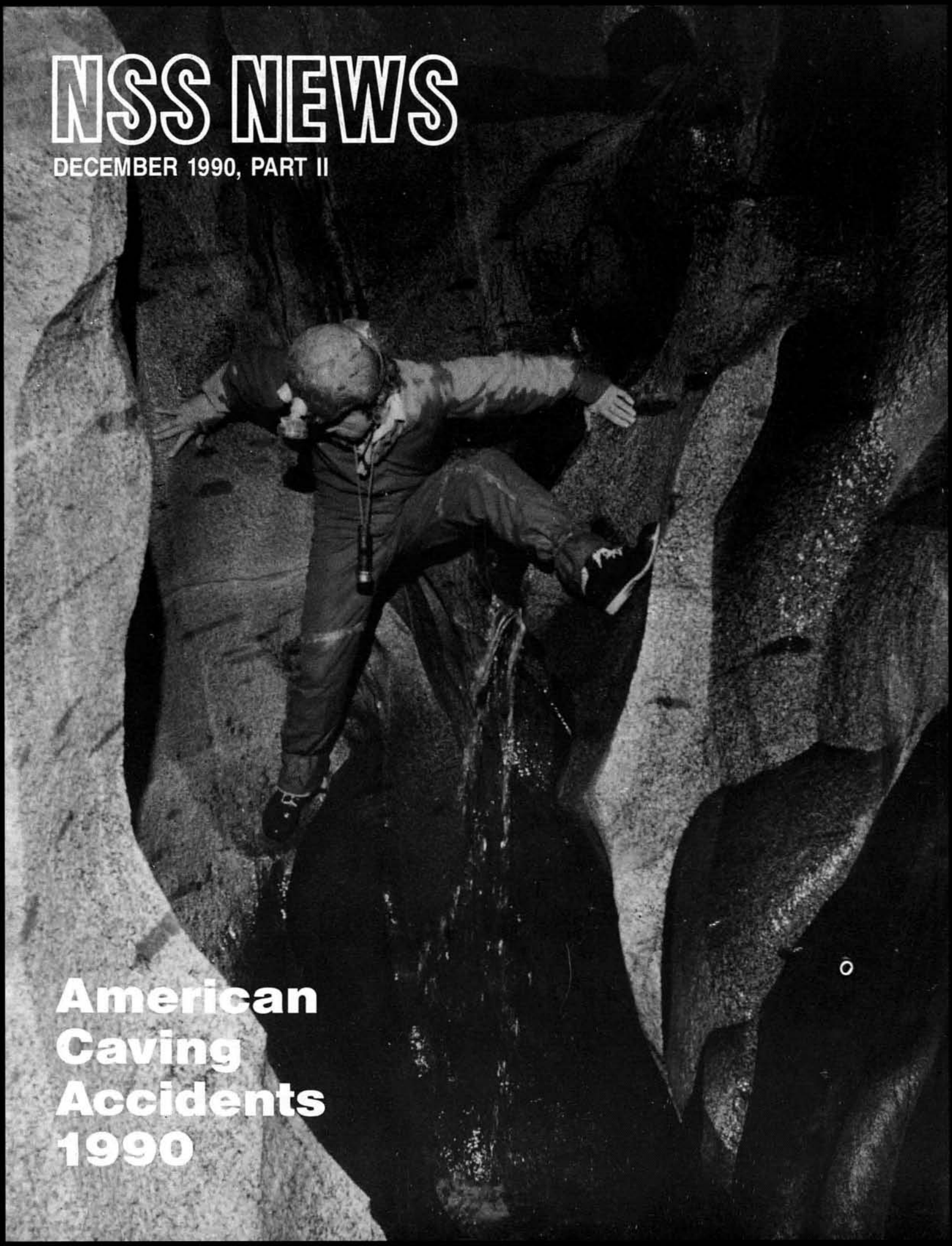
NSS NEWS

DECEMBER 1990, PART II



American Caving Accidents 1990

AMERICAN CAVING ACCIDENTS - 1990

This publication is only as good as the reports sent. It is probably fair to say that all the facts are never received and that inaccuracies may be found in these pages. Furthermore, you may find yourself in disagreement with the comments made regarding a particular incident. There is often no clear conclusion that can be drawn. I offer my opinions and those of others as a guideline; draw your own conclusions if you like. There is no single set of rules that can define "safe caving" for every caver. But read on--if you read this publication, your safety awareness will surely increase.

Send any information on any incident to:

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The following is a breakdown of incidents for the last five years by result and cause. It is obviously superficial, but will allow us to draw some rough conclusions and serve as a guide to incident types.

1. RESULT OF INCIDENT

Code-Result	1986	1987	1988	1989	1990
AA-Fatality	4	3	4	1	4
A-Injury & Aid	10	15	11	16	17
B-Aid (no injury)	21	15	20	20	20
C-Injury (no aid)	10	15	14	14	10
D-No injury or aid	19	16	12	21	5
Total	64	64	61	72	56
Total AA,A,B,C	45	48	49	51	51

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Front Cover: Handline Falls, Middle Millerton Lake Cave, California. Photo by Dave Bunnell.

Rear Cover: Skylight Entrance, Basketball Cave, California. Photo by Dave Bunnell.

Rear Inside Cover: Daniel Longhurst, Deatons Cave near Taylorsville, Georgia. Photo by Gary Beasley.

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2. CAUSE OF INCIDENT

Code-Cause	1986	1987	1988	1989	1990
a-Acetylene Explosion	3	0	1	1	0
b-Bad Air	3	2	1	1	1
c-Caver Fall	25	14	20	19	21
d-Drowning	1	2	0	2	0
e-Equipment Failure	14	17	20	20	17
f-Flood	1	3	3	4	1
h-Hypothermic	1	2	0	5	0
i-Illness	0	0	2	3	2
l-Losing the Way	8	5	3	9	4
r-Rockfall	12	17	7	11	11
s-Stuck	3	1	0	1	1
x-Exhaustion	0	1	1	3	0
o-Other	3	4	8	6	7

3. SCUBA 9 7 10 5 9

PREVIOUSLY UNREPORTED:

Bo	Berry Creek Cave	TX	3-21-87
De	Pregame Pit	AL	2-12-89
Beh	Mystery Hole	TN	9-23-89
Ce	Unnamed Pit	TN	Fall 1989
Cie	Lechuguilla Cave	NM	12-29-89

1990 INCIDENTS:

Be	Chapel Cave	AL	1-7
Dr	Tuskarora Cave	KS	1-10 B
AAi	Center-of-the-Earth	HA	1-10 A
Co	Big Manhole Cave	NM	1-14 A
Bc	Unnamed Cave	HA	1-14 B
Co	Mystery Cave	MO	1-21
Ae	Lechuguilla Cave	NM	2-18

AAc	Wolff Cave	AL	2-15
Be	Sloan's Valley Cave	KY	February A
Ac	Lechuguilla Cave	NM	February B
Ac	Lechuguilla Cave	NM	February C
Ac	King Blair	IN	3-3
Co	Lechuguilla Cave	NM	March
Cc	Brier Cave	FL	3-11
Ac	John Brown's Cave	WV	3-15
Ace	Huccacove Cave	CO	3-25
Be	Bear Cave	PA	4-8
AAr	Lent Cave	IN	4-29
Be	Johnson's Cave	TN	May A
Co	The Sinkhole	TN	May B
Ar	Unspecified Cave	TX	5-13
Ac	Laurel Caverns	PA	5-26 A
Do	Beard's Cave	AR	5-26 B
Ac	Devil's Kitchen Cave	WV	5-27 A
Be	Bowden Cave	WV	5-27 B
Cr	Stephens Gap Cave	AL	6-9
Be	New Trout Cave	WV	6-18
Bo	Kennamer Cave	AL	June A
Cr	Elwood's Drop	IA	June B
Ac	Ape Cave	WA	6-24
Db	Jack Spring Cave	KS	Summer A
Ace	Antonia Pit	MO	Summer B
Cre	Bigfoot Cave	CA	July
Bl	Buckner's Cave	IN	7-8
Co	McFail's Cave	NY	7-21
Be	Johnson's Cave	TN	7-22
Bse	Cave Disappointment	NY	7-28
Be	Unnamed Cave	VA	8-2
Br	Rotorhead Cave	WY	8-11
Bc	Tres Charros Cave	WY	8-12
Cc	Organ Cave	WV	Fall A
De	Pherris Pit	TN	Fall B
Ac	Spanish Cave	CO	9-1
Bs	Bee Tree Cave	IN	9-16
Ble	Nickwackett Cave	VT	9-29
Dr	Apogee Cave	CA	10-8
Br	Sunbeam Cave	CA	10-13
Ar	Trapdoor Cave	IN	10-14
Aec	Hole-to-Hell	ID	10-26
Ac	Onyx	AZ	11-10 A
Bl	Bone/Norman Cave	WV	11-10 B
Ac	Ladd's Mt. Cave	GA	11-18
Bf	Onesquethaw Cave	NY	12-1
Be	Natural Well	AL	12-6
AAc	Bullis Hole	TX	12-13
Alce	Agua Caliente Cave	AZ	12-31

DIVING:

AAd	Peacock Spring	FL	4-9
AAd	Troy Spring	FL	4-14
AAd	Diepolder Sink #2	FL	5-11
AAd	Otter Spring	FL	5-19
AAd	Eagle's Nest Sink	FL	August
AAd	Devil's Den	FL	10-7
AAd	Sac Actun, Mexico MX	10-17	
AAd	Peacock Spring	FL	11-4

AMERICAN CAVING ACCIDENTS - 1990

The total of consequential incidents, Codes AA, A, B, and C are 51 for 1990, in keeping with a small and gradual increase over the last 5 years. As in previous years, three causes were dominant, caver fall (19 incidents), equipment failure (17 incidents) and rockfall (11 incidents). Most of these were not "acts-of-God" and were, presumably, preventable. Let's go through the causes in alphabetical order and make some comments:

a) Acetylene Explosions - There were none, due possibly to a gradual change by many cavers from carbide to electric light.

b) Bad Air - The only incident was Summer A, where petroleum fumes were apparently brought into the cave from an oil field by bad weather. Might one expect more of this in coming years?

c) Caver Fall - These ranged from stepping in a hole and falling over (6-24) to an 80 foot non-rappel (Summer B). Injuries were numerous: death (2-25), broken neck vertebrae (3-11), broken pelvis and vertebrae (3-15), arm rappel yielding a broken ankle and lower leg (3-25), broken legs (5-26 A, 5-27 A, 6-24), arm (11-10 A), foot (11-18), and broken ankles (Summer B). Several of these should have been belayed. Three (2-18, Summer B, and 3-25) were out-of-control rappels. One rappeller unclipped to untangle the rope and fell 80 feet to his death (12-13). A thwarted through-trip and lack of ascenders led to a hand-over-hand ascent and fall (12-31). The only broken rope was hemp (10-26).

d) Drowning - None.

e) Equipment Failure - The second leading cause: a lack of ascending gear (1-7, February A, 7-22, 7-28, and 12-31) with

two of those due to a thwarted crossover, a lack of a helmet (July), stolen rope (May A), insufficient friction on a rappel device (2-18), out-of-control arm rappel due to lack of rappel device (3-25), flashlights only (4-8 and 5-27 B), and light failure using carbide (6-18). There was a rope abrasion using a frog system (Fall B), and webbing jammed in a chest roller (12-6). It appears that there are fewer (?) flashlight caver light failures than before, and more technical equipment failures. There was also a good example of what happens to a solo caver who suffers light failure (8-2).

f) Flood - There was only one, in clear weather, due to a broken beaver dam that may, in fact, have been vandalized by humans (12-1). The number of sudden storms may determine the number of flooding incidents but it is nice to think that just possibly we are staying out of bad caves on rainy days.

h) Hypothermia - No incidents revolved around hypothermia.

i) Illness - Only one, a cardiac arrest and death of a caver lost briefly in a hot cave (1-10 B).

l) Lost - There actually were 3 or 4 strandings due, apparently, mainly to disorientation (7-8, 9-29, 11-10 B, and 12-31).

o) Other - Always an entertaining category - can you believe bashing your own knee with a sledge (1-14 A), eating carbide (1-21), catching your penis in your carabiner (March), being shocked by lightening inside a cave (5-26 B), rappelling to a snake on a ledge (June A), and being sliced by knife-blade rocks (7-21)?

r) Rockfall - Probably the worst hazard in caving since it is never entirely preventable. There were several that came close to being a Floyd Collins repeat, with rockfall or shifting rock in a crawlway (1-10 A, 8-11, 10-8, 10-13 and 10-14). One did result in a fatality (4-29). There were the usual falling rocks (6-9, June B, and July) as well as an overhanging tree dropping a limb on ascending cavers (May B).

s) Stuck - Only one of this potentially deadly predicament, a caver caught by his belt buckle (9-16).

t) Trapped - A solo caver was stranded for loss of light (8-2).

x) Exhaustion - None.

It is easy to conclude that exposed climbs should be belayed or handlined, one should never rappel without ascending gear, and that one can never be too careful around loose rocks. Rappelling can be dangerous, especially if you use unfamiliar techniques. It must be said that a brake or second point of attachment to the rope while rappelling would have prevented the 2-18 incident and, perhaps, the 12-13 incident as well. Several incidents were made much worse by failure to leave a good record of the participants' intentions. American caving rope continues to be used without failure. Fatalities also continue to be moderate in actual cave exploration, with one due to rock movement in a crawlway (4-29) and one from rappelling (12-13).

The following incident was reprinted in the Loyal Hanna Troglodyte, Spring, 1990, p. 35:

"On Thursday last, two young gentlemen, J. Herron and a friend by the name of Anderson, entered Bear Cave, near Hillside, for the purpose of exploring it. Not returning, their friends on Friday morning organized for a search, under the lead of George Rhey, Esq. The party entered the cave at 9 a.m., and in two hours thereafter found them in an exhausted condition, having given up all hope of rescue. Their light having given out, they were unable to find their way back. Their rescuers deserve their lasting gratitude for the timely assistance rendered."

This refers to Bear Cave, Westmoreland County, Pennsylvania. No, it is not from this year, or even this lifetime--it occurred October 21, 1875, 115 years ago. Yet it reads just like a contemporary account of lost cavers--in fact, see 4-8-90 of this issue for a similar incident in the same cave. Why do people continue to enter a lightless environment without backup light sources?? Is there some compulsion? Surely anyone can see that a light failure in a cave will leave you stranded. Why do we do it? Can education prevent this sort of compulsive risk-taking?

ARE WE DOOMED?

Can the public, or cavers, be educated into safe caving? Perhaps there is an answer in the results of such educational efforts by the cave diving community.

Some years ago, the National Speleological Society gave sanction to the obviously dangerous sport of cave diving by chartering the NSS Cave Diving Section. This group, along with the National Association for Cave Diving led to the establishment of a set of safety rules and certification through training and the result, for a period of time, was that only untrained, uncertified cave divers (that is, ones drifting into cave diving from the diving community) were involved in fatal incidents. The certified cave divers, meanwhile, strived to warn the others of the dangers by, for instance, getting regulations in place at some popular sites. Moreover, the NACD and CDS preached their lifesaving rules. . .

Results in very recent years are interesting. The rate of death among non-certified cave divers has decreased. Now we are experiencing fatalities from certified cave divers. There are four (5-11, August, 10-17, and 11-4) reported in this issue.

So what has gone wrong? Perhaps there is an answer in another parallel. Years ago, when I was learning to blast, to

use explosives, I was impressed by what the Blaster's Handbook (DuPont Company, Wilmington, Delaware) had to say about the similarly hazardous activity of blasting. I now quote from page 410 of the 16th Edition (1977).

"Personnel designated to handle explosive materials should have intelligence and common sense and be trained in the use of explosives.

A small minority, however, will never have the proper attitude to become safe and efficient blasters, no matter how much they are trained or how well they learn the technical aspects of blasting.

Men who, through ignorance, carelessness, or bravado, follow unsafe practices constitute the greatest problem to blasting safety. If a man is careless, reckless, or unwilling to mend his ways, he should be removed from all contact with explosives.

Very few blasting accidents are caused by lack of knowledge or experience. They are more frequently the result of a mental attitude that does not put safety before every other consideration."

It appears that there are some who simply should never become blasters--those who cannot resist impulses to show off, to improvise, to cut corners, to shortcut safety rules. In short, they would not, indeed, could not in the long run, follow a set of safety rules and would be a danger to themselves and others.

Cave diving is a very similar activity--where one must be ever aware and calculate every move. Some people, the egotistical or impulsive or improvising types are simply psychologically ill-equipped and, it appears to me, should not be certified. I believe that the cave diving community must find some way to turn away such people, to fail trainees who show such traits, if it wants to return to a clean safety record. Perhaps it is too late for this. . .such screening may not be possible. In any case, the training obviously must include attitude conditioning.

I guess what I am trying to get at is that you can set up educational programs, but you will invariably educate some people to their deaths. Should this deter the educational efforts? I think not; I think the good will outweigh the bad.

ARE WE READY FOR THIS?

I began caving many years ago and at that time was also heavily involved in rock climbing. As with caving, the sport of climbing was then far outside general public acceptance and your companions seemed always to be unusual and interesting people. The sport was dangerous, psychologically difficult to get into, and often led to physical and elemental hardship. It was also pure--you climbed only for the personal challenge. Climbers did not particularly care what they looked like, but mainly cared that their garb and equipment were functional.

I left climbing after a few years and concentrated on caving, an activity also dangerous, and with even greater psychological barriers than climbing. Besides the fear of height, one had to overcome whatever fear they had of the dark, the closeness, and of whatever gristly wildlife was lurking just beyond the dwindling entrance light. . .

Now I look at rock climbing and am amazed, dismayed: skin tight suits in designer patterns, cute little shoes, color matched to the suit and helmet, courses in climbing at schools and community centers, artificial climbing walls in gyms and even in individuals' garages, routes on big walls (like Half Dome in Yosemite National Park) fixed with protection, "top-roping" to eliminate the danger, and even televised rock-climbing competition. I am amazed--rock climbing has become popular.

So now I realize that it will happen to caving. The wheels may already be in motion for the final revolution, and my personal prediction is that we'll know that caving has arrived when a complete caving outfit is available at your local sporting goods/adventure store. . .and I don't think this is far off. Already we see commercials on TV featuring caving and the publicity from the Lechuguilla Project alone has been extraordinary. The Mobley rescue was grossly over publicized, but perhaps this tells us something about the news media's readiness to feature caving. When the news media decides you are interesting, there is no putting them off.

I don't want this to happen, but I feel it will. I urge us to be ready. . .perhaps, since we are now enticing the public with the glory of caving, as in the massive publicity accrued by the Lechuguilla Project, we should go public with the techniques we have evolved over so many years, the means to survive, so to speak. . .we can have influence and good effect if we educate, but will be bypassed if we don't.

PREVIOUSLY UNREPORTED

BERRY CREEK CAVE, TX

March 21, 1987

Bo - Aid, Other

On March 21, 1987, a group of cavers entered Berry Creek Cave in Williamson County, Texas. One caver (29) had just entered total darkness, about 40 feet from, and 20 feet below the entrance when he was stung on the inner side of his left arm, near the elbow, by a scorpion, *Vaejovis reddelli*. "The initial response was a sharp, burning pain, beginning like a fire ant bite but then becoming like red-hot pins sticking into the area." A half hour later, a 2-inch area around the sting was red and swollen. The shoulder, elbow and wrist joints began to ache. This continued for two days with the elbow pain the most severe. Seven hours after the sting, the area around it developed a bruise-like appearance; ten hours later the biceps muscle ached and was sensitive to the touch. On the second day, itching set in and lasted for 1-1/2 days. After a week, the

swelling was gone but the redness continued; in the second week, it changed to pale purple and there was "a small amount of exfoliation that lasted a few days".

REFERENCE: James Reddell, "Cave Scorpion Sting", **The Texas Caver**, August, 1988.

COMMENTS: The victim weighed 160 pounds and was in good health; he had been stung by the scorpion *Centruroides vittatus* in the past with no reaction so he was apparently was not allergic to such stings. An allergic person should be careful to avoid stings.

PREGAME PIT, AL

February 12, 1989

Beh - Aid, Equipment Failure, Hypothermia

On February 12, three cavers prepared to explore a virgin 57-foot pit in Madison County, Alabama. Only one was experienced in vertical caving. The pit was rigged and the experienced caver descended. A second caver started down, but had long hair which caught in his rack. He quickly attached a safety Jumar above the rack but was unable to free his hair.

The man on the bottom called to have the rest of the 150-foot rope lowered so he could climb to the stranded caver to assist. Meanwhile, the caver on rope found a foothold and was able to clear his rack and the trip continued without further incident.

REFERENCE: Gary Griner, **Personal Communication**, undated, 1 page.

MYSTERY HOLE, TN

September 23, 1989

Beh - Aid, Equipment Failure, Hypothermia

On September 23, a group of three went to Lookout Mountain to explore Mystery Hole, Hamilton County, Tennessee. This thousand foot cave has a freefall entrance pit with a stream cascading down unless a dam spillway is closed with a plug. They rigged a two hundred feet of rope, of necessity, in the full force of the falls. Chuck Rollins (19), wearing shorts and a tee-shirt, without a helmet and with a flashlight for light, rappelled in only to reach the end, still about a hundred feet above the floor. He was unable to do a change-over and ascend, so his companions went for help. Rollins was left hanging in the falls.

At 4 p.m. the Hamilton County Emergency Operations Center mobilized the County Cave Rescue team. As soon as they arrived, they rigged a lowering system on the rope in place, using a second rope, and another rope was rigged for rappelling the pit. Rollins was then lowered to the bottom, after having been in the waterfall for about two hours. The water, flowing into the pit was shut off and two rescuers descended to attend to the victim.

Rollins was wrapped in a wool blanket and Epteh Heat Packs were applied to his chest and hands while a tarp tent was fashioned over him. This was then heated with a Petzl carbide lamp. Two more rescuers descended with dry thermal underwear and medical supplies. Rollins' temperature was 94.2 degrees. The thermal underwear was put on him; he was re-wrapped in the blanket and placed in the tent. Coffee was brought down--Rollins temperature had come up to 98 degrees. He drank the coffee and was walked around. At that time it was decided that he appeared OK to climb. The dam was opened a bit to drain the pool behind it. After closing the dam, Rollins was equipped with a helmet and ascending system and was tandemed up with a rescuer above and another alongside on the second rope. The climb took 15 to 20 minutes.

REFERENCE: Buddy Lane, "Rescue in Mystery Hole", **Speleonews**, October 1989, p. 168.

COMMENTS: Rollins had never been in a cave, but was a rock climber. He believed if the rope did not reach, there would be a ledge on which to change over to ascend. He had a second rope to tie onto the end of the first, but free-hanging was unable to do so. At least he admitted, "I was stupid".

UNNAMED PIT, TN

Fall, 1989

Ce - Injury, Equipment Failure

A resident of Cookeville discovered a 65-foot pit near the Winona Motel in Putnam County, Tennessee. He managed to descend this shaft on a knotted rope, hand-over-hand, but could not get back up. He was hauled out by the Putnam County Rescue Squad a short time later.

REFERENCE: Richard Finch, "Intrepid Adventurer Descends Six Hundred Foot Pit Hand Over Hand!", **Speleonews** Nashville, Chattanooga and Upper Cumberland Grottos, NSS), December 1989, p. 202-3.

LECHUGUILLA CAVE, NM

December 29, 1989

Cie - Injury, Illness, Equipment Failure

On Tuesday, December 26, at 11 a.m., a group of three (part of a larger expedition) entered Lechuguilla Cave in the Guadalupe Mountains, New Mexico. Their objective was the Far Eastern part of the cave. They carried packs with gear for a 3-day camp in the cave. Shari Lydy (37) was wearing a pair of relatively-new boots (Hi-Tec canvas-upper). These had been used on several short cave trips, a hike around Slaughter Canyon on the 22nd, and a moderate-length trip into Lechuguilla on December 23-24. On the 25th there was "minor abrasion" evident on her left heel and two toes, so she carried Bacitracin cream, moleskin, and Spenco "second skin" on the 3-day trip in case something worse developed. Furthermore, she taped her toes and heel before entering the cave.

On Wednesday evening she observed blisters on her

previously abraided toes and a new abrasion on her right foot. By Thursday evening the blisters on the left foot had broken and were oozing and painful with some swelling. The foot "smelled like something rotting". Bacitracin caused intense burning and throbbing for 2 hours.

On Friday they started the trip out. With her boots on, the left foot was very painful. Once she started walking, the pain dissipated, but 2 hours later, at the top of the Aragonitemare, the pain returned intensely. She took two Tylenol tablets but was limping badly.

At the bottom of Apricot Pit, her left foot was numb. Her toes were very painful and halfway up became agonizingly so. She abandoned her pack to be carried out by her companions and other cavers. She was able to make her way out slowly.

Back at the field house, both feet and ankles were swollen and several toes were "mushy". She was later diagnosed to have cellulitis and put on antibiotics.

REFERENCE: Shari Lydy, **"NSS Accident Report Form"**, undated, 2 pages.

COMMENTS: Lydy says that the boots had rubber liners and thus did not "breathe". She had only one pair of socks and these, as a result, were always damp and dirty.

1990 ACCIDENTS

CHAPEL CAVE, AL — January 7

Be - Lack of Equipment

At 6 a.m. on Sunday, January 7, a group of six cavers entered Chapel Cave, Morgan County, Alabama. These were Bill Campbell (18), Bill Consuela (20), Denny Hamilton (19), Al Marks (20), and Allen Grant (23). It was a winter's day in Alabama, with steady rain and a 38-degree F temperature.

The main Chapel Entrance to the cave is in a small sink with a tributary stream gully from higher on the mountain. The other, Wildcat Entrance, is prone to flooding. At the entrance is a short, overhung drop that conducts the gully stream; 50 feet into the cave is a 60-foot pit leading to the main part of the cave. The cavers had only three seat harnesses and one set of Gibbs ascenders; their upper bodies were insulated only by T-shirts and they had no hardhats.

The cavers successfully reached the main part of the cave. When they tried to exit, they found they could not get back up the 60-foot drop. They had left word with their families that they were going either to Maubry or Chapel Cave and at 8 p.m. they were reported overdue to authorities. At 9 p.m. caver rescuers were mobilized and, after checking the Maubry Cave entrance for the victims' vehicle, they located the six at the bottom of the 60-foot pit in Chapel. The six were assisted up the pit and out, the operation being completed at 1 a.m., Monday, January 8.

REFERENCE: 1) Ed. "Six Men Rescued from Area Cave", **The Huntsville Times**, January 8, 1990, p. 2B.
2) Greg Freese, **Accident Report**, unpublished, undated.
3) Bill Vamedoe, "Chapel Cave Rescue", **Accident Report**, unpublished, undated.

COMMENTS: The cavers in question "were aware of the NSS and the Huntsville Grotto and had been on a horizontal trip, but they said that they preferred not to cave with the grotto because the grotto required hardhats(!)." Needless(?) to say, they were grossly underequipped and are lucky there were not more serious consequences.

TUSKARORA CAVE, KS — January 10A

Dr - Rockfall

On Wednesday, January 10, James Potts and companions were mapping in Tuskarora Cave, Bourbon County, Kansas. While exiting the cave, Potts was in a crawlway when a large rock fell from the wall, landing "right in front of my nose". This blocked the passage sufficiently that he had to roll it down the passage until it fell into a hole.

REFERENCE: James Potts, in "Trip Reports", **The Kansas Kaver**, May 1990, Vol. 7, p. 9.

CENTER-OF-THE-EARTH, HA — January 10B

AAi - Illness

On Wednesday, January 10, a group of three people entered a lava cave near Route 137 in Opihikao in the Puna District, Hilo, Hawaii. These were Rodney Armour (55), his wife, Jo, and Mauve Fisher. The entrance is in a sink about 11 feet deep; an initial, short, descending, body-sized tube or constriction leads to a stoop-way that continues descending as it enlarges to a walkway. The cave has numerous small side leads and is described as being "as large as a city block". With hot water pools and a temperature of 96 degrees F, the cave is locally popular as a natural sauna.

The trio explored for a bit, and at some point Rodney Armour became separated from the other two. Fisher and Jo Armour exited the cave and at 2:30 p.m. reported Rodney missing. Rescuers soon found the missing caver but he was dead, lying in a very narrow passage. The heat forced rescuers to work in 20-minute shifts, but since the cave was not large, the body was removed by 4:15 p.m. An autopsy later revealed death to be due to cardiac arrest.

REFERENCES:
1) Rod Thompson, "Washington State Visitor Dies in Big Isle Lava Tube," **Star Bulletin**, January 11, 1990.
2) Ed., "Tourist Dies in Lava Tube", **Ibid.**, January 11, 1990,

p. 12) Chris Reed, "Puna Police Look to Block Entrance to Cave after Death of Tourist", **Hawaii Tribune-Herald**, January 12, 1990.
3) Chris Reed, "puna Police Look to Block Entrance to Cave after Death of Tourist", **Hawaii Tribune-Herald**, January 12, 1990.
4) D. Hunter Bishop, "6 Feet Under in Opihikao", **Ibid.**, January 24, 1990, p. 1.
5) Frank Reid, "Death in Hawaiian Lava-Tube Cave", **Computer Bulletin Board**, January 12, 1990.

COMMENTS: The group was apparently using flashlights and had no real caving equipment. The Armours were visiting a nearby retreat. The cardiac arrest may have been caused by panic when Armour found himself alone--parties should stay together.

UNNAMED CAVE, HA

January 14

Be - Equipment Failure

On Sunday, January 14, William Goidell was attending a party with friends near Hawaii Volcanoes National Park in Hawaii. Late in the evening, they decided to experience a natural sauna at a steam vent area on some bluffs about a mile downslope from park headquarters. "Goidell was unfamiliar with the steam vent area. After removing his clothes, the man walked into a steam cloud and disappeared."

Goidell stepped into an unseen fissure in the lava, landing on a ledge 25 feet down. He called for help and a rescue attempt was made by his friends, using a rope made of towels knotted together. This didn't work, so they sought help at nearby Kilauea Military Camp. Park rangers were notified and hauled Goidell out of the hole at about 2 a.m. (two hours after he fell in), using conventional nylon rope and body harness.

REFERENCE: Hugh Clark, "Visitor Lands in Deep Trouble at Geothermal Sauna Soiree", **The Honolulu Advertiser**, January 19, 1990, p. A-4.

MYSTERY CAVE, MO

January 21

Co - Other

On a trip into Mystery Cave, Missouri, January 21, 1990, Aaron Addison and companions proceeded to the Coon Room via a 600 foot crawlway. They stopped there to have a bite to eat and take photos. Addison took his baby bottle of candy, rattled it, opened it, and tossed down a mouthful. The bad news was that it was his carbide bottle; the good news was that he was able to spit it out and suffer only minor burns. He suggests keeping food and carbide in different style containers.

REFERENCE: Aaron Addison, "Tale of Two Baby Bottles," **The Crawlway Courier**, 24(1) Spring, 1990, p. 5-6.

LECHUGUILLA CAVE, NM

February 18

Ae - Equipment Failure

On February 18, Neil Bakstrom, Dave Belski and Bill Heath planned to enter Lechuguilla Cave in New Mexico for a 5-day stay as part of the Microclimatology Study Project. Bakstrom's vertical gear had recently been stolen so he had borrowed gear from the Park Service. Instead of a rack, he chose a "French Carabiner rig" which apparently used a single carabiner for braking friction. He reasoned that the pits he would encounter were relatively short.

At the 70-foot entrance pit a new rope had been rigged. Belski and Heath descended. When Bakstrom rappelled, he quickly went out of control, lacking friction from his rappel device, and hit bottom at "near freefall speed", injuring his right ankle.

The ankle was taped to help immobilize it and Belski ascended to give assistance when Bakstrom reached the lip. Using a single-foot Texas rig, Bakstrom was able to climb out. With aid from Belski and Heath, he hopped the mile to the vehicles. At a hospital, the ankle was diagnosed as fractured; he also suffered a 6-inch-square rope burn on his left thigh.

REFERENCES:
1) Bill Heath, **Accident Report**, "Windy Passages," (Pajarito Grotto, NSS) 3 (3) March 1990, p. 22.
2) Dan Clardy, **Personal Communication.**

COMMENTS: Bakstrom is reportedly "an extremely competent climber and caver". Still, to save a few ounces, he chose an unfamiliar device over a rack. Bad choice. My usual advice in a situation like this is to test the friction braking you are getting at the lip, but it may be better to refrain from using an unfamiliar device until you get a chance to practice with it.

WOLFF CAVE, AL

February 25

AAc - Caver Fall

On February 25, a group of four people were exploring around the vertical entrance to Wolff Cave, Morgan County, Alabama. The cave is near the residence of two of these people. A small stream cascades over the cliff above the entrance. At 2:15 p.m., one of the group, Scott Holmes (17), decided to climb behind the waterfall on a ledge. He lost his footing and fell some 45 feet into the entrance pit. The authorities were notified and rescuers soon arrived and found Holmes dead from head injuries. The body was evacuated in 3-1/2 hours using two haul systems.

REFERENCES:
1) Greg Freese, **Accident Report**, undated.
2) Ed., "Union Hill Youth Falls to His Death," **The Decatur Daily**, February 26, 1990.

3) Greg Freese, "Fatality in Entrance of Wolff's Cave," **Huntsville Grotto News**, March 1990, p. 12.

SLOAN'S VALLEY CAVE, KY

February A

Be - Attempted Crossover, Lack of Gear

In February, a group of 20 students from Ohio University entered the Screaming Willies entrance of Sloan's Valley Cave in Pulaski County, Kentucky. They intended to do a crossover trip, coming out an entrance that did not require a rope ascent. They thus did not take ascending gear; furthermore, some were without helmets and lights. Earlier, they had encountered other cavers at Sloan's and had been told that water levels were above normal and that their proposed trip may not be possible.

When they were unable to get to the other entrance, they returned to Screaming Willier where they were hauled out by other cavers using a pulley system.

REFERENCE: Bob Wright, **Cave Cricket Gazette**, April 1990.

LECHUGUILLA CAVE, NM

February B

Ac - Caver Fall

On a February expedition to the National Park Service's Lechuguilla Cave in the Guadalupe Mountains of southern New Mexico, a group of cavers was heading into the cave. After one hour's travel, they came to an exposed traverse that was equipped with a handline for safety. The experienced members of the party proceeded across without actually clipping in. Clinton Cline, on his first trip in this cave, started across in similar fashion, but lost his footing partway and was unable to hold onto the rope. He fell twenty feet, landing on a ledge that saved him a further 60 foot drop, and suffered three broken ribs. He was able to retreat from the trip under his own power, including a 150-foot, free-drop ascent.

REFERENCE: Garry Petrie, **Personal Communication**, September 6, 1991.

COMMENTS: A handline is just what an exposed traverse such as this needs. It only takes a second to clip in--to not do so is silly. The experienced cavers obviously knew the traverse and felt little danger of falling. They should,however, have urged the "new guy" to clip in; you just don't know what another caver might find difficult. . .and it could save you having to spend your trip hauling someone out.

LECHUGUILLA CAVE, NM

February C

Ac - Caver Fall

On a February expedition to Lechuguilla Cave in New Mexico, a group was proceeding into the cave. About ten minutes in, they came to a flowstone-slope descent. This was fixed with a handline and John McLean went down first, carrying a 40 pound pack. At the bottom of the handline, the slope continued for a short distance as a 30 degree slope. McLean started down but slipped. He broke his fall with one arm and suffered a dislocated shoulder. McLean had this happen before, so he was able to relocate the joint by the time the rest of his party came to his aid. He aborted the trip and proceeded out without further incident.

REFERENCE: Gary Petrie, **Personal Communication**, October 6, 1991.

KING BLAIR CAVE, IN

March 3

Ac - Caver Fall

At about 11:30 a.m. on Sunday, March 3, a group of three cavers, including Aaron Howell (20), and Jeff Schepper, entered King Blair Cave, about eight miles southwest of Bloomington, Indiana. They proceeded to a point about 1300 feet from the entrance where King Blair connects with Brinegar's Cave. At this point, at about 2:30 p.m., Howell was climbing a vertical pitch when he slipped and fell about 30 feet, landing on a narrow ledge with 40 foot drops on either side. He suffered multiple lacerations, fractured ribs and was unconscious for ten minutes. His companions went for help after giving what first aid they could.

At about 10:30 p.m. paramedics reached the victim and placed him in a SKED for transport through the cave. A large group of rescuers worked in teams to move the victim to the entrance, negotiating vertical pitches and narrow, low passages, including the Bathtubs, a 2-1/2 foot high passage with two feet of water. At times, a "human highway" was formed with rescuers lying down and passing the victim along over them. One point had to be enlarged with chisel and hammer. The victim suffered a bit from dehydration and hypothermia, but reached the entrance at about 6:30 a.m. Monday.

REFERENCES:

1) Will Ott, **NSS Accident Report**, undated, 9 pps.
2) Bill Pittman, "Rescuers Free Spelunker," **The Indianapolis News**, March 5, 1990, p. 1, A-12.
3) Stephen Beaven, "Rescuers Reach Man Trapped in Cave," **The Herald-Times**, March 5, 1990.
4) Julie Creek, "Man Rescued From Cave," **Ibid.**, March 6, 1990.
5) Anne Kibbler, "DeGroote: Rescue Points to Need for Special Team," **Ibid.**

COMMENTS: The cavers were said to be experienced and it may be that they did what any other caver would have done or have to do to traverse the cave, but the incident seems to point out the need for some sort of aid at that point in the cave--a fixed handline or whatever. In any case, to do an exposed climb without a belay, where a fall could mean injury or death,

with so much difficult passage between the caver and the entrance seems a bit unjustifiable.

LECHUGUILLA CAVE, NM

March

Co - Other

In Lechuguilla Cave there were some incidents resulting from the use of shorts to combat the warm cave environment. On a photo trip, one caver was carrying a pack which was tethered below him on a sling to a non-locking carabiner. Unfortunately, once while rappelling and once while ascending, the carabiner opened and caught his penis. There was no permanent damage.

Similarly, Neil Mestler was ascending and caught his penis in his lower ascender.

Thomas Zanes was using a Mitchell rig, with the lower Jumar controlled by a bungi cord. This ascender sometimes caught his leg, but this only resulted in bruises.

REFERENCE: Dan Clardy, **Personal Communication,** July, 1990.

COMMENTS: The ascender problems might be solved using one with the opening on the opposite side, or wear a jock strap.

BRIER CAVE, FL

March 11

Cc - Caver Fall

On March 11, a group of cavers entered Brier Cave in north-central Florida. This was a trip to show the cave to visiting dignitaries of the National Speleological Society. Evelyn Bradshaw, one of the group, had seen slides of the cave and decided to limit her activities to the entrance area.

The entrance to the cave is a 12-foot climb-down with a cement cap and a cement door, set in manhole style. The trip leader described the climb-down and descended. Bradshaw misunderstood and went in headfirst. Seeing the descent, she stopped but couldn't back up. Communication was made with the trip leader. He apparently did not understand her incorrect orientation. Hoping for the best, she let herself slide forward. In an instant, she fell, striking her head on the opposite wall. At the bottom, she soon discovered that the only result seemed to be a sore head and neck--apparently her hard hat had been jammed back on her head so that the back edge struck her neck. She continued a short way on, then exited with no difficulty.

The head and neck pain was gone after two weeks, but neck stiffness continued. Two months after the incident, the neck was x-rayed, revealing a fracture of the second vertebrae. A neck brace was worn for three months.

REFERENCE: Evelyn Bradshaw, **Accident Report,** August 3, 1990, 2 pages.

COMMENTS: Bradshaw admits having made a poor decision to continue rather than having someone behind her help her retreat from the headfirst position. Still, it is human nature to try to make the best of a bad situation and carry on even when we realize we've made a bad decision. She also points out that a helmet more firmly held in position might have caused her head to "whiplash", yielding a similar result. In any case, injuries of this sort can easily be much more serious.

JOHN BROWN'S CAVE, WV

March 15

Ac - Caver Fall

At about 6:30 p.m. on March 15, Mark Wetzel, Tim Jordan, and David Walker (Jordan's son), entered John Brown's Cave in West Virginia and spotted a ledge climb that led to a chimney-climb lead. After touring the cave, they stopped while Jordan attempted the previously encountered ledge climb. Wetzel promised he would follow if it went anywhere.

Jordan got 25 feet up, at which point he lost his holds and fell, head-first, onto a slope, down which he tumbled. Wetzel immediately sent Walker for the trauma box and bag (outside in the van). Jordan seemed to be in reasonably good condition, and after Wetzel placed a cervical collar on the victim's neck, Jordan made it out with minimal assistance. At the entrance where they had to pass a steel plate with a 1-1.5 foot gap, they rolled Jordan onto his side and pulled him out. At Jefferson Memorial Hospital, it was determined that he had broken his pelvis and a piece off a lumbar vertebrae.

REFERENCE: Mark Wetzel, "Trip Report - John Brown's Cave," **The West Virginia Caver,** 8 (4) August, 1990, p.6.

COMMENTS: If you can't take the fall without very low probability of injury, use a belay! Still, it is always nice to hear about a self-rescue and this one must have been painful.

HUCCACOVE CAVE, CO

March 25

Ace - Broken Ankle on Rappel

On Sunday, March 25, Jon Barker, Kevin Smith, Steve Smith, Ben Evans, Leigh Evans, and Jeff Fowler entered Huccacove Cave, near Cave of the Winds, near Manitou Springs, Colorado. Their objective was a photography session in the newly-discovered Mammoth Extension.

They had consulted cavers experienced with the route and were advised to expect tight crawls and climbs where an ascender would be handy on handlines. As a result, they brought only one figure-8 for descent.

Just after noon, they arrived at the top of the Overlook drop, leading from Hucky's Secret to God's Country. The descent involves 20 feet of steep slope to an overhanging 15-foot pitch. Barker and Leigh Evans used Barker's figure-8 while the other four opted to apply "arm rappels" where the rope goes around behind the back, and under each armpit with one wrap around each arm. Three cavers descended using this technique

successfully; however, when Steve Smith came down, he slipped the rope too much at the over-hang and lost his balance. Since the rappel was done angled to one side, he then pendulumed ten feet, striking a wall. He was able to get his feet ahead of him, but struck with his right heel hitting the wall first. (The force of this broke his ankle and the end of the tibia and fibula in the lower leg.)

Smith completed the rappel and was diagnosed as having a severe sprain in his very painful right ankle. Another caving group was working on a dig nearby and one caver was enlisted to help. The ankle was splinted with two Jumars and some survey tape. Smith and two companions then started out of the cave, the victim moving slowly under his own power. The rest would follow as a second group. Smith made it the thousand feet to the entrance and down the gully to the Williams Canyon Road, where a ride was obtained in a passing car. At a hospital later it was determined that the ankle was broken as were the ends of the tibia and fibula in the lower leg. The ankle received an operation and a complete recovery is expected.

REFERENCE: Kevin and Steve Smith, "Steve 0, Wall 1. . .," **Rocky Mountain Caving,** Spring, 1990, p. 9.

COMMENTS: Mountaineers developed the arm rappel for descents down a slope. I repeat, down a slope. Cavers seem to keep applying the technique to free descents. For free descents without a descender, use a body rappel--rope through the crotch, around to the front, up across the chest and over the opposite shoulder, down the back and held with the right hand (if it went over the left shoulder) for braking. If you don't know how to do it--find out and practice it.

BEAR CAVE, PA

April 8

Be - Equipment Failure

Shortly after 3 p.m. on Sunday, April 8, a group of two, Van Morrow (26) and James Holland (24), entered Bear Cave in Westmoreland County, Pennsylvania. They had registered to explore the cave at a parking lot at the home of the owner of the cave. For the exploration they brought two flashlights--at the entrance one proved to have a bad bulb, so they left it behind.

They pushed into the maze-like cave doing a stream crawl that soaked their clothes. When the light went dim, they tried to retrace their route, getting back through the stream crawl to a room called the Serpent's Sanctum. Confused by crawlways beyond this point, they stopped to wait for help.

When they failed to return that evening, Morrow's wife called authorities and both public agencies and cave rescuers responded. The stranded cavers were found around midnight and led from the cave. The batteries from the flashlight left at the entrance probably would have gotten them out.

REFERENCES:

1) Tom Metzger, **Personal Communication,** September 26, 1990.

2) Kim Opatka, "New Florence Men Lost in Area Cave," **Latrobe Bulletin,** April 9, 1990, p. 1, 6.

3) Ed., "New Florence Men Lost in Cave Briefly," **Tribune-Review** (Greenburg), April 10, 1990, p. D-1.

4) Ed., "Two Men Rescued from Bear Cave," **Indiana Gazette,** April 10, 1990, p. 13.

(Plus similar accounts in other local papers.)

LENT CAVE, IN

April 29

AAr - Rockfall

At about 6 p.m. on Saturday, April 29, Roger Neeley (30) and four companions entered Lent Cave, Greene County, Indiana. All were inexperienced, but the cave is unusual for the area in having large rooms and passages.

They proceeded about 1,000 feet into the cave, negotiating one crawl, to a place where a large boulder, some 15'x5'x3' in size blocked most of the passage. Two of the party squeezed past, but when Neeley attempted this, the boulder moved, pinning him to the bedrock wall of the passage. Two of the cavers left to summon help while the remaining two freed Neeley and administered CPR. The authorities were called at 7:15 p.m. Paramedics and fire department personnel were dispatched and arrived a little after 7:30 p.m. The victim was soon found to be dead; the body removal took about 2-1/2 hours. He apparently died of internal injuries.

REFERENCES:

1) Will Ott, **NSS Accident Report,** 9 pages, undated.

2) Ed., "Death of Explorer Called Freak Accident," **The Indianapolis News,** April 30, 1990.

3) Gayle Robbins, "Area Man Dies in 'Freak' Cave Accident Saturday," **The Evening World** (Bloomfield), April 30, 1990, p. 1, 8.

COMMENTS: In the press, the incident was generally referred to as a "freak" accident. Not so--rock movement and instability is common in caves. Don't crawl under or climb on boulders or loose rock until you at least try to ascertain the stability.

JOHNSON'S CAVE, TN

May A

Be - Equipment Failure

In May, Jeff Wood and Bill Overton went to Johnson's Cave, Putnam County, Tennessee, parking on the road close to the entrance. They proceeded into the cave to the 40-foot pit which they rigged and descended. At the bottom, they tied off their rope and made their way further into the cave, rigging and descending a second pit. After 11 hours in the cave, they were on their way out when they arrived at the first pit to find the rope missing.

Wood is a rock climber so he began to free-climb the pit. Halfway up, his Wheat lamp quit. Overton quickly scrounged a cyalume from his pack, quickly got it going, and threw it up to Wood, who was able to hold it in his mouth and complete the climb. He then rigged the second pit-rope for Overton.

They hurried for the entrance, hoping to catch the perpetrators, or at least find their names in the register at the Hall of the Mountain King. They soon smelled smoke and assumed it was the perpetrators burning the evidence.

REFERENCES:

1) Morris Sullivan, **Pesonal Communication,** August 4, 1990, 1 page.
2) Patricia Williams, "Spelunker Pleads Guilty to Stealing," **The Tennessean,** July 31, 1990.

COMMENTS: Stealing gear you know is in use--pretty low trick, right? But there is a second, happy ending--see July 22 report.

THE SINKHOLE, TN

May B

Cor - Rockfall, Other

In mid-May a strange group arrived at The Sinkhole on Lookout Mountain near Chattanooga, Tennessee. The group included several veteran vertical cavers, a writer, and Burt Grossman, a defensive end for the San Diego Chargers football team. They intended to provide Grossman with his first vertical cave experience as a publicity stunt. They spent most of the day practicing at a nearby cliff and felt ready for the real thing.

The pit was rigged with parallel ropes and caver photographers were poised on a ledge a few feet from the top, to record the historic moment. The descent went well and the exit began with Buddy Lane and Grossman climbing the parallel ropes. Suddenly, a branch "a foot in diameter and twenty-five feet long" broke off a large, overhanging oak tree landing on Grossman's rope at the edge of the pit; most of it stayed there, but a ten foot piece broke off and continued down the pit.

Cavers stationed on the bottom with flash guns saw this, yelled "Rock!", and scrambled for cover. The warning came too late for Lane who was struck a glancing blow on the face. Lane put his hand to his face and pulled it back, covered with blood. He and Grossman exited as fast as they could and Lane headed for a hospital for treatment of facial lacerations.

REFERENCE: Roger Ling, "Falling Trees, Bees, and Other Underground Adventures," **Speleonews,** October, 1990, p. 95-97.

UNSPECIFIED CAVE, TX

May 13

Ar- Rockfall

On Sunday, May 13, a group of four entered a cave in Texas. The entrance, a two-foot triangular opening in breakdown, led to an easy eight-foot downclimb and on to a large downsloping, dirt-floored passage. This proved to be a room with a sloping boulder floor, bare in the middle part and covered with red clay near the bottom, some 180 feet below the surface. The cave continued at the end of the room with a climb-down on breakdown to what appeared to be a lower room. The purpose of the present trip was to photograph six-foot soda straws in a lower room, so James Jasek descended to find himself in a breakdown room eight feet high and 12 feet long, with a ceiling of "car-sized" boulders. He saw no lead, but noticed fresh white rock chips on the floor indicating recent collapse, so he went back to where he could yell to the others not to come down, that it was unsafe.

Jasek then returned to the breakdown room and looked for the lead to the soda straw room. He approached a free-standing "monolith" about two feet wide, 18 inches thick, and about seven feet tall which suddenly began to fall toward him. He put out both arms to push it away, but its weight was irresistible. It continued to fall, failing to crush him only because he rolled left as it knocked him over. Still, it fell on his legs and he yelled "with what could be called a true death scream". Luckily, it continued to slide down a slope, leaving him free. His left foot took most of the pressure and his heel bone was fractured. He yelled to the others that he was hurt.

Jasek was able to crawl out of the breakdown room and meet the others. Coming to his aid, they thought from the sound of his scream that he had fallen down a pit. He was unable to put weight on his foot without intense pain and walking, even with someone's help, was impossible. Still, with assistance, he was able to crawl and climb to the entrance in about 40 minutes. The vehicle was parked about a half-mile away and he was able to hunch along on his behind for most of this. When his arms gave out, the others carried him the remaining 300 feet. He was taken to a hospital for treatment of the injury.

REFERENCES:

1) James Jasek, "Jim's Sunday Surprise," **The Texas Caver,** June 1990, p. 67-69.
2) James Jasek, **Personal Communication,** May 21, 1990.

COMMENTS: Jasek feels there are some caves that simply should be avoided on account of the danger. This particular incident could easily have been much more serious, even fatal.

In Jasek's words, "I consider myself to be a careful and cautious caver, always on the lookout for a dangerous situation. This situation caught me by surprise and even though my reaction. . .was instantaneous, I was unable to move fast enough. (A) cave is a part of nature, and as such, is a very unforgiving master when disturbed or thrown out of balance. We must respect it with a vengeance and be ever aware that we are trespassers in a world of delicate balance."

LAUREL CAVERNS, PA

May 26 A

Ac - Caver Fall

On Saturday, May 26, a group of eight cavers entered Laurel Caverns, a commercial tour cave in Fayette County, Pennsylvania. The cave, longest in the state, is a series of sizable passages connecting large breakdown rooms. Visitors commonly climb over the breakdown.

The group was a church outing, led by Ken De la Sandro (30). In one room, Ken began downclimbing a breakdown pile when he lost his holds and fell approximately 15 feet, landing feet-first in a small pool of water. The victim was a paramedic and did his own diagnosis--a fractured fibula. He exited the cave with aid from his companions. At a hospital, the diagnosis was confirmed--the fibula was fractured in three places.

REFERENCE: Dan Peden, **Personal Communication,** June 2, 1990, 4 pp.

COMMENTS: Peden notes the following: "In the emergency care field, a fall of greater than ten feet where the patient lands on his feet, is referred to as the "Don Juan Syndrome"--named after the fictional Don Juan, who leaped from balconies to escape jealous husbands. While the chief complaint of these patients is usually lower extremity pain (ankle, leg, knee), a more serious lumbar spine injury often results from the transfer of energy through this area. Thus, lower back injury with potentially serious spinal involvement must always be considered in evaluating and treating (such) victims. When possible, back immobilization should be employed until x-ray and neurologic exams show negative."

BEARD'S CAVE, AR

May 26 B

Do - Other

On Saturday, May 26, a group of ten cavers from Little Rock Grotto entered Beard's Cave in Arkansas. A weather forecast on the radio had predicted severe thunderstorms for that area on Saturday, but at 11 a.m., as they stood at the entrance debating the wisdom of entering, the clouds broke a bit and the sun shone through. Thus encouraged, and wearing wetsuits, they proceeded through the series of entrance chambers, where "roaring water cascaded down the chutes."

They then broke into a survey team of three and a push team of seven. All were keeping an eye out for rising water. Four hours later, the push team reached the "terminal upper room". They spent some time there before returning to the stream passage, some 3/4 mile from the entrance.

At 6:30 p.m. they had gone about 200 feet in the knee deep water when Dewayne Agin (27), Camille Lide, Adriane Slover (30) and Michael Zawada (25), the only ones in the water at that point, "experienced a brief but substantial electric shock". Two minutes later, there was a second shock and Zawada's hand was jerked a foot from the wall he was touching by a muscle contraction. No one was injured, so they continued, reaching the entrance at 8:30 p.m.; the survey team had exited earlier and reported that a thunderstorm had occurred outside the cave at around 6:30 p.m.

REFERENCE: Michael Zawada, "Electric Shock from a Thunderbolt in Beard's Cave, Arkansas", undated, **unpublished report,** 3 pps.

COMMENTS: Electrical discharge from thunderstorm lightning is an equalizing of potentials between the atmosphere and a portion of the earth, but is not limited to the absolute surface of the earth, but rather a portion of the surface, such as a hill or mountain. Thus, it occurs that ground currents result in gullies, or fractures on the side of hills or mountains and, as we see here, even in caves. This is no joke--one does not have to be "hit" by lightening to be injured or killed. Zawada states "Severe electric shocks have been reported to cause heart fibrillation, muscle contractions, bone fractures, unconsciousness, and respiratory paralysis." Beware.

DEVIL'S KITCHEN CAVE, WV

May 27 A

Ac - Caver Fall

Late in the afternoon of Sunday, May 27, Halley Hoth (27) and friends had been river rafting when they began to explore Cooper's Rock State Park, on the Monogalia and Preston County Line in West Virginia. Devil's Kitchen Cave, a single fissure passage leading to a large room, is located in the Park, so the group decided to have a look. A little after 7 p.m., Hoth took a fall in the large room and suffered major injuries. The cave, though short, is apparently rather difficult and Hoth's companions spent two hours trying to deal with the situation before calling the authorities.

When EMS personnel arrived, they diagnosed a broken femur, possible broken pelvis, and hypothermia. In addition, the injuries were causing a great deal of pain. The victim was removed from the cave via a skylight in the ceiling of the 75-foot room. This involved a main haul vertically to a Tyrolean traverse line which got him to the surface at a main section of the park overlook. The haul took about two hours. The victim reached the ambulance in the parking lot in about two hours.

REFERENCE: George Dasher, "West Virginia Cave Rescues," **The West Virginia Caver,** August, 1990, 8 (4), p. 11.

BOWDEN CAVE, WV

May 27 B

Be - Equipment Failure

At about 7 p.m. on Sunday, May 27, a group of three, Robert Hutton (25), Paul Osterling (25), and Mark Thyram (23), entered the main entrance to Bowden Cave, Randolph County, West Virginia. They had no helmets and only three

flashlights. They intended to do a crossover trip, exiting a particular back entrance of the cave. Though the group leader had been in the cave four or five times, he apparently had not heard that this particular entrance had been blocked by a large boulder for many years. Still, this ignorance was not crucial as the group was not able to find that entrance. Unfortunately, two lights failed and the last grew dim. They couldn't find their way back to the main entrance.

When they failed to return to their camp near Seneca Rocks the following morning, friends notified authorities in Elkins and public agencies as well as caver rescuers were mobilized.

Firemen and EMS personnel arrived first and two firemen plus a paramedic entered the main entrance at around 9 a.m. Cavers soon arrived and went in the higher entrance to sweep search back toward the main entrance. The three in the main entrance followed the main passage up and into the Water Passage. The three lost cavers were found in the maze beyond the Water Passage. Everyone was out by 11:10 a.m.

REFERENCE: George Dasher, "West Virginia Cave Rescues", **The Region Record**, 4 (3), September 1990 (also from **The West Virginia Caver**, August 1990, 8 (4) p. 11) p. 38.

STEPHENS GAP CAVE, AL — June 9

Cr - Rockfall

On Saturday, June 9, a group of eight cavers attending the Southeast Regional Meeting (NSS) decided to do the 142 foot Stephens Gap Cave entrance pit in Alabama. They arrived at the pit at 11 a.m. to find a group of seven already there; another group of five arrived shortly.

After several of the group of eight had descended the pit, they decided to visit the cave itself. They rigged at the "Window" drop, on the side of the pit opposite the trail. This starts as a three foot oval slot which joins the main pit and allows cavers to get off at a convenient ledge.

At about 2 p.m. Don Lance (23) the last of the eight-group to ascend, was coming out the Window when "a three-foot section of a boulder at his side suddenly broke off and fell into the pit". The call of "Rock! Rock!" went out instantly as the rock struck the ledge below, shattering into several "bowling ball" sized pieces that showered into the pit. One caver from another group was hit a glancing blow on the leg by a small piece but this caused no injury and he was able to continue. Lance froze and observed that another piece was poised to fall. He was able to maneuver past this and there was no further incident. Lance suffered only minor lacerations on his thigh.

REFERENCE: Dan Lance, **NSS Accident Report**, undated, 2 pp.

COMMENTS: This is one of the most hazardous situations in caving--the multi crew pit descent. Lance reports that the call of "Rock!" was occurring every so often during the operation as a caver would accidently knock a stone down the pit. The best advice is to avoid such scenarios.

NEW TROUT CAVE, WV — June 18

Be - Equipment Failure

At around 9 a.m. on Monday, June 18, a group of three cavers entered New Trout Cave, Pendelton County, West Virginia. This is one of four National Speleological Society owned caves known as Trout Rock Caves along the South Branch of the Potomac River. The three were Gary Lutes (37) and his two sons, Gary Jr. (13) and Timothy (9). Lutes' caving experience stretched back 20 years, but the two boys were essentially novices. They each had a new Premier carbide lamp and Gary Sr. carried the one pack containing their only extra food, water, and carbide along with their backup lights, a cigarette lighter and a candle. Lutes had experience in this particular cave and they were also equipped with gloves, kneepads, and hardhats.

They proceeded 1,000 feet to the Big Room, some 50 feet across and 20 feet high. They had a bite to eat, then proceeded into the Maze, a honeycomb of ledges, corridors and tight passages. When they came to an eight foot drop into a tight section of passage, Lutes left the pack--he didn't want to struggle with it in the tight places. They had recarbided ten minutes before and should have been good for two to three hours. Ten minutes later they had proceeded some 200 feet when Tim's light began to fail. They turned back but had gone only 20 feet before it failed completely. Lutes began to hurry back to the pack, with the boys following, when Gary Jr.'s light failed. The area passages were mostly crawlways and stoopways and Lutes realized he was confused. He tried one false lead, then another, with the boys asking, "Dad, are you lost?". When his light, the last of the three, went out, there was no denying it, they were lost.

Lutes considered crawling on in the dark with the boys hanging on to him, but if he couldn't find the pack with light, how could he do it in the dark? He gathered the spent carbide from the three lamps, collected the unspent pellets, and using urine in the water chamber, got one lamp going. He didn't find the pack, but got the three of them into a more spacious chamber, where they could almost stand, before this carbide, too, was expended. They sat down to wait in the 54 degree cave, sitting on their kneepads to conserve heat.

Lutes knew they had a long wait ahead of them--he had not informed anyone of their intentions. On Wednesday, a local resident called the West Virginia State Police to report Lutes' vehicle which hadn't been moved for three days. It had Florida plates, so Florida authorities were questioned. Lutes' address in Florida was obtained and called with no answer on Wednesday and Thursday.

In the cave, the Lutes were going through some changes, coughing from the dust and dehydration, having chest pains,

irregular breathing, seeing flashes of light, yearning for water and food, crying, consoling each other, thinking they were going to die, and praying for one more chance at life. Finally, they lay down together, weak and knowing the end was coming.

On Friday, the State Police contacted Barry Chute of the Potomac Speleological Society (the Lutes' vehicle was, of course, parked near the caves), who called a Florida caver who learned that the Lutes' were in Pendleton County to go caving, followed by a visit to grandparents on Thursday night. The grandparents, when contacted, had assumed the trio was having a good time caving and was merely delaying their visit.

Cave rescuers were soon mobilized. One immediate problem was lack of knowledge as to which of the four caves the victims were in--their vehicle was merely parked on Highway 220. There was no note on it, nor in the register near the entrance to New Trout Cave. Lutes was known to be a "squeeze freak" and one thought was that he was trapped in the Airblower, a bedding plane constriction in the back of Hamilton Cave.

The cavers on the scene broke up into small parties and did a cursory search of each cave, finding no sign, and no note in either of the registers in Hamilton or Trout Caves. More cavers were mobilized. When New Trout was searched in earnest, the Lutes' pack was soon found and runners were sent to the surface to concentrate the manpower. When the rescuers, expecting a body recovery, continued into the Maze, they were surprised to have their shouts returned by the Lutes'. Gary Lutes and Gary Jr. were able to exit under their own power, but Tim was too weak and had to be carried out. They had been in the cave for four days and 17 hours.

REFERENCES:
1) Greg Moore, "Family Saved After Five Days in Cavern", **Sunday Gazette-Mail** (Charleston, WV), June 24, 1990.
2) AP, "Family Recited Bible While Trapped in Cave", **Marietta Daily Journal**, June 25, 1990, p. 1A, 8A.
3) Meg Grant, "Entombed in a Cave for Five Days, a Father and His Two Young Sons Are Rescued on the Verge of Death", **People Magazine**, August 13, 1990, p. 99-106.
4) George Dasher, "West Virginia Cave Rescues", **The Region Record**, 4 (3) September 1990, p. 37-40 (from **The West Virginia Caver**, August 1990, 8 (4) p. 11.)
5) Russ Carter, "Editors Analysis", **The Region Record**, 4 (3), September 1990, pp. 39, 42.

COMMENTS: Incredible! Unbelievable! I always thought the NSS was immune from the totally absurd incidents, the dim flashlights and knotted ropes. But Mr. Lutes has clearly broken new ground, and I now turn him over to the kind ministrations of the honorable Russ Carter.

"Why did an NSS Caver, with 20 years of experience, enter a cave with only one light per person? Why did their carbide lamps run out of water after only an hour when normally they last three to four hours? Why did they leave their pack after they had to refill their lamps after 45 minutes in the cave? Why only one pack? Why didn't urinating in the lamp work long enough to get them to their pack?"

"This rescue should never have taken place. Gary Lutes violated every rule that the NSS and the rest of organized caving preaches to each and every one of us: Carry three sources of light each! Tell someone where you are caving and when you will return!"

The dust that caused respiratory problems apparently is soot, left by nitrate miners years ago.

KENNAMER CAVE, AL

June A

Bo - Other

On a Saturday in June, four cavers went to Kennamer Cave, Alabama, to get some photos of 120-foot Kenna Pit, the entrance to the cave. The pit was rigged and John Van Swearingen went down first. From a previous trip he recalled seeing a bird's nest just ten feet below the lip. Wanting to be careful when he passed it, he used his legs to keep well out from the wall. As he arrived at the nest, he was amazed to observe a five-foot snake coiled on it. Stopping, he looked closely but was unable to tell if it was poisonous. His situation was not good if the snake were dangerous--legs spread wide with the bottom part of his torso just above the level of the nest. His lower legs were within easy striking distance of the snake. With his shunt locked, he considered the situation.

If he tried to put on a foot ascender, his body would pivot into the snake; if he kicked out dropping past the snake, he might not drop far enough and get the snake in the face, and he would still have to ascend and the rope might knock the snake down on him. Moreover, being only ten feet below the lip greatly reduced his pendululming and kicking-out ability.

Van Swearingen contemplated this for 30 seconds, then called up to his companions, asking them to look for a long stick. Such was soon produced and the snake was dislodged, falling down the pit. The snake survived the fall and was later caught in a bag and returned to the surface. A description of the snake later yielded the opinion that it might have been a copperhead.

REFERENCE: John Van Swearingen IV, "A Snake in my Face", **The Huntsville Grotto Newsletter**, June/July 1990, p. 45.

ELWOOD'S DROP, IA

June B

Cr - Rockfall

In June, three cavers did 54-foot deep Elwood's Drop in Winneshick County, Iowa. On the way out, Mike Nelson was halfway up when he was struck by a fist-sized rock which had fallen from the lip of the drop. The rock brushed his jaw and struck his arm at the inside of the elbow, leaving a minor bruise. He continued without further incident. Nelson was the second caver to ascend so the instability may have been caused by the first to go up.

REFERENCE: Mike Nelson, "Accident Report", July 10, 1990, **unpublished**, 1 pp.

APE CAVE, WA

June 24

Ac - Caver Fall

At about 4:30 p.m. on Sunday, June 24, a group of eleven entered the upper entrance to Ape Cave in the Mt. St. Helens Volcanic National Monument in southern Washington. This was a co-ed scout outing from Port Orchard, Washington. The group was in the area to climb the south side of Mt. St. Helens and wanted to do the cave as a "warm-up". The scouts had no helmets or individual lights and had to cluster around to closely follow the three adult leaders who each had a rental gas lantern.

They proceeded some 500 feet into the descending lava tube. Trip leader, Scott Hansen (41), was leading when his left foot stepped into a crack between two knee-high lava boulders, slipped on the muddy surface and toppled sideways. He received cuts from the sharp lava and suffered a broken left leg.

One of the leaders administered first aid while the other herded the group back outside and sent runners to notify the National Park Service of the problem. NPS and Sheriff's Department personnel assisted in the evacuation of the victim. He reached the ambulance three hours after the accident.

REFERENCE: John Clardy, **Personal Report**, undated, 5 pp.

COMMENTS: Clardy was at the scene and informed the group of NSS educational services, which they sorely needed.

JACK SPRING CAVE, KS

Summer A

Db - Bad Air

A group of four cavers entered Jack Spring Cave, Chase County, Kansas, for a survey trip. Before they reached their survey starting point, approximately 3,600 feet into the cave, they noted the odor of petroleum. As soon as the survey was started, two of the four were complaining about not feeling well. By the 110th survey station, at approximately 5,200 feet in, Jon Beard and James Young turned back; at that point, Young was having to rest during each survey leg, even though it was walking passage. A few hundred feet toward the entrance Beard developed a very bad headache and vomited the first of six times, the last after exiting. It is speculated that high local precipitation runoff in 1990 had carried oil well effluent into the cave, as well as depleting the oxygen content. The cave is poorly ventilated.

REFERENCE: Jonathan Beard, **Ozark Underground**, August 1990.

ANTONIA PIT, MO

Summer B

Ace - Caver Fall, Equipment Failure

On a summer trip to Antonia Pit, two cavers, Lannis Crutcher and Jack Parker rigged the 80-foot drop and prepared to go down. Parker descended first; Crutcher rigged in and started down but found, to her exhilaration, that her rack, which she had carefully applied to the rope, was not functioning properly. Parker heard the rappel going too fast and grabbed the rope, thus breaking her descent with his arms. Still, she hit hard, spraining her ankles and bruising Parker's forearms. It was then discovered that the rack hadn't malfunctioned, it was simply not attached to her seat harness. She had rappelled on her gloves. They exited the cave with some difficulty, and later x-rays showed the ankles to be broken.

REFERENCE: Lannis Crutcher, **Meramec Caver** (Meramec, Valley Grotto, Missouri), July 1990.

BIGFOOT CAVE, CA

July

Cre - Rockfall, Equipment Failure

In early July, a group of cavers entered Bigfoot Cave, Siskiyou County, California, via the Hanging Rocks Entrance, to rig the series of pits inside for use during pre-convention activities at the NSS annual convention. After rigging the pits, Bob Richardson and companions proceeded to the Hanging Rocks-Discovery Passage connection, where Hanging Rocks Cave had been connected to Bigfoot a few years before. The connection was through a highly-inclined, slot that had been dug open--one-handed, one arm extended, and one arm back to fit in the slot. Richardson wanted to remove additional material to make the squeeze easier. To facilitate his ability to turn his head and see while in the dig, he removed his helmet before entering. He was moving loose material when a rock fell from higher in the slot, striking him on the head and causing a scalp laceration. Richardson backed out of the slot, received first aid from his companions, and exited the cave, wearing his helmet.

REFERENCE: Bob Richardson, **Personal Communication**, July 1990.

BUCKNER CAVE, IN

July 8

Bl - Losing the Way

On Sunday, July 8, a group of 16 cavers, an adult and 15 young people ages between the ages of 8 and 16, entered Buckner Cave in Monroe County, Indiana, and proceeded to the Volcano Room before they became totally disoriented. They sat it out and were rescued by a local emergency squad around midnight.

REFERENCE: Will Ott, **Cave Incident Information Form**, 8 pps., July 16, 1990.

McFAIL'S CAVE, NY — July 21

Co - Other

At approximately 12:00 p.m. on Saturday, July 21, 1990, Ken Davis, Kevin Dumont, Eric Kirchner, and Christine Langford entered McFail's Cave, Schoharie Co., New York, via the Hall's Hole entrance. The qualified McFail's leader for the group was Kevin Dumont. The group proceeded down the Coeyman's Passage to the Main Passage, then travelled directly to the main sump. The entire group was warned near the start of the trip of thin lateral layers of sandstone which have been eroded to razor sharpness that are present in part of the cave. It was pointed out by the leader that people in the past had emerged from the cave with serious cuts on their cheeks. Shortly after leaving the sump and heading back upstream, Langford's left wrist made contact with the wall. Because of this contact, Langford suffered one serious cut and several smaller ones. The wrist was cleaned with Neosporin and bandaged compressed gauze and medical tape that were in a first aid kit Davis carried. The group then proceeded out of the cave with a short diversion upstream past the Coeyman's Passage. Langford ascended out of Hall's Hole with little difficulty. She later saw a doctor who informed her that she could have used stitches but it was healing fine without them.

REFERENCE: Kevin Dumont, "Accident Report", August 14, 1990, 1 page, **unpublished**, reproduced here in entirety.

JOHNSON'S CAVE, TN — July 22

Be - Equipment Failure

On Sunday, July 22, a group of six entered Johnson's Cave, Putnam County, Tennessee. These were Mike Wallis (19), Yvette Sherman (18), Toby Jordan (16), Allen Watts (16), Dusty Proctor (14), and Russell Millheim (17). Wallis had reportedly been to the cave some ten times, but one might presume the others to be inexperienced. They were equipped with water, food, flashlights, and a rope.

The group proceeded as far as the 40-foot drop where they rigged the rope, and all but Proctor and Millheim descended.

They found that it was not so easy to get back up. No one had any ascending equipment and it was soon clear that they were stranded in the 56-degree cave. Fortunately, Proctor and Millheim were able to go for help.

Rescue volunteers and public agency personnel arrived at dawn Monday and had the stranded cavers out by 8 a.m.

REFERENCES:

1) Patricia Williams, "Proper Gear Would Have Helped: Caver", **The Tennessean**, July 24, 1990, p. 1A.

2) Ed., "Theft Victim's Name Wrong in Cave Story", **Ibid.**, August 1, 1990.

3) Patricia Williams, "Spelunker Pleads Guilty to Stealing", **Ibid.**, July 31, 1990.

4) Morris Sullivan, **Personal Communication**, August 4, 1990.

COMMENTS: This common little incident has a wonderful footnote--one of those little twists of fate that I find so dear.

One of the rescuers, Jody Landrum, Chairman of the Nashville Chapter of the NSS, had listened at a chapter meeting to Ward and Overton's account of having rope and rigging gear stolen at Johnson's Cave in May. At the current rescue, Landrum overheard Wallis talking about stealing a rope. Landrum inquired; Wallis showed him the gear--the rope was the same as the one belonging to Ward and the carabiners were stamped with the initials "WO" for William Overton. Busted!

Wallis pleaded guilty and received two 30-day suspended sentences of which he was required to serve five days each, as well as a $50 fine and court costs. According to Sullivan, this totalled around $1,100.

CAVE DISAPPOINTMENT, NY — July 28

Bse - Stuck, Equipment Failure

At about noon on July 28, a group of four entered Cave Disappointment with the intention of doing a crossover trip and exiting Hanors Cave in time for the Helderberg-Hudson Grotto meeting at 4 p.m. The group were Richard Atwood, Pete Johnson (leader), and Johnson's sons, Kyle (10) and Evan (7).

They rigged the 50-foot entrance drop and rappelled in. At the bottom there is a 10-12 inch wide crack that leads down at a 45 degree angle for about five feet to a wider, horizontal chamber about six to seven feet long. Johnson and his sons proceeded through the slot but, when Atwood tried to follow, he became stuck. He tried to climb back up, but thin projections on the walls caught his clothes, impeding progress. After a half-hour of struggling, he returned to the bottom of the entrance pit.

The problem now was that Atwood and the boys had no rope ascending gear. Johnson and the other two returned to the pit and Johnson ascended. He rigged a 30-foot cable ladder to the end of the rappel rope and re-rigged the pit so that it could be ascended via the ladder with the other end of the rappel rope used to belay the climbers. A climber would ascend the ladder to a ledge, the ladder would be repositioned and the climber would continue to the surface.

The boys got out in this manner, but Atwood was too tired from his struggle and could only get halfway up the ladder.

At 2:45 p.m. Johnson hiked back to the truck and drove to the grotto meeting to initiate a rescue going. Cavers responded and the stranded caver was hauled out of the pit at 4:30 p.m.

REFERENCE: Lloyd Johnson, **Personal Communication**, undated, 2 pages.

COMMENTS: Johnson feels he should have had more knowledge of the cave--he had only one caver's description of

the crossover and two maps, neither of which showed a squeeze. One should take special care in planning crossovers--they seem to create an inordinate number of incidents.

UNNAMED CAVE, VA

August 2

Be - Equipment Failure

At about 1 p.m. on Thursday, August 2, Mark Fowler (27), entered a newly opened cave in a road cut on US 460 in Tazewell County, Virginia, near the West Virginia-Virginia border. An excavation had exposed the cave but the opening was too small to enter. On July 30, Fowler had enlarged this opening and made a short excursion into the cave.

Thursday was Fowler's day off; he wore coveralls but no helmet and had a single electric light. He explored for a couple of hours. After down climbing into a hole with steep mud banks on the walls, the light failed. In the dark, Fowler could not climb up so he sat down to wait for help.

Fowler's parents reported him missing at about 11 p.m., but he had not told them where he was going. He commonly went solo caving, but had not taken all his caving gear and had taken his gym clothes. Fowler did not drive, so his whereabouts would not be revealed by a vehicle near the entrance of a cave. His caving friends were unaware of the road cut cave and figured Beacon Cave in Mercer County was the most likely, and spent the night searching upstream in that cave. At 7 a.m. on Friday a general call went out for cave rescuers.

A group went back to Beacon Cave, split into two groups--each taking an entrance--searching until they met in the cave, at which point they all searched downstream with no success.

As this group left, another arrived and was directed to search yet another part of the cave. They also found nothing.

The rescuers reformed and decided to send a group to Big Springs Cave and another to check out some of the caves west along US 460. They stopped at the new section of road to check some openings and noticed evidence of excavation at one. Two rescuers entered this while a second passable opening was checked by another team. The first group reached a 30-foot pit about 50 feet in and started yelling to see if the other group had entered the same cave. In reply, they heard "a voice which sounded way off". Silence among the rescuers was requested and achieved. Mark's name was shouted--he replied.

The victim's exact location was not easy to determine; the cave was quite fractured from construction blasting. They began to penetrate further by rigging and rappelling the pit while the State Police blocked traffic on US 460, keeping vehicles away from the entrance.

Passages off the bottom of the pit ended with no victim. As they ascended the pit, a crawl near the top with scuff marks was noticed. Yelling indicated the victim to be down this.

The 30-foot crawl led to a walking slot for 40 feet, then turned right and became a 4-foot tube sloping up and over another 30-foot pit. At this point, they conversed with Fowler, learning that he was unhurt but in a hole he couldn't climb. A rope was brought and one caver traversed above the pit on belay, moved on a bit and was able to fetch Fowler out of his hole. He was checked by an EMT and they headed for the entrance. A belay got everyone across the top of the first pit and they were soon out.

REFERENCE: Mike Lawhorn, "Cave Rescue--August 3, 1990", **The West Virginia Caver,** (5), October 1990, p. 8-9.

ANALYSIS: "Mark Fowler broke all the rules in the book. He went into a highly unstable cave. He left no instructions or information as to his intentions. He had no extra lights or provisions. He did not have the proper equipment and he was caving alone."

It was just blind luck that led rescuers to check that particular hole and, if Fowler had not been able to communicate, he would probably still be there.

ROTORHEAD CAVE, WY

August 11

Br - Rockfall

On Saturday, August 11, a group of three cavers entered Rotorhead Cave in the Bighorn Mountains of north-central Wyoming. These were Blaine Davis, Dave Baker, and Monte Harnden. The cave entrance is in a small, obscure sink about 1/4 mile from the Hunt Mountain Road. This entrance leads past moss-covered rocks to a broad, low room with a few small speleothems. A hole along the right wall leads on, up a slope and through a constriction to a debris choke where a slight air flow indicated more cave beyond. The group had come to dig and made good progress until they encountered a huge breakdown block that essentially filled the passage. They inspected it, deciding to dig around it on the right side. After 30 minutes or so a portion of the block was broken off and removed. The hole was still too small for Davis or Harnden, but Baker was able to squeeze past on his left side. He then had to position himself for the upward move to get between the block and the ceiling where a seven-inch gap apparently led further. The vertical angle to reach the gap was 70 degrees.

As Baker struggled with this, the others turned to an adjacent, alternate dig. Occasionally, they would stop to listen to Baker's efforts. After numerous breaks, they suddenly heard nothing and called to him. His response couldn't be understood so Harnden backed out of his dig to hear Baker calling for help. He went to his aid immediately to find that as Baker had tried to get between the block and the ceiling, a 30 pound, triangular rock had dislodged and landed on his back; any movements by Baker now caused the rock to settle to his right, wedging between him and the wall and trapping him. For Harden, an image of Floyd Collins came "like a rocketship from hell".

Harnden could squeeze in and reach the tip of the rock but wiggling it only served to wedge it tighter to Baker's right. After some effort, it seemed that the rock would have to come out, along Baker's right side. Davis, in the chamber behind and below, was wondering if sleeping bags to ward off

hypothermia, and outside help, should be obtained. They discussed this and decided to work on the rock for awhile.

Harden returned and managed to tip the rock up, turning a jagged corner into Baker's back and, with "considerable effort", forced it back between him and the wall, gouging Baker's back in the process. The rock was passed back to Davis and they all wiggled out of the squeeze.

REFERENCE: Monte Harnden, "The Close Call", **Rocky Mountain Caving,** Autumn 1990, p. 25.

TRES CHARROS CAVE, WY

August 12

Bc - Caver Fall

On Sunday, August 12, three cavers, Blaine Davis, Dave Baker, and Monte Harnden entered Tres Charros Cave in the Bighorn Mountains of north-central Wyoming. They had no map of the cave and previously had only been as far as Bat Veil Falls. They proceeded down the 40-foot pit at Bat Veil and headed downstream to the big falls where they crossed into upper level passage, getting as far as the 110-foot Virgin's Promise Pit. They then retreated to the big falls and found their way into Hayford and into Sheepherder Canyons.

Near a dry sump that had been dug open, they entered a cross-joint passage and headed down this to where it resembled a 30-40 foot diameter funnel with very steep sides. Harnden wanted a closer look at the pit in the center so he started down the apparently virgin slope. Their only rope had been rigged at Bat Veil Falls, so he relied on the mud crust yielding footholds in the sand beneath. For several steps this worked fine as his heels dug in well, but the sand then turned to rock with the mud acting as a lubricant. Harnden's feet shot out from under him and he was "sliding uncontrollably toward the hell's mouth below". He let out a scream and tried to get a climbing protection stopper into some crack. Fortunately he had chosen his down-route so as to be above a small dormer-like protrusion at the edge of the pit,and he was stopped by this. As he held on, "I could probably have clung to greased glass with little more than my fingernails", his companions tied every spare bit of sling together and lowered the resulting line to him. Thus aided, Harnden got back up the slope and they left the cave without further incident.

REFERENCE: Monte Harnden, "The Close Call", **Rocky Mountain Caving,** Autumn 1990, p. 25-26.

ORGAN CAVE, WV

Fall A

Cc - Caver Fall

On a trip to Organ Cave, West Virginia, cavers Raymond Sira and Sandy Knapp were attempting to follow a map to get to the Sarver Room via the Octopus Passage when the crawl they were in broke into a large room with a 20-foot drop to the floor. When Sira, in the lead, emerged from the tight crawl, he had to chimney out with his arms; when he swung his body out, there were no footholds and he fell the 20 feet. He landed on his feet, twisting his ankle and bruising his back. He was able to exit under his own power without too much difficulty.

REFERENCE: Raymond Sira, **Speleothems** (Northern New Jersey Grotto), Fall 1990.

PHERRIS PIT, TN

Fall B

De - Equipment Failure

A group of cavers was doing 252-foot Pherris Pit in Tennessee and had rigged two ropes to facilitate the effort. Angela Morgan ascended with a Frog System and was 40 feet from the top when someone above noticed that the sheath had worn through on the rope she was using. She was informed and switched over to the second rope and completed her ascent.

REFERENCE: Ray Hardcastle, "Ray's Review", **NSS News,** May 1991, p. 154 (in **Undergraph Interground** [Intergraph Grotto, NSS], October 1990).

COMMENTS: It appears the rope rubbed on rock at the lip through a hole in the rope pad. Apparently the Frog System was also producing bounce in the rope during the ascent. The combination wore the rope very quickly. I must comment that "bounce", either during ascent or descent, should be considered unacceptable. If you tend to bounce, and cannot damp it out or become smoother, you should change equipment or techniques. It is not the fault of rope stretch. Furthermore, avoid cavers who generate bounce--they are a danger to themselves and others.

SPANISH CAVE, CO

September1

Ac - Caver Fall

On Saturday, September 1, a group of five cavers backpacked three miles and entered the Frank's Pit (upper) Entrance to Spanish Cave, at over 11,000 feet elevation, in the Rocky Mountains of Colorado. They were Jerry and Helen Hassemer (51), Jim Wilson, Skip Withrow, and Steve Hawkins, all of the Colorado Grotto, NSS, and experienced cavers. The objectives were a through-trip to the lowest entrance and a survey of the connection between the Waterfall Pit and the Black Slide.

They squeezed through the small slot of the Frank's Pit Entrance and rappelled the 140-foot drop. The group proceeded to the Black Slide where Jerry Hassemer and Hawkins went ahead to the Waterfall Pit to establish voice contact through the unsurveyed connection. After waiting a half hour, the trailing group became chilled in the 34 degree, breezy cave and yelled that they were going on. They proceeded to the Overhand Dome Room, just beyond the Black Slide where an etrier is hung to facilitate the 13-foot descent. This is a rope or sling with loops tied or sewn at intervals for foot and hand holds.

At about 8 p.m., Helen Hassemer began the descent. After getting over the edge, she had trouble finding the next lower foot loop. Her other foot came out of its loop, leaving her hanging by her hands. She called to Wilson for help. He started to climb to her position, but she lost her grip and fell 12 feet to the bottom of the drop, landing on her back.

Wilson yelled to Withrow to get Hassemer and Hawkins. Wilson descended and examined the still conscious victim. She had a high level of pain in her lower back but could squeeze her hand and move her feet. There were apparently no broken bones or nerve damage. By the time the others arrived, she was shivering and uncertain of her ability to even stand.

The danger of hypothermia and remote location of the cave demanded that the group self-rescue, so her damaged headlamp was repaired and she was helped up. She seemed strong enough so they set off with Jerry leading the way. They proceeded past the Coral Slide and through the T-slot where one must manage a 2 x 2-foot crawlway at the crossbar.

Just short of the First Great Chamber they had to help her up an ascent with a rope looped under her armpits--this allowed them to pull from above and lift from below. They then traversed for 200 feet above a 50-foot deep fissure. At the Jug, an exposed traverse above a 170-foot deep pit, and near the lower entrance, they were able to cross easily on a heavy crust of snow and ice. They exited the cave at 10:30 p.m. and Hassemer was taken to a hospital. She had suffered a burst compression of the lumbar I vertebra. Nearly complete recovery is expected.

REFERENCES:
1) Helen Hassemer, **NSS Accident Report**, undated, 2 pages.
2) James V. Wilson, "Spanish! Ole!", **Rocky Mountain Caving**, Autumn 1990, p. 12, 27.

COMMENTS: The victim had made three previous through trips and so was familiar with this particular etrier. The difference this time was that no one was below, helping spot her footwork. Her helmet, a Joe Brown, and a small backpack probably saved her from more serious injury.

An etrier is, in essence, a cable ladder, except that it is more difficult to use. No such ladder should ever be used without a belay. An etrier is a rock climbing tool. I personally feel that a rope should be rigged for short drops and even a 10-foot drop should be easily rappelled. Etriers should not be used in place of rope, but there have been several reported accidents of this type. Just don't use them.

BEE TREE CAVE, IN

September 16

Bs - Stuck

At about 4 p.m. on Sunday, September 16, two poorly equipped cavers, Bob Bowling (20) and Tony Bunton (22) entered Bee Tree Cave in Monroe County, Indiana. They entered the "football-sized" entrance and descended the initial canyon passage, over the Saddle and down the Crevice. On the climb back to the Saddle, Bunton (22) became trapped when his belt buckle caught on a protrusion and he was unable to get a foothold to force himself past the obstruction.

His companion went for help and the caver was freed by emergency services personnel at about 5:30 p.m.

REFERENCE: Will Ott, **Cave Incident Information Form,** undated, 7 pps.

NICKWACKETT CAVE, VT

September 29

Ble - Losing the Way, Equipment Failure

Between 2 and 3 p.m. on Saturday, September 29, John Butler (26) and John Presti (31) entered Nickwackett Cavern in Chittenden, Vermont. They were dressed in pants and flannel shirts over T-shirts, had no hard hats, and had only flashlights for light. Intending to explore for only an hour, they proceeded into the 200-foot long crawlway cave. They passed through two small rooms and slid down a steep, narrow bellycrawl. This led to a small chamber some four feet high and three feet wide, followed by a constriction and another chamber. They had lost one flashlight on the way in and planned to retrieve it on the way out. When the second light began to fade, they turned back but became disoriented. They became convinced that a passage they had not traversed coming in was the way out and tried to make it work about 15 different times--they were sure that a squeeze past a rock would go if they just did it right. When 12 hours had passed, their flashlight finally went out, and they were forced to sit and wait for rescue.

On Monday night Butler failed to report for work and the State Police were called. The police made inquiries and learned that the pair had told acquaintances that they planned to explore some caves that weekend. On Tuesday, a State Trooper, Dennis Holman, investigated further, going to local caves that he thought the men might have gotten directions to.

There was no sign of them at the Pittsford Ice Caves (a woman at a store had told them these were "wimp" caves), but their car was found at Nickwackett Cavern, with a knapsack and some clothing found just inside the cave entrance.

Meanwhile, the two were not faring well in the cave. With no food or water and the temperature barely above freezing, they huddled together between rocks trying to stay warm.

The police officer and a man from the Pittsford Fire Department entered and found the lost cavers only 70 to 80 feet from the entrance. They had been in the cave for three days. They were treated for hypothermia (body temperature 95 degrees F), but were otherwise unharmed.

REFERENCES:
1) Michael Maynard, "Men Lost in Cave Rescued", **Rutland Herald**, October 3, 1990, pp. 1, 4.
2) Amy Blotcher Guerro, "Brocton Men's Venture into

Vermont Cave Becomes 3-Day Ordeal", The Enterprise (Brocton), October 3, 1990, p. 1.

APOGEE CAVE, CA

October 8

Dr - Rockfall

On October 8, a group of cavers entered Apogee Cave, the highest of the group of caves in and adjacent to Marble Valley in Siskiyou County, California. The cave is rather complex with the main part being a sinuous, multi-level affair with offset (out-of-phase) sinuosities. One side lead they mapped led to a blockage of massive breakdown. Through spaces in this, a large chamber with an enticing echo could be seen above. One caver penetrated a squeeze and found a complicated way up into the room. Derek Hoyle and companions were working on another route and were encouraged by the remarks from the chamber, that it appeared to be virgin. Hoyle was trying to negotiate a large slab and had just removed himself from under it when it suddenly slammed down, eliminating the space he had exited. After a few minutes to revive their courage, the group squeezed up through the breakdown, only to find that the room was known and mapped.

REFERENCE: Derek Hoyle, Personal Communication, October 8, 1990.

SUNBEAM CAVE, CA

October 13

Br - Rockfall

On Saturday, October 13, three cavers entered Sunbeam Cave, a cold alpine cave in the Marble Mountain Wilderness of northern California. These were Mark Fritzke, Andy Maxwell and Jerry Davis. They descended the 60-foot entrance pit and the narrow crevice leading to the stream level. They proceeded upstream through a stream passage bellycrawl. Part of this passage has an unstable ceiling and the newcomers, Davis and Maxwell, were warned of this before they went through.

After some time in the upstream area, the group headed for the exit, but split when Davis stopped to recarbide. Maxwell, a novice caver, remained with Davis while Fritzke continued on to the bottom of the entrance drop. After getting his lamp going, Davis led the way as he and Maxwell continued toward the entrance. When they passed through the unstable area, Maxwell apparently forgot the warnings, since he proceeded on hands and knees. When he bumped the ceiling at one point, it collapsed, thrusting him forward, his knees bent, arms trapped by his sides, and only his head and shoulders protruding from the rocks. He was held immobile by several hundred pounds of rocks. The crawlway was low enough that Maxwell's body blocked access to the collapse.

Davis assessed the situation and headed for the entrance to get Fritzke. This took longer than it should have since, at first, he couldn't remember the way. In 15 minutes, he and Fritzke were back at the collapse. It was obvious that Maxwell would have to be freed from upstream. Fortunately, the stream passage at that point is broad, something not obvious since most of it is only an inch or two high. Fritzke noticed a ceiling channel in the low area and succeeded in trenching and digging his way around the collapse.

Fritzke proceeded to remove the entrapping rocks, a nasty operation, since removal of rocks at first caused others to come down from above. Still, Maxwell was freed in some 15 minutes of digging. He was able to exit the cave under his own power. He had been trapped for about 35 minutes.

REFERENCE: Rich Sundquist, "Caving in the Marbles", The Valley Caver, Winter 1990.

COMMENTS: Maxwell's bent-knee position probably saved him from suffocation. In the cold alpine cave he also probably would not have survived a lengthy excavation. The separation of the party could also have been fatal--keep together.

TRAPDOOR CAVE, IN

October 16

Ar - Rockfall

About 2 a.m. Sunday morning, October 14, a group of four approached Trapdoor Cave near Bloomington in Monroe County, Indiana. They had been partying, had become bored, and decided to go caving. One had been caving once before; they had two hardhats, a half-dozen flashlights and some beer.

They signed the register at the Buckner's Cave kiosk and proceeded to the Trapdoor Cave Entrance, a narrow, eight-foot climbdown. The climb leads to a 20-foot crawl into the first room of the cave. The first caver, Kurt, entered at 3:15 a.m. and, without a helmet, did the crawlway face up. At the end, he reached up to grab a rock in the ceiling to pull himself into a sitting position. The rock fractured, dropping a "briefcase-sized" piece, as well as smaller pieces, onto his face and upper body. He fell backward from his near-sitting position, his head striking a rock protruding from the floor at a 45-degree angle. He screamed for help.

The "experienced" caver came to his aid, but could not free him from the debris. The other two were sent for help and contacted Dick Blenz at his home nearby, and a rescue callout was initiated. The Indiana Scientific Speleological Association Speleorendesvous was that weekend and cavers camping in the area were mobilized. The rocks were removed and the victim exited under his own power. He had suffered only bruises and a head laceration.

REFERENCE: Jay Savage, "Accident Report--Trapdoor Cave, Indiana", unpublished, undated, 3 pages.

COMMENTS: "This accident is another in the series of incidents involving inexperienced persons going into caves for thrills. They were tired to begin with, had been drinking,

lacked proper equipment, and. . .had no idea what they were getting into."

Savage also reports that this particular cave entrance has instability resulting from: 1) fracturing due to freeze-thaw cycles, 2) a sandstone conglomerate in the limestone at the entrance drop, and 3) water erosion during rainstorms when, on occasion, a pond with a whirlpool covers the entrance.

HOLE-TO-HELL, ID

October 26

Aec -Equipment Failure, Caver Fall

On Thursday evening, October 25, two students from College of Southern Idaho, Zack Harper (18) and Jess Morgan (19), were in Dead Horse Cave, Gooding County, Idaho. They were decorating the lava cave for a dance on Friday. Harper knew of a nearby cave, Hole-to-Hell that was a pigeon roost. They decided to catch some to release during the dance as a prank.

They entered Hole-to-Hell shortly after 3 a.m. on October 26, each armed with a flashlight, some "clothesline twine", and an old hemp rope. The 52-foot entrance is a 4-foot diameter shaft opening into a bell-shaped chamber containing the pigeon roost and a pile of guano-covered breakdown.

The descent was made hand-over-hand on the hemp rope. The pigeon hunt was apparently unsuccessful so they began climbing out. Morgan made it to the first ledge 24 feet up. Harper was almost to the ledge when the rope, having frayed on the sharp lava, broke, dropping Harper 22 feet to the breakdown below.

Morgan apparently down-climbed, found Harper still able to climb. He tied him to the end of the clothesline and re-ascended to the ledge. Harper, with Morgan pulling, got to within 4 feet of the ledge before the clothesline broke, and he again fell to the breakdown. Morgan apparently also fell, but suffered only minor forearm and face lacerations. Harper had by now accumulated major fractures and lacerations on his upper body and head and was in critical condition. Morgan stayed with Harper, trying to keep him alive.

At 7 a.m. a friend arrived at Dead Horse Cave expecting to find them camped there. They were not, and Harper's truck was visible on a hill to the northwest. Near the truck he spied the entrance to Hole-to-Hell and at the edge he could hear Morgan yelling "Breathe, dammit! Breathe!" He went for help, notifying the Gooding County Sheriff's Office at 7:48 a.m. An ambulance, firefighters and Jerome County Search and Rescue were mobilized, arriving at 8:25 a.m. Paramedics rappelled in, stabilized Harper, and placed him in a Stokes litter. He was winched to the surface at 9:30 a.m., and flown by helicopter to Magic Valley Regional Medical Center, still in critical condition. Morgan was brought to the surface at 10 a.m. Harper survived.

REFERENCE: David Johns, "NSS Accident Report Form", **undated**, 3 pages.

COMMENTS: Johns feels that the ability of local emergency services to deal with the unusual situation probably saved Harper's life. In the West, distances are great and what organized cave rescue exists cannot usually be fast in response. Helping to train existing rescue agencies in cave rescue seems a good idea.

ONYX CAVE, AZ

November 10A

Ac - Caver Fall

At about 10:30 a.m. on Saturday, November 10, Richard Lind (leader), David Harley, Elke and Herbert Buschbeck, and James Luper entered Onyx Cave, near Sonoita, Arizona. Lind had visited the cave many times and was familiar with the numerous tricky climbs with vertical exposure and slippery surfaces. All were experienced cavers but it was the first time in Onyx for Harley and Herbert Buschbeck. Their ages ranged from 25-35.

They proceeded about 1,200 feet from the entrance to a lower section of the cave, through one low crawlway and several exposed up-and-down climbs. At about 11:30 a.m., Harley was climbing a ten-foot pitch from a ledge above a five-foot deep dry rimstone pool, when he lost his holds and fell about ten feet. It was quickly diagnosed that he had suffered a broken forearm. A sling was rigged to secure the arm to his side and they headed out. They had extra ropes and ascending gear; a makeshift rig was devised to allow the victim to climb rope at each vertical pitch. Part way out, they found a broken stalactite that was used, with foam padding, nylon webbing and duct tape, to splint the arm. They exited the cave at 3 p.m.

REFERENCE: Sweet, "Onyx Cave Accident", **unpublished report**, undated, 2 pages. (Based on interviews with Luper and Lind, November 15, 1990.)

COMMENTS: Luper and Lind attribute this accident to overconfidence. Harley was an experienced rock climber and moved up the pitch quickly, violating the basic rule of climbing--to maintain three points of support (good holds) at all times. I would point out that a truly developed rock climber knows when he is secure and what is chancy. My own rule is to resist climbing anything without a belay that I can't come off of without injury. A spotter below such a short pitch might have prevented an injury in a fall like this--the idea is that the spotter tries to keep the falling caver from landing on his head, arm or other fragile part of the body.

BONE/NORMAN CAVE, WV

November 10B

Bl - Losing the Way

Saturday afternoon, November 10, a group of four Canadian cavers entered the Bone Cave Entrance to the Bone/Norman System in Greenbriar County, West Virginia, with the intention of doing a crossover, exiting the Norman Cave Entrance. The

leader was an experienced caver, and had done the crossover some three years before. Two were novices and for the one, it was his first cave trip. Their ages were estimated to be from late teens to early twenties.

Bone/Norman is a 14-mile extremely complex system; the Bone Cave portion is quite dry while Norman has a very active stream. The crossover normally takes about six hours with the connection being a very tight squeeze.

It rained all night Friday and many planned cave trips into wet caves had been aborted. The group of four proceeded through Bone Cave, through the connection and to the point in Norman where one leaves the stream and ascends into a huge breakdown passage that leads to the entrance. There are several routes through the breakdown from the stream up into the passage, all involving constrictions between the breakdown. The Canadians took a route that led to a small breakdown room beneath the main borehole. At this point the beginner was out of light and the leader was apparently confused as to the route. They hesitated.

At midnight, their friends came to the WVACS Fieldhouse to report them overdue. Cavers responded and soon located the group. They were not totally out of options, but with a little extra light and guidance were soon out. The last rescue group was out and back to the Fieldhouse by 6 a.m.

REFERENCE: George Dasher, **Personal Communications**, November 18, 1990; November 26, 1990. (Also, Al Stubbe, **Tidewater Ooze** [Tidewater Grotto], December 1990.)

COMMENTS: It may well be that this was a non-incident. It is reported that the Canadians had slept in and not entered the cave until late--thus they may not have been "overdue" and might have gotten out quite well on their own.

LADD'S MOUNTAIN CAVE, GA November 18

Ac - Caver Fall

At around 4 p.m. on Sunday, November 18, two men, Ray Thomas (24) and Donald Chitwood, entered a cave on Ladd's Mountain in Bartow County, Georgia. At one point, Thomas thought he saw gold and climbed the wall to investigate. He fell, fracturing and dislocating a bone in one foot. Chitwood ran to get help. The Sheriff was contacted and mobilized the Bartow County Rescue Squad, which carried out the evacuation of the victim.

REFERENCE: Ed., "Bartowan Injures Foot in Fall While Exploring Caves", **The Daily Tribune** (Cartersville, GA), November 19, 1990; Family Living, p. 4.

ONESQUETHAW CAVE, NY December 1

Bf - Flood

At about 3:15 p.m. on Saturday, December 1, a group of five cavers from Syracuse University entered Onesquethaw Cave, about ten miles southwest of Albany, New York. These were Scott Baisch (23), Lynn Cowan (24), Nick Springer (20), Peter Bowie (20), and Laura Selicaro (20). The weather was clear and the streambed leading to the entrance was dry. The cave consists of 4,500 feet of mapped passage; an initial 500 feet of walking passage becomes a low, muddy crawl, finally yielding to a series of tall chambers. There are numerous twisting side passages with ceiling heights of 1-1/2 to 20 feet. At the back is a water-filled passage that connects to nearby Jordan Cave.

About 15 minutes into the cave, they reached the Second Room, near the end of the walking section, and passed a scout group which was practicing belayed climbing. The scout group exited the cave a little after 4 p.m. with the stream still dry. After a change of clothes, the scout leader returned to find water over one foot deep flowing into the entrance. He went to a nearby house and called the Albany County Sheriff, and cavers were alerted at around 4:40 p.m.

Emergency personnel responded quickly and it was determined that a beaver dam had collapsed about two miles upstream, at Lawson Lake, creating the flood. Resources were mobilized and heavy equipment was used to repair the beaver dam and build a second dam just downstream. Pumps (3,000 gallons per minute) would then try to lower the water level behind the second dam to insure its stability.

At 5:45 p.m. a group, which included open-water divers, entered and found the crawl at the end of the walking passage to be sumped. A certified cave diver arrived at 6:45 p.m. He and his equipment sherpas entered. He was able to penetrate the first crawl. About this time, efforts upstream began to pay off and the water level began to drop, unsumping the crawl.

Meanwhile, cavers evaluated the dam construction and found that hay bales were being used. At 8:05 p.m., the rescue team was withdrawn from the cave and the Sheriff was informed that the dam was considered unsafe. There were out by 9:05 p.m.

At 10 p.m. the group stranded in the cave noticed the water level dropping. They were getting cold, and as soon as it looked safe, headed out, reaching the surface at 11:22 p.m. They were taken to a nearby local hospital and treated for hypothermia.

REFERENCES:

1) Mark McGuire, "Five Explorers Escape from Flooded Cave in New Scotland", **Albany Times-Union**, December 2, 1990, page B-1.

2) Nan Clements "2 Newark Explorers Survive Cave Flood", **News-Journal** (Wilmington, Delaware), December 3, 1990.

4) Thom Engel, "The Onesquethaw Cave Incident", **Northeastern Caver**, March 1991, pp. 6-9.

5) Paul Rubin, "Analysis of the Onesquethaw Cave Rescue", **Ibid.**, p. 10-11.

COMMENTS: Beaver dams don't fail--it appears that someone was illegally tampering it in a protected wetland area; the water

had also suddenly risen in the cave on the two prior weekends.

After the rescue, the temporary dams were removed and the beaver dam left open; this presumably removed the threat of such flooding.

NATURAL WELL, AL

December6

Be - Equipment Failure

On Thursday, December 6, a group of six cavers went for an evening of pit-bopping at Natural Well in Alabama. A 600-foot rope was rigged so that it afforded two ropes in the pit. After doing the pit once or twice, one caver went home, and the rest decided to tour the cave at the bottom. With that done, they began to exit with Kurt Butefish and Toni Blankenship going up first; Bob Caraway was outside, having stayed on top to guard the rope.

Butefish made it up but when Blankenship was 20 feet from the top, and against the wall, her chest roller seized on the nylon webbing safety to one ascender. It wouldn't budge, so she yelled to those on top--no answer. A yell to those on the bottom alerted John Brown, who started up the other rope to help. Brown was able to move his rope close to Blankenship but neither the pin nor the webbing would budge. Repositioning himself, he applied maximum force and the webbing popped free. They continued out.

REFERENCE: Toni Blankenship, "Not Just Another Night at Natural Well", **Huntsville Grotto Newsletter**, May-June 1991, p. 14.

COMMENTS: Webbing running through a chest roller is not really a good idea--webbing is far less abrasion resistant than rope since it is woven and all strands come to the surface. A little abrasion causes much greater loss of strength than with a sheath rope.

BULLIS HOLE, TX

December 13

AAc - Caver Fall

Thursday, December 13, a group of four prepared to enter a cave on Camp Bullis, an Army training facility on the outskirts of San Antonio, Texas. One was Murray Elison III (40), a sergeant in the Army, while the other three were an employee of the Texas Department of Parks and Wildlife, a University of Texas graduate student, and a civilian employee of Camp Bullis. Their intention was to conduct research on an endangered salamander species.

The entrance is a vertical drop with the initial rectangular opening some eight by five feet, with a perfection in dimensions that makes it appear to have been man-modified. The entrance drop falls 12-15 feet to a ledge where the pit continues with dimensions of two to three feet diameter in a twisting fashion decorated with rock projections until it suddenly opens to widths of 20-30 feet. The total depth is in excess of 100 feet.

They rigged at the ledge to a stemple (nine-foot length of telephone pole) set across the opening. To this was fixed a cable ladder and a blue, dynamic rope. The sergeant descended first, reportedly slipping free for 10 or 15 feet, and then yelled up that he had a snarl in the rope. Saying that he was getting off rope to pass the snarl, he then yelled in fear and fell the rest of the way to the bottom of the pit.

The others went for help. A rescuer arrived and descended the drop only a little more than an hour later. The sergeant lay, sprawled and deformed, under the coil of excess rescuer rope; his skin was cold and bluish, he had no pulse and had already begun to rigor. His pupils were dilated, the irises were milky and dry. He was dead. The body was hauled out soon after.

REFERENCES:

1) Vicky Smith, "Tragedy at Bullis Hole Cave", **The Texas Caver**, February 1991, p. 21-23.

2) Kelly Shannon, "Army Soldier Falls to Death in Cave", Associated Press in **Commonwealth-Journal** (Somerset, Kentucky), December 16, 1990.

Various other newspapers.

COMMENTS: This is a bit strange. If there were a snarl in the rope, surely one would not get off rope to deal with it--you would pull it up to you and work on it. What purpose did the cable ladder play? Was it for climbing in the narrow chimney and the rope for use in the lower part where it suddenly got larger? Could the soldier have been descending the ladder and released his hold on it to undo a snarl in the rope? Elison had reportedly been on "similar expeditions" before, but "had not assisted the salamander researchers before". Did he know what this pit involved? Is it possible that the ladder was the total means of descent and ascent, and the rope just a belay? The others were reportedly "only modestly qualified as cavers". It doesn't sound like a belay was involved.

AGUA CALIENTE CAVE, AZ

December 31

Alec - Lost, Equipment Failure, Caver Fall

On Monday, December 31 at about 11 a.m., Kevin Sears (21) and a companion (male, similar age), entered Agua Caliente Cave in the western foothills of the Santa Rita Mountains south of Tucson, Arizona. The cavers each had a flashlight, and they had enough 1/2 inch polypropylene rope to rig the Loop Pit. They were dressed in jeans, short-sleeved shirts and tennis shoes and they had no head protection. The dry, dusty cave is warm (72 degrees F). Both had prior experience in the cave, having explored together counter-clockwise around the Loop as far as the White Sand (Lake) Room.

This trip, they entered the upper entrance, and took about eight minutes to get to the 40-foot Loop Pit, going clockwise. They rigged the rope and descended. The trip continued clockwise to the White Sand Room. Unfortunately, neither

caver recognized the room and could not find the route they had explored on the previous trip which would have allowed them to exit without further rope work. At 1 p.m., they gave up and returned to the Loop Pit.

At 1:30 p.m., Sears attempted the hand-over-hand ascent. He was able to get near the top, but at that point, reached a section of smooth flowstone and lost his footing. Hanging by his hands, he lost his grip and fell.

Sears was not substantially injured by the fall, so he tried the ascent again. At the same place he again lost his footing and grip and fell. As in the first fall, he covered his head with his arms to avoid head injury. Still, this time he was injured; he was in great pain and found himself unable to get to his feet.

Sears' companion ascended, exited the cave and reached a phone at about 3 p.m. Authorities were notified and at around 7 p.m. the Southern Arizona Rescue Association (SARA) was called out. Local cavers were called between 7:30 and 8:30 p.m. Rescuers began to arrive on the scene and Sears was diagnosed as having a broken upper leg bone (femur) and possible broken pelvis. He was strapped to a backboard and given an IV. No food, water, or other medication was administered.

The cave was rigged for hauling in four places--the Loop Pit, the climb into the Register Room, the Beer Can Slide, and the climb out to the lower entrance. The victim was further belayed for all but 50 feet of the route between the Loop Pit and the bottom of the climb to the Register Room.

At 11:15 p.m., Sears was hauled up the Loop Pit and transferred to a Stokes Litter; he was brought to the surface at 2 a.m. and carried by helicopter to the University Medical Center at 2:30 a.m. At the hospital he was treated for abrasions and contusions, but found to have no broken bones.

REFERENCE: Henry Schneiker, **Personal Communication,** January 2, 1991, 2 pages.

COMMENTS: A bit later into the evening there would have been far fewer able rescuers, as this was New Year's Eve.

SCUBA

PEACOCK SPRING, FL — April 9

AAd - Drowning

On Tuesday, April 9, a group of three entered Peacock Spring III, a popular cave diving site in Florida. They were a man (53), his ten-year-old son, and an adult associate. The two adults had become cavern certified in late 1988. The associate had subsequently become cave certified, but the other man had no further cave or cavern diving experience.

The associate led the way into the cavern zone, tying the end of the guideline to a ledge at a depth of 25 feet. Shortly after, a silt-out occurred and the leader, thinking they were all together, reeled up the line as they exited, untying it at the ledge. Above this, they hit clear water and realized the 53-year-old was not with them. A search was attempted but was not successful. The body was found later--it reportedly appeared that fruitless efforts had been made by the victim to find the exit.

REFERENCE:

1) Ed., "Peacock III Claims Life of Certified Cavern Diver", **Underwater Speleology** 17 (2), p. 7.
2) Ed., "Think It Can't Happen to Us? Think Again", **Ibid.**

COMMENTS: The dive was ill-conceived. Cave diving is extremely dangerous. With the training received in obtaining Cave Certification (NSS, CDS or NACD) one has a reasonable safety margin. The 53-year-old and his son, who had no training at all, should not have been on the dive.

The victim's lack of experience was reflected in his equipment--he had a snorkel, a fairly heavy weightbelt, wrist lanyards on his lights, and no back-up reel. The latter prevented him from conducting a systematic search--the line from a backup reel can be tied and a "home-base" established from which to conduct your search for the exit.

The victim did have adequate light though he had turned them off prior to drowning, probably in hopes of seeing light from the entrance or from his companions.

Depth also played no factor--the body was recovered at -25 feet depth and the maximum depth was -65 feet. However, "most exposure-suit compression takes place in the first 20 feet of descent. Such rapid suit compression easily leads to loss of buoyancy control among out-of-practice divers and, consequently, to silt-outs as well.

The site was poorly chosen for novice diving. Peacock III is reported to usually have a coating of light, feathery silt, making it a site only for "advanced" cave divers. Avoiding the deadly silt-outs is a matter of proper equipment and weighting, as well as body control gained from diving experience.

TROY SPRING, FL — April 14

AAd - Drowning

On Saturday, April 14, two divers entered Troy Spring in Lafayette County, Florida, a popular open-water training site. Neither diver had been through formal cave or cavern training. The two had voiced their intention to penetrate a very small cave opening at the -80-foot level and associates had tried to dissuade them, to no avail. The divers had a spool of monofilament fishing line which they reeled out as a guide line.

As they proceeded down into the spring, the strong current caused the lead diver's regulator to free-flow. Their efforts

resulted in rapid breathing which rapidly depleted both their air supplies. They made their way some 55 feet into the cave before the lead diver ran low on air. His companion did not have an octopus, so they had to share a single second stage, passing it back and forth. Meanwhile, the current carried them back toward the entrance, entangling them in their line. They soon became helpless, so thoroughly tangled that they both drowned, within sight of the surface. The second diver still had 1700 pounds of air left, but could not reach his second stage to use it. When the body recovery took place, it took 10 minutes to cut them free of the tangled line.

REFERENCE: Ed., "Double Drowning Closes Troy", **Underwater Speleology**, 17 (2), p. 5.

COMMENTS: The divers had one small light apiece. They were unused to such activity and used air at an unusual rate. The leader failed to turn back on the use of 1/3 of his air; they used a "notoriously poor substitute for a proper guideline."

"Although 80 feet is still above the depth at which serious narcosis usually occurs, many divers are at least somewhat impaired at this depth. Additionally, the exertion resulting from an inexperienced diver's attempt to swim into a strong current can easily bring about the onset of narcosis at depths shallower than that at which it would otherwise occur."

These divers may have been saved by proper training, but it occurs to this observer that training is no substitute for good sense. Some people simply should not become cave divers.

DIEPOLDER SINK #2, FL

May 11

AAd - Drowning

On the evening of May 11, two divers entered Diepolder Sink #2, in Hernando County, Florida, one of the largest known underwater caves, including depths in excess of 300 feet. One was a 25-year-old man from Hudson, Florida, who had completed a cave diver training course in December 1989. He and his more-experienced buddy planned to visit the downstream portion of the cave; it was his first dive at this site. Visibility was significantly reduced by recent, heavy rains. Two other teams of divers were to enter a bit later.

They followed the guideline through the entrance restriction and encountered near-zero visibility at the Junction Room. They took the downstream guideline, breaking into clear water on the upper circuit line. They corrected a buoyancy problem, signalled OK to each other, and began a slow descent on the lower circuit line, heading into the cave.

The lower line lies at a depth of -250 feet. Halfway through the dive, his partner noticed when the 25-year-old momentarily dropped below the line, then continued at a faster pace. This line completes a circuit, taking them back to the Junction Room at a depth of -210 feet. When they reached this point, they had re-entered the silted water. The 25-year-old suddenly lost his grip on the guideline, became disoriented and swam back down cave. This was not noticed by his buddy or by the other two diving teams which had been surveying and were now exiting.

He reached the downstream Ballroom and after some wandering found a marked line. His buddy, meanwhile, had begun decompressing in the entrance basin, but became concerned and searched the basin at his 30-foot stop. Later, he and another diver again dove to the Junction Room but found no trace of the victim.

The body was found the following day by recovery specialists after a 25-minute search, on the bottom, at -241 feet. It took three teams seven hours to complete the body recovery.

REFERENCE: Dustin Cless, "Cave Diver Drowns at Diepolder Sink Number Two", **Underwater Speleology**, 17 (3), p. 6.

COMMENTS: The victim had logged 75 cave dives and was reportedly known for pushing himself with a desire to emulate more experienced divers. The loss of contact with the guideline was the principal factor in the incident but this, and the resulting disorientation, may be due to the depth of the dive:

"Using compressed air below 130 feet severely impairs most divers. Even more pronounced effects are guaranteed below 200 feet. Beset with narcosis and the accumulated carbon dioxide that results from the unusually strenuous respiration required at depth, the victim apparently succumbed to depth-induced blackout. Slowly losing buoyancy, he dropped headfirst some 40 feet before hitting bottom. Recovery divers observed no signs of struggle; the victim's mask remained in place." It can be assumed from this description that he drowned after losing consciousness.

It appeared the victim was setting a personal depth record and, excited about seeing new cave, extended past the planned turnaround at 2000 psi air reserve. Using mixed gas might have given him a better chance of survival.

OTTER SPRING, FL

May 19

AAd - Drowning

On Saturday, May 19, divers visited Otter Spring in Gilchrist County in north Florida. They were an International Diving Educators Association (IDEA) Instructor Trainer and four newly certified open-water divers, Kenneth Ives (25), Ron Welch, Allyn Welch (25), and Chris Gallup (22). Otter Spring is a simple basin with a "very advanced" cave leading from the bottom at a depth of -40 feet. The instructor repeatedly admonished the four to stay out of the cave but allowed them to enter the water with lights, violating park rules.

The dive began and the group encountered the cave entrance where the instructor signalled them not to enter. The instructor continued with the dive and Ron Welch followed. Ives, however, was apparently determined to enter the cave. Gallup and Allyn Welch tried to dissuade him but could not, so they followed, hoping to keep him out of trouble.

The surfaces of the cave are coated with fine, feathery silt which was immediately stirred up by the three divers, who became disoriented and after awhile began to run out of air.

On the surface, other divers noticed the absence of the three. The commotion alerted Woody Jasper, an expert cave diver who was attending a company picnic at the park. Perhaps he was planning a dive, for he also happened to have his gear with him. He quickly suited up and entered the water.

Gallup and Welch, meanwhile, had lost trace of Ives. When one ran out of air, they shared until it was all gone. Fortunately, they had encountered a small air pocket and this sustained them for a short period before it, too, was exhausted of oxygen. The two lost consciousness.

Jasper quickly found the two in the air pocket. Thinking that one of them moved, showing life, he purged some air into the pocket. Neither victim showed response, or reacted to the offer of a shared octopus, so he pulled one down and towed him at all speed to the surface where other company employees began to administer CPR. Jasper returned to the air pocket where the second victim had recovered consciousness; he accepted the octopus and was escorted to the surface.

Jasper again returned to the cave and found the body of the third victim, who had apparently drowned some 20-30 minutes earlier. The unconscious victim, Welch, responded to the CPR, but, at the last report, remained in critical condition in intensive care in a hospital.

REFERENCES:

1) Ed., "Woody Jasper's Courage Makes Possible the 'Miracle at Otter'", **Underwater Speleology**, 17 (3), p. 5.
2) Norma Wagner, "Expert Cave Diver Saves Two Novices; a Third Dies", **St. Petersburg Times**, May 22, 1990, p. 1, 14A.

COMMENTS: The three had no proper equipment or training, nor did they do any planning. The culprit here, however, is simply human psychology. It is obvious that some, perhaps all of us, will at some time deliberately take a life-threatening risk on the pure hope or chance that fate, or whatever, will sustain them. Sometimes we are not sustained.

EAGLE'S NEST SINK, FL

August

AAd - Drowning

In August, two divers entered Eagle's Nest Spring in Hernando County, Florida. One was Brent Potts, a "highly experienced" cave diver. He apparently became separated from his partner, and was found unconscious, drowned, at -200 feet without a second stage in his mouth. They were using compressed air.

REFERENCE: Marty Moore and Mike Poskey, "We Are Dying", **The National Association for Cave Diving Journal**, October-November-December 1990, p. 74.

COMMENTS: "Diving on air, a person at -150 feet is decidedly mentally impaired. That impairment is increased at -200 feet. Moreover, irrespective of the other gases involved, oxygen 'can become toxic at depth.'"

"Experienced Cave divers continue to die in accidents that can be primarily attributed to depth. One diver in Uno Spring in 1979, two in Eagle's Nest in 1982, one in Little Dismal Sink in 1988, one in Diepolder Sink in 1990, and Brent Potts in Eagle's Nest in 1990. . .six good divers in eleven years."

DEVIL'S DEN, FL

October 7

AAd - Drowning

On Sunday, October 7, a group of three divers entered Devil's Den in Levy County, Florida. They were Ken Kroslowitz, Chris Marcott and Charles "Buddy Pues (55). Pues was apparently rescue certified for open water but had no cave or cavern training. He had dived at the site two weeks prior.

At around noon, the three did a dive. Only Pues had brought a second set of tanks and went down a second time at about 2:15 p.m. He proceeded through the cavern area and about 200 feet into the cave area, at about 70 feet depth, he apparently stirred up some silt and ended up in a low, bedding-plane passage about 2 feet high, where he ran out of air and drowned. The body recovery crew found "clawing" marks in the silt.

REFERENCES:

1) Kelly Brady, "Recovery Report", October 8, 1990, **unpublished**, 2 pages.
2) Karen Voyles, "Man Drowns in Cave After Ignoring Diving Conditions", **The Gainsville Sun**, October 9, 1990.
3) Ed., "Deaths in Mexico and Florida", **Underwater Speleology**, 17 (5), September/October 1990, p. 4.

SAC ACTUN, MEXICO

October17

AAd - Drowning

At 10:30 a.m., a group of eight divers and one tank sherpa arrived at the parking lot six kilometers north of Tulum, in Yucatan, Mexico. It was the fifth day of a six-day group diving affair. All were cave certified. A detailed sketch of the cave system was made and the dive plan was discussed. The plan was to enter the Sac Actun Cenote, traverse the cave and exit the Grand Cenote, a trip of 22 minutes, reaching depths of 40 feet. It was explained that about 280 feet "upstream" from Sac Actun they would traverse a temporary, 70-foot gap line with a pink direction-line marker at the start which connected with the permanent line going "downstream" to the Grand Cenote. The lead divers would be installing this temporary line. The group would then retrace their path back to Sac Actun; they were in two teams of four and the second team would reel up the temporary line. At Sac Actun they would recalculate "thirds" and take another passage leading to a third cenote via a formation room and a loop in the passage.

The first leg proceeded well, taking 24 minutes. At the Grand Cenote, a second line was attached and strung out into the large "cavern" zone, to help guide them back to the cave passage. All had started the dive with 3000 psi in their double 80 cubic foot tanks and now had 23-2400 psi left with one having 2600.

They spent 15 minutes on the surface and the plan for the remainder of the dive was reviewed twice, again reminding them of the cave layout with a sketch on a dive slate. When one member was in doubt, the plan was reviewed a third time. Everyone agreed that they understood.

They started back, but quickly diverted to one side of the cavern zone to observe a crocodile skeleton. A second delay occurred when a member of the first team dropped his/her mask and a member of the second team retrieved it. They regrouped and continued into the cave zone, the second group about 100 feet behind, reeling in the cavern zone line.

At the 70-foot gap, the first-team leader detached the reel, sending his three teammates ahead. The second team arrived moments later. Three second-team divers started to swim across the gap while the fourth was given the reel and signals were given for him to reel it in while the first-team leader swam ahead to catch up with his group.

The first-team leader caught up with his group at the other end of the 70-foot gap (the pink direction-line marker) and made the required sharp left turn, leading toward Sac Actun. He looked back, saw one second-team member following, and the rest arriving at the pink marker. However, when they arrived at Sac Actun, they could see no following lights.

It was assumed that this was due to the second team suffering a jammed reel; they recalculated "thirds" and proceeded on the third leg of the session, the traverse to the third cenote. A gap line was laid and they swam to the third cenote. The leader was uneasy about the second group and inquired of the others as to the last time they had seen the second group. They agreed the last time was at the pink marker.

The three were told to stay there and the first-team leader went back. At Sac Actun, the second team was not in sight. At the pink marker (the 70-foot gap) he found the gap-line reel had been replaced. He proceeded to the Grand Cenote and found no one. He returned to the third cenote, got his group, and returned to Sac Actun. He then headed in alone, toward Grand Cenote, for one more look.

Meanwhile, the reel diver on the second team had gotten about 1/3 of the line reeled in when the leader came back and signalled for him to replace it. He did so and they swam back to the pink marker, where the leader turned right and headed deeper into the cave system. The other divers followed, including the one who had started to follow the first team. At one point, the leader stopped to check his air supply, then continued. After traversing some 1000 feet, the leader stopped and asked, via his slate, why they hadn't met the first team. They decided to turn back.

One diver still had 1500 psi, the others were down to 1000. Shortly, they observed a "snap and gap" line heading to the right. Hoping this was the way to the third cenote, they took it but when 100 feet in found a line arrow pointing the direction they came from, retreated and continued out the main guideline.

One diver's fin strap popped off and there was a delay while his companions helped with it. The fins had been properly taped, but were of the new adjustable type. Stress increased--they had not seen a direction arrow for some time. The two bringing up the rear were now swimming faster and passed their companions, stirring up some silt and disappearing from sight. One of the two who were now last ran out of air and began to share with the other. They were about 600 feet from Sac Actun. The fin strap popped off again and they abandoned it, making swimming more difficult. Two hundred feet later, they dropped a video camera and kept going.

The first-team leader headed toward the pink marker on the way to Grand Cenote and saw three lights heading toward him. As he approached the first two lights, he saw that they were sharing air. These two gave hand signals--big trouble behind. They had just passed the faster two, obviously out of air.

The first-team leader swam into the cave and discovered a body dangling limp from an air pocket in the ceiling. He tried pulling it to administer air, but it was too buoyant. Pulling off his regulator, he purged it, sending fresh air into the pocket. Sticking his hand into the air pocket, he felt the diver's face to find it still warm and the diver gulping for air. He placed his long hose regulator second stage into the air pocket and the diver responded, grabbing at it.

After a minute or so of breathing, the diver dropped down from the air pocket. The first-team leader pried the victim's face mask from his left hand and put it in his right hand; the victim put it on and cleared it. Firmly taking the victim's right hand, the leader escorted him the 150 feet to the surface.

The two second team divers sharing air had just made it to the surface on the last of their shared air. Since another diver was still missing, the first-team leader and a second first-team diver returned to the cave. They found the second victim, twenty feet beyond the first, on the floor face up, regulator out of his mouth. They pushed one of their regulators into his mouth with no response. Each diver grabbed an arm and pulled the victim as fast as they could to Sac Actun Cenote. The victim was given mouth-to-mouth resuscitation for five minutes, but it was futile. He was dead.

REFERENCE: Steve Gerrard, "Cave Diver Drowns in Sac Actun", **The National Association for Cave Diving Journal,** October-November-December 1990, p. 71-73.

COMMENTS: Everyone was fully cave trained. The deceased had logged 53 cave dives. A continuous guide line was maintained throughout the dive. The only apparent factor in the incident was disorientation, possibly due to unfamiliarity with the cave. I would speculate that in a weightless environment such as this, that even closing your eyes for a short period during which your body chanced to rotate, would be enough to

bring complete disorientation. In any case, this well-equipped, well-planned, intelligently carried out dive, by well-trained and experienced divers, resulted in a fatality. Perhaps cave divers lose sight of how dangerous a sport this is. Perhaps a rule that every diver, before a dive, must turn to each of his companions and say, "Well, it was nice knowing you--I may not see you on the surface alive again", might serve to remind them.

It appears that only one diver may have been confused. Two of the survivors stated that they "still understood the dive plan but were lulled into the following-a-leader syndrome.

The rigging of the cave was obviously confusing. The following week it was redone so that no gap now exists between cenotes and pushing further into the cave at the old pink marker now requires a gap line.

I should also say that the plan was rather complicated. Under partial narcosis or dive euphoria/panic, it is obviously difficult to remember anything--keep it simple.

PEACOCK SPRINGS, FL

November 4

AAd - Drowning

On Sunday, November 4, Darden Davis (46) entered the Olsen Sink Entrance to the Peacock Springs Cave System in Suwannee County in north Florida. Davis was an experienced and certified cave diver, and was equipped with dual-manifolded 104 cubic-foot doubles and an 80-cubic-foot stage bottle. He proceeded into the upstream tunnel, with which he was reportedly familiar, on a legal, solo dive.

His body was found 150 feet from Olsen Sink. The 80 was empty, but there was 1200 psi in the 104's. The valve regulator (SPG) had been turned off. When the equipment was tested later, it was found that there was a second stage free-flow malfunction. This may be the reason it had been turned off.

"Davis was presumably then trying to exit and bumped the other valve handle to the backup regulator causing it to shut off or he might have only cranked it open a bit initially and as tank pressure dropped, it no longer was able to allow the backup regulator to function.

It is hypothesized that, under the stress of breathing from a poorly performing backup regulator, the deceased may have forgotten about having turned the primary regulator off (which would cause his SPG to read zero). He might have concluded a dead SPG and a hard-drawing regulator meant that his doubles were nearly dry, and thus have resorted to his stage bottle."

On the stage bottle a single hose regulator with two second stages was attached, one was found to be sticking. As the deceased tried to exit the cave system in an emergency, there could have been air lost from the second stage not being used. In any case, it was his last dive. The Florida State Parks have since been closed to solo diving.

REFERENCES:

1) Ed., "Cave Diver Drowns in Olsen Sink", **The National Association for Cave Diving Journal**, October-November-December 1990, p. 70.

2) Ed., "Accident Closes Peacock Springs to Solo Cave Diving", **Underwater Speleology**, November/December 1990, p. 3.

NOTICE:

We are proposing a 10-year collective issue of American Caving Accidents with essays, incident reports and Safety Committee articles. Please make any suggestions, complaints, and/or new information on old incident reports as soon as possible. This will cover 1981 through 1990.

National Speleological Society
Accident/Incident Report Form

Date of Accident/Incident: _____ 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/Incident

( ) 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/incident.

Rescue

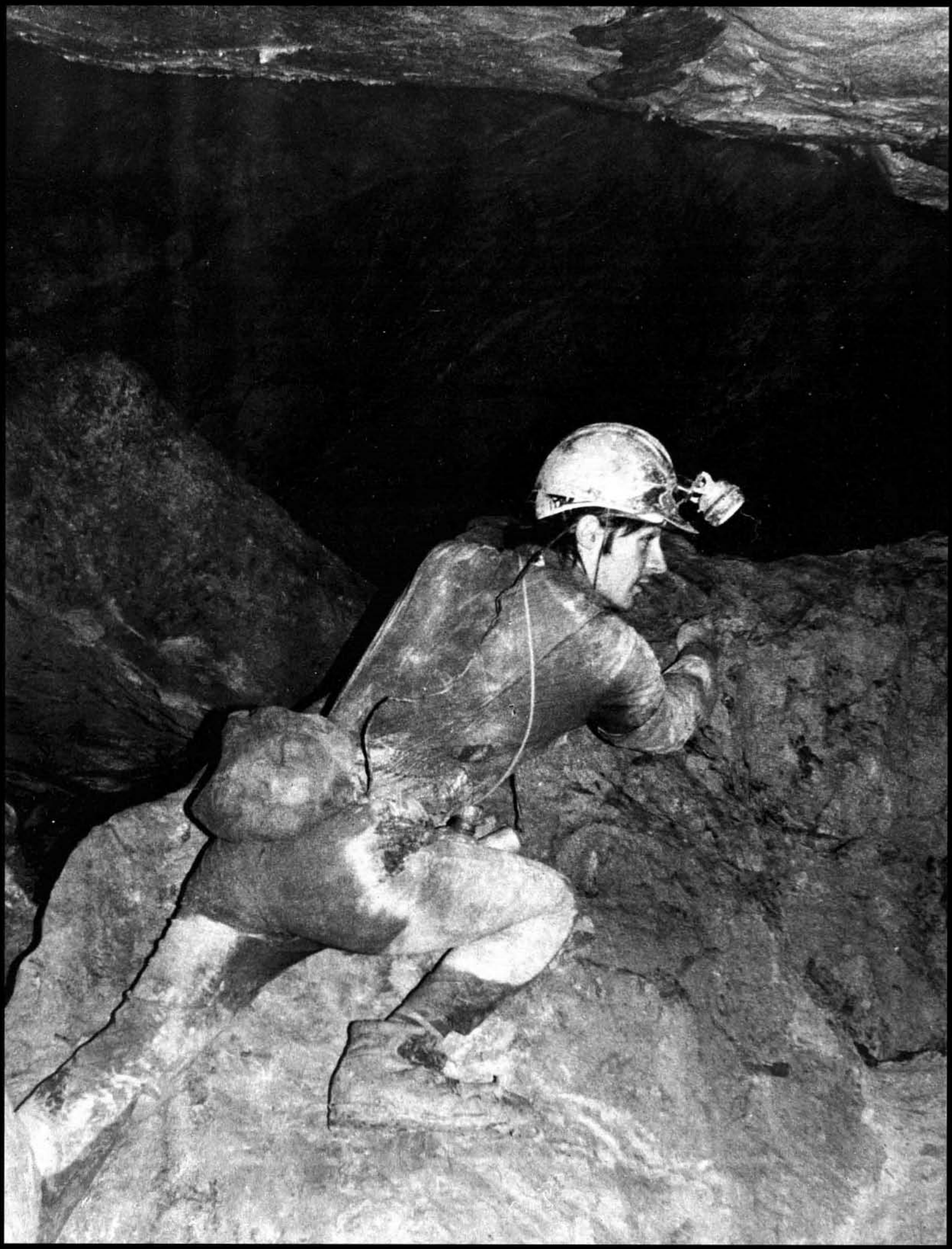
( ) Actions following accident/incident.
( ) Persons contacted for help. A flowchart may be helpful.
( ) Details of rescue procedures.

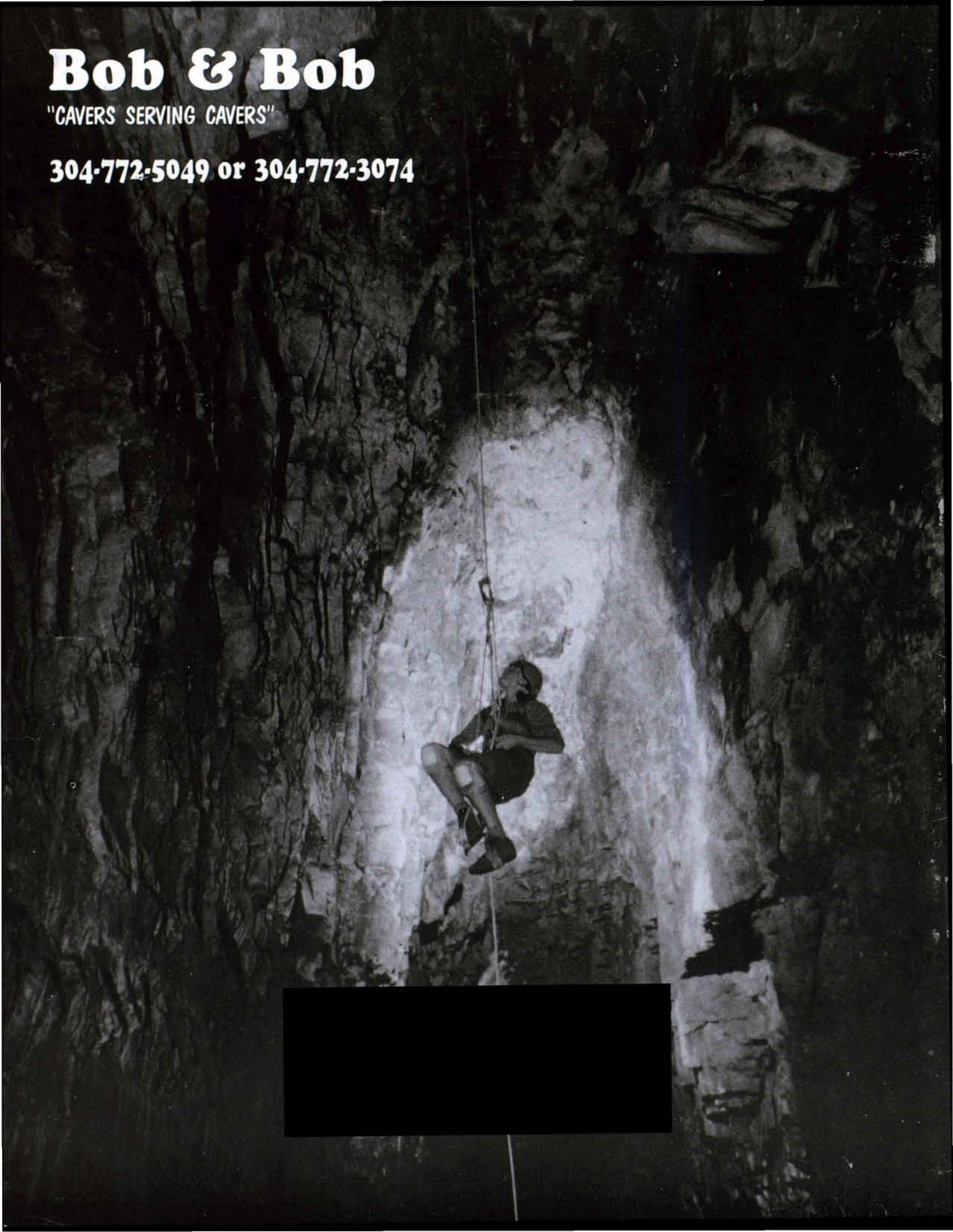
Further details were reported in:

( ) Newspapers ( ) Grotto newsletter ( ) Other
(Please enclose copies if possible.)

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

National Speleological Society
Cave Avenue
Huntsville, Alabama 35810

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