"The line which separates the difficult from the dangerous is sometimes very shadowy, but it is not an imaginary line. It is a true line, without breadth. It is often easy to pass, and very hard to see. It is sometimes passed unconsciously, and the consciousness that it has been passed is felt too lately. If the doubtful line is passed consciously, deliberately, one passes from doing that which is justifiable, to doing that which is unjustifiable."

Edward Whymper

$1.20

AMERICAN CAVING ACCIDENTS 1972

A REPORT OF
THE NATIONAL SPELEOLOGICAL SOCIETY

SPELEOBOOKS PRESS

American Caving Accidents

1972

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THE NATIONAL SPELEOLOGICAL SOCIETY

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Contents

"Twas a dangerous cliff as they freely confessed.
Though to walk near its crest was so pleasant,
But over its terrible edge there had slipped
A Duke and full many a peasant;
So the people said something would have to be done,
But their projects did not at all tally.
Some said: "Put a fence round the edge of the cliff."
Some: "An ambulance down in the valley."

Joseph Malines

Introduction

This report describes 23 caving accidents, all but three of which occurred on a weekend. Roughly 40 percent of the accidents involved people doing vertical caving. Both victims of the two fatal vertical accidents for 1972 were novices exploring caves in Texas.

Cave diving has always been particularly dangerous. In one incident three men drowned in a Florida cave. In another cave an unconscious man was saved after being pulled from the water and given artificial respiration. There were undoubtedly other cave diving accidents which were not brought to the attention of this committee. A report on cave diving accidents in Florida by David Desautels, executive director of the National Association for Cave Diving, is included as an appendix to this report.

Other reports of accidents which actually occurred in a cave were included in this publication; reports of accidents in mines or accidents by people travelling to or from a cave were not included. Reports were used if help was required from outside the cavers' immediate group; therefore, reports of searches have been included even when it was later learned that no one had been injured. All reports of accidents involving serious injuries were included. Reports of accidents involving minor injuries were included only if they either required assistance in evacuating the victim or else were of an unusual nature but point out a definite caving hazard.

Several changes to the format of **American Caving Accidents** have been made starting with this issue. The reports are listed chronologically instead of geographically. Sources of information have been given in more detail than in the past. This should be beneficial to historians interested in particular caves or accidents. It may also explain why the details or the analysis of some accidents are sketchy. The summary has been reorganized into two main groupings to show statistics about the accidents and the people involved.

Richard L. Breisch
American Caving Accidents Editor
NSS Safety and Techniques Committee

Accident Reports

PREVIOUSLY UNREPORTED 1971 ACCIDENTS

Oregon, Oregon Caves Thursday, 30 December 1971

Steve Knutson and Jim Wolff of the Oregon Grotto, and Phil and Erro Whitfield of the Vancouver Island Cave Exploration Group entered Oregon Caves at 1:00 p.m. and proceeded to the South End. A scaling pole, consisting of five 5-foot sections with a cable ladder attached to the top, was used to investigate a 30-foot-high dome. Always,when someone was climbing, the other three held the scaling pole in place. Phil Whitfield and Steve Knutson each ascended less than half-way up but climbed down. At 4:40 p.m. Erro Whitfield climbed nearly to the top of the pole. Her weight caused the pole to start to bend. The pole slid along the wall of the dome until the pole bent and crimped in the middle section. Ms. Whitfield fell, landing on Wolff. She received a broken tooth and a cut lip.

Analysis: "The pole, although used with success in other situations, was obviously not strong enough to be used without care. The pole was five 5-foot sections made of 1¼ inch-diameter steel tubing (zinc coated) used for TV aerials. Wall thickness of the tubing was 0.038 inch. Six inches of one end of each tube was flared to fit over the next section. Its strength was such that both careful placement, so that bending of the pole be as limited as possible, and careful technique in climbing, so that the weight of the climber stays over or as close to the axis of the pole as possible, were necessary.

When a climber is on the cable ladder of a climbing pole setup, and not too far near the top, his weight is carried by the axis of the pole because the cable ladder is attached to the top of the pole. If the pole is also set up so that it can be prevented, by the handlers at the bottom, from bending too far in any outward direction, and is leaning against the wall being climbed, then the setup is stable. This is the way a climbing pole should be used.

In our case, however, the climber (Erro Whitfield), while near the top of the pole, used the pole as a handhold, thus putting a sideways and/or outwards force on the pole. Things would perhaps still have been OK but the pole in its placement could slide along the wall and bend in direction of Erro's weight. This it did, resulting in the accident.

The injuries in this accident were much less than they might have been if Erro's fall had not been broken by her falling on Jim Wolff, one of the three handling the pole at the bottom.

It must be pointed out here that the climbing pole did not belong to any of the people using it. In fact, they did not really have much idea of the potential or ultimate strength of this pole, though it had been used successfully on previous occasions. When using homemade equipment, it is absolutely necessary to test to acceptable limits and preferably to prepare duplicate items and test one to destruction.

Another item of interest here is that Erro was not wearing a chin strap on her helmet. When she struck Wolff and a boulder at the end of her fall, the helmet

came off. At that point, the helmet coming off was of no consequence but if the fall had continued, the helmet's protection was obviously lost. A chin strap should always be worn while doing any sort of climbing in a cave." (Knutson)

Source: Knutson, Steve. (1972) "Accident in Oregon Caves." *Northwest Caving.* Vol. 2, No. 4, pp. 8-9 (also appeared in *The Speleograph*. Vol. XIII, No. 2, p. 16).

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Indiana, Wayne Cave December 1971

A man dislocated his shoulder beyond the crawlway in Wayne Cave. He was able to crawl out under his own power, with some assistance, in 7 hours.

Analysis: (Insufficient information)

Source: Luvless, Dungass F. (1972) *The Speleobopper's Guide to the Caves of the Gruesome Chapel Valley*, pp. 17-18.

1972 ACCIDENTS

Pennsylvania, Arm Pit Cave Saturday, 15 January 1972

After exploring the tight Arm Pit Cave for ½ to 1 hour, Roger Young (18) became stuck at about 1:45 p.m. within 10 feet of one of the two entrances. He was lying on his stomach with his back arched so that his feet were about 2 feet higher than his head when his left leg became wedged in a crack. William Reiter (21) and Richard Ertel (25), Young's caving companions, tried freeing him by several methods including getting a rope around his waist and pulling. After about an hour without success, they called the Pennsylvania State University Campus Patrol who in turn contacted the Nittany Grotto.

Shortly after the phone call for help, four members of the Nittany Grotto, by chance, arrived at the cave to map it. Even with this increase in help and experience, Young could not be budged. Four additional members of the Nittany Grotto, answering the request for help, arrived at the cave about 4:40 p.m.

The outside air temperature was 6°F (-15°C) and falling. The victim was complaining about the cold and his tiring position. A blanket and hot coffee were gotten to the victim but because of the tight quarters only three people could squeeze into the cave at one time to assist Young. Young was finally freed by a combination of pushing from below while others pulled on ropes connected to his waist and feet. He was out of the cave by 5:40 p.m., having been stuck about 4 hours. He was not injured but was weak and shaky because of the cold.

Analysis: This was Young's second caving trip; his first trip had been to the same cave. It is fortunate that Young never panicked during his entrapment. Had the rescue taken several hours longer, hypothermia would have been a major problem. Young was overweight and the cave is very tight. Nevertheless, had Young had more experience, he would probably not have gotten himself into such an awkward and helpless position.

The Nittany Grotto had printed "rescue cards" which list the 24-hour phone number of the Pennsylvania State University Campus Patrol. Reiter had his card with him and this was an important factor in getting assistance to the cave quickly.

Sources: Report by Richard L. Breisch

Breisch, Richard L. (1972) "Accident Report: Arm Pit Cave", *Nittany Grotto News.*

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Alabama, Sauta Cave Saturday, 5 February 1972

Two parties of cavers, one from the Dogwood City Grotto and the other from the Huntsville Grotto, were exploring Sauta Cave. At one place a 40-foot drop leads to a stream which flows out the lower, wet entrance. It is possible to climb down approximately 10 feet to a sloping ledge overlooking the remaining drop. Tom Pogue (18) had climbed down the 10 feet when he lost his footing on the sloping ledge. He then fell about 25 feet onto a breakdown slope and rolled or bounced into the stream where he came to rest. Pogue received facial lacerations and bruises on his head, arms and shoulders.

Since the Dogwood City group did not have a rope, a caver was sent to find the Huntsville group which was known to have a rope. Pogue remained conscious and reported on the extent of his injuries to the best of his ability without the benefit of light. When the rope arrived, Pogue was hauled up the drop and walked out of the cave with some assistance. He was taken to the Huntsville Hospital where he was treated and released.

Analysis: Tom Pogue was well qualified (2 years experience) and with a strong caving group; however, he should not have climbed to the ledge without a belay line.

Source: Report by Doug Strait and Darwin Moss

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Indiana, Grotto Cave Sunday, 20 February 1972

Harry Greg Hill (19) and Linda M. Bringle (16) had been using a lighter and a flashlight with extra batteries as light sources while exploring Grotto Cave. At about 8 p.m. Sunday evening they realized they were lost and decided to wait for rescue. They were found at 10:45 the next morning about 2800 feet into the cave by cavers who were searching for them.

Analysis: Inexperience

Source: Anon (1972) "Lost Spelunkers Safe." *Indianapolis News*, 22 Feb. 1972 (Reprinted on page 16 of *The Speleobopper's Guide to the Caves of Gruesome Chapel Valley* by Dungass Luvless).

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Arizona, Black Abyss Saturday, 18 March 1972

Fourteen members of the Central Arizona Grotto, Escabrosa Grotto, and UAAC entered Black Abyss, a totally tectonic feature having large amounts of loose breakdown. At 5:10 p.m. Pete Kokalis was coming through a small vertical drop in breakdown blocks when his foothold, a rock about 2 feet in diameter, came loose resulting in Kokalis's falling three feet. The rock had been the keystone for a larger boulder of about 1000 pounds. This larger block fell, first landing on Kokalis's left foot and then rolled pinning him to the floor. Kokalis complained of pain in his back, left hip and left foot. He went into shock.

Several trips were made by members of the group to gather first aid supplies,

food, water and extra clothing. A stretcher was constructed from a bed frame made of plywood and 2 by 4's. The accident had occurred 450 feet below the entrance, and it took about 5½ hours to move the victim the 1000 lateral feet to the entrance. This included a double rope pull of the stretcher up a 40-foot wall. Nine hours after the accident, Kokalis was loaded into the ambulance to start the 60-mile trip to the hospital.

Kokalis's injuries were extensive, including left heel bone broken in eight places, broken left ankle, three simple fractures of the left pelvis, and a cracked cocyx bone. His recovery period was extended.

Analysis: "A preventive suggestion for such an accident in this cave is difficult – it just happened! Every caver in the group was fully aware of the extreme loose breakdown hazard in this cave, in fact, Pete Kokalis emphatically explained the hazard to all before the group entered the cave.

"Since the cavers involved were able to conduct the rescue themselves, the rescue time was kept to a minimum and the situation was perhaps kept from being any worse than it was. Also this kept the accident from receiving any publicity that could have had an adverse effect on Arizona caving.

"We wish to emphasize that it is not normally advisable for the group involved to conduct its own rescue. A competent rescue team should be utilized if at all possible. This particular case just happened to have the right people and equipment at hand. Several of the group have been or presently are members of the Southern Arizona Rescue Association and had participated in several practice and actual cave rescues. Additionally, members of this party had basic and advanced first-aid training. Even so, had the equipment to make the rigid stretcher not been available, this group would have needed outside assistance." (Bridgemon, et. al)

Sources: Bridgemon, Ron; Kokalis, Peter; Buecher, Bob; Delany, Pete; and Peachey, Bill. (1972) "Accident at Black Abyss." *Cave Crawler's Gazette*. Vol. 13, No. 4, pp. 59-61.

Also printed in *Cal Caver*, Vol. 23, No. 2, pp. 37-39.

Texas Caver. Vol. 17, No. 5, pp. 89-91.

Anon. (1972) "Regions Register: Arizona Regional Assoc." *NSS NEWS*. Vol. 30, No. 6, p. 101.

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Indiana, Sullivan Cave March 1972

Lorretta Snelson (20) and her brother, Mark Snelson (24), were rescued after searchers spent 24 hours looking for the missing pair.

Analysis: Probably inexperience.

Source: *Ann Arbor News* clipping, 28 March 1972, p. 1.

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Indiana, Shaft Cave Spring 1972

A group of college students entered the 72-foot deep Shaft Cave with plans of leaving through Grotto Cave. After learning that there is no passable connecting passage, they waited 18 hours to be rescued.

Analysis: Inexperience

Source: Luvless, Dungass F. (1972) *The Speleobopper's Guide to the Caves of the Gruesome Chapel Valley*, p. 15.

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Texas, Devil's Sinkhole Saturday, 15 April 1972

". . . A group of nearly 40 cavers visited Devil's Sinkhole to practice vertical techniques and general caving skills. (Cavers commonly visit the pit in large groups such as this so as to inconvenience the ranch owner as little as possible.) . . . There were seven experienced cavers in the group, but most of the other persons had little caving experience, although nearly all had attended at least one training session before the trip. Angeline Palmer, a University of Texas freshman, had twice climbed up a 50-foot training cliff near Austin. This was her first actual caving trip.

"Seven ropes were rigged into the pit and most people descended to explore the bottom of the pit. There was a shortage of equipment available for the number of people present, as many of the novices did not own their own gear. . . .

"At approximately 2:45 p.m. Angeline asked to use a Texas prusik rig. . . . She had practiced on Texas prusik before and knew that she could climb out. The top Jumar was attached to the seat sling with two short lengths of 1-inch tubular webbing. A bowline was used to attach the webbing to the Jumar on one end and to the seat sling caribiner on the other. A double carrick bend was used to tie the two lengths of webbing together. The lower Jumar was attached to a single piece of sling with a bowline for the foot. Steven Bittinger, a competent caver, helped her rig into the rope and visually checked her equipment, finding nothing wrong. About 20 minutes after Angeline had started her ascent, Craig Bittinger was lying on the edge of the pit and was witness to the accident. He describes the event thusly:

> *She appeared to be moderately tired from the exertion involved in having climbed 100 feet. While she was resting on the rope about 30 feet down, I called to her, "Texas prusik sure is fun, isn't it," knowing full well how tiring the method is. She looked up and smiled. I glanced away for a second and then heard a small gasp and immediately looked back to see two Jumars hanging on a rope with no one attached to them. My eyes focused on down the pit and I saw her tumbling toward the bottom. I immediately yelled several times for the people on the bottom to look out. A tremendous thud followed. I then screamed to the people nearby, "Oh my God! a girl just fell in the pit."*

"Don Broussard immediately jumped into his car and raced to the ranch house to phone for a doctor and an ambulance. An ambulance was summoned from Rocksprings (7 miles), but the nearest doctor was at the hospital in Kerrville (76 miles) and was not available at the Sinkhole. When the ambulance arrived at the ranch, a litter and two oxygen bottles were transferred to a Dodge van which had been prepared for the return trip over rough road back to the cave.

"Meanwhile, everything possible was being done for Angeline. She had landed on her back near a large rock and seemed to be lying in an unnatural manner. Therefore, every precaution was taken not to move or touch her more than necessary in order not to cause any worse damage. No breathing was detectable so mouth-to-mouth resuscitation was begun at once. A plastic oral resuscitating tube available on top was sent down to facilitate this procedure and blankets were sent down to help prevent shock. Preparations were made to lower a doctor (should one arrive) into the pit, and

a rope and belay system was set up to lower the stretcher as soon as it arrived.

"Thus prepared, the stretcher was lowered into the pit soon after the arrival of the van and the process begun of transferring Angeline onto the litter and securing her to it. She was carefully wrapped in blankets and then strapped down with 2-inch nylon webbing so that she could be pulled out vertically with her head up. About 20 minutes elapsed from the arrival of the stretcher until she was ready to be hoisted. An hour and a half had passed since the time of the accident, during which time resuscitation attempts had been continued steadily by Richard Booth.

"The stretcher had been multiply tied with lengths of 7/16-inch nylon rope and then fastened to a 300-foot length of Bluewater II climbing rope (noted for its non-stretch, non-spin characteristics). About 20 people on top were organized to pull the Bluewater, four persons were tied off at the edge to help the stretcher over the lip, and several more were stationed across the pit with a second rope to pull the litter away from the ledge as it neared the rim.

"As soon as Angeline was secured into the litter, she was brought out smoothly and quickly. No more than 90 seconds passed during the ascent from the bottom of the pit until she was in the Dodge van. Resuscitation continued until the ascent began and immediately resumed when the litter reached the top of the pit. Oxygen was then administered on the way to the ranch house and continued until she reached the hospital at about 6 o'clock. Angeline was pronounced dead on arrival at the Kerrville hospital."

Analysis: "Although there were no eyewitnesses to see what actually happened during the accident, a thorough examination of the equipment showed that the double carrick bend connecting the two pieces of webbing on the top Jumar worked loose because of the jerking motion involved in climbing using the Texas prusik method. As Steven Bittinger describes it, 'At the time that I rigged her up I had no misgivings about the gear. I had used the exact same system (with the same knots, etc.) in a recent club demonstration and before that at several deep pits and caves in Mexico.' This then was an accident caused by an unforseeable failure of climbing gear.

"The accident would not have been fatal if Angeline had her hands on the rope when the knot worked loose and had been able to prevent herself from falling over backwards, or if a safety sling had been used to connect the lower Jumar to the seat sling. A third possibility, but one that is not quite as likely to have prevented the fatality, would have been for Angeline to have been wearing an ankle loop to prevent her foot from slipping out of the foot loop. Because she was wearing tennis shoes, it seems unlikely that this precaution would have been very effective.

"It is unfortunate that the situation at the bottom of the pit encouraged the use of gear not incorporating all possible safety features. It is a good idea for cavers to have and use only their own climbing gear, but this is not always possible under conditions such as existed at the Devil's Sinkhole. The following suggestions are recommended to prevent similar accidents:

"(1) The Texas prusik climbing system (or any other system) should never be used without a safety sling from the bottom Jumar to the seat sling. Foot loops should be well secured to the feet, and strong boots should be worn to insure that the ankle loops are an effective precaution.

"(2) Any knot in a climbing rig made of webbing should be sewn shut or else securely backed up by other knots (such as half-hitches) to prevent the main knot from coming untied. Knots should also be checked constantly during climbing activity."

Source: Report by members of the University Speleological Society

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California, dig site near Lilburn Cave Saturday, 27 May 1972

The dig site has an opening composed of large rocks wedged in above the entrance. A 25-foot deep shaft at a 50° angle intersects a small passage at the bottom of the shaft. On Memorial Day weekend five cavers intended to continue digging in search of more cave passage.

At about 12:45 p.m. four people had entered the shaft. Chris Day, the fifth man, was just beginning to enter. As he shifted positions, he touched a rock level with his head. The rock, which weighed approximately 200 pounds and was roughly 1½ feet on a side and 8 inches thick, immediately fell from the ceiling without warning. It struck Day's left foot, dropped 12 feet vertically, and then bounced another 15 feet, hitting several times in the small shaft. Because of the suddenness, no one had time to shout "rock."

Bob Webber (or Bob Wagner) was hit next. It struck the right side of his hard hat, splitting it, and then hit both his knees. The rock then bounced off the foot wall of the shaft about 7 feet from the bottom. It hit Keith Britain on the left side of his head knocking him against the wall and knocking off his hard hat. Finally the rock landed on the hips and legs of Ellis Hedlund who was halfway into the crawl at the bottom. Dan Dubrall was not injured since he had already gone down to the first chamber.

Dubrall and Britain first removed the rock from Hedlund who had been pinned by it. Day, Webber, and Hedlund all suffered from moderate bruises but were able to climb out unaided; however Britain had been seriously cut by the rock. He was observed to be stunned, conscious, and coherent, but was bleeding from the nose and cuts above his left eye and the left side of the head. He was given aid in getting out of the cave.

Help was obtained from other caving parties in Lilburn Cave. Britain was given first aid but developed nausea and shock. He was taken by Jeep to the Grant Grove Ranger Station and then immediately to the Valley Medical Center of Fresno.

Analysis: The rock had been in position for two winters since the dig was started and was occasionally used as a hand hold in entering and exiting the cave. It was part of the overhanging lip of the entrance and had been carefully inspected the previous year although not recently. Especially around digs, potentially loose rocks should be checked and removed regularly.

Two hard hats were smashed. A hard hat with a crushable liner might have reduced Britain's head injury.

The cavers should have entered the shaft one at a time in order to minimize the chance of multiple injury from falling rocks.

Sources: Ulfeldt, Stan. (1972) "Accident Report." *California Caver*. Vol. 23, No. 2, pp. 35-36.
Perry, Luther. (1972) "Bombs Away!" *The Explorer*. July issue, pp. 77-78.

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West Virginia, Hellhole Cave Sunday, 28 May 1972

Gary E. Dartt (30), Bruce W. Smith (24) and Charles Byers (17) discovered a virgin area of Hellhole Cave about 400 feet below the entrance. On starting out,

Smith prusiked up the 50-foot pit they had just found. While unrigging, Smith inadvertently dislodged a 50-pound rock upon which he had been standing. Dartt was below rigging his Gibbs ascenders. Smith shouted, "Rock!", and Dartt lunged to get out of the way but was hit on the arm by the falling rock. Byers was clear of the drop and was not injured by the rockfall.

Dartt's arm was badly cut. It was later learned that the rock had gouged the bone and ripped the muscle from the bone. After resting 10 to 15 minutes, Dartt ascended the rope. His arm was then secured to his side to act as a splint. With the assistance of Smith and Byers, the victim crawled to the entrance room. He ascended the 155-foot entrance drop by 3 p.m., 2 hours after the accident.

Analysis: The sloping area at the top of the pit had many loose rocks and was especially treacherous because it was virgin. If the group had spent more time cleaning the loose rocks from the edge or if Dartt had waited until Smith had moved farther back from the edge, the accident might have been prevented.

Sources: Report by Bruce W. Smith
Report by Gary Dartt

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Tennessee, an unnamed pit Thursday, 1 June 1972

Don Gass (21) and John Heiss (20) discovered a pit which they entered at about 5:30 p.m. Both of them had done vertical and horizontal caving for several years.

"They rappelled down the narrow 15-foot drop, where they found a tight opening that sloped downwards. Heiss squeezed through this hole into a small, low room that opened over a drop that was 3 feet wide, 8 feet long and 15 feet deep. He crossed over the far end of the pit, where he rested for a while on a mud bank. He then climbed down the drop. He did not know that the wall of the pit that he climbed down was really a narrow rock sheet that divided the drop into two parts; the mud bank that he sat on covered over the other part of the drop. At the bottom of the drop, he found a 3-foot-high opening that connected the two halves of the pit. He crawled through the hole and just as his head entered the other chamber, the mud bank covering it collapsed.

"While he was on his hands and knees, a 50-pound rock struck the top of his fiber glass miner's helmet, crushing a hole through the helmet. The rock then hit his shoulder, inflicting a large, shallow cut. Although he had a chinstrap on, falling dirt and rocks hit the back of the reflector on his carbide light, knocking his helmet forward and off of his head. A smaller rock then hit his head, cutting it slightly. He then tucked his head down and back into the crawlway, which had protected the rest of his body. Almost 3 feet of dirt fell into the chamber.

"As his light, helmet, and other equipment had been buried by the rocks and dirt, Don Gass lowered down another helmet and light. After he recovered his own equipment, Heiss was able to climb out of the pit by himself." (Heiss)

Analysis: "The mud covering was not very stable to begin with, and sitting on it must have seriously weakened it. Climbing down and then crawling under the sheet of rock that supported the mud could have created enough vibrations to cause the collapse. Since the instability of the mud bank was not apparent from the top of the drop, not much could have been done to avoid the accident." (Heiss)

Source: Report by John Heiss

Arizona, Agua Caliente Cave Sunday, 25 June 1972

Several groups of people, including 26 members and guests of the Southern Arizona Hiking Club, were exploring the very popular Agua Caliente Cave. This group, which ranged in age from 13 to over 70, had no one in charge and only two or three of its members had ever been in the cave before. The group had hand-lined down an 80-foot pit despite recommendations of area cavers. Hiking club member John H. Mundo (73), who was in the lead, had gotten through the last crawlway and was starting to climb down to the bottom of the 10-foot exit pit when he slipped and fell. He fell or slid down the wall on his shoulder and hit the floor with his forehead. Mundo was not wearing a hard hat and had been carrying a flashlight.

Mundo had fallen about 3:00 p.m. yet when an NSS caver arrived an hour later, the club still had no definite rescue plans. The Southern Arizona Rescue Association was contacted and arrived at 6:15 p.m., just in time to meet the injured man who had climbed out under his own power. He may have suffered a cracked skull and a dislocated shoulder.

Analysis: The hiking club had too many inexperienced members along who evidently had little idea about caving safety, equipment, or techniques.

Source: Report by Joseph Lieberz

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Mexico, Sótano de la Tinaja about 1 July 1972

A group of cavers entered Sótano de la Tinaja for the purpose of pushing a siphon in an attempt to connect the cave with Sótano del Arroyo. It was thought that the siphon might actually be only a sump with air space just on the other side of the duckunder. It was hoped that a swimmer could determine this within 20 feet, and if he could not, he was to return without going farther. Don Broussard was going to try the connection. He was wearing a diving mask and had a flashlight tied to his waist. John Fish was to belay Broussard with a safety line tied to the diver's waist.

"A system of tugging signals was arranged and the caver entered the siphon. After swimming about 17 feet he surfaced in what turned out to be only a small air space. He took several breaths glancing around the pocket to determine this and then dove to return to the group. At this moment he blacked out as the pocket apparently contained very little oxygen and a high concentration of methane. The belayer saw the rapid dropping of the caver's flashlight and quickly pulled him in with the assistance of the group. Upon being pulled from the water, the caver showed no signs of breathing so his throat was cleared of water and mouth-to-mouth resuscitation begun immediately. The caver slowly regained normal breathing and the group was able to exit the cave." (*Inside Earth*)

Analysis: Even with a safety line, diving with only a face mask and a flashlight is reckless. Diving in caves has always been extremely hazardous.

Sources: Anon. (1973) "Accident – Sótano de la Tinaja, Mexico." *Inside Earth*. No. 1, pp. 60-61.

Fieseler, Ronnie. (1972) "Accident Report, Near Drowning in Sótano de la Tinaja." *AMCS Newsletter*, Vol. III. No. 6, p. 118.

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Washington, Dynamited Cave Monday, 3 July 1972

Three teenage boys forced entry into Dynamited Cave which had a locked gate. About 1500 feet into the cave, one of the boys climbed down a 30-foot, free-fall drop on ¼-inch nylon rope, but was unable to climb back out. One of the boys contacted the sheriff who in turn contacted a mountain rescue group. It took one hour to rescue the boy using the Bilgeri method with a belay; the boy had been trapped about 10 hours.

Analysis: The boy's inexperience caused him to overestimate his ability to climb a thin rope.

Sources: Anon. (1972) "Cave Rescue." *The Speleograph*. Vol. VII, No. 7. pp 79-80.

Arens, John W. (1972) "Accident in Dynamited Cave." *The Speleograph*. Vol. VII, No. 8, p. 95.

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Arizona, Onyx Cave Saturday, 15 August 1972

Pete Jensen, Jesse Jensen, and Ted Janssen entered Onyx Cave at 6 p.m. Although Pete had been to Onyx several times before, this was the first caving trip for the other two. They explored the cave for 4 hours and then realized they could not find their way out. After an estimated 12 hours of searching, they gave up and waited to be rescued. They had eaten their five candy bars on the first day. On Monday they overturned a trash can and found unopened cans of pears and string beans which they punctured with a broken stalactite. While prying the lid of one can, Pete Jensen gashed a finger.

The three were rescued at 3 a.m. Tuesday, 57 hours after entering the cave, by Arizona cavers and the Southern Arizona Rescue Association. The three had camped for two days within 75 feet of the keyhole which led out.

Analysis: Inexperience.

"In our time spent exploring we never once turned our heads to recall the passage we had gone through, always looking ahead to the next formation, the next room beyond. When we did turn around to return, everything looked different.

"In a way I'm glad all this happened to me, because it taught me to go prepared, and especially to know where I've been. It taught my brother and his friend not to go caving with me anymore." (Pete Jensen)

Source: Jensen, Pete. (1973) "Lost in Onyx Cave." *Cave Crawler's Gazette*. Vol. XIV, No. 3, pp. 33-35.

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Florida, Little River Springs Sunday, 27 August 1972

Three New Jersey divers, Kenneth R. DeGrazia (23), Michael R. Williams (24), and Robert Lewis Grauer (18) scuba dived into Little River Springs sometime Sunday. All three drowned. Grauer's body was accidently discovered at a depth of 60 feet and about 15 feet from the mouth of the cave. He had a knife wound an inch wide and 2 inches deep in the stomach. The other two victims were about 10 feet apart but 45 feet deeper into the cave.

Analysis: Williams was a diving instructor and was the most experienced of the trio;

Grauer the least. All three were experienced in open water diving, but it is believed that they had little or no cave diving experience. The National Association for Cave Diving had placed a sign near the spring warning of its dangers for novice divers. The New Jersey group ignored the advice. They did not use safety lines, wore only single tanks, and used inadequate, commercial lights.

Several possible explanations for Grauer's knife wound were given. His mother stated it was just a scratch and probably happened at the funeral home. The Suwanee County sheriff thought there had been a struggle for survival after one person ran out of air and tried to take the air from one of his companions. The deputy sheriff thought Grauer, being the least experienced, had panicked and the other diver had tried to prod him along with the knife. A scuba shop owner speculated that Grauer tried to escape from the diver with the knife. Any one of these explanations could have happened; no one will ever know what really happened to the divers. It is clear that all three underestimated the hazards of cave diving. These were the 14th, 15th, and 16th drownings in this cave since 1960.

Sources: Anon. (1972) "3 Jersey Divers Found Dead; Were Exploring Florida Cave." Clipping from unidentified newspaper.

Anon. (1972) 3 N.J. Divers Die in Cave; Cut Indicates Fight For Air." *Philadelphia Evening Bulletin*. 29 Aug. 1972, p. 31.

Karasik, Ellen. (1972) "Did Carelessness Kill N.J. Trio Exploring Perilous Ocean [sic] Cave?" *Philadelphia Inquirer*. 19 Sept. 1972, pp. 1, 6.

Sharp, Eric. (1972) "Underwater Cave Claims Ever-Growing List of Victims." *Ann Arbor News*. 3 Sept. 1972, p. 11.

Anon. (1973) "Wat Ging Er Mis?" *Speleo-Nederland*. Vol. 3, No. 2, pp. 10-12. (in Dutch)

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Georgia, Climax Cave October 1972

Six people changed carbide, all dumping their spent carbide into a plastic bag. When Tom Ross (20) climbed upon the rock where the carbide bag was setting, the bag exploded in his face. There were no injuries.

Analysis: Acetylene fumes from spent carbide are hazardous.

Source: Report by Don Cooper

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New Mexico, Fort Stanton Cave October 1972

Phillip Neale, III (18), Rodger Mason, and two others had been caving all day in Fort Stanton Cave. After resting at the top of Twenty Steps, they one at a time descended the muddy slope. Neale, who was the last to descend, was about half way down when he lost traction and twisted his foot. It was determined that his foot was probably sprained or broken but it was not splinted. His three companions carried him about a half mile to the entrance. Neale was taken to the hospital at Holloman Air Force Base where it was learned that he had broken his foot.

Analysis: If Neale had been wearing proper boots instead of street shoes with crepe soles, he probably would not have been injured. Even though the passage between the site of the accident and the entrance was large walking passage, his foot should

have been splinted to prevent possible further injury.

Source: Report by Rodger Mason

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West Virginia, Moyers Twin Wells Sunday, 3 December 1972

Bruce W. Smith (24) on an impulse decided to check out Moyers Twin Wells. He was alone and only the owner of the property knew he was in the cave.

The cave is small but has three pits which require rope; Smith explored these. As he was leaving, he prusiked up the main shaft, a 75-foot drop, using the Texas prusik method because it would be easier to negotiate the lip at the top. When Smith was within 2 feet of the ledge, the Pierre Allain locking D carabiner holding his diaper seat sling together unscrewed and flexed. The gate opened and released the strap of his seat sling. Smith immediately turned upside down. His foot strap then slipped off his foot and he fell about 67 feet to the bottom of the shaft.

Smith tightened into a ball as he fell, but he does not remember landing or feeling any pain. The main impact of the fall was absorbed by his helmet. Smith later conjectured that he landed in a crouched position with the impact points being his head, left knee and right foot. He was probably unconscious for 15 to 30 minutes. Upon regaining consciousness, Smith realized he had multiple cuts and bruises, and he suspected that he had a broken foot, broken ribs, and a sprained neck.

Because he was alone, Smith decided to make another attempt at getting out using the Texas prusik method again. He fastened his one remaining Jumar to his left foot. From his belt, a 6-foot piece of 1-inch nylon webbing, Smith made a loop which he fastened to the rope with a Bachmann knot. He used his last carabiner, a non-locking SMC oval carabiner for his seat sling. All the rigging was done using only the available light coming in the small hole at the top since Smith's lamp had torn off during his fall and he carried no other light sources. Smith was able to ascend the pit safely with his jury-rigged system. Smith had a small break in his foot but no broken ribs. His neck was stiff for the next 3 months.

Analysis: "The caving alone was not a cause of the accident nor could it have helped if there were other cavers along—quite the contrary, because of the size of the shaft I would have only succeeded in falling on someone—hurting if not killing them. The one light source was wrong, but in no way did I find it a hinderance to be without light. The blame must be with me and my failure to use some accessories that would have helped prevent the fall. This is the third time that this carabiner has failed on me, but never in a situation as described above. (Sentimental attachment) I should have used a more reputable carabiner. If my foot loop had been tighter it may have held, but maybe not. What would have saved me would have been a chicken loop around my ankle." (Smith)

Since the **American Caving Accidents** were first compiled in 1967, this is the first accident involving a solo caver. Smith showed poor judgement in caving alone, having only one light source and using faulty equipment; however a less experienced caver could probably not have extricated himself from this predicament.

Source: Report by Bruce W. Smith

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Texas, Fischer's Pit Saturday, 30 December 1972

Henry Hernandez, Jr. (17), Michael Bruginan (15), and John Wheeler (16) learned about the 110-foot deep Fischer's Pit from Mrs. Mabry, the owner of the cave. They assured her that they were experienced cavers and knew what they were doing. The boys managed to get down the first drop, supposedly using a crude rope ladder. Hernandez then tried to negotiate the next drop by grabbing a ¼-inch ski rope and stepping over the ledge. He fell about 35 feet, landing on his head.

Mrs. Mabry notified the authorities at about 2 p.m. The boy was removed by members of two fire departments by 4:25 p.m. He was in a coma and showed signs of severe shock but died before getting to the hospital.

Analysis: The boys were inexperienced yet overconfident in their abilities. They did not have the proper equipment for vertical caving.

Sources: Report by Glenn Darilek
Fleming, Steve. (1973) "Accident Report." *The Texas Caver*. pp. 37-38.

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Texas, Dead Deer Cave Sunday, 31 December 1972

On New Year's Eve, seven high school boys from San Antonio had to be rescued by Civil Defense volunteers. The cave was posted but the youths entered without permission. Three of the boys managed to climb a rope up the 75-foot shaft, but the other four were too tired.

Analysis: The boys had no knowledge of the standard vertical techniques. This was the second time within three years that a rescue was necessary for this pit; two similar incidents followed in the first months of 1973.

Source: Anon. (1973) "Notice." *The Texas Caver*, p. 48.

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Texas, Pumkin Pit 1972

A large group of cavers from the University of Texas were practicing vertical techniques in Pumkin Pit. The pit has a large, wide entrance which drops 50 feet to a breakdown-covered floor. Since there were more people than sets of vertical gear, equipment had to be passed up and down the rope. A set of equipment was accidentally dropped and it hit a caver below on the hand. The impact was hard enough and startling enough to send him into shock. He remained seated, but when his companions tried to question him, he went limp and slumped to his side. He came back to normal within a few minutes.

The fellow had probably gone into psychogenic shock where a sudden dilation of the blood vessels momentarily interrupts the flow of blood to the brain causing fainting. Fortunately when the body goes limp the blood supply to the brain is improved and the faint passes.

Analysis: Falling objects are one of the greatest hazards in exploring pits.

Source: Anon. (1973) "Accident—Pumkin Pit, West Texas," *Inside Earth No. 1*, pp. 61-62.

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Summary

This issue of **American Caving Accidents** contains the reports of 23 incidents involving 37 persons.

The summary tables have been divided into two parts. The first part gives statistics on the type of cave accidents. For each accident report there is one entry under situation, month, and day of the week. Classification of accidents by cause and contributory cause is open to a lot of subjective interpretation of the individual reports since often an accident occurred only after a combination of events had taken place.

The second part of the summary tables deals with the accident victims. In each category, there is one entry for each victim.

The day of the week the accident occurred and the sex of the victim are new categories, but this information has been compiled from the older reports and is reflected in the tables showing totals from 1967 to 1972.

Suggestions for improvement or modification of the summary or any part of this report are welcome and should be addressed to the National Speleological Society Safety and Techniques Committee, Cave Avenue, Huntsville, Alabama 35810.

ACCIDENTS	1967-1972	1972
Situation		
General	56	12
Vertical	39	9
Diving	10	2
Immediate Cause		
Fall	36	6
Falling rock or object	12	5
Failure of rappel or prusik	8	2
Stumble	4	1
Exposure and/or exhaustion	8	0
Burns	4	1
Asphyxiation	3	1
Illness	2	0
Drowning	12	3
Animal attacks	0	0
Contributory Causes		
Climbing unroped	10	2
Caving alone	1	1
Exceeding abilities (inexperience)	40	6
Inadequate equipment	25	5
Worn equipment	3	1
Bad weather (including flooding)	6	0
Exposure and/or exhaustion	6	0
Loosing way	8	3

Contributory Cause (cont'd)	1967-1972	1972
Light failure	5	0
Party too large	4	1
Party separated	5	0
Getting stuck	10	2
Hurry	1	0
Poor judgement	18	4
Month		
January	7	1
February	3	2
March	12	2
April	6	1
May	9	2
June	9	2
July	7	2
August	7	2
September	4	0
October	8	2
November	6	0
December	13	5
Unknown	2	2
Day of Week		
Monday	5	1
Tuesday	0	0
Wednesday	9	0
Thursday	3	2
Friday	10	0
Saturday	24	7
Sunday	31	6
Unknown	11	7
ACCIDENT VICTIMS		
Sex		
Male	121	30
Female	14	4
Unknown	3	3
Age of individuals		
"Boys or teenagers"	4	4
Under 15	8	0
15-20	50	15
"Young or college age"	9	3
21-25	22	4
26-30	6	1
31-35	4	0
Over 35	5	2
Unknown	13	8

Affiliation with Caving Group	1967-1972	1972
Unaffiliated	57	19
Member of Caving Group	31	14
Unknown	27	4
Estimate of Experience		
None or little	68	23
Moderate	8	1
Experienced	18	7
Unknown	21	6

Appendix

Florida Cave Diving Fatalities

David Desautels *

Introduction

Accidental drowning while SCUBA diving in submerged underground caves is a major problem in North Central Florida. The unique topography in this area lures divers from around the world to explore these crystal clear underground waters. Dynamic young men, often equipped with little more than enthusiasm, enter these caves only to be removed as lifeless victims. Recent retrospective studies have investigated diving accidents in general with some mention of cave diving accidents; however, little information is available regarding the diving accidents involving underwater caves. To learn more about the potential hazards of cave diving, a survey was begun on January 1, 1960. This investigation is a continuing project of the Florida State Board of Health, the National Association for Cave Diving and the Florida Skin Divers Association. This data has been collected through the efforts of many persons associated with these groups.

Method

Preliminary notification of an accident involving a diver in a cave is either through newspaper articles or a call from the sheriff's office. Preliminary notification is then followed up by a questionnaire report form mailed either to an official or to a diver who was on the scene. This information, along with the coroner's report, is then filed in an individual file. Often questionnaires are not returned, and officials with no knowledge of diving accidents may confuse details. Obviously the most complete information comes from the divers making the recovery or the surviving divers on the scene. Their knowledge of equipment and its condition is extremely valuable in completing the accident file. This file is reviewed annually and a summary report is given at the Annual Seminar on Cave Diving sponsored by the National Association for Cave Diving.

Results

Spanning a twelve-year period from January 1, 1960 to December 31, 1971, there have been 79 deaths directly associated with diving in underwater caves. Throughout the 12-year history of cave diving accidents there has been little change from the average of 6.58 deaths per year, except in the year 1967 (see Figure 1).

* Executive Director, National Association for Cave Diving

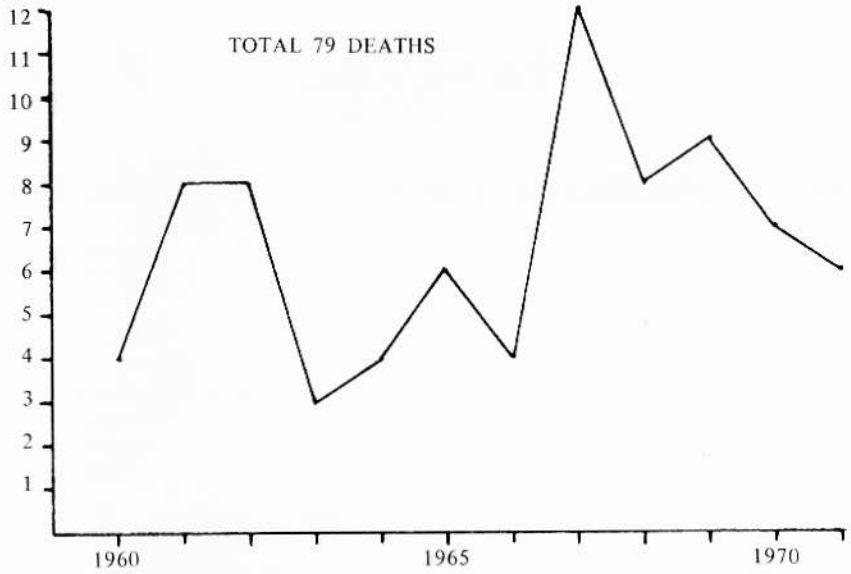

Figure 1. Florida Cave Diving Deaths vs. Year

This could possibly be an encouraging indication since the popularity of cave diving has increased many fold without a parallel increase in cave diving deaths. The reasons for the slight increases are unexplainable. Possible reasons for the absence of a continual increase with the increase in diving popularity is the availability of better diver education, especially the advent of cave diver education and the improvement of cave diving equipment. Until recently, most specialty equipment used for cave diving was designed and built by the individual using it. This led to the misuse of lights and lines and often resulted in divers becoming lost and running out of air. Divers who are now entering caves are much better off than divers of the past because of better cave diving equipment and training.

It is significant that the 79 cave diving deaths were the result of only 57 accidents. This means that almost 40 percent of the cave diving accidents resulted in more than one death. In all there have been 20 double drownings, one triple and the worst accident in diving history—a Christmas vacation that ended the lives of four University of Georgia students 300 feet into a cave. Two of these boys had used diving equipment for the first time only the day before. Many would say that this was the buddy system and its failure in the worst form, however it is probably more a compounding of many errors made by both divers in their attempts to keep up with each other.

Could maturity and judgement play a major role in these cave diving accidents? It would appear from Table 1 that this is probably the case. Examining the table closely one sees that the age group from 15 to 17 comprises 58 percent of the total number of cave diving deaths. One step further indicates that 73 percent of all cave diving deaths occur to young divers between the ages of 15 and 20, only a six-year span. These are the divers who must be reached and educated about the hazards of cave diving. Any cave diving instructor will tell you that maturity is a highly desirable characteristic in a cave diving student.

Table 1

Cave Diving Fatalities Listed By Age

AGE	NUMBER OF FATALITIES
15-17	17
18-20	29
21-23	12
24-26	8
27-29	4
30-32	4
33-35	1
36-38	1
39-41	1
42-44	0
45-47	1
48-50	0
51-72	1
TOTAL	79

Other parameters which can be examined to determine patterns for these accidents are: the month of the year, the day of the week, the location of the majority of the accidents, and whether or not the victim was familiar with the environment. Except for the case of the resident diver, these parameters all have the result one would expect. Residents of Florida more often than the out-of-stater fall victim to the Florida caves (see Table 2). However, a seasonal trend is indicated for accidents involving non-residents (see Table 3). The tourist comes to Florida to try the beautiful waters of the Sunshine State and instead of going to the Keys, he winds up in the caves. Also, as would be expected, the majority of the accidents (65 percent) happen on weekends when the majority of the dives are being made (see Table 4).

There seems to be a magnetic attraction for some people to tragedy, because the more often people drown in a particular cave and the more publicity it arouses, the more divers it attracts. Consequently the more popular dive sites are very benign sites, yet they are the ones which claim the most lives (see Table 5). As would be expected, most cave diving is being done in the Suwanee River and Santa Fe River areas where the springs and sinks are heavily concentrated (see Figure 2).

Summary

The large percentage of cave diving deaths involves young, inexperienced divers, who venture into popular cave diving locations with their buddy who is equally inexperienced. They both go beyond the point of their capabilities only to have an accident which could have been prevented by good judgement. There were 79 diving deaths in the twelve-year period between 1960 and 1971.

Table 2

Cave Diving Fatalities Listed By Residence

Residency of Victims	Occurred in cave	Occurred in open waters	Total
Residents of Florida			
Students	23	14	37
Military	4	5	9
Other	19	41	60
Total	46	60	106
Non-residents of Florida			
Students	18	6	24
Military	9	2	11
Other	6	9	15
Total	33	17	50

Table 3

Cave Diving Fatalities Listed By Month

	Resident victims	Non Resident victims
January	10	0
February	5	0
March	3	5
April	2	0
May	4	8
June	3	3
July	8	1
August	1	7
September	3	4
October	3	0
November	1	0
December	3	5
TOTAL	46	33

Table 4

Cave Diving Fatalities
Listed by Day of the Week

DAY	CAVE FATALITIES	% OF TOTAL
Saturday	28	36.8
Sunday	22	28.9
Monday	4	5.3
Tuesday	0	0.0
Wednesday	14	18.4
Thursday	4	5.3
Friday	4	5.3
TOTAL	76	100.0

Conclusion

Cave diving can be a very safe and enjoyable sport when it is approached in the proper manner with the correct training and equipment and mature judgement. Cave diving has a reputation for being a hazardous sport; however, the primary reason for this reputation is because of press sensationalism and the tendency for many persons to exaggerate the number of accidents to reporters and other writers.

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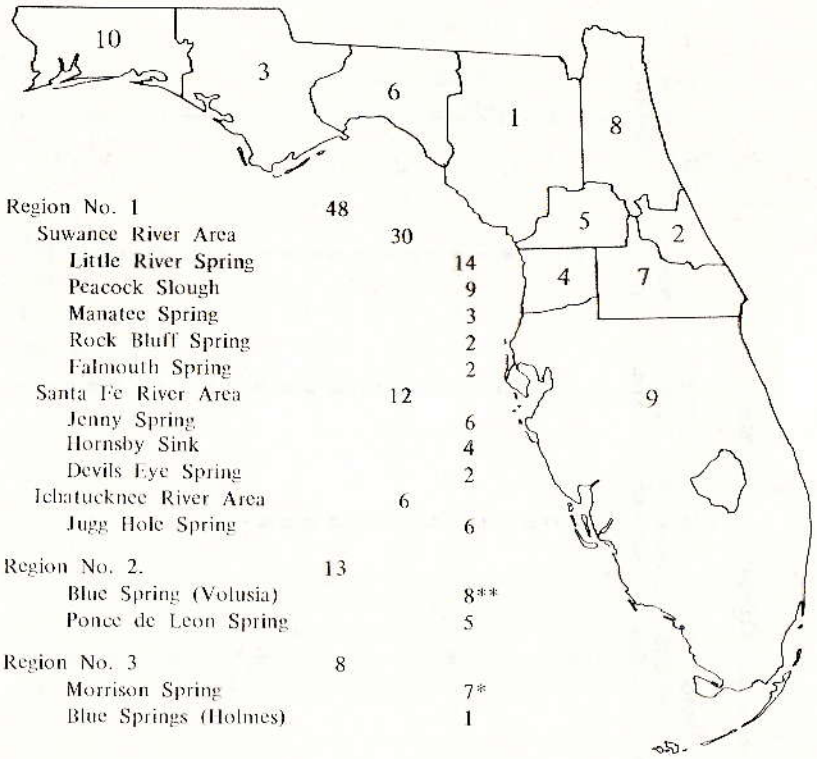
Table 5

Springs and Sinks Involved in Fatal Underwater Accidents

ORDER NUMBER	PLACE	IN CAVES		IN OPEN WATER		TOTAL	
		Number of Accidents	Number of Victims	Number of Accidents	Number of Victims	Number of Accidents	Number of Victims
1	Little River Spring (Suwanee Co.)	9	14	0	0	9	14
2	Morrison Spring (Walton Co.)	4	6	1	1	5	7
3	Blue Spring (Volusia Co.)	4	5	2	2	6	8
4	Jenny Spring (Gilchrist Co.)	3	6	0	0	3	6
5	Jugg Hole Spring (Columbia Co.)	4	6	0	0	4	6
6	Ponce de Leon Spring (Volusia Co.)	4	5	0	0	4	5
7	Zuber Sink (Marion Co.)	0	0	3	5	3	5
8	Eagles Nest Sink (Hernando Co.)	4	4	0	0	4	4
9	Peacock Slough (Suwanee Co.)	7	9	0	0	7	9
10	Hornsby Sink (Alachua Co.)	4	4	0	0	4	4
11	Blue Sink (Pinellas Co.)	0	0	3	3	3	3
12	Manatee Spring (Levy Co.)	2	3	0	0	2	3
13	Dismal Sink (Wakulla Co.)	1	2	0	0	1	2
14	Devil's Eye Spring (Gilchrist Co.)	2	2	0	0	2	2
15	Rock Bluff Spring (Gilchrist Co.)	1	2	0	0	1	2
16	Falmouth Sink (Suwanee Co.)	1	2	0	0	1	2
17	Blue Spring (Madison Co.)	1	2	0	0	1	2
18	Blue Grotto (Levy Co.)	1	1	2	2	3	3
19	Mystery Sink (Orange Co.)	0	0	2	2	2	2
20	Salt Spring (Hernando Co.)	1	1	0	0	1	1
21	Blue Hole Pond (Orange Co.)	1	1	0	0	1	1
22	McBride Slough (Wakulla Co.)	1	1	0	0	1	1
23	Blue Spring (Holmes Co.)	1	1	0	0	1	1
24	Wakulla Spring (Wakulla Co.)	0	0	1	1	1	1
25	Crystal River (Citrus Co.)	0	0	1	1	1	1



Region No. 1	48		
Suwanee River Area		30	
Little River Spring			14
Peacock Slough			9
Manatee Spring			3
Rock Bluff Spring			2
Falmouth Spring			2
Santa Fe River Area		12	
Jenny Spring			6
Hornsby Sink			4
Devils Eye Spring			2
Ichatucknee River Area		6	
Jugg Hole Spring			6
Region No. 2.	13		
Blue Spring (Volusia)			8**
Ponce de Leon Spring			5
Region No. 3	8		
Morrison Spring			7*
Blue Springs (Holmes)			1
Region No. 4	7		
Eagles Nest Sink			4
Blue Sink			3***
Region No. 5	6		
Blue Spring (Madison)			2
Dismal Sink			2
McBrides Slough			1
Wakulla Spring			1*
Region No. 6	9		
Zuber Sink			5*****
Crystal River			1*
Blue Grotto			3**
Region No. 7	3		
Blue Hole Pond			1
Mystery Sink			2**

* Number classified as open water accidents

Figure 2. Diving Accidents Involving Springs and Sinks Classified By Regions

NATIONAL SPELEOLOGICAL SOCIETY
Accident Report Form

Date of Accident: _____ Day of Week: _____ Time: _____

Cave: _____ State: _____

Reported by:
Name _____
Address _____
City _____ State _____ Zip _____

Name (s) of person (s) involved	Age	Sex	Experience	Affiliation	Injuries or Comments

NATIONAL SPELEOLOGICAL SOCIETY
Accident Report Form

Date of Accident: _____ Day of Week: _____ Time: _____

Cave: _____ State: _____

Reported by:
Name _____

Address _____

City _____ State _____ Zip _____

Name (s) of person (s) involved	Age	Sex	Experience	Affiliation	Injuries or Comments

Describe the accident as completely as possible on the back of this form or on a separate sheet. If possible obtain information from those involved. Use additional sheets if necessary. A report in the style of "American Caving Accidents" is ideal. The following checklist is suggested as a guide for information to be included:

( ) Events leading to accident. Location and conditions in cave.

The Accident

( ) Description of how it occurred.
( ) Nature of injuries sustained.
( ) Analysis of main cause.
( ) Contributory causes (physical condition of caver, weather, equipment, clothing, etc.)
( ) What might have been done to prevent the accident.

Rescue

( ) Actions following accident.
( ) Persons contacted for help. A flowchart may be helpful.
( ) Details of rescue procedures.

Further details were reported in:

( ) Newspapers ( ) Grotto newsletter ( ) Other

(Please enclose copies if possible.)

Please return completed report to the NSS as soon as possible after the accident.

Safety and Techniques Committee
National Speleological Society
Cave Avenue
Huntsville, Alabama 35810