leads were finished off including the downstream tributary that ended at a sump. From here we took to the waterfall passage off the Sala Grande de la Sierra Mazateca and began a survey into it. The survey led to a very wet pit that had been overlooked on the probling trip Jean and I had taken into the passage. We elected to return to the large room above to get the Samson 2 in 1 that was there and see what happened below. Marion writes:

> We retraced our steps to the new pit (I carried the rope) and surveyed down it. I was first down, followed by Bill, Richard, and Jean. It was quite wet and was followed 40' later by a slope (rope needed) to a second 40' pit. In between water gushed from a 6" diameter hole in the wall like a fire hydrant. Steele, by clever use of his slings, got to the opposite side of the pit. He rigged the rope and after getting me to tyrolean across, dropped the pit, staying pretty much out of the water. The rope was 5' off the bottom. Ten horizontal feet later he found an estimated 20' pit. This was ofcourse as far as we could go. The second 40' drop actually measured 13 meters and had water pouring into it from two or three ways, one way from down a flowstone area above.

This twenty hour trip brought us back to a camp that had not changed. Broussard had remained as inactive as could be to maintain his energy. In his journal he had written out details informing us what to do in case he was unconscious when someone finally came in from the surface. I was taught how to give a shot and tried once giving Don 7cc of insulin he had managed to suck into a syringe. I gave it into his abdomen. The day was spent in speculation about the surface folks and in whether or not an attempt should be made to scale the 318 in search of the rope somewhere above.

The next day was Sunday, 3 April. It had been six days without word from the surface. We had been trapped for four days. This was the day to try the 318. Broussard helped me set up a sling of jury-rigged climbing aids for the attempt. We had eight bolts. Marion's journal reads:

> Bill went around camp collecting slings, carabiners, and anything that could be used for chocks. Those who were going got a substantial ration of hot food -- potatoes and some kind of meat, I think. Finally, at 11:25 A.M. Bill, Gerald, and I left. Bill went up the 60' and 180' drops first. I followed. Near the bottom of the 180' Bill tied another rope to the main line because the main line had a bad fray in it. Once Bill was up the 180' and while I was on rope I heard a commotion at the top of the 180'. Soon I heard Bill shouting, "People! People! Whoever you are I love you!" which caused great excitement for me and I too joined in the shouting and told Gerald at the bottom of the 180' to go back to camp and tell the others. When I reached the top of the 180' I learned it was Joe Lieberz who had shown up -- alone....This reunion with Joe was GREAT as of course it meant we were no longer trapped! Jean later said when Gerald walked back into camp everyone stood up and silently waited to see who it was and what he wanted. She thought someone had forgotten something. But then Gerald said that there was good news, the rope was down.

Everyone but Jean, Joe, and I left the cave. Joe climbed back up the 318 to bring down some of the food that had been there. Broussard, contrary to what he had anticipated his condition would be after three days of no insulin, packed up and headed out. A discussion ensued between Moni

and myself about trash and abandoned gear. It was evident that more than footprints were going to be left behind. Now that the rope was down and an exit was possible, somewhat of a rout happened. These fellows were all leaving. They'd had enough. Though when our group first arrived they said they could stay three weeks or until the cave was done, they were going. We had vowed to clean San Agustin as was known by the entire group, yet still, articles were left lying around Camp II as these cavers headed out. Moni stated that he had buried his trash but refused to tell us where it was so it could be dug up and hauled out of the cave. Knutson had brought in a $10 sleeping bag so he could leave it in the cave. This amazed us as some of us had believed in the "nothing but footprints" slogan. Nothing but footprints, sleeping bags, clothes, canteens, insulite pads, duffle bags, crushed cans, ropes not used, batteries, 25 cans of food not opened, and medicine was left. It was a rout.

Jean and I moved down passage to the quieter location of Camp IIA. I had sent a note out with Marion asking Jim Smith and Van Note to come in for a push. We waited, our spirits high. After a period of sleeping, we awoke to the first day of our second week underground. Several hours later a holler was heard proving to be Kim Hastings and Van Note. Kim had only done a 120 foot deep cave in New England before and was here at Camp II at -536m. They brought bad news. Due to the triangle that had been an issue the whole expedition of Smith, Dorman, and Harrison, the vehicle was leaving. No support now existed to carry on exploration or de-rigging or hauling back anything to Austin. After much deliberation we decided to leave camp intact and go to the surface to arrange for unneeded gear to be taken in the truck. We then would continue in the going lead below and survey it. If we found it to keep going, we would leave the cave rigged and wait for Bill Stone's group coming down in one month. If an end was found then we would attempt to de-rig to the base of the entrance pit, ride buses back to Austin, and have Stone bring gear back in May. The prospects didn't seem appealing but Van Note had said the truck was certain to be leaving, giving no recourse.

Our exit only happened to the base of the 318 where Van Note yelled down for us to remain; someone was coming in. My feeling was that some of the previous day's routers had succumbed to guilt and were returning for their articles littering the cave. I'd just found Schreiber's sleeping bag, clothes, foamy and duffle bag at the base of the 318. When the descending form of someone reached the base of the drop, it was Steve Zeman. He and Dino Lowry had flown to Mexico DF, bused to San Agustin, and had been hastened by Broussard to get down to us and save the expedition. We were overjoyed. We didn't need to leave. They brought both news that the Hog of Steel vehicle wasn't leaving and luxury food stuffs of cheese and sweets. Once again, the 318 had been the location of a change.

Our five descended to Camp II and settled. By this time everyone camping was coughing with what was later diagnosed as bronchitis. Zeman and Lowry were worn out from a non-stop trip from Austin so were content to hang in camp, resting. When we awoke the next day, we readied for a long trip. I was the last to don my wetsuit but found the zipper to be broken. An operation followed that cancelled the trip. The final product of our labors was a corset-like wetsuit top, laced and looking medieval. It became a pull-over top.

We waited one more day to optimize our energy and psyches. The trip to the going lead would be long. All seemed right so on 6 April we began the trip downward from Camp IIA to the going downstream lead. The trip through the gorge area was smooth. Behind could be heard the delight of the newcomers at the beauty of the banded marble appearing walls. It was

deeper than Lieberz, Zeman or Lowry had ever been. When we arrived at the end of the last survey, we faced virgin cave. I rigged the next drop, Jancewicz joined me in the torrent from above and was sent on down to explore ahead. We then began the survey. When the shots had been recorded and all others were down the next 10m shaft, I heard a shout from above. It sounded like Jancewicz so I assumed she had explored around somehow and was coming down the ropes. Instead, it turned out to be Jim Smith. He had come in solo from the entrance, had found our note at Camp II saying where we were going, and had sought us out.

We all descended into new cave. Smith and Jancewicz led exploration while our survey followed. There was more water in this passage than had been seen elsewhere in the cave. Several climbdowns were done in the water where it poured into pools below. There was much swimming between drops. Finally, after setting stations in this downtrending passage, we caught up with Jim and Jean at a sump. Jim had dived into a sump with a line being dealt by Jean. He had, after two meters, come up into air space. This stretched 5m and then sumped again. It didn't look good. A belayer for another dive would have to do so while already beyond one sump and treading water. Not an appealing project. The ceilings character didn't give an impression of going cave beyond.

Our team of six members began de-rigging from this sump at -859m. We had been out of camp for 24 hours when we returned laden with all the ropes from below. It was April 7; we were expected on the surface late on the next day.

De-rigging

We had a very surmountable chore in front of us in derigging Sotano de San Agustin. There were six of us in Camp II and three persons on the surface. Of these three, only Broussard could be expected to lend much support. When Camp II was cleaned up we had two full duffle bags plus a large pile of ropes. In addition, we also each had a rucksack containing our individual camping gear. Our plan was to exit from the cave with these camp packs and return to Camp II to de-rig in stages from there. We hauled all gear from Camp II to the base of the next pit and headed out from there. Smith and Lieberz, being last in the procession of our leaving, followed up hauling the total burdens upward. They got all ropes and the two duffles to the base of the 318, two drops (80' and 180') above Camp II.

The 180 had eaten one rope already. A knot needed to be passed some 5m up the drop where two ropes were tied together where the fray had been. Being first up on our exit, I encountered the worst fray of my vertical caving life some 30m above the point where the other had been. The sheath of the Bluewater II was totally gone with six inches of inner core showing, looking like taunt rubber bands. This was tied off with a figure 8, bypassing the damaged area. The pit this happened in is a Goldline drop if ever there was one.

Two days after leaving the cave and following an Easter in Huautla, six of us reentered San Agustin to work further on de-rigging it. The twenty some odd cans left by Schreiber at the top of the 318 were emptied, crushed, and the food dumped in the stream to be flushed with the torrents of the coming rainy season. The 318 took our team seven hours to move everything up. Lieberz worked the bottom, tying on gear. Jancewicz was stationed on a ledge 20 meters down that every load hung up on. Zeman, Jim Smith, and I did the muscle at top while Dorman fed the jumar safety brake. We had a separate haul line, making sure it and the main climbing

line didn't cross; nylon against nylon could sever a rope from the heat of friction.

In the course of a long, 20 hour trip, our six derigged the growing load up two drops. We had all above the 110' following the 318 when we headed out with individual loads of rope to be dragged out to the house. The fissure of San Agustin had proven to be a poor place to rig from above and pull gear up. There were just too many spots the gear hung up on. The decision thusly was made for the fissure to be derigged "ant-like;" individual burdens climbed with through the narrow confines of the fissure's rift. This proved to work. Within four hours on the next trip in, the fissure was empty of all.

Camp I, the sight of the Canadian's 1968 stay, proved to have two duffles of plastic containers, food, and cans. This was added to the surmounting pile and moved on. The broken 160' pitch above Camp I was accomplished by spreading people out on ledges up its distance while pulled from above. It worked. By the end of this second full trip of derigging, 18 hours, all gear was moved to the base of the entrance pit.

The final derigging effort was accomplished on the 8th of April, 1977. All eight of us that were left at San Agustin hauled the seven duffle bags and more than 50 coils of rope up the 260' entrance drop and carried loads to the rented house on Kelty packframes.

The next day we left for Austin.

Bill Steele

Each person who receives this Activities Letter is a member of the AMCS and should have his membership card. If you do not yet have your card send a note to Box 7672 and we will send you your membership card.

HUAUTLA AREA SURVEY: Following the successful overland surveys of the Otate Mine, the San Juan plateau, and the Silvertip Cirque in Montana, many AMCS cavers have taken note of the usefulness of this type of speleological tool. Not only does a computer generated plot show which passages are likely to connect in an extensive system, but they also give us keener insight to the spepeogenesis of the caves in a particular karst area. The former was used to great advantage at Silvertip last summer...knowing that that raunchy crawlway will connect gives much greater enthusiasm to the push crew.

Besides the obvious advantages in the field, such a survey is a powerful graphic media for the final bulletin. The reader immediately understands what is going on in the area -- which are the major systems, where they are located, and perhaps some insight into the full potential of the system.

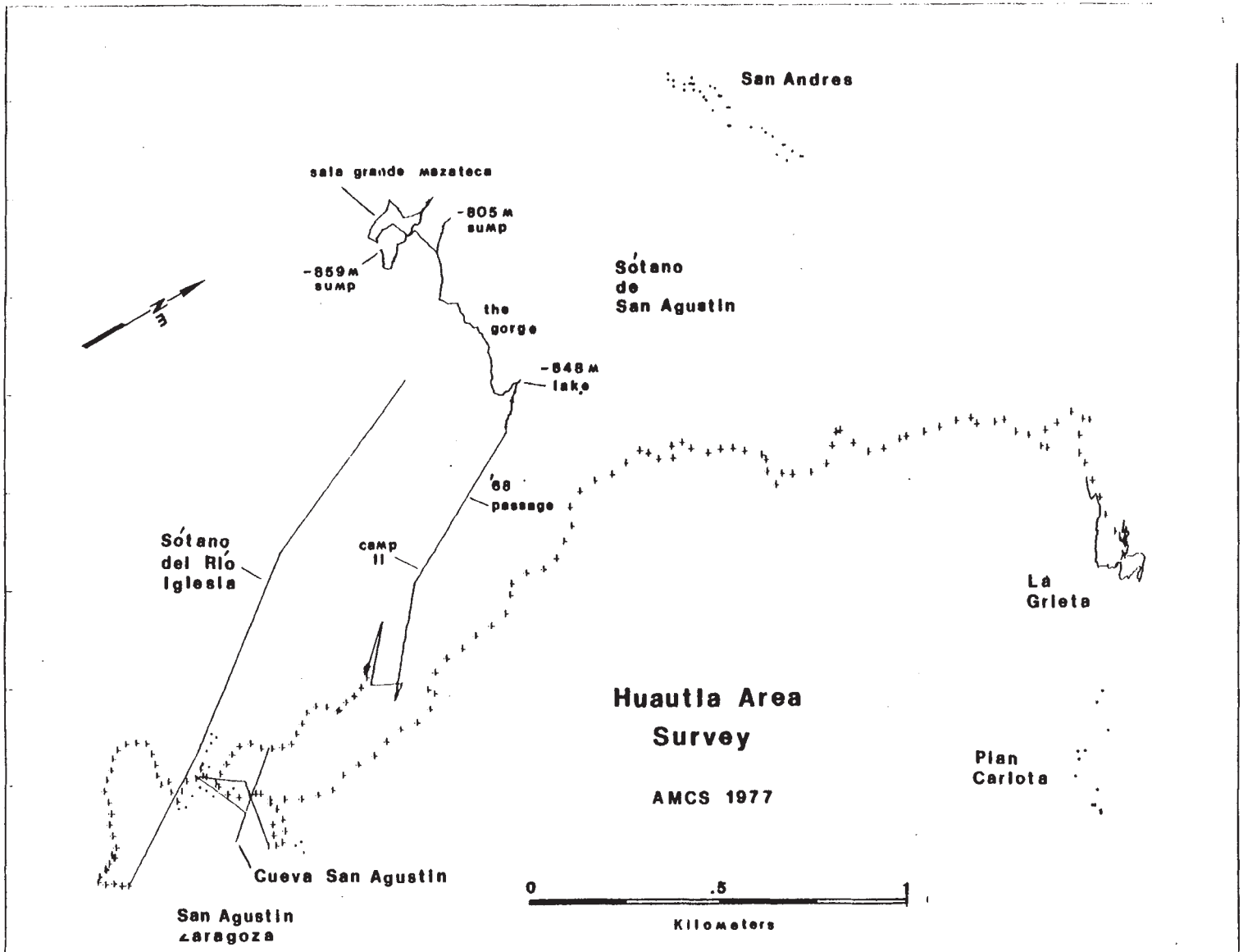
With the ultimate goal of a comprehensive bulletin on the Huautla, Oaxaca, karst region, we began the overland survey in January. Jim Smith, Jill Dorman, and I connected Rio Iglesia, Cueva San Agustin, and Sotano de San Agustin with our datum point at Sr. Villega's house. Later, in March, Bill Steele and Jean Jancewicz surveyed to La Grieta (Sotano del Cerro de Plaza). These segments were then connected with the main cave surveys. Downstream San Agustin was surveyed by the cast of thousands (R. Schreiber, M. Smith, J. Smith, M. Stock, T. Davis, S. Knutson, D. Broussard, F. Binney, B. Stone, R. Jameson, G. Moni, W. Heller, W. Steele, J. Jancewicz, S. Zeman, D. Lowry, J. Lieberz) from December, 1976, to April, 1977, during three separate expeditions. La Grieta was surveyed Dec 1976-Jan 1977 by R. Jameson, P. Mothes, J. Smith, A. Cochrane, F. Binney, J. Horowitz, and B. Stone.

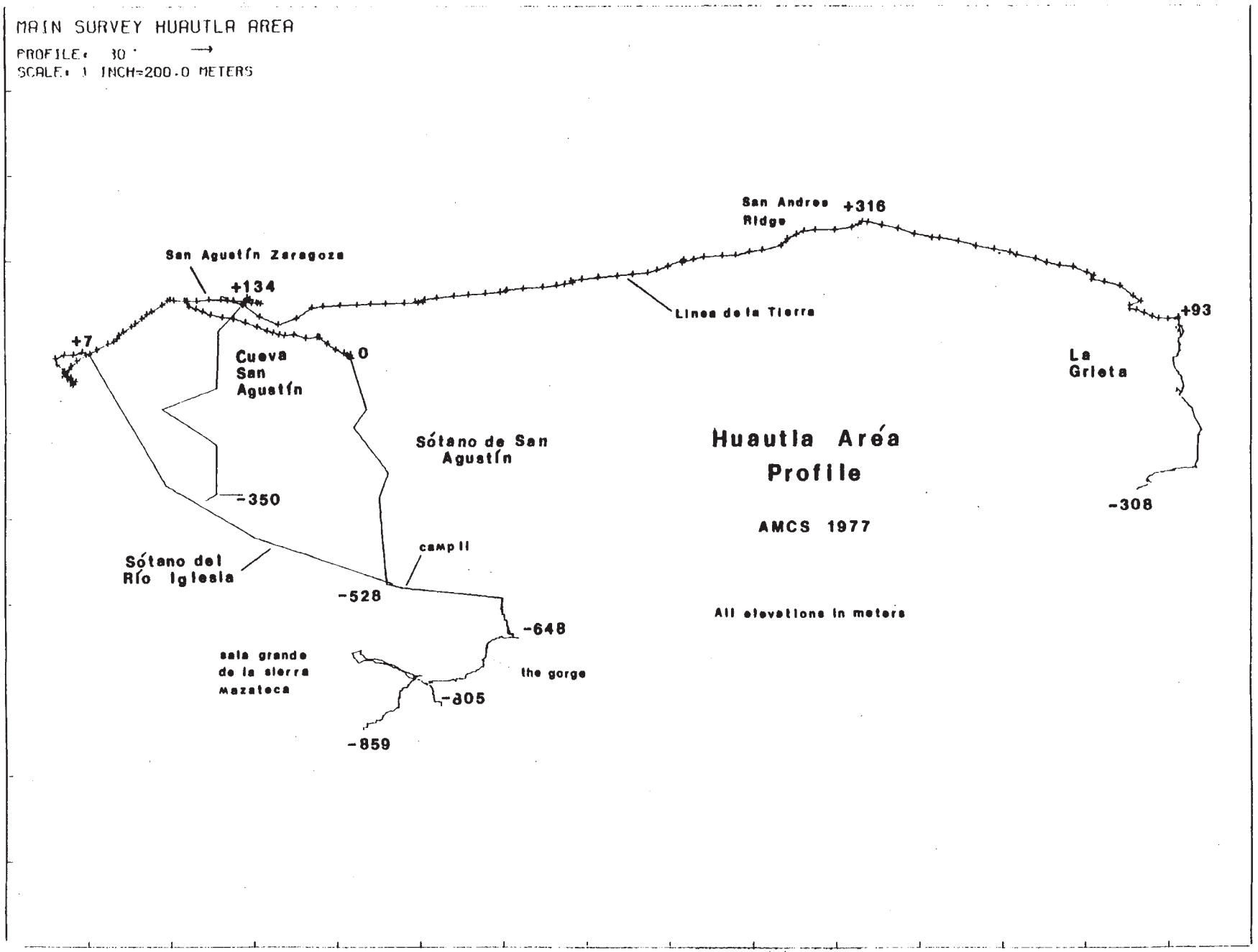
All other data for the plot (i.e., the long straight segments) was reduced from published maps for which we are awaiting the original notes.

Three notable observations can be made from the maps: La Grieta, thought to be a sure connection to San Agustin in January appears to be in a parallel drainage system, independent of the San Agustin system. Cueva San Agustin is very close to Rio Iglesia in two places. The downstream end of Rio Iglesia lines up almost exactly with the "upstream" dry trunk of lower San Agustin. A connection between Cueva San Agustin and Rio Iglesia would make that system 662 meters deep and almost 4km long. A double connection to San Agustin would make "La Sistema de San Agustin" 992 meters deep (5th in the world) and the longest cave in Mexico -- over 10 km. On the other hand, if La Grieta goes as deep as San Agustin and the higher sinkholes on the San Andres Ridge or on Cerro de Plaza can be connected, the "Sistema del Cerro de Plaza" would be approaching -1200 meters!

Bill Stone

We have just received a copy of the original survey notes for Sotano de San Agustin from John Fish. A new more accurate map of the Huautla Area should soon be available.


San Andres
sala grande mezateca
-805 m sump
-859 m sump
Sótano de San Agustin
the gorge
-848 m lake
'68 passage
camp II
Sótano del Río Iglesia
La Grieta
Huautla Area Survey
AMCS 1977
Plan Carlota
Cueva San Agustin
San Agustin Zaragoza
0
.5
1
Kilometers
MAIN SURVEY HUAUTLA AREA
PLAN ROTATED CW 60°
SCALE: 1 INCH 250.0 METERS


MAIN SURVEY HUAUTLA AREA
PROFILE: 30°
SCALE: 1 INCH=200.0 METERS
San Andres Ridge
+316
San Agustín Zaragoza
+134
Linea de la Tierra
+93
+7
Cueva San Agustín
0
La Grieta
Sótano de San Agustín
Huautla Aréa Profile
-350
AMCS 1977
-308
camp II
Sótano del Río Iglesia
-528
All elevations in meters
-648
sala grande de la sierra Mazateca
the gorge
-805
-859

Medical Report On The April 1977 Expedition to Sotano de San Agustin

More injuries due to caving were seen in my four weeks work at Sotano de San Agustin than I have ever seen before on any other expedition or long caving trip. There were some problems which I consider to have been handled very poorly. There were some which utilized outside medical assistance. But most problems the crew members took care of themselves. I learned from the help I gave and the observations made, and I would like to share my education with you.

A list of the medical problems is followed by the drugs and materials most commonly used. Most medical care was self-administered. I assisted only a few cavers.

The medical problems include abrasions, cafes, common cold, concussion, cramps, diarrhea, dislocated collar bone, facial lacerations, broken finger, hand sprain and puctures, headaches, hypothermia, insufficient insulin, loss of voice, nausea, ribs bruised, sore throats, urinary infection, and weariness.

A wide variety of antibiotics were taken due to the various types of infections displayed. Penicillin by injection was taken by one caver once a day for several days due to a severe sore throat suspected to be strep. Another sore throat accompanied by fever took Erythromycin and gargled warm salt water three times a day. Tetracycline (Achromycin) was taken for a fever and cold in another caver, for a sore throat in another, and by another speleologist to help control a urinary tract infection.

The sore throats were all easily acquired due to sloppy kitchen habits such as drinking from group water jugs. Weariness after long cave trips (20 to 30 hours), weakness due to other infections (colds), unaccustomed yelling up and down drops and going without insulin in the case of the diabetic lowered the bodies' defenses and allowed yet other infections such as sore throats to begin more easily especially toward the end of the expediton.

Two varieties of cold capsules were taken by various cavers. Contac was taken as a strong, sure symptomatic relief from the common cold. Ornex was taken when the caver planned to go underground because it contained no sedatives and no antihistamines which may cause drowsiness in some people. The obvious remedy - rest - was often ignored because equipment and trash was still below ground and there were several cavers anxious to finish de-rigging so that they could head back home. Hence they pushed themselves too hard. This was a skeleton crew; there were no extra cavers to help de-rig while the ill ones rested.

Lomotil was used by almost all the cavers. Diarrhea hit everyone sooner or later but I only heard of two people who were nauseated and only one of those developed stomach cramps which she suspects may have been due to the lomotil in the first place. Plain lomotil is best to use for simple diarrhea because its morphine-like action simply shuts down the intestine wall action and allows your insides to grow accustomed to the new bacteria invasion. Streptomagma, entero-viforma and lomotil with neomycin kill

off the bacteria in your intestine and should be used for severe diarrhea. But they kill both good and bad bacteria, so you should take the minimum amount needed and follow recovery with yogurt to return a few good bacteria to the plumbing.

Caution: Lomotil is a drug related to the morphine family of narcotics. Its activity is limited to relaxation of intestinal muscles because it is poorly absorbed from the gastrointestinal tract. Although little is known about this absorption process, there is evidence that children absorb Lomotil more efficiently than adults. This absorbtion will cause respiratory depression and can cause death. Young children should not be given Lomotil, and older children as well as adults (due to individual variation in absorption) should be carefully watched for signs of overdose. Initial signs include dryness of skin and mucous membranes, flushing, hyperthermia, and vapid heartbeat. These symptoms may begin as late as 30 hours after ingestion. The Physician's Desk Reference states, "LOMOTIL IS NOT AN INNOCUOUS DRUG AND DOSAGE RECOMMENDATIONS SHOULD BE STRICTLY ADHERED TO, ESPECIALLY IN CHILDREN." (Emphasis theirs.)

Terry Sayther

Vitamin pills (multiple, C, and B-complex) were available on a kitchen shelf in the house, but only four people took regular advantage of these extra nutrients. Extra vitamins and minerals are needed during times of something as trivial as tension and stress. Illness and excessive wear and tear on a system cause the body to need more than an average vitamin intake. Many meals prepared on the surface were lacking in the vegetable department. Small amounts of potatoes, tomatoes, raisins, plus a variety of fruits barely supply the daily minimum. Since every caver there was ill and worn and torn, everyone should have availed himself of the vitamin supplements.

Aspirin and non-aspirin were taken often. More than 50 Datril (non-aspirin) and over 100 aspirin were consumed for headaches, fever and soreness by the total crew of 19. There was only one caver with a migraine problem and he carried his own prescription. Several cavers who took aspirin would have been kinder to their stomachs if they had taken Datril instead but non-the-less some form of aspirin was needed and used.

Vaseline was used on caver's skin where wet-suits were expected to chafe or had chafed. More antibiotic cremes for bad wet-suit chafes should have been brought. Noxema was a good salve for rashes, chafes, dry skin and massages.

Elastic bandages were important items. The sprained hand and another hand (broken several months earlier) were wrapped in the two inch elastic bandages. They can also hold gauze pads on wounds. The broken finger should probably have been wrapped but was not. The trivial wounds which normally use bandaids were largely ignored. The large numbers of cuts and scratches made it impractical to try to cover each small opening in the skin. Hands became pruney and soft due to being wet for ten or twenty hours at a time and received cuts easily. Gauze pads were used on the facial injuries in the accident but did not see much use elsewhere.

One caver almost lost her voice and several sore throats were influenced by trying to communicate over the roar of waterfalls. More whistles could have been used to reduce wear and tear on throats.

Two people, each of whom did not wear a wet-suit, became cold enough during waiting periods on two separate occasions that preventive measures for hypothermia were taken. One caver wrapped up in a space blanket with other cavers who also wanted to get warm and kept a carbide light going inside this "tent" for more warmth. Another caver removed his wet clothing, put on a dry shirt and huddled over a carbide light. Many cavers sweated in their wet-suits when ascending but this is a small price to pay considering how cool the same people became when it was necessary to inactively wait for thirty minutes or more. Obviously this is a wet-suit cave and should be treated as such.

Urinating in wet-suits was a common problem for the speleologists unaccustomed to the subtleties associated with wet-suits. One caver was under the wrong opinion that urine is acidic whereas urine is basic due to the ammonia present. He rubbed spent carbide in the legs of his wet-suit in hopes of neutralizing the assumed acid. This compounded the basic problem since he was forced to wear his wet-suit the remainder of the trip. He received a burn on his thighs which turned into a severe skin abrasion which was actually bleeding before the trip was over. He walked bow-legged for two weeks afterward.

Weariness became a recognizeable malady toward the end. Personal problems slowed recovery from weariness but good group morale speeded up recovery. Group morale was boosted through social intercourse and group discussions in the evenings.

On one of the trips down to Base Camp II which involved carrying large amounts of underground camping equipment a caver neglected to clip a safety line leading across a fissure to the top of the 97 meter drop. When his duffel bag unexpectedly shifted it pulled him off the climb and he fell seven meters to a flat sand floor. He sustained a broken finger, bruised ribs, mild concussion, facial lacerations around the left eye, forehead and cheek and a dislocated collar bone. A broken back was at first suspected. The personnel nearest the accident were not sufficiently familiar with first aid and panicked. First aid measures were given for shock and facial lacerations. The surface was notified and then a long laborious rescue was begun. A strong pain reducer was administered. He was strapped to a backpack frame and pulled up each of the fourteen drops. An intravenous injection of vitamin C and calcium was given to reduce shock when the victim reached Sala Grande, a big room near the surface. On the trip out the collar bone apparently relocated itself. Once on the surface, he stayed in the Huautla hospital for two nights and then tried to finish recuperation in the house rented in the town of San Agustin. In the hospital the facial lacerations were largely ignored, so there will be some scars which could have been reduced if butterfly closures had been used, or eliminated if the doctor in Huautla had been capable of facial stitches.

Since hindsight has always been easier than foresight, here is my opinion on the rescue after having talked to many of the rescue crew after the fact.

An observation of a shoulder jutting up into the neck, a head twisted at a seemingly extreme angle and a cracked hardhat (Ultimate brand) with blood over the face, as the cavers present observed, would cause me to look for serious injuries. A suspected broken back (or neck vertebra) is serious. . . Real serious. Hauling a person out of a vertical cave from -365 meters is the last thing I would want to do, especially since there were several sleeping bags, food for six people for five days, stove and fuel, cooking pots, a flat dry area at the scene of the accident, and strong, competent cavers, two of whom knew a lot of first aid, only three drops away (97 meters,, 55 meters, and a 24 meter drop further). Two cavers were already down the 97 meter drop and were not explicitly notified of the accident.

If the victim had been seriously injured the rescue would have killed him. Dead. A backpack frame is useless when dealing with a broken back in a cave. It is not "better than nothing" because it gives a false sense of security. Hauling a person up drops in a cave is rarely a smooth operation. To subject a person to being pulled up drops for 20 hours is liable to drive them into shock if they were of sound body to begin with. [1, 2] The victim should have been bedded down while the most competent first aider available was summoned to the scene. Knowing now that he was not severely injured in the first place means that he could have prusicked out of the cave under his own power after a day or two of rest. He would not have subjected the rescuers to such pain, both physical and mental, as they underwent. The rescuers themselves needed various degrees of first aid after they were out of Sotano de San Agustin. The crew which was then at Base Camp II later suffered from the surface crew's weariness caused by the rescue.

Later, as one person left Base Camp II at -530 meters he somehow managed to drag the rope up the 97 meter drop without getting it back down. Two days later, after some of the crew had been underground for five days they decided to exit the cave for rest and more food before some of them returned for further exploration. One of the crew is diabetic and had used his last supply of insulin on the fifth day since he planned to re-stock on food and insulin before returning. Upon finding the rope missing from the longest drop in the entire cave, he returned to base camp and tried to maintain a reasonable blood sugar level while waiting for a caver from the surface to enter and re-establish the missing rope.

"Insulin is a hormone produced by the pancreas. . . This hormone is necessary for the body's proper use of food. . ." [3] Actually insulin is necessary for theorgans to properly use food. The muscles require a different hormone which a diabetic still produces. While waiting for the rope to reappear the diabetic ate very little food; only enough to keep his blood blood sugar level within reason. When the blood sugar level drops too low there is too much insulin and food is needed. At Base Camp II the problem was too little insulin and a high blood sugar level which meant the kidneys would overwork in filtering out the excess sugar and urination would be frequent and large volumed. For two and a half days blood sugar level was estimated by the frequency of urination. Every six to ten hours was

considered normal. The diabetic did not go on caving trips away from base came and slept as much as possible. Worrying was excessive by the third day since he had been told by doctors that a diabetic would stay alive five to eight days without insulin under ideal circumstances.
Once the rope was down the drop the diabetic was on the surface in six hours, tired, but estimating that he probably could have prusicked out under his own power even on the sixth day. Of course he would not have had any problem at all if he had had sense enough to bring extra insulin in the cave to begin with.

These are my observations and opinions which I share with you. I do not claim to be a qualified first aider. I do claim to periodically re-read and re-educate myself on first aid practices. Panic and wrong decisions are impossible to outgrow. We try to reduce their frequency.

Donald L. Broussard
the diabetic
Edited by Nancy Boice

1. Kodet and Angier, Being Your Own Wilderness Doctor. 1972.p.138.
2. American National Red Cross, First Aid. 1976. p. 60.
3. Eli Lilly and Company, Information for the Patient, NPH Bulletin. 1976. p. 1.

EVALUATION

ACCIDENT REPORTS: These accident reports have been compiled by the editor from interviews with those present. Every effort has been made to make them as accurate as possible, but in the brief space available all that has been attempted is a short factual account. Many other influences undoubtedly contributed to the accidents and their aftermath, such as the cavers' mental and physical condition, and their previous underground experience. But these factors do not lend themselves to brief analysis.

Sumadero Yochib

Jim Smith, Mike Van Note, and Bill Steele were establishing a "trail" along the main river passage in Sumadero Yochib. Smith climbed to a higher ledge and Van Note requested a handline. So Smith lowered a section of webbing and Van Note climbed up. Jim Smith then tied the webbing to serve as a fixed line. The webbing was looped around a corner so as to hang in the most advantageous place, and Bill Steele climbed to the ledge. On the next trip into the cave, Bill Steele climbed up knowing the line was looped around a corner. Mike Boon was immediately behind and when he grasped the webbing for an assist, the webbing popped off the corner and Boon swung out over the water. He was able to retain his hold on the line and avoid falling into the water upstream from the 40 foot Froth Pot drop.
Analysis: Care should be taken in rigging so as not to allow the rope to be pulled off corners and climbers should be aware of this possibility.

Bill Steele, Jean Jancewicz, Joe Lieberz, Mike Boon, Will Howie, Maureen Cavanaugh, and Carmen Soileau were exiting from the terminal room in Sumadero Yochib. Jean was leading, next was Bill Steele, and following him was Carmen Soileau. As Bill reached the upstream end of the Canal below the Stinger, he yelled back, "No carabiners. No carabiners." to tell Carmen not to clip into the line, as was done on the other canals. It was not possible to use a carabiner as two ropes had been used to rig the canal and they were tied in the middle with a knot too large to pass through a carabiner. This knot was located in a swift section of the canal where the flow of the current produced foot high standing waves. Carmen failed to hear Bill's warning due to the noise of the water and when she reached the knot she was unable to pass and was washed back. She moved forward again and was again forced back and under the water and came up tangled in the rope with her hard hat turned sideways. As she appeared to be tiring, Bill Steele jumped in and followed the line to Carmen. He talked her into releasing her carabiner and by breaking the force of the water was able to lead her past the knot. Carmen was weakened by the struggle and would have been in serious trouble if Bill had not been able to assist. After falling on the next ladder, she was belayed to Camp I where she rested for 24 hours.

Analysis: The rigging could have been improved so as not to use a knot, but the rigging team used the ropes they had. Perhaps a briefing before different sections would help, and the necessity of close attention to the problems of other cavers is pointed out by the incident.

Carmen Soileau, Cris Alvers, Warren Anderson, and Norm Pace were on a trip to lay a phone line to Camp I in Sumadero Yochib. Norm Pace had climbed down a ladder and was reeling out the phone wire while clipped into a canal rope. This rope was strung between the end of the cable ladder and a bolt above a waterfall at the downstream end of the canal. The bottom of the cable ladder was held in place by passing the ladder through an unlocking carabiner attached to a bolt at the bottom of the ladder. As Norm Pace strung the line the buffetting force of the water popped the rope out of the carabiner, giving enough slack to drop Pace over the lip of the next falls where the force of the water held him against the end of the rope beneath the water. At first up-side down and unable to breathe, he was able to right himself and in the process created a breathing space where the water arched over his hard hat. The people at the end of the rope tried to free him but were unable to budge him against the force of the water. He was held below the surface of the water and the team above could see only his electric light glowing beneath the water. Pace hung in this position for 15-20 minutes. They finally considered him dead. The rope was then loosened from the top bolt. This additional slack enabled Norm to escape from the water. His calls were heard from above and first thought to be another party coming out of the cave.

Analysis: Locking carabiners should be used on all rigging where there is any possibility of the rope being popped through the gate of the carabiner by intermittent loads.

Jim Smith was following Blake Harrison and Jill Dorman on Jim's first trip through Sumadero Yochib. About one hour into the cave the group began to cross the pool above Fool's Falls. This pool is about 20 feet in diameter and is connected to the falls through a narrow channel of swift water. This section is normally traversed by climbing down a cable ladder into the pool, then following a line across the pool and climbing up to a ledge where the line is tied. But to some this is not the obvious way to go -- following the water looks like the way into the cave. Once a caver enters the narrow channel, it would be impossible to hold against the swift current which would sweep the helpless caver over the 70' Fool's Falls. When Jim Smith carrying 5 cable ladders reached the pool, Blake and Jill had climbed to the ledge and were not visible from the pool. Jim started to enter the narrow channel, but had second thoughts and braced himself across the narrow entrance. As Jim considered entering the channel, Blake came back and yelled to him to climb to the ledge, which he was still able to do.
Analysis: A potentially serious situation was caused by Jim's unfamiliarity with the cave and lack of guidance from the rest of the party. As everyone cannot be continually supervised, perhaps a pre-trip briefing would be advantageous.

Sotano de San Agustin

Jim Smith, Blake Harrison, Jill Dorman, Bill Steele, and Jean Jancewicz were the last of several groups carrying equipment down to Camp II in preparation for a long stay in the cave. Bill and Jean had traversed a ledge and descended the next drop -- a 318 foot slightly inclined fissure. Jill and Jim were waiting as Blake began the traverse, moving himself and a heavy duffle bag along, but not tied into a fixed line. When Blake came to an awkward spot, he stopped to ask advice, whether to clip himself and the approximately 40 pound duffle bag to the line. As he asked, the bag shifted and Blake and the bag fell 20 to 25 feet on to a sandy floor, bouncing off the wall on the way down. Blake suffered a broken finger, lacerated face, cracked rib, and probably a concussion. After the fall, it appeared he might have a broken back, broken pelvis, a skull fracture, and his collar bone appeared driven into his neck. Blake compained of neck pains as well as general pain throughout his body. His hard hat, an Ultimate, was fractured, and undoubtedly helped reduce his injuries. Blake was securely tied to a pack frame and moved up 15 drops -- approximately 400 meters vertically to the surface.
Analysis: It is probably best to plan difficult traverses before the attempt and if lines are properly rigged, they can offer safety. Whether immediate removal after an accident is desirable has been debated. Perhaps if the victim is suffering mainly from shock, it might be desirable to keep him comfortable until he recovers and can aid in his own rescue. However, there are medical problems that require immediate attention.

Jill Dorman and Jim Smith were on the way out of Sotano de San Agustin on a derigging trip. On the second drop below Camp I in the fissure series, Jim was free-climbing a rigged drop with 500 feet of coiled rope when he fell from about ten feet up the climb. He landed on a sandy floor on hands, feet, and head, apparently suffering no serious injury. However, as he climbed toward the surface, the pain in his hand grew worse, and later it was found he had broken a small bone in his hand.
Analysis: Extra care should be used when carrying heavy loads, and deriggers should resist the temptation to free climb.

Editorals

It is always painful and usually unpopular to voice criticism in our organization, but certain events in the past year merit the attention of the whole clan as they may indeed be the sign of what's to come.

AMCS cavers have traditionally been one of the best groups of vertical enthusiasts in the United States, not due to an attempt to form an exclusive club, but because all were drawn in different manners by the spectacular challenge and excitement of deep Mexican caves. Until as recently as two years ago nothing had come along that our well tested single rope techniques couldn't handle. Many cavers lapsed into an euphoria of disconcern for danger that was bred by technique familiarity. Even Golondrinas can be a "whimp drop" after 4 or 5 times (viz. nude, upside down, by lawn chair, and 5 minute descents!). Unfortunately most of the "leader types" got sucked into this syndrome of ignoring danger.

The second problem to arise came from the need to fill ones speleo vehicle with sufficient cavers to defray the outrageous cost of gasoline and maintenance. This usually results in rather unbalanced expeditions with everyone from novice to expert and the neighborhood dog. Seldom is there going to be a trip with an "ideal crew". An ideal crew is one in which: a) Everyone is socially and psychologically compatible b) Everyone has roughly the same magnitude of caving ability.

Normally, small deficiencies in either of the afore mentioned attributes of the crew have little affect on the outcome of a trip. However, when the caving becomes demanding to the limit, variations in that "ideal crew" can blow the lid on safety underground. The past two years have seen a tremendous upsurge in very deep caving. Great depths, and more importantly, large quantitites of moving water are changing the rules of the game. Sooner or later we will have to learn to play by the rules or someone is going to buy it.

Almost all the accidents of this past year stem from the above mentioned problems. Norm Pace's near catatrophe in Yochib would never have occurred had there been a locking carabiner on the bolt. But how could anyone have known that it would happen since that manner or rigging had "always" been" dependable before? The lack of equal caving ability, or unfamiliarity with a crucial move, has been responsible for two of the deepest rescues in the western hemisphere. "Sheila Feels" in Conchas should have had a handline rigged before the accident occurred. Those of us in the lead were not thinking. Our eight person team was clearly divided in ability. Failure to recognize this and rig accordingly finally caught up with us. Those that have recently done the trip to San Agustin's Camp II know the trite awkwardness of the tyrolean from the bottom of the 140' drop to the top of the 318'. Considering the heavy traffic of cavers with bulky packs enroute to Camp II, it was only a matter of time before someone unfamiliar with

the spot would make a small slip. I know I had a bear of a time getting a wet 50 lb. duffel down to Camp II.

In mentioning these accidents, I am in no way attempting judgement. The point is that several lessons can be learned from our mistakes. Hopefully all will benefit from the close calls of a few. As new areas like Zoquitlan open up, it appears that wet caving is here to stay. Those with experience in such caves would do well to discuss wet-cave rigging with the rest of the clan. Knowledge of when and when not to use a jumar safety on a handline in rapids could make the difference between blissfully skimming up stream or being sucked under.

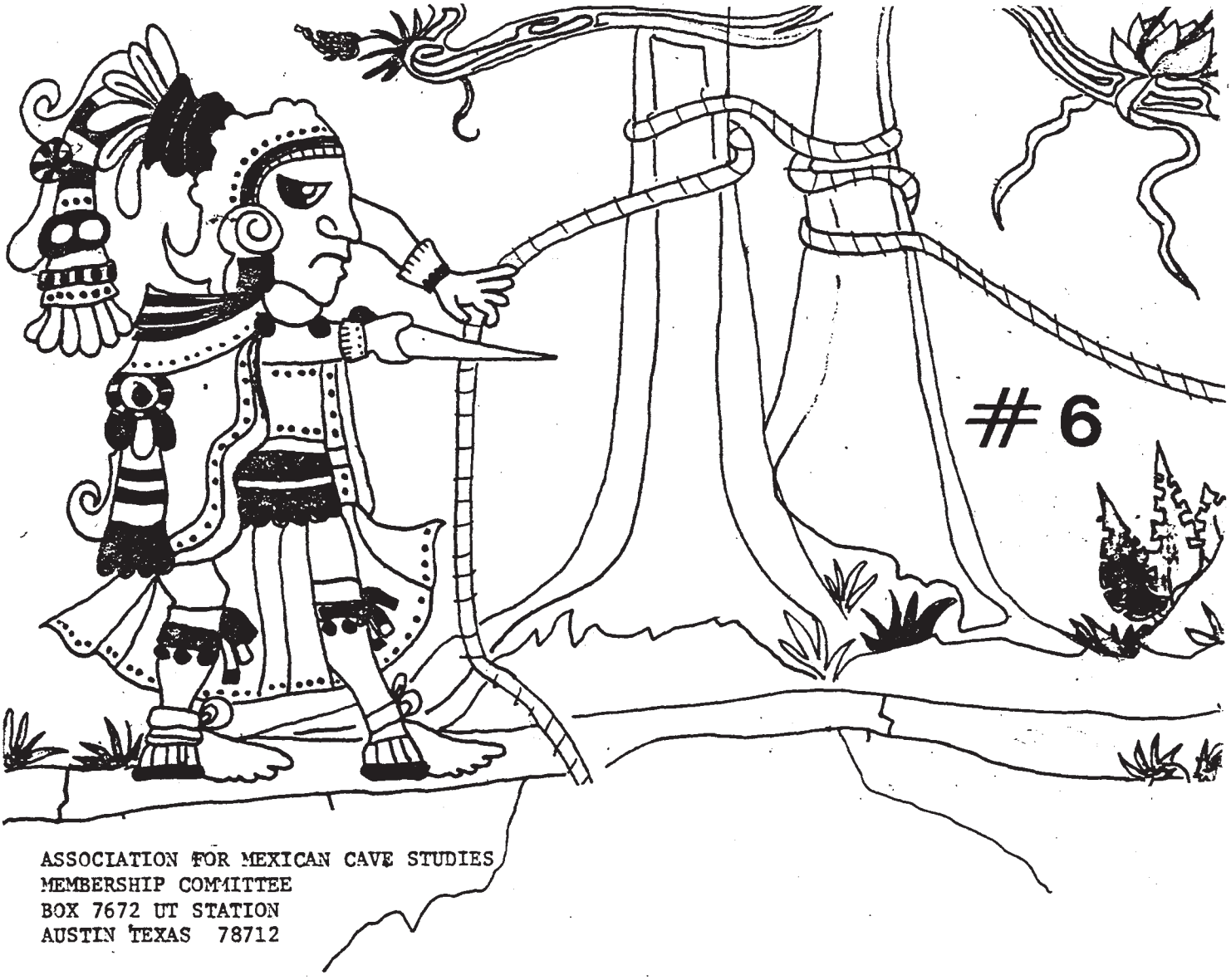
Deep push crews and support teams need to be tight units - as close to the "ideal crew" as possible. One person's ill temper toward the others in a tense situation can affect the psyche of the whole team. Great strength comes from camraderie. Strength also comes from continuity. If one or two people are always rushing on ahead, who will be there to throw them a line as they are being swept over the falls? Group decision making is always better then blindly accepting the most fanatical view. As the holes get tougher then we had best get tough on safety.

Bill Stone

Sotano de San Agustin is perhaps the most beautiful cave in North America as well as the deepest, and so is destined to be frequently visited. If each person left even a small amount of trash, the cave would soon resemble a garbage dump. Each group entering the cave should be strong enough to remove whatever they bring in. If the energy or time does not exist to remove the trash from the cave, clearly the group is operating dangerously close to their limits; and has no capacity left to deal with the inevitable minor problem, much less a serious injury. There is no depth below which caving is so difficult and demanding that leaving equipment behind is a necessity, as all caving needs a margin of safety. Of course, in the case of an accident or serious problem, people come before equipment but leaving material in the cave should be a rare occurrence. Every trip should budget their time and man power to remove their equipment. Those who want to preserve the cave should not have to remove the trash left by others.

The AMCS stands behind the feeling that conservation practices should be maintained regardless of how deep a cave is or in what country a cave is located. We feel appalled that established speleologists would turn their heads away from accepted conservation policies in favor of an easier exit from the cave. Sotano de San Agustin, the deepest cave in the Western Hemisphere was left littered with abandoned bags, personal gear, uneaten food, and rubbish. Those who left this material were fully aware that other members of the expedition were against such practices but proceeded contrary to these wishes. Sotano de San Agustin was derigged by a skeleton crew of AMCS cavers. All material abandoned by the 1977 expedition, all left by the 1976 Mexican party, and all abandoned by the 1968 Canadian expedition were cleaned up leaving a clean cave as our deepest one.

AMCS



ASSOCIATION FOR MEXICAN CAVE STUDIES
MEMBERSHIP COMMITTEE
BOX 7672 UT STATION
AUSTIN TEXAS 78712