

NSS NEWS (ISSN 0027-7010)
The National Speleological Society
Cave Avenue
Huntsville, AL 35810

NSS NEWS
May 1981 (Part 2)

AMERICAN CAVING ACCIDENTS

1976 through 1979

STEVE KNUTSON, EDITOR

Second Class Postage paid
at Huntsville, AL and at
additional mailing offices

THE NATIONAL SPELEOLOGICAL SOCIETY

PRESIDENT

Tom Rea
2455 Northern Dr.
Plainfield, Ind. 46168

EXECUTIVE VICE PRESIDENT

Paul Stevens
5964 Seabright Rd.
Springfield, Va. 22152

ADMINISTRATIVE VICE PRESIDENT

Janet McCormick
8028 Fenway Rd.
Bethesda, Md. 20034

SECRETARY-TREASURER

Gerald Forney
911 Cook St.
Denver, Colo. 80206

DIRECTORS: **Bob Addis**, 81 South Shore Rd., Cuba, N.Y. 14727; **Evelyn Bradshaw**, 1732 Byron St., Alexandria, Va. 22303; **Rane L. Curl**, Dept. of Chemical Engineering, Univ. of Michigan, Ann Arbor, Mich. 48109; **Emily Davis Mobley**, P.O. Box 333, Wilbraham, Mass. 01095; **Mike Dyas**, 1321 So. 43rd St., Tacoma, Wash. 98408; **Chuck Hempel**, Box 3038, Morgantown, W. Va. 26505; **Bob Liebman**, P.O. Box 1, Sinksgrove, W. Va. 24976; **Douglas Medville**, 11762 Indian Ridge Rd., Reston, Va. 22091; **Hazel Medville**, 11762 Indian Ridge Rd., Reston, Va. 22091; **William Mixon**, 5035N South Drexel Ave., Chicago, Ill. 60615; **Richard Schreiber**, Rt. 2 Box 6, Rising Fawn, Ga. 30738; **Robert R. Stitt**, 1417 9th Avenue West, Seattle, Wash. 98119.

NSS NEWS (ISSN 0027-7010) is a magazine devoted to speleology. It is published monthly by the National Speleological Society, Inc., Cave Avenue, Huntsville, Ala. 35810. Subscription rate is \$10 per year. When changing an address, give old address as well as new. Second-class postage paid at Huntsville, Ala., and additional mailing offices.
POSTMASTER: Send address changes to The National Speleological Society, Inc., Cave Avenue, Huntsville, Ala. 35810.

Copyright 1981

National Speleological Society

Cave Avenue

Huntsville, Alabama 35810

Table of Contents

	Page
Acknowledgements	ii
Introduction	A1
Safety and the National Speleological Society	A3
Chronological List of Accidents and Incidents:	
1976	A4
1977	A4
1978	A5
1979	A6
Reports:	
1976	A7
1977	A18
1978	A41
1979	A60
Statistical Summary	A76
Index of Accidents and Incidents	A80

ACKNOWLEDGEMENTS

I wish to thank the following for their communication of information included in reports in this issue. Credit should also go to those who wrote reports or editorials for caving publications and to the publications themselves for seeing fit to publish the material. Alphabetically: Warren Anderson, John Barnes, John Baz-Dresch, Carol Belski, Dave Belski, Larry Blair, Dick Blenz, Evelyn Bradshaw, Rich Breisch, Ken Byrd, Maureen Cavanaugh, Will Chamberlain, Bob Custard, George Dasher, Don Davison, Mike Dyas, Mike Fichesser, Brian Fitzgerald, Dennis Green, Paul Griffiths, Blake Harrison, John Hoffelt, Huntsville Grotto, Frank Hutchison, Tom Iliffe, Randy Jackson, James Jasek, Anthony Jinkinson, Jay Kennedy, Chris Kerr, Dave Knapp, Jerry Kyle, Dick LaForge, Glen Lemasters, Warren Lewis, Bill Liebman, Chuck Malone, Frank O'Hara, Allan Padgett, Art Palmer, Philadelphia Grotto, Jim Pisarowicz, Arlin Pound, Bruce Randall, Dean Redshaw, Russ Rhoades, Bob Richards, Mike Sims, Ken Smith, Marion Smith, Bill Torode, Mike Van Note, Bill Walden, Dwight Weaver, Phil Whitfield, and Jim Wolff. My apologies to any contributor not listed. Special thanks goes to Lynne and Mike Sims for help varied and substantial, and especially to Lynne for typing the final draft. I wish to also acknowledge the efforts of the Great Falls Scribe, Inc. (Warren Smith, Hester and Jerry Nettles) for typesetting and printing this publication and the efforts of various members of the District of Columbia Grotto for preparing it for mailing.

INTRODUCTION

This issue represents a revival of annual reporting of caving accidents in the Western Hemisphere by the National Speleological Society. Previous volumes were published for accidents in 1967-'71, '72, '73, '74 and '75. This volume brings us up to date. The future will hopefully see annual issues published by the middle of the year following.

Accidents appear to be basically of three types. First, there are scuba diving accidents in caves, which are almost always fatalities and almost always involve people who are primarily oriented toward diving, not caving. The diving fraternity apparently wishes as low a profile as possible, so the reports in this issue represent only a fraction of the actual occurrences. Second, there are accidents involving people outside the organized caving community who use ancient techniques (like knotted rope and hand-over-hand ascents), minimal equipment (like flashlight only for light source), and poor judgement. These accidents are often entrapments occurring when light sources of ascent methods fail. Seemingly just as common are accidents involving organized cavers for our third type. These also include entrapments and in general involve more technical situations than for the non-organized cavers. Thus, though organized cavers don't commit the extremely nurdish acts the non-organized cavers do, they seem to get themselves in trouble quite often anyway. I believe this is due in part to engaging in underground "rock climbing" without first developing the skills and adopting the techniques of a rock climber.

In this issue I have labeled reports as either "accident" or "incident" but drawing the line between the two is difficult. My definition of accident involves the following criteria:

1. An injury occurs, or
2. A caver gets into a situation where the assistance of another is definitely needed.

Admittedly this results in the inclusion of some rather trivial "accidents," but at least I don't have to make value judgements on such things as extent of injury. Various types of incidents are included if I judge them to be of educational value. Incidents are, after all, accidents that didn't quite happen.

To avoid class discrimination I have tried not to label the cavers involved with regard to affiliation or lack of it. I have also tried to name only victims.

The purpose of this publication is the education of cavers to the real dangers of caving. Read the reports herein, keep them in mind, and hopefully you will avoid similar bad situations or at least be better able to handle them when they occur. Some of these reports are nightmarish, but they did happen and could happen to you—remember it.

One final message regards the feeling by many cavers that by proclaiming society to not be responsible for their welfare, that they are thus free to pursue any irresponsible act that may occur to them. It should be obvious to any rational person reading these reports that society will *not* relinquish its feeling of responsibility toward the freeing of trapped victims or even the recovery of a dead body. Remember, then, that even if you get yourself

in trouble through outrageous foolishness, others will undoubtedly risk their lives to aid you.

The information for these reports came from newspaper clippings, direct reports from cavers or rescue groups and reports in grotto newsletters. If you see an accident in the newspaper, please send me a copy, including the newspaper name, date and page number. If you know of an accident and wonder if I have a report of it, please send a postcard giving brief reference to the accident and I will let you know if I need more information. When grotto newsletters publish an accident report, I would appreciate a copy. Any report of an accident will be greatly appreciated.

Steve Knutson
American Caving Accidents
505 Roosevelt Street
Oregon City, OR 97045

SAFETY AND THE NATIONAL SPELEOLOGICAL SOCIETY

The National Speleological Society is concerned with the safety of the sport of caving within its membership. On a society-wide basis we have the publication of *American Caving Accidents*, the *Safety and Techniques Committee* and the *National Cave Rescue Commission*.

The *Safety and Techniques Committee*, whose present chairman is *Allen Padgett, Rt. 3, Cleveland, GA 30528*, is dedicated to the sharing of information and experience concerning safe caving methods. Its goal is accident prevention through involvement of responsible cavers throughout the society. The committee is open to anyone willing to help. Material is often published in the *NSS News*. At the annual national convention of the NSS, papers are presented on aspects of safety and techniques.

The *National Cave Rescue Commission* is governed by a board including a National Coordinator and several Regional Coordinators. The organization has garnered expertise in the various specialties of cave rescue. The NCRC can supply rescue teams and expertise as well as coordination via liaison with the United States Air Force. For this purpose there is a toll-free call number, manned 24 hours a day: 800-850-3051. Be prepared to give your name, phone number, location, nature of the emergency, name and location of the cave, etc.

The NCRC also conducts cave rescue training seminars annually and solicits rescue oriented material for publication. Recently published is the *NCRC Handbook of Cave Rescue*. For information, write to NCRC c/o National Speleological Society, Cave Avenue, Huntsville, Alabama 35810.

The NSS also has local chapters called grottos which affect cave safety within their memberships by the common practice of holding sessions demonstrating proper safety and techniques. Obviously, a new caver joining a grotto benefits from his observation of safe techniques and practices on caving trips with established members. Also, some grottos have publications which occasionally carry articles with material pertinent to safety.

In pursuing the editing of this issue of *American Caving Accidents* it has become apparent that there are areas of caving safety which the NSS might pursue with more energy. First, it seems that cavers who are not associated with the organized caving scene (the NSS) tend to utilize some outrageously outmoded techniques and equipment. This includes the lack of head protection, hand-over-hand descent and ascent, the flashlight as a primary (sometimes *only*) light source, and lack of foresight in the form of extra food and clothing for emergencies. It also seems that experience with organized caving, whether from education or just peer pressure, creates cavers who seem never to utilize the items listed above.

A number of accidents occur when a caver takes a fall while climbing about in a cave. In rock climbing, a climber is inadequately protected if not belayed when a fall could result in a serious injury (an "exposed" climb). Rock climbers carry ropes and hardware and train themselves in the use of these for climbing in exposed situations. So it should be in caving.

CHRONOLOGICAL LIST OF ACCIDENTS AND INCIDENTS (A and I)

CAVE	STATE	TYPE	DATE	PAGE
1976				
Soldier's Cave	California	A	1-24	A7
Fair Oaks Pit	Texas	A	2-28	A8
Lost Hollow Cave	Arkansas	I	3-6	A9
Blue Hole Lake	New Mexico	A	3-10	A9
Kudzu Cave	● Alabama	A	3-20	A10
Rubber Chicken Cave	West Virginia	A	5-8	A10
Rasdell's Cave	Kentucky	A	6-5	A11
Crookshank Cave	West Virginia	I	6-13	A11
Cornwell Cave	West Virginia	A	6-25	A12
Sloan's Valley Cave	Kentucky	A	June	A12
Crookshank Cave	West Virginia	A	7-4	A12
Meanderbelt Cave	Montana	A	July	A13
Pryor Springs Cave	Tennessee	A	7-11	A14
Crabtree Cave	Maryland	A	7-19	A14
Shaft Cave	Indiana	A	8-7	A15
Crookshank Cave	West Virginia	I	8-7	A15
Cass Cave	West Virginia	A	8-29	A15
Tongue River Cave	Wyoming	A	9-2	A17
Rubber Chicken Cave	West Virginia	A	11-13	A17
1977				
Cooch-Webb Cave	Kentucky	A	1-2	A18
Devil's Eye Spring	Florida	A	2-7	A18
Indian Grave Point Cave	Tennessee	A	2-20	A19
Sumidero Yochib	Mexico, Chiapas	I	March	A19
Sumidero Yochib	Mexico, Chiapas	A	March	A20
Sumidero Yochib	Mexico, Chiapas	I	March	A20
Indian Creek Cave	Missouri	A	3-27	A21
Sotano San Agustin	Mexico, Oaxaca	A	3-28	A23
Sotano San Agustin	Mexico, Oaxaca	A	3-31	A24
Connie's Cave	California	A	4-2	A25
23 Dollar Cave	● Alabama	I	4-2	A26
Cumberland Caverns	Tennessee	A	4-16	A26
Sheepman's Cave	Maryland	A	5-23	A26
Palos Verdes Peninsula				
Sea Cave	California	A	6-11	A27
McClure's Cave	Pennsylvania	I	Sum.	A27
Organ Cave	West Virginia	A	7-9	A27
My Cave	West Virginia	A	7-30	A28
Canadian Hole	West Virginia	A	7-31	A29
Cave near Lake Purdy	● Alabama	A	8-8	A30
Cass Cave	West Virginia	A	8-28	A30
Henson's Cave	Missouri	A	Aug.	A31
Valhalla Cave	● Alabama	A	9-3	A32
Rorie Cave	Arkansas	A	9-3	A32

CAVE	STATE	TYPE	DATE	PAGE
1977 continued				
Morrison's Cave	Kentucky	I	9-10	A34
Quatsino Master Cave	Canada, Brit. Col.	A	10-1	A34
Twigg's Cave	Maryland	A	10-14	A35
Twin Airplane Cave	Tennessee	A	10-17	A36
Afternoon Delight Cave	Canada, Brit. Col.	A	11-12	A37
Ellison's Cave	Georgia	A	11-25	A37
Sloan's Valley Cave	Kentucky	A	11-26	A38
Sotano Huiztmoatlita	Mexico	A	12-13	A39
Sotano de las Golondrinas	Mexico	A	12-17	A39
Crevice Cave	Missouri	A	12-18	A40
1978				
Oregon Caves	Oregon	A	1-28	A41
Motlow Cave	Tennessee	A	2-23	A41
Krueger Dry Run Cave	Illinois	A	2-26	A41
Canoe Cave	● Alabama	A	3-16	A43
23 Dollar Pit	● Alabama	A	3-19	A43
Nutt Cave	West Virginia	I	3-25	A44
Jingle Hole Knob Cave	Kentucky	I	Spring	A44
Sites Cave	West Virginia	I	5-28	A45
Sawdust Pit	Kentucky	I	6-10	A46
Riverside Cave	Indiana	A	6-18	A46
Silvertip Cave	Montana	A	Sum.	A47
Canadian Hole	West Virginia	A	7-4	A48
Stamps Pit	Tennessee	I	July	A48
Dead Dog Cave	Texas	A	7-5	A49
Cave on Cave Ridge	Washington	A	7-29	A49
Peacock Slew Cave	Florida	A	7-31	A50
Bowden Cave	West Virginia	A	9-1	A50
Jacob's Well	Texas	A	9-2	A51
Roubidoux (Indian) Cave	Missouri	A	9-16	A51
Wards-Gregory Cave	New York	A	9-23	A52
Dynamited Cave	Washington	A	10-7	A52
Skunk Cave	Iowa	A	10-8	A53
Johnson's Crook Cave	Georgia	A	10-15	A53
Hell's Below Cave	New Mexico	A	11-11	A54
Cool Springs Cave	Kentucky	A	11-19	A54
Sloan's Valley Cave	Kentucky	A	11-24	A55
Natural Well	● Alabama	A	11-24	A56
Cueva del Brinco	Mexico, Tamaulipas	A	12-1	A56
Morris Cave	Vermont	A	12-6	A58
Un-named Pit	● Alabama	A	12-27	A58

CAVE	STATE	TYPE	DATE	PAGE
1979				
Anderson Springs Cave	Georgia	A	3-3	A60
Sinking Cove Cave	Tennessee	A	3-3	A61
Hidden Cave	New Mexico	I	March	A62
Pighole Cave	Virginia	A	3-10	A62
Buckner's Cave	Indiana	A	3-24	A63
Soldier's Cave	California	A	3-31	A63
Pit near Lyman State Park	Arizona	A	May	A64
Un-named Cave	Kentucky	I	5-5	A64
Hamilton Cave	Missouri	I	5-20	A65
Climax Cave	Georgia	I	5-31	A65
Schoolhouse Cave	West Virginia	I	June	A66
Indian Cave	Missouri	A	6-23	A66
Cave near Pall Mall	Tennessee	A	M/J	A67
Carlsbad Caverns	New Mexico	I	7-10	A67
Hellhole Cave	West Virginia	I	7-20	A68
Wildman Cove Cave	Tennessee	A	8-11	A68
Worley's Cave	Tennessee	A	8-24	A69
Ice Cave	California	A	Aug.	A69
Wildcat Cave	Indiana	A	Sept.	A70
Natural Well	Alabama	A	9-1	A70
Jacob's Well	Texas	A	9-9	A71
Perkins Cave	Missouri	A	9-20	A73
Organ Cave	West Virginia	I	10-27	A73
Swallowhole Cave	Indiana	A	11-3	A74
Santa Cruz Island				
Sea Cave	California	A	12-2	A74
Cedar Creek Cave	Tennessee	A	12-2	A75
Rattling Cave	Tennessee	A	12-22	A75

REPORTS

Accident: California, Soldiers Cave

January 24, 1976

At 12:30 p.m. on Saturday, January 24, Bob Hails (45), Sam Hails, Frantz Lattka, Dell Quick and Jim Steinberg entered Soldiers Cave. Their equipment had been inspected a short time before by a National Park Service ranger when they obtained permission to enter this restricted cave. They proceeded down 20 and 60 foot rappels to the Waiting Room and on to the Waterfall Room via a hand line. Arriving at the Aragonite Room, they stopped for some prolonged photography. At 2:45 Lattka and B. Hails went into the northern portion of the room which was separated from the rest by two narrow crawlways. Lattka climbed a 35-foot, steep flowstone slope on one wall and went into Ruby's Route, a horizontal passage at the top of the slope. Hails tried to follow but got up only about 6 feet. Starting to down climb he fell. A foot from the floor his feet hit a protrusion causing him to land in a sitting position with his feet under him. The others heard the fall and came to help.

Hails complained of pain low in his back and extreme pain in his pelvic region. He had feeling in his legs and no paralysis or numbness, but could not stand because of the pain. It was apparent that he would have to be evacuated and that additional personnel would be required. Extra clothing and a space blanket were put around him and carbide lamps were applied to keep him warm. The cave temperature was about 45 degrees. At 3:30 p.m. Quick and Lattka went for help, exiting the cave at 4:15. Lattka collected extra gear at the campground, ate and re-entered the cave at 5:30. At 4:45 Quick drove to the nearest ranch to call authorities. At 8 p.m. four rangers and a volunteer arrived at the campground and at 9 p.m. reached the entrance. Lattka exited at that time to report the victim stable. He was stationed at the entrance with a radio. Quick led the others into the cave and reached the victim at 11 p.m. EMTs examined Hail who could not move due to the pain. To get permission to administer pain-killing drugs word was sent out to Lattka to radio for more assistance, also to include rock climbing expertise.

At 4:30 a.m. (Sunday) a registered nurse arrived at the site of the victim and administered morphine. Meanwhile a group of six rock climbers were rigging the cave with ropes and pulleys. At 6 a.m. Demerol was administered and the victim was moved through the crawlways to the main portion of the Aragonite Room where he was tied on a wooden backboard. He was then moved by Tyrolean traverse through, up and out of the Waterfall Room, hoisted up the 60 foot pitch at the Waiting Room, along another Tyrolean traverse through the crevice, removed from the backboard to traverse a tight place, hauled up a steep slope and a 20 foot pitch and again taken off the board to negotiate the tight entrance passage. The victim exited the cave at about 2 p.m. Sunday, some 26 hours after entering. His injuries were later diagnosed as a fractured right pelvis.

Reference: Bob Hails et.al. "Accident Report, Soldiers Cave" *The Explorer* June 1976 p 50-52.

Analysis: The accident occurred through lack of a belay in the course of normal caving activity. An upper belay for the less skillful Hails would

surely have prevented the accident. A length of 3/8" nylon rope is easily carried for use in such situations. For greatest safety, the rule should be that a belay should be used whenever a fall could cause an injury.

It is obvious that the rescue was carried out with exceptional efficiency. This is due, at least in part, to the fact that this is a National Park Service restricted cave and that the Park Service has at their disposal expertise of various sorts for situations such as this.

* * * * *

Accident: Texas, Fair Oaks Pit

February 28, 1976

A group of six were searching for a cave on the Fair Oaks Ranch in Kendall Co., Texas. Some of them had been caving before but none had any vertical training. At a potential entrance, a 3'x6' pit, they rigged a home-made rope ladder. One caver descended 60' down to a floor and looked around. He found a second pit of 50' but the ladder reached only 10' down this. Jim Beall (27) with only a flashlight hung around his neck, climbed down to have a look. The ladder work was being done without belay. Beall began to climb back out. About 15' from the top he hesitated, then fell. He hit feet first, rolled 35' down slope and then fell another 50' to the bottom of the second pit. He was determined to be still alive but the group didn't have the equipment to reach him. The others were sent to get help which arrived in about 1½ hours.

A medic descended to Beall and tied him to a wooden backboard. The victim reported that his legs were getting stiff and he was having trouble breathing. A one inch manila rope and a steel cable were attached to the stretcher and Beall was lifted into a head-up, vertical position. Beall then passed out, presumably due to lack of blood flow to the brain from internal bleeding. Communication between the tow truck winch operator and the rescue team was difficult and several relays were necessary.

The victim was hoisted by people hauling on the rope and the tow truck winching the cable. At the top of the 50' (lower) pit, the stretcher hung up on the lip. Continued pulling on the rope caused it to break, the loose end falling back down the pit. The medic at the bottom tried to use this to pull Beall away from the lip while another caver pulled on the cable. At this point, however, the cable tore through the wooden backboard allowing the victim to fall back down the 50' pit. The medic checked vital signs and pronounced him dead.

References: Tom Iliffe "Accident Report" *Texas Caver*

April 1976 p 70.

Tom Iliffe *Personal Communication* February 28, 1980.

Analysis: This is another example of cavers using extremely poor techniques and getting in trouble. A belay should always be used in ladder work. However, it must also be said that the rescue group displayed techniques just as poor and turned the badly injured victim into a fatality. The rescue group was local and it is unfortunate that the Texas Cave Rescue System, (cavers) were not utilized. They could hardly have done worse.

* * * * *

Incident: Arkansas, Lost Hollow Cave

March 6, 1976

On Saturday, March 6, Larry Houston and Joe Spitzmiller were preparing to descend a pit in Lost Hollow Cave, Izard County, Arkansas. A rope was rigged on a 90 foot drop. To hold the rope clear of the lip, to facilitate ascent and descent, a chock was placed in a crack and attached to the rope, with "500 pound test" parachute cord, above the lip. Houston descended. As Spitzmiller put his weight on the rope in going over the lip on rappel, the chock cord broke, abruptly dropping Spitzmiller about two feet. His hard hat and lamp were dislodged and fell down the pit. No injury resulted.

Reference: Editor "Dangers of Parachute Cord" *The Underground Leader* 6:1 March 1976 p 11.

Analysis: Nylon cord, webbing and rope come in a variety of diameters or sizes and one should be wary of that which is of insufficient strength. Just because it is nylon doesn't mean it is strong enough to use indiscriminately. Moreover, strength will deteriorate with use—inspection before use should show this. A knot usually reduces strength by half—thus a sling made of 500 pound test cord with a knot would be only 250 pounds in breaking strength when new. A rappel can be expected to produce stress of up to several times body weight. Thus it should have been expected that the cord would break.

* * * * *

Accident: New Mexico, Blue Hole Lake Cave

March 10, 1976

David Gregg (21), Mike Godard (22) and eight other university students were scuba diving in Blue Hole Lake near Santa Rosa, Guadalupe County, New Mexico. At 10:30 a.m. they began a dive. After a reasonable length of time Gregg and Godard failed to reappear. The State Police were quickly called and arrived on the scene at 11:35 a.m.

Search and recovery began at 12 noon and it was determined after the first dive that the victims were not in the main portion of the lake and had entered a cave leading off at a depth of 110 feet.

On the 11th a search of the cave was undertaken starting at about 10:15 a.m. On the second dive, at about 2:15, Gregg's body was found in the second room at a depth of 125 feet. This body was recovered on the same dive but 11 more dives, up to a depth of 200 feet through March 13th, failed to yield the second victim. Operations were suspended when exhaust air from divers began loosening rocks creating an unsafe situation.

On April 25 operations resumed and on the third dive the body of Godard was located at a depth of about 177 feet. Another dive was necessary to recover the body.

References: T. H. Hawkins *New Mexico State Police Report*

March 11, 1975, April 28, 1976.

Alamogordo Daily News March 12, 17, 1976.

Albuquerque Journal March 14, 16, 1976.

Analysis: Underwater caving is extremely dangerous and should never be attempted on the spur of the moment. The exact cause of these fatalities is not known, but lack of fixed lines to indicate the path of return could have

resulted in disorientation, then failure of lights and finally expenditure of air supplies. Drowning is not a nice way to die.

* * * * *

Accident: Georgia, Kudzu Cave

March 20, 1976

On March 20 a group of eight cavers entered Kudzu Cave, Alabama for a bop to the bottom. Three had been in the cave previously and most were experienced cavers, with ages ranging from 23 to 61.

The cave has three drops of 65, 48, and 110 feet. At the second drop the rope follows a flowstone overhang at first, then hangs free for 35 feet to the bottom, with the wall about three to four feet away. All descended the first two drops. Dan Dougherty (61) was the last person down the 48 and sat down on a rock to derig his vertical gear. One caver had already gone down the next drop.

At that point (12:10 p.m.) a rock (24"x15"x4") dislodged from the wall under the overhang, striking Dougherty on top of his left leg, between the knee and hip. His immediate belief was that it was broken. He began to feel faint, put his head between his legs and quickly felt better. Palpation of the bone from underneath revealed no tenderness so it appeared the bone was not broken, only badly bruised. After ascertaining the extent of the injury, the victim was moved to a safer location.

One caver then ascended, briefly stopping to examine the site of the rockfall. With no evidence of additional loose rock, two others ascended. Dougherty was then able to climb out unassisted using a modified Texas system with the rest following. A difficult chimney climb-down was belayed and the 65 foot entrance drop was done unassisted by Dougherty. He was out by 3 p.m.

The injury was basically a severe bruise of the thigh. After three weeks a hematoma was diagnosed but not found by surgical examination.

Reference: Allen Padgett "Accident Report, 1976" *Georgia Underground* 12:5 p 183-184.

Analysis: The victim was fortunate—the rock hit the rock he was sitting on as well as his leg, lessening the blow to the leg. Those in the party feel that they did not touch the rock as they descended. It is probably a good idea for the first person down a drop to check for loose rocks—to clean the pitch. Also, one should spend as little time as possible beneath a drop.

* * * * *

Accident: West Virginia, Rubber Chicken Cave

May 8, 1976

A group of 11 cavers from the D.C. and Baltimore Grottos were exploring a "little known" cave in Greenbriar County, West Virginia on May 8, 1976. Three short, climbable pitches near the entrance were rigged with segments of a homemade cable ladder and a 72 foot free drop with a cable ladder of commercial construction. To facilitate the movement of this large group, the three short pitches were ladder-climbed without a belay.

Mike Dyas (32), last in line, was descending the second short drop when, about halfway down, the ladder failed. The crimps of the top rung, to which the ladder was rigged, had broken. Dyas landed in a pool of water in

a sitting position. He was soaked but uninjured.

On the way out, a caver was on the 72 foot ladder and ten feet from the top when the belay rope became tangled. It took half an hour for the caver to get up the last ten feet.

As Gordon Mothes (late 40's) was laddering the last short pitch the ladder broke. Mothes fell several feet, struck his hand on a sharp edge of rock and received a deep gash near the base of the little finger. He was able to exit the cave unassisted. The laceration later required several stitches.

Reference: Mike Dyas "Accident Report" *D.C. Speleograph* 32:7 July 1976 p 20, 24.

Analysis: This cave trip demonstrates the dangers both of belaying and not belaying a cable ladder rigged drop. The belay rope can become tangled, creating a bad situation. Still, if cable ladders are used they should be belayed. Home-made or not, it is difficult to tell by visual examination the strength of a given ladder. Even a short fall can be fatal if one lands wrong.

* * * * *

Accident: Kentucky, Rasdell Cave

June 5, 1976

On Saturday morning, June 5, a party of four cavers went to survey a new stream passage in Rasdell Cave east of Bowling Green, Kentucky. The new passage was entered by descending two drops of 30 and 25 feet, the latter with eight feet of very narrow crevice at the top. The first was rigged with a rope and the second with a cable ladder.

After a long survey trip the group started out. Joe Troester (21) became stuck in the crevice of the lower drop. Struggling mightily he gradually made his way up. Two of the group then ascended the upper drop, but Troester, next in line, found he had expended the strength of his arms in the crevice and could neither use ascenders nor climb a ladder. Leaving Troester on a mud bank, the fourth caver ascended and conferred with the other two. It was decided that the simplest plan would be to get more manpower and haul Troester out. The group was one of two teams of cavers surveying caves for the Uplands Research Lab (NPS) so one caver exited the cave, drove 15 miles and, at 10:30 p.m., picked up the other crew of four. Troester was hauled up the drop and exited the cave at 1 a.m.

Reference: John Schwartz "Personal Experience and Descriptions of Caves in the Central Kentucky Karst Plain" *The Underground* 19:3-4 1976.

Analysis: Exhaustion in an exceptional circumstance cannot be foreseen. Becoming stuck can easily result in panic and panic can bring on exhaustion quickly in almost anyone.

* * * * *

Incident: West Virginia, Crookshank Cave

June 13, 1976

On June 13, Mike Dyas (32), in company with other cavers, was rappelling the 100 foot entrance drop into Crookshank Cave, Greenbriar County, West Virginia. As he rappelled it became apparent that the free end of the rope had tangled on a ledge when thrown down during rigging. When noticed, the tangle was about ten feet above Dyas. He jerked it loose,

dislodging two rocks of about ten and three pounds. Dyas dodged the larger, but was struck on the helmet by the smaller. Dyas suffered no injury and so continued.

Reference: Editor "Another Turtle Club Member" *D.C. Speleograph* 32:9 Sept. 1976 p 18.

Analysis: The initial caver down a drop must expect this sort of hazard. The caver should not have descended below the tangle before dealing with it. A good helmet, in this case a Bell Toptex, is an obvious asset.

* * * * *

Accident: West Virginia, Cornwell Cave

June 25, 1976

At about 3 p.m. on Friday, June 25, Gale Beach (31) slipped on a rain-slick rock at the entrance of Cornwell Cave, West Virginia, injuring her foot. This was an NSS Convention field trip. Consequently, a call to the convention registration desk produced rescuers within an hour. Beach was placed on a litter and manually hauled up the side of the 1,000 foot deep gorge, from the entrance to the road. By 8 p.m. the victim was in a truck on the way to the hospital. It was determined that she had broken two bones in her foot.

Reference: Chuck Wilkerson "Cheat River Gorge Rescue" *D.C. Speleograph* 32:8 August 1976 p 9.

Analysis: Entrance areas, because of biological activity, can produce extremely slippery conditions. It is not clear whether the accident actually occurred within the cave or not.

* * * * *

Accident: Kentucky, Sloan's Valley Cave

June 1976

Five cavers entered the Great Rock Sink Entrance of Sloan's Valley Cave and proceeded to the Big Room via the south overlook, a difficult climb. They were crossing a sloping ledge in the Lake Room when one slipped and fell onto the breakdown below. He became wedged between blocks of breakdown when one moved slightly to pin him. When it proved impossible for the others to free him, they sent for assistance. The Somerset-Pulaski County Rescue Squad sent two men with a hydraulic jack. They were able to free the trapped caver, who was able to leave the cave under his own power.

Reference: Ken Smith "More on Great Rock Sink" *COG Squeaks* Nov. 1976 pp 90, 92.

Analysis: In ordinary caving there seems to be no reason not to carry a 9 mm rope of medium length, say 50 feet, for belaying in exposed situations.

* * * * *

Accident: West Virginia, Crookshank Cave

July 4, 1976

In the mid-morning of July 4, Bob Custard and Art and Peggy Palmer entered the Friar's Hole System via the Crookshank Entrance. They were part of a larger group using the entrance at that time. The entrance pit is about 100 feet deep and takes a small stream, usually quite small, which has

carried logs and debris into the pit. About 100 feet further into the cave from the base of the pit the passage has a narrow cross section and a ten foot climb-down must be negotiated. This pitch is mainly a log jam.

Custard was about fourth in line but out of earshot of those in front. The log climb had been done by many cavers and by Custard numerous times. A log from which one suspended one's self was commonly used. When his full weight came on the log the soft wood on the sides, where it was jammed against the rock walls, gave and it fell. Custard landed on his behind in a reclining position and the log, weighing several hundred pounds, landed across his pelvis and upper thighs. Sharp rocks under his back barely missed being driven into his spine.

Art Palmer, in response to a yell of pain, climbed down and managed to lift one end of the log allowing Custard to roll free. He was examined for injuries and it was decided that he had no broken bones. It was also decided that he should exit via the horizontal Snedeggar Entrance about one mile away. Escorted by Art and Peggy Palmer the trip took about two hours. The victim gradually succumbed to shock during the trip but made it, thus making an involved rescue unnecessary. It was later diagnosed that he has suffered deep bone bruises to the pelvis.

References: Mike Dyas "Cave Accident Reports" *D.C. Speleograph* 32:10 Oct. 1976 p 10.

Art Palmer *Personal Communication* Aug. 22, 1979.
Bob Custard *Personal Communication* Aug. 7, 1979.

* * * * *

Accident: Montana, Meanderbelt Cave

July 1976

Bill Steele (32) and Bill Liebman (30) entered Meanderbelt Cave in the Silvertip Mountain Wilderness of Montana. Meanderbelt is an alpine cave with temperatures near the freezing point. Equipped with wet suits and a 50 foot, 9 mm perlon rope, they proceeded for five hours to the point of furthest exploration, through some very tight, hazardous, and difficult passage. The continuation was found to be similar, but the slot soon led out over a deep pit. Thrown rocks indicated a depth of over 100 feet. A three foot ledge 30 feet below looked reachable. The two were looking for a connection with Getout Cave and a U.S. depth record and so persisted. With Liebman holding the rope on belay and wedged in, Steele rappelled down to the ledge, with the rope being just long enough. A Jumar attached to his chest harness was then clipped into the rope and the rappel device was removed. The configuration of the pit still kept him from viewing the bottom for a possible recognition of Getout, so he traversed the wall to a flowstone mass with a top area the size of a chair seat. At the "seat" Steele brought the rope, now a belay, in front of him and unclipped the Jumar to straighten out the rope. As he did so, he accidentally let go and the rope swung away to rest hanging below the ledge, quite out of reach. Bracing himself so as not to slip from his perch, Steele communicated with Liebman. After 25 minutes of effort, Liebman was finally able to swing the rope to Steele and belay him back to the ledge. They proceeded to exit the cave.

On the way out Liebman, due to the numerous waits during exploration,

nearly succumbed to hypothermia, but was "talked" out of the cave by Steele.

References: Bill Steele "It Became an Obsession" *Alpine Karst* Summer 1978.

Bill Liebman *Personal Communication* Aug. 1979.

Analysis: In pursuing the frontiers of cave exploration it is perhaps justified to take chances and to find one's self in an extraordinary situation. Hypothermia in very cold caves often occurs to the caver who waits while someone else pushes.

* * * * *

Accident: Tennessee, Pryor Springs Cave

July 11, 1976

On Sunday, July 11, a party of six entered Pryor Springs (Duck Pond) Cave, Tennessee. The group included six adults, ages 25-30, only two of which had any previous caving experience. At 2 p.m. they were traversing the back portion of the cave in a stream passage and were about to enter the Waterfall Room. Rita Waddell (26) following others through knee-deep water, stepped into a shallow hole, lost her footing and fell. She put out her hands to break her fall and lacerated her left hand on a sharp underwater rock. She was not wearing gloves. There was not a great deal of bleeding so the wound was treated with large band-aids and the trip continued. Afterwards the victim visited a hospital and the wound was closed with five stitches.

References: 1) John C. Howren "NSS Accident Report" NSS Office Huntsville, Alabama no date.

2) Larry Blair "Additional Information on the Accident of 7-11-76 at Pryor Springs Cave, Tennessee" Safety Committee, NSS Report 8-6-76.

Analysis: The victim was not wearing gloves. Also, the caver was probably affected by leader-follower "syndrome"—when you are following you tend to become less aware of what is happening. Even though someone is leading you still must watch your step.

* * * * *

Accident: Maryland, Crabtree Cave

July 19, 1976

On July 19 Steve Woods (24) was exploring in Crabtree Cave near the Savage Rapids Dam. At a point some 4000 feet from the entrance he suffered a ten foot fall. Once authorities (fire and rescue squads, Maryland State Police) were alerted, it took three hours to evacuate the victim, mainly due to the constricted entrance.

References: 1) Bob Rightmire *News-Tribune* (Keyser, West Virginia) July 19, 1976.

2) Frank O'Hara "Another Maryland Cave Rescue" *D.C. Speleograph* 32:10

Analysis: Too little information.

* * * * *

Accident: Indiana, Shaft Cave

August 7, 1976

At 11:30 a.m. on Saturday, August 7, Marcus Roberts (21) and John Dayhuff attempted to enter Shaft Cave near Bloomington, Indiana. They rigged the entrance drop with quarter-inch, knotted, polypropylene, ski-tow rope. Roberts tried to descend this hand-over-hand, but twenty feet down found he could not continue to grip it. He started to ascend, then fell the remaining 50 feet, injuring his back. Dayhuff contacted the county police and local NSS members were called. Two cavers entered the pit and tied the victim to an aluminum emergency stretcher. Three other cavers coordinated efforts at the top as firemen and police hauled the victim to the surface. One caver ascended a separate rope, maneuvering the stretcher as it went up.

References: 1) Bill Mixon, Editorial *Windy City Speleonews* 16:5 Oct. 1976.

2) Michael C. Moore "Accident at Shaft Cave" *NSS News* 34:10 Oct. 1976 p 171.

Analysis: An example of cavers out of touch with current caving techniques. It is very easy to overestimate one's ability to hold body weight on a rope, knotted or otherwise.

* * * * *

Incident: West Virginia, Crookshank Cave

August 7, 1976

On August 7, a group of seven experienced cavers were in Crookshank Cave, Greenbrier County, West Virginia, preparing to survey beyond Lew's Last Climb, a 20 foot pitch. This climb had been rigged with a rope for ascending a few weeks earlier, with the rope tied off to a span of rock. As Tom Hay was ascending the span or "natural bridge", it partially disintegrated. Hay fell about ten feet and landed in a pool. He was soaked, but unhurt and left the cave accompanied by another caver.

References: Mike Dyas "Cave Accident Reports" *D.C. Speleograph* 32:10

Oct. 1976 p 11.

Analysis: It seems obvious that the anchor had been improperly tested. The climber may have exerted more force than necessary by a jerkiness in his ascending method. Smooth, non-bouncy ascending exerts the least force on the anchor.

* * * * *

Accident: West Virginia, Cass Cave

August 29, 1976

On the afternoon of Sunday, August 29, Hans Herron (26) and three companions entered Cass Cave on Cheat Mountain in Pocahontas County, West Virginia. One of the four was experienced, the others were not. Not far into the cave they rigged a 175 foot drop with goldline and made to descend. Herron, with no in-cave vertical experience, was third. At 9 p.m. he began his descent, but became jammed in the initial crevice portion of the

drop. He released his breaking hand to force himself through, shoving with both hands. Suddenly he was falling very fast. Instinctively he grabbed the two prusik safeties and prevented their functioning. He dropped for about 100 feet where he struck a ledge, suffering leg injuries. This caused him to release the prusik safeties which stopped his fall. He then swung to the opposite wall, banging his head, cracking his helmet, and damaging his carbide lamp. Swinging back, he again struck the ledge, badly bruising his ribs. Hanging upside down, he was able to right himself, but then became quite incapacitated by the pain of his injuries.

One companion ascended and cut the prusik sling which then allowed the rappel to continue, under control, bringing Herron to the bottom. Herron had been hanging, injured, for one and a half hours. Another companion left to get help.

Members of the Marlinton Fire Department arrived about midnight and, in turn, called in a Greenbrier Grotto rescue team for technical assistance. The Greenbrier crew arrived around 2 a.m. Monday. Bolts were placed at the top of nearby Suicide Falls, and preparation made to pull Herron out. Luckily, the water flow was low at the time. At 6:30 a.m. the victim was placed in a Stokes litter and made ready to be hauled up the 140 feet.

When Herron had been hauled part way up it was noticed that a boulder was coming loose. He was lowered, made safe under a ledge, and the boulder was dislodged. On the second attempt, two rescuers went up with the litter to keep it out of the falls as much as possible, but part way up the assistants were unable to take the cold and the litter was again lowered. The victim had been protected from the water by plastic bags.

On the third attempt the lift was shifted to the ropes the cavers had used to descend the pit. A rope was tied to the foot of the litter so that those on the bottom could guide it away from the falls and ledges. About 30 feet from the top the litter was moving quite fast and smashed into a ledge. Herron suffered a forehead laceration which later required stitches. A rescuer rappelled down and guided the litter up the last bit.

The evacuation was completed to the entrance at about noon Monday, the rescue taking 15 hours. Herron was found to have a badly broken left leg, badly sprained left ankle, fractured right heel, bruised ribs, gouged right knee, a lacerated forehead, and a bad rope burn. Hypothermia was apparently avoided through the use of heat-packs, warm bodies and plastic to keep the water off.

- References:**
- 1) AP report "Maryland Man Trapped Exploring Cave"
Hagerstown, Maryland News Sept. 1, 1976.
 - 2) Jerry Kyle "Accident and Rescue at Cass Cave" *D.C. Speleograph* 32:10 Oct. 1976 p 11.
 - 3) Bob Custard "Transcript of Taped Interview with Hans Herron"
Personal Report Sept. 23, 1976.
 - 4) Bill del Guidice "Multi-county Operation Rescues Three from Cave"
The Observer (Greenbank Observatory) 17:3 Sept. 1976 p 12-15.
- Analysis:** This appears to be a case of tackling too much with too little experience. It should be noted that the prusik safety slings eventually functioned, possibly preventing a fatality.

Accident: Wyoming, Tongue River Cave

October 2, 1976

On Saturday, October 2, Fritz Merback (19) and Bill Rimel (18) entered Tongue River Cave, near Sheridan, Wyoming. They proceeded to the cave stream, a relatively straight-forward trip from the entrance. In the process one of their two flashlights was dropped and the batteries went dead on the other. They were lightly clothed and had no food. A shirt, tapes and some money were burned to provide heat and light, but these were soon gone. Huddling together, they waited for rescue.

On Tuesday morning, October 5, the parents of the cavers called a relative in Sheridan who informed the Sheridan County Sheriff's Office. Sheridan County Search and Rescue and REACT was called at 11 a.m. and a few hours later the boys had been found and brought to the surface. Rimel was weak and had a sore throat; Merback was treated for a minor cut on the head.

References: Four newspaper reprints in: *Aglarond* 6:1-2 Oct. 1976
p 6, 7.

Editor "Hike in Cave Becomes a Chilling Experience" *Denver Post* Thursday, Oct. 7, 1976.

Analysis: The cavers lacked head gear, proper clothing and adequate lights. Moreover, they left no word of their objective. If the cave had been colder there could have been two fatalities.

Incident: West Virginia, Rubber Chicken Cave

November 13, 1976

A group of five cavers descended the 100 foot pit of the Rubber Chicken Entrance of the Friar's Hole System in West Virginia at around 5 p.m. on November 13. They explored until 11 p.m. At that time the outside temperature was about 10 degrees with surface air blowing down the pit. It was estimated to be about 30 degrees at the bottom. The cold air and a waterfall in the pit caused icing of the rope. Two ascended on Gibbs systems and encountered no problem except minor frostbite due to wet gloves. The others were on Jumars which slipped on the iced rope. One made it out by repeatedly warming the Jumars in his mouth. Eventually, Gibbs systems were relayed down to the stranded pair. The cold caused almost all to suffer some degree of frostbite and hypothermia.

Reference: Doug Jacoby "Trip Report" *Subterranean Sun* 6:12 Dec. 1976.

Analysis: A fine example of a deficiency of the Jumar or other toothed, spring-loaded ascender versus a cam-gripping ascender. On very muddy or iced ropes, a Jumar will become clogged and slip.

Accident: Kentucky, Cooch-Webb Cave**January 2, 1977**

On Sunday, January 2, three cavers entered Cooch-Webb Cave, Hart County, Kentucky. They were Leo Dolata (30), John Moos and Larry Royse. Royse had some experience and was equipped with a helmet and carbide lamp. The other two were without headgear and carried six-volt lanterns. They planned to visit the dry walking passage near the entrance. About 150 yards into the cave, at about 3:15 p.m., Dolata stopped to look down a four foot by eight foot diameter hole where their dry, upper level passed over and connected with the lower, wet passage. Suddenly, Dolata seemed to lose his balance, tipped forward and then tried to leap to the other side. He landed on a steep, loose, smooth mud bank. Facing the slope he slid backwards for 20 feet, then over a 60 to 80 foot free drop.

The two at the top listened and heard hard breathing. Dolata was conscious and yelled up that he had a "compound femoral fracture," using his experience as a fireman to make the diagnosis. Royse went to get help.

Calls to the local sheriff's office and to Elizabethtown State Police went unanswered. The Bowling Green State Police responded and in turn called Corry Crooks of Western Kentucky University, a mountaineer, and called in a doctor from the local hospital. They obtained a Thomas traction splint, a 100 foot rope ladder and a narrow stretcher. The ladder was set in place and Dolata was found to be out of the water on some large rocks. Dr. Larry Maynard descended and stopped some bleeding, set the leg, and administered medication. A litter was rigged from webbing and Dolata was hauled from the pit. He was evacuated from the cave at about midnight, some eight hours after entering.

References: Editor *Karst Window* 1:2 March-April 1977 p 15-18.
Anon. "Man Lives After Fall of 100 Feet in Cave" *The Tennessean*

Tuesday, January 4, 1977 p 1.

Analysis: To walk up to the edge of a pit and simply fall in seems so foolish as to be unbelievable. Yet it happened. Many cavers take seemingly unnecessary chances at the edge of drops.

Accident: Florida, Devil's Eye Spring**February 7, 1977**

Edward Brodesser (28) and James Ketrow entered Devil's Eye Spring on the Santa Fe River in Gilchrist County, Florida at 12:35 p.m. on Monday, February 7. In the cavern they became confused and found themselves separated. Ketrow started back out and found Brodesser, drowned. Bringing Brodesser to the surface, he attempted artificial respiration, then called for help from nearby persons. The High Springs Rescue Unit was summoned, arrived, and took the victim to the Shands Medical Center where he was pronounced dead.

Reference: Anon. "Twenty-Eight Year Old Tampa Police Detective Loses Life Diving in Gilchrist County's Devil's Eye Spring" *Gilchrist County Journal* Thursday, February 10, 1977.

Analysis: Underwater cave exploration is very dangerous even when done properly. In this case it is obvious even from the limited information that they were not using safety lines to define their route.

Accident; Tennessee, Indian Grave Point Cave**February 20, 1977**

At about 4:00 p.m. on Sunday, February 20, four cavers from West Nashville, Gary Callis (18), Bobby Harrell (24), Larry Hoyal (20), and Doug Wall (16) went exploring in Indian Grave Point Cave near Smithville, Tennessee. After a couple of hours their four flashlights and one lamp began getting dim and it became impossible to find their way out. The cavers settled down to await rescue, burning their rope to keep warm and help pass the time. The rope produced enough acrid smoke that they were forced to move to another room.

Authorities were alerted when the cavers failed to return home Sunday evening. The search began in the Gordonsville area, the cavers' stated destination, but at 12:30 p.m. on Monday shifted to Indian Grave Point Cave near Smithville when the lost men's car was found outside. The search inside the cave was pursued by five members of the Nashville Grotto. Forty-five minutes later the lost cavers were found in good condition. They had spent 24 hours in the 56 degree cave.

References: Larry Matthews "Rescue at Indian Grave Point Cave" *Speleonews* October 1976 p 55-57.

David Lyons "Ordeal Ends for Explorers" *The Nashville Banner* Tuesday, February 22, 1977 p 1, 6.

George Watson, Jr. "Four Spelunkers Rescued After 24 Dark Hours" *Tennessean* Tuesday, February 22, 1977 p 1, 4.

Analysis: It goes without saying that one should carry adequate lights and more than one light source per caver. The cavers would have been found sooner if they had left exact word of their objective. They had learned of the cave by the publication, *Caves in Tennessee*.

Incident: Mexico, State of Chiapas, Sumidero Yochib**March 1977**

On a Spring expedition to Sumidero Yochib in Chiapas, Mexico, Jim Smith, Mike Van Note, and Bill Steele were pushing along the main stream passage. A 40 foot waterfall, Froth Pot, was just ahead and the group was trying to traverse ledges around it so as to rig the pit out of the water, on the other side. About 40 feet before the falls they had to climb a short but slightly overhanging ledge. The climb was easy but a slip would be disastrous to the one who fell, since he would be swept over the falls. Smith made the climb and anchored a length of nylon webbing to the top. This angled upward from the lower ledge to the upper and was kept in this position only by a "slight bulge"; it was not tied at the bottom. Thus, if one slipped off the wall and held the line he would be saved, but would swing exhilaratingly out over the river below. Van Note suggested placing a bolt to anchor the webbing at both ends to establish a true handline, but this was not done.

On the next trip, Bill Steele climbed up to the upper ledge followed by Mike Boon (late 30's). Boon was unaware of the exact nature of the rigging and was told nothing by Steele. When he climbed up, he used the webbing for a handhold, popped it off the projection and swung out over the water. He was able to hold onto the webbing and climb back up to the ledge.

References: Editor "Accident Reports" *AMCS Newsletter* No. 6

May 1977 p 34.

Mike Van Note *Personal Communication* March 1979.

Warren Anderson *Personal Communication* June 1979.

Analysis: In an original exploration, to push the limits of exploration, one takes whatever chances one thinks appropriate. In this case, to leave an inadequate rigging for the next party without informing them of its inadequacies must be judged irresponsible.

* * * * *

Accident: Mexico, State of Chiapas, Sumidero Yochib March 1977

On a Spring expedition to Sumidero Yochib in Chiapas, Mexico, Carmen Soileau, Chris Albers, Warren Anderson and Norm Pace (early 30's) were on a trip to lay phone line to Camp I. At one point there was a cable ladder descent to a canal. The canal led to a falls. A safety line was strung between bolts at the top of the ladder, the bottom of the ladder, and a bolt at a point just above the falls. The bottom of the ladder was also clipped into the carabiner at the bottom of the drop it was rigged upon. Pace descended the ladder and was stringing phone line down the canal when suddenly the support he had from the canal safety line was gone. He was swept over the fall, then stopped, still suspended in the 30 cubic foot per second flow of rushing water. Initially, he was upside down and unable to breathe. Righting himself, he moved his hard hat over his face, making a breathing space in the surging water. The buffeting of the water had released the canal safety line from the non-locking carabiner at the base of the ladder. The slack thus produced was enough to suspend Pace, still attached to the line with a carabiner, directly in the falls.

The rest of the group could do nothing.

After 15 to 20 minutes, the others decided that Pace must be dead and loosened the rope from the top bolt. The additional slack was enough that Pace was freed from the falls.

Reference: Editor "Accident Reports" *AMCS Activities Newsletter* No. 6 May 1977.

Analysis: Obviously a locking carabiner would have prevented this near-fatality. Buffetting water has a lot of power. It can shred a rope against a surface or open a carabiner. Pace's presence of mind certainly saved him. Still, if he had been in the solid flow of that much water, he could have been torn to pieces.

* * * * *

Incident: Mexico, State of Chiapas, Sumidero Yochib March 1977

On a Spring expedition to Sumidero Yochib in Chiapas, Mexico, a group of seven cavers was exiting after a trip to the Terminal Room and were in the canal swim below the Stinger. Jean Jancewicz led up the canal, followed by Bill Steele. The canal safety line in place had a knot in the middle making it inadvisable to safety to the line with a carabiner. Steele yelled a reminder to Carmen Soileau (27), the next in line, but she failed to hear it and forgot about the knot. "When she reached the knot she was unable to

pass it and was washed back. She moved forward again and was again forced back and under the water." She then became tangled in the rope, her hard hat turned sideways. Steele jumped into the canal and quickly followed the line back to her. He broke the force of the water, got her to release her carabiner and pass the knot. Her situation had been serious, and she was evidently tiring. On the next ladder pitch she failed to self-belay, fell off the ladder, and had to be grabbed by Steele as she floated by.

References: Editor *AMCS Activities Newsletter* No. 6 May 1977 p 35. Warren Anderson *Personal Communication* June 1979.

Analysis: The rigging of the canal line would have been much improved without the knot, linking two ropes, in the middle. However, Yochib required a great deal of rigging and rope, and this was what was available at that point. Steele did well to keep track of the next person in line. When tiring, it is easy to forget the peculiarities in a long sequence of riggings.

* * * * *

Accident: Missouri, Indian Creek Caverns (Old Mud Cave) March 27, 1977

On Sunday morning, March 27, Doug Beckerlite (20), Gary Blades (20), Ed Brown (20) and Wayne Smith (18) entered Indian Creek Caverns, in Stone County about 40 miles south of Springfield, Missouri. They were inexperienced cavers equipped with flashlights and one electric headlamp. A note was left on their pickup truck giving the phone number of Ed Brown's father. A torrential rain had begun to fall Saturday night. This continued until dawn Monday yielding a total of seven inches of rain.

When the four failed to return on Sunday evening, the Stone County Sheriff's Office was called. They instituted a search of the area around the cave and determined that the boys were still in the cave. At 5:00 p.m. on Monday, Dave Neff, a caver and former advisor to the School of the Ozarks Troglophiles, was called. He quickly organized a group of rescuers including an Emergency Medical Technician. At the cave entrance, a half-mile from the road, they formed two search parties. The first entered the cave at 8:00 a.m. and visited the dry upper levels. The second party waited for the arrival of wetsuits for a search of the stream level.

The first group soon met with chest deep water with a six inch air space and further on had to swim. Three members of the group turned back at the water and the other three continued. The water level in the cave was some five feet above normal and few could remember when the cave had last flooded like this. The rescuers were hoping that the four would be sitting out the flood in the dry upper levels. At 9:00 a.m., only 390 feet from the entrance and shortly before the junction where the upper level began, however, the four overdue cavers were found. They were lying together in about 2½ feet of water, dead.

With the arrival of wetsuits, the bodies were removed, all being out of the cave by 11:30 a.m. The county coroner assigned drowning as the cause of death.

References: Associated Press "Bodies Recovered From Flooded Cave" *St. Louis Globe-Democrat* February 29, 1977.
Bruce Graves "Witness Statement" (Affidavit) March 28, 1977.
Julie Westermann "Cave Deaths Attributed to Drowning" (Springfield Missouri Newspaper) Tuesday, March 29, 1977 p 1-2.
Dave Neff, Ron Edwards and Richard Vanderpool "Tragedy at Indian Creek Caverns" *Underground Leader* 7:1
Robert Sanford "A Rising Torrent and Tragedy in a Cave" *St. Louis Post Dispatch* March 1977.

Analysis: Neff reports that the body recovery team found the bodies arranged more or less in a line, with the hands of the hindmost "clutching tight on the sides of the third man at chest level, the third man had his hands clutched identically on the second and likewise this man on the lead man. This lead man was not holding on to anyone but was clutching a pair of glasses in one hand by their bridge with the two earpieces sticking straight ahead, unfolded." The lead man also had an electric headlamp, strapped around his neck, with the headlight resting on his chest, still glowing, powered by a six volt lantern battery. A flashlight was in his other hand. The group was facing back *into* the cave. Neff speculated that they tried to get out Sunday evening, found the cave too flooded, went back to the upper levels, then headed out again on Monday morning, only to be turned back again. They then succumbed to hypothermia. Neff feels the still burning headlamp indicates this since a lantern battery wouldn't burn for more than ten hours and thus a fresh one had to have been affixed early Monday morning, presumably before they started out the second time.

This is a very bizarre situation. The coroner pronounced death by drowning due to water present in the victims' lungs. Yet, if this is so, why were the bodies joined as if following the leader in a desperate situation? If the group were moving along the cave, found the water too deep and began to drown, there is no possibility they would remain holding to each other in the orderly fashion rigor mortis left them in. The death throes from suffocation demand a terrific struggle and an arbitrary grasping and grabbing.

Hypothermia is the likely answer but the recreated scene is still a strange one. The group, cold from getting wet when they first found the cave entrance flooded, huddles for hours as hypothermia sets in. Then, perhaps with only one person still capable, they decide to try again, a desperation attempt. They proceed single file each holding on to the one in front while in the deep water—perhaps only the leader had a workable light, certainly only he had the strength and resolve to keep them going. Then they found the entrance still blocked—they would have to go back. As they headed back to wait some more, their strength and resolve faded. The leader collapsed. Since he was the force keeping the others going, they succumbed at that time as well. Dying, they fell over, still holding to each other, taking in some water with their last breath. Still, to be lying there together holding to each other underwater, they had to have died at the *same time*. The odds against this are very high. Yet it seems to have happened.

One last note is that in this case the cavers don't seem to have been irresponsible. The cave apparently floods only under very extraordinary circumstances.

* * * * *

Accident: Mexico, Oaxaca, Sotano San Agustin

March 28, 1977

In March of 1977 a group of cavers was on the Huautla Plateau in the state of Oaxaca of Mexico for an extended push of Sotano de San Agustin. On March 26, three cavers entered to establish a camp at -1,800 feet. They were joined the next morning by three more.

On the 28th, a third group of six cavers headed for the underground camp. They proceeded for some time along the route which is mainly a series of vertical drops. About half the drops have waterfalls and some are more difficult than usual by virtue of not being free falls. The air and water temperature is about 60°F. The cavers were heavily laden with duffle bags of gear and food.

At about -1,200 feet they came to the top of the longest drop, a pit of about 320 feet. Jean Jancewicz and Bill Steele proceeded down. As Blake Harrison (28) was traversing a canyon leading to the top of this pit, and in the midst of a difficult straddle, he lost his footing and fell.

He was not clipped into a handline that was present and fell about 30 feet down the narrow canyon, bouncing from wall to wall, finally landing on a sand floor. The fall was audible to Jancewicz and Steele and just afterward Jill Dorman screamed down the drop for help. This was incoherent to those below who feared damage to the rope and so did not ascend. Eventually they became cold, and continued on to the camp.

Jim Smith had previous EMT training and checked the victim's neck and spine for fractures, finding no evidence of such—neither the pain nor numbness associated with such injuries was present. Harrison did appear to have serious injuries and delirium indicated a possible concussion. With Mike Van Note and Jill Dorman staying with Harrison, Smith proceeded to the surface to get supplies.

On the surface, Smith found that another group had arrived, consisting of Bill Liebman, Joe Liberz and Maureen Cavanaugh. The combined group, armed with equipment for the evacuation but almost no food, proceeded to the accident site. Harrison was less badly injured than at first thought and was able to aid himself to some extent. The evacuation was carried out by the five cavers over the next 31 hours almost non-stop. The lack of food became a serious handicap, however, and toward the end the rescuers were running on adrenalin and body tissue—potential victims themselves. On ascending the drops the counterweight lift method proved most useful.

Once out, Harrison was trucked to Tehuacan, a day's drive away, to the nearest hospital. He was diagnosed as suffering a broken rib, broken finger, and minor lacerations and contusions.

References: Bill Steele "Mexico's Sotano de San Agustin" *NSS News* 35:7 July 1977 p 136-137.

Mike Van Note *Personal Communication* March 1979.

Bill Liebman *Personal Communication* August 1979.

Maureen Cavanaugh *Personal Communication* January 1980.

Blake Harrison *Personal Communication* April 1980.

Analysis: Harrison's personal life was in conflict at that time and it is felt by some that this contributed to the accident. The place where he slipped, after all, was not outrageously difficult and had been traversed by a number of others. Certainly, if Blake had clipped into the rigged hand line

he would not have taken the fall he did, although one person pointed out that slack in the line would still have allowed a six to eight foot fall.

The lack of communication between those above and below the 320 foot drop would have been improved by the use of whistles and the five-mode European whistle signal system. It is difficult to criticize any particular situation, but the rule should be that every effort be made to re-establish communication when a party is separated as happened here.

The Ultimate helmet worn by Harrison certainly saved him from serious head injury. A helmet with simple elastic chin strap would probably have come off the first time he hit, leaving his head unprotected on the further bounces off the walls of the canyon.

The lack of food taken back into the cave for the rescuers was a serious problem. Everything possible should be done to prevent rescuers from becoming victims.

* * * * *

In late March 1977, a large group of cavers was on the Huautla Plateau in the state of Oaxaca, Mexico, to explore Sotano de San Agustin. All were equipped for a multi-day stay in the cave. Three entered the cave on March 26th and established a camp at about -1,800 feet. They were joined the next day by three more. On the 28th a group of six entered, but an accident at -1,200 feet (see previous report) resulted in an evacuation of the injured caver. Two of this party had descended a 320 foot drop when the accident occurred at the top of this drop and communication was lost. These two continued on to the camp at -1,800 feet.

On the 30th, Warren Heller, who had found his thermal underwear covered by waterproofs unsuitable for wet push trips, did not take part in the push but de-rigged a route bypassed by an easier way. When the push crew returned to camp they found he had packed up and gone. It was known that he had to return to a job, but since several others had to leave the following day, there was no reason for him to leave alone.

On the 31st, five cavers had reached the end of their planned stay—the end of their food supply. Two drops above camp they came to the base of the longest drop in the cave, a 320 footer, and found no rope. Dismayed, they returned to -1,800 feet and re-established camp with the two who had not tried to leave. Thus trapped by the missing rope were Richard Schreiber, Gerald Moni, Marion Smith, Steve Knutson, Don Broussard, Bill Steele and Jean Jancewicz (late 20's and early 30's).

Regarding food, the situation was not too bad. Some food had been left by previous expeditions and the two who had entered on the 28th had food for at least several days. The worst problem was that Broussard, a diabetic, had no more insulin. In a few days, perhaps a week, he would go into shock and then die not long after. If the entrapment lasted several days there was a good chance he would have to be evacuated. He had extra insulin on the surface and taught others how to give him injections.

On April 2, four cavers couldn't stand the wait and went on a push trip to a new passage near the bottom of the cave.

On April 4, several persons went to attempt a climb of the 320 foot pit.

This seemed futile as they had only eight bolts and some makeshift chocks for the 320 foot climb. As they reached the bottom of the drop, however, they heard a caver at the top. It was Joseph Lieberz, who was the first of the rescuers recuperating from the evacuation of Blake Harrison to descend to do some caving. Those who wished to leave, including Broussard, left without incident.

References: Bill Steele "Mexico's Sotano de San Agustin" *NSS News* 35:7 July 1977 p 136-137.

Steve Knutson "San Agustin: Diary of a Bizarre Trip" *Underground Express* 3:3 Summer 1977 p 42-44.

Analysis: It appears that Heller, while exiting, used the rope at the 320 foot drop to haul his duffel up after him. On throwing the rope back down, it hung up not far below the lip. Heller had been told that the rope, when thrown down the drop during rigging, would hang up in this way and, indeed, he was first down this drop on this expedition and found the rope hung up as predicted. Heller contends that the rope got caught on his equipment and was accidentally hauled up.

In general, the situation for those trapped was not serious since they could stretch their food supply for many days. Broussard's lack of insulin was quite serious, however, and should never have been allowed to happen. Necessary medication should always be taken in extra supply.

本章本章本章

Accident: California, Connie's Cave

April 2, 1977

On April 2, a group of nine cavers, six adults and three teenagers, visited Connie's Cave in Amador County, California. The cave is primarily horizontal with two entrances, one requiring a descent of a 45 degree slope and the other, 15 feet higher, is a rope drop down a pit to the top of the 45 degree slope.

The vertical entrance was rigged with 5/16 inch Bluewater II. Laura St. Louis (late teens) had previously practiced rappel but was hesitant to proceed and had to be encouraged. She was put on rappel with "one of two sets of brakebars on the rappel rack." This was insufficient friction for her weight on the thin rope. Her initial descent was so rapid that she released her control hand and grabbed the rope with both hands above the rack. She fell about 12 feet, hit the 45 degree slope, and tumbled down that for another 20 feet, coming to a halt when the rack caught on the knot tied on the end of the rope. A first aid kit was lowered to two cavers at the top of the slope and the victim was treated for rope burns. She then left the cave under her own power.

Reference: Jim Fiack "Accident Report" *Valley Caver* 16:2
March-April 1977 p 26.

Analysis: If someone else had gone down first the amount of friction necessary on the rack would have been known. An experienced caver would have gotten on rappel near the anchor and before going over the edge, would have put at least full body weight on the rack to test the friction, adjusting the number of bars as needed. Gloves should always be worn.

• • • • •

Incident: Alabama, 23 Dollar Cave**April 2, 1977**

At about 7 p.m. on Saturday, April 2, three cavers entered 23 Dollar Cave in Alabama. About an hour later they were at the bottom of the seventh drop, signed the register and started out. At the fourth pit Lona Brown went ahead while the other two derigged. The water was up and it was apparently storming outside. As the two neared the 80 foot entrance drop they heard what they thought was mud and rocks falling. Mark Lassiter then encountered a copperhead when he went to rig into the rope. The rope was moved to one side but as he went again to rig in, another snake fell from above and he backed off. By rigging the rope to the bolt at the second drop and climbing at a 75° angle, they were able to climb past the snakes. No snakes were encountered at the lip as feared and the two exited the cave without further incident.

Reference: Buddy Lane "23 Dollar and the Night the Copperheads were Falling" *Speleonews* 12:2 April 1977.

Analysis: This incident may seem trivial but it points out that poisonous snakes, spiders, scorpions, bears, mountain lions, and other dangerous critters do inhabit entrance areas of caves.

Accident: Tennessee, Cumberland Caverns**April 16, 1977**

On Saturday evening, April 16, Jeff Cresswell (15) was with a group on the overnight spelunker tour at Cumberland Caverns, a commercial cave in Tennessee. In the Gypsum Crawl, Cresswell was stooping to enter a low crawlway when someone behind and above him dislodged a 15 pound rock. The rock fell about four feet striking Cresswell in the small of the back. He experienced great pain and numbness in his left leg. Fearing a spinal injury, the victim was kept immobile. A registered nurse in another tour party was brought to the aid of the victim. The Warren County Hospital Ambulance Team was called and two EMT's arrived within 45 minutes. They were transported to the end of the Big Room in a station wagon. The victim was slowly and carefully hauled about 400 feet through the Gypsum Crawl, experiencing considerable pain even though strapped to a flat board stretcher. He was removed from the stretcher at one point to be moved through a constriction. The evacuation took about 1½ hours. It was later determined that there were no broken bones or serious injuries.

References: Roy Davis "Youth Injured at Cumberland Caverns" *Speleonews* 21:2 April 1977 p 12.

Editor "Young Mt. Juliet Resident Injured in Cave Accident" *The Tennessean* April 18, 1977 p 9.

Analysis: It is not unusual that novices would not be aware of the hazards of climbing above someone or of being below someone who is climbing.

Accident: Maryland, Sheepman's Cave**May 23, 1977**

Doug King (16) of Bethesda was caving in Sheepman's Cave on Cress Pond Road Saturday and became too exhausted to get out. Clear Spring firemen and Civil Defense units responded to a call at 9 p.m. Saturday and

conducted the evacuation. King was treated for exhaustion.

Reference: News clipping *The Daily Mail* (Hagerstown, Maryland)

May 23, 1977.

Analysis: Insufficient information.

Accident; California, Palos Verdes Peninsula Sea Cave**June 11, 1977**

On Saturday, June 11, Patrick Ivicevich (16) and Robert Cowan (16) of Harbor City were swimming at a rocky ledge that juts out from Inspiration Point near Portuguese Bend on Palos Verdes Peninsula. The two were periodically diving into the water 10 to 15 feet below the ledge. One of the youths jumped in just as a powerful wave crashed in and was swept into a partly submerged cave. A fisherman, Mike Wilson, in a rubber raft, paddled furiously against the current to reach the two. As he approached the cave another huge wave struck, overturning the raft and casting him into the cave. Nearby beach-goers rushed along the rocks to help but could do nothing in the treacherous surf. Cowan was soon swept back out of the cave, was given mouth-to-mouth resuscitation by onlookers and revived. Fifteen minutes later the tide brought out the dead body of his companion. Cowan received only minor injuries. The fisherman's body was not recovered.

References: David Rosenzweig *Los Angeles Times* June 12, 1977 p 1. AP *The Bakersfield Californian* June 13, 1977 p 3.

Analysis: This was not a voluntary caving trip. Even so, some awareness of the hazard posed by the wave-by-wave flooding sea cave by those carrying on recreation activities near it might have saved the two lives lost.

Incident: Pennsylvania, McClure's Cave**Summer 1977**

A group of seven cavers were visiting McClure's Cave in Pennsylvania in the summer of 1977. After a tiring exploration the group made to exit. All were anxious to leave and proceeded into the New Extension Crawl, a very low, tight passage, all together. When a novice became stuck there was a delay. All soon began to experience symptoms of "hypoxia and carbon dioxide poisoning," rapid panting, extreme headaches and rapidly advancing exhaustion. Before anyone succumbed, they were able to proceed.

Reference: Editorial "Cave Pearls" *The Dripstone* Spring 1979 9:2 p 6.

Analysis: An interesting situation. Some caves are low on oxygen or high in carbon dioxide but not to the extent one would normally notice.

Accident; West Virginia, Organ Cave**July 9, 1977**

On July 9, 1977, George Dasher (25), Liz Hall and Chris Welsh entered Organ Cave in West Virginia via the Lipps Entrance. Their aim was to map a newly discovered area, the Belfry. They are experienced cavers but it was Welsh's first trip into Organ Cave.

Going in they rigged a short climb with webbing attached to a boulder of

about 500 pounds lying flat on a flat floor. On another pitch a handline and 3-rung direct-aid etrier was rigged to a 2x4 wedged into a narrow, overhead slot. Dasher was unable to negotiate a tight place beyond this and so remained behind while the others surveyed on. He had passed his pack through the constriction and it was not passed back when he turned around so he arrived at the drop without it. Dasher went down both handlines to refill his carbide lamp with water. He sat down to wait.

After a while he heard a rock fall and went up the boulder-anchored line to investigate. Nothing seemed to be occurring so he went down again and went to sleep.

Upon awakening he found his lamp growing dim so he ascended to the constriction to call to the others to hurry up. On the way up he noticed that the boulder sling appeared to have slipped. As he descended that drop it appeared to slip again. Actually, the mud-covered rock was not whole and part was rocking. As he leaned back and put weight on the handline, this part pulled over the edge. Dasher and the rock fell to the bottom.

A breakdown block at the bottom caught Dasher's right foot and the falling rock at the same time, smashing his foot and twisting his leg as his body continued. His helmet flew off as he fell the remaining short distance to the floor.

Dasher was in great pain but soon determined that he was still functional. He yelled to the others who were on their way, having heard the rock fall. In a few minutes they reached the top of another drop which, already rigged, led to Dasher from the area being surveyed. They went back for their packs and in 45 minutes were at the victim's side.

Carbide lamps had to be recharged and lit with matches by the light of clylumes, their strikers being too muddy to operate. The group then exited the cave with Dasher using the 2x4 as a crutch but still having to crawl in some of the walking passage. He was later found to have no broken bones.

References: George Dasher "Further Adventures in Jones Canyon"

D.C. Speleograph August 1977 p 13-16.

George Dasher *Personal Communication* February 26, 1980.

Analysis: When anchoring a line one should, by kicking, pounding, pulling or pushing, do one's best to establish that the point of anchoring is stable and strong. If rappelling, one should then get on rappel and try to exert as much force as possible on the anchor before going over the edge and actually starting the rappel.

The victim was apparently lucky that the rock did not strike him more fully.

Dasher should not have gotten himself separated from his cave pack. He was using a flashlight at the moment of the accident since his charge of carbide has been expended. More light might have shown him what was occurring with the anchor.

* * * * *

Accident: West Virginia, My Cave

July 30, 1977

On Saturday afternoon, July 30, Jeffrey Allen Gerhart (22) and three companions entered My Cave in Pocahontas County, West Virginia. They were lightly clothed, wearing jeans, shirts and tennis shoes, and had only

two flashlights. They passed the small entrance and proceeded a few hundred feet to the top of a descent sloping from 45 to 60°. Gerhart started down, slipped on the slick mud and fell 40 feet to the bottom. Unfortunately he fell such that he hit the slot opening to an 86 foot drop and plummeted down that as well.

The group had no climbing equipment or ropes and Gerhart's companions could only go for help. They called the State Police and help soon arrived. A State Trooper, J. M. Kuykendall, lowered himself on a rope down the mud slope and determined that Gerhart had indeed gone over the deeper drop. The Riverton and Valley Head Rescue Squads, a Civil Defense unit and several science camp counselors were summoned and arrived at the cave at about 7:30 p.m. The victim was found dead. The body evacuation was not completed until 9:30 Sunday morning.

References: Anon. "Caver Killed" *The Pocahontas Times*

August 4, 1977 p 1.

Anon. "Fall in Cave Kills Philadelphia Man" *The Cumberland Times/News* August 1, 1977.

R. D. Barlow "My Cave Report of Death: Jeffrey Allen Gerhart, 30 July 1977" *Report of the Virginia Region Safety and Techniques Committee*. News article reprints *The Potomac Caver* 20:8 August 1977 p 103.

Analysis: The cavers were "just looking around" and were obviously poorly equipped. Flashlights don't allow the full use of the hands in climbing and tennis shoes can hardly be called adequate footwear. The cave temperature of 47° presented a hypothermia hazard to the rescuers and it is speculated that the lightly clothed Gerhart would have succumbed to hypothermia if he had survived the fall.

* * * * *

Accident: West Virginia, Canadian Hole

July 31, 1977

At 11 a.m. on Sunday, July 31 Ralph Kennedy (28) and Patty Mothes entered Canadian Hole, a part of the Friar's Hole System in West Virginia. They were wearing wet suits and had vertical gear for the drops in the cave and a proposed bolt climb to an unexplored high lead.

They rappelled the first drop (44 feet) and down-climbed the next two short ones. All were rigged with cable ladders. The third drop took them directly to the top of the fourth drop, (25-30 feet). There water rained down. A cable ladder was rigged and a rope was tied to the last rung of the ladder on the previous drop. Mothes checked the rope rig and thought it to be OK—Kennedy gave it a cursory look and got on rappel. As he eased over the edge, the knot came undone and Kennedy fell free to the bottom.

Kennedy landed feet first suffering severe injury to his right foot and ankle. Trying to stand, he found he could put no weight at all on that foot. It was quickly decided that the situation was potentially hypothermic and that Kennedy could prusik using his left foot in a Texas system. The rope was tied to the ladder, hauled up, and re-rigged. The two then carefully made their way out, Kennedy needing some assistance at the third drop. The victim was later found to have suffered three broken bones in his right foot and a severely sprained ankle.

Reference: Ralph Kennedy "Accident Report" *Baltimore Grotto News* 16:7 December 1977 p 51-2, 55.

Analysis: Kennedy reported that he was anxious to continue due to the wetness at the top of the drop. The rigging was that of Canadian cavers who commonly climb up and down cable ladders with a belay, rather than rappel and ascend (prussik) a single rope. The rope was thus intended to be used as a belay rope and was tied to the lowest rung of the previous ladder only for convenience, with what Kennedy described as a slip knot. It was not intended to be used for rappel. Whatever the knot was, it was obviously tied only loosely. Kennedy seems correct in his analysis that the accident was due to carelessness and the mixing of two rigging styles.

* * * * *

Accident: Alabama, Cave near Lake Purdy

August 8, 1977

At about 10 a.m. on Monday, August 8, Scott Mitchell (15) and Ken Grund (15) went exploring in a cave near Lake Purdy in Alabama. They were in the main passage when they "saw some bats and began throwing mud balls at them and chasing them." In the course of this sport they paid no attention to landmarks. When they went to exit they found themselves lost. The cave is complex but they had no choice but to try to explore their way out. They tried following the many strings and wadded them up one by one as they failed to lead out. Each of the many alternative routes they tried led to a dead end. Still, they tried to be systematic and marked each unsuccessful try. One flashlight went out and the other grew very dim.

At about 6 p.m. they had grown tired and had picked a spot to sleep, out of the mud and water. Suddenly they heard a voice. Grund shouted and, with difficulty because of the many echoes, they made contact with a Sunday School outing group who led them out of the cave.

Reference: Carl Carter "Leeds spelunkers, 15, spend harrowing hours lost in cave" *Birmingham News* Aug. 12, 1977.

Analysis: Spur-of-the-moment caving with poor equipment led to this situation. The chance encounter was lucky since the boys would not have found their way out without light.

* * * * *

Accident: West Virginia, Cass Cave

August 28, 1977

On Sunday, August 28, Reginald White (21) and three companions entered Cass Cave in West Virginia with the intention of doing a three day camp in the cave. When they arrived on the 27th they encountered a Sligo Grotto group, leaving, who advised them of conditions in the cave and against camping there. Only one of White's group had been in the cave before and they had only one set of ascending gear between them.

They proceeded to the 175' drop and rigged a Perlon rope directly in the falls. One declined to descend. The others rappelled without incident. Several hours were spent exploring. At about 6 p.m. they were returning and beginning their ascent of the drop. The first man up the drop was forced to momentarily de-rig from his chest Gibbs to get past a ledge. He continued his ascent without incident and lowered the ascending gear to the next man.

Between 6:30 and 6:45 p.m. White began his ascent. As he was trying to pass the ledge he dropped a piece of equipment and then fell backwards, hanging by his knee and foot ascenders, unable to hold himself up against the strong force of the water. After 90 minutes White ceased to respond to attempts at communication, and at 8:15 the companion at the top left the cave and called authorities at The Greenbank Observatory. Greenbank in turn called the local rescue squad and the Greenbrier Grotto. Meanwhile locals returned to the cave and decided that the victim had died.

At 12:00 a.m. Greenbrier Grotto personnel entered the cave and rigged the Belay Loft for rappel and hoisting. A medical student wearing a wetsuit descended and rigged White into a Neil-Robertson Stretcher so that he could be lowered to the floor. An accident nearly occurred with load was applied to the line in lowering. The medic was pulled off the ledge and fell 20 feet on slack in his belay line. The lowering was completed. Meanwhile telephone wire was laid from the entrance to the Belay Loft to keep things organized.

At 4:45 a.m. the hoisting rig was completed and the two companions to the victim were taken up. When the body was lifted the stretcher fouled in the telephone and rappel lines at a narrow spot near the top. A man had to jumar down to free it. The body evacuation was completed by 10 a.m. The med student was exhausted by his efforts and was also hoisted up the pit.

References: R. D. Barlow "Cass Cave Fatality" *D.C. Speleograph* 33:11 Nov. 1977 p 3.

James McCloud "Occurrence at Cass Cave" *Subterranean Sun* 7:11 Nov. 1977.

Carole Sneed "Accident in Cass Cave, Virginia" *The Underground* 21:7 Oct. 1977.

Analysis: The victim's party was not familiar with the cave and had planned much more than they were capable of. It appears they did heed the advice of other cavers and scale down their aims or this might have been a bigger accident. In serious vertical caving such as this it is foolish to rely on just one set of gear. The ascending rig would have been better with the ascenders safety-rigged to a seat sling so that one is sitting rather than hanging upside down if the chest support fails. The survivors are lucky one of them had gotten up the drop and was able to go for help.

* * * * *

Accident: Missouri, Henson's Cave

August 1977

In late August a 19-year-old Oklahoma City woman went with friends to Henson's Cave in McDonald County, Missouri. Past the entrance crawl the woman was standing in some water when she was bitten by a bat. A companion struck the bat with a coat. In Oklahoma City the bat was determined to be rabid by health officials. The woman was treated for rabies. The cave was later closed by the Missouri Dept. of Highways.

References: Anon. "Bat Bite Causes Closing of Cave" *Springfield Daily News* Sept. 8, 1977. Reprinted in *Underground Leader* 7:3 p 4.

Analysis: Bats can carry rabies even when not affected by it. Any scratch or

* * * * *

bite received from a bat should be suspected for rabies infection. Any bat crawling about should be suspected as rabid and avoided.

* * * * *

Accident: Alabama, Valhalla Cave

September 3, 1977

Around noon on Saturday, September 3, three cavers prepared to enter Valhalla Cave, Jackson County, Alabama. Valhalla is an extensive cave with a 227 foot freefall entrance drop. Not knowing the depth of the pit, they rigged a rope which appeared to reach the bottom. Only one was inexperienced in vertical caves and it was decided that he should go second. The first to descend was William Siler (58). He proceeded to rappel off the end of the rope which was 10 to 20 feet short of the bottom. Kent Burchfield lowered more rope and rappelled to the victim. He diagnosed a broken arm and possible back injuries. The third member of the group then jogged down the mountain to summon aid.

Birmingham was first called and a group of cavers left for the accident scene, 150 miles away. The Huntsville Police Department and Madison County Rescue Squad were also notified and called local cavers to get directions to the cave. Naturally enough the competent cavers involved themselves. These arrived at 5 p.m. to find the road up the mountain clogged with police and private cars, necessitating a two mile hike.

At the cave three lines were rigged and the victim was to be raised on one by manpower at the top while two rescuers ascended at either side. The excess manpower, police and locals, was put to work planning the evacuation off the mountain side. This kept most of them away from the pit edge.

At the bottom, the victim's broken right wrist was splinted; he was wrapped in a space blanket, administered a mild sedative and strapped into a basket litter. The lift went quickly and smoothly and the victim was out by 8 p.m. By 10:30 p.m. he had reached a hospital.

References: Bill Varnedoe "Accident Report—Cave Rescue Unit"

Huntsville Grotto News 19:3 May-June 1978 p 16-17.

Times Scottsboro Bureau "Man Rescued from Cave" *The Huntsville Times* Sunday, Sept. 4, 1977 p 4.

Anon. "Doctor Satisfactory After 7-Hour Ordeal in Cave" *Chattanooga News Free Press* Sept. 5, 1977.

Analysis: According to Siler, mist part way down the pit caused them to misjudge the depth. Obviously, a suitable knot in the end of the rope would have prevented the accident but it must be said that it is rather careless to rappel off the end of a rope under any circumstances.

The rescue call-up was not smooth. The cavers did not know who to call and the MCRS dispatcher had lost the list of local cavers.

* * * * *

Accident: Arkansas, Rorie (Jack Mitchell's) Cave

September 5, 1977

At dusk on September 5, Jerry Derbyshire, David Smith, Jim Blackfeather, Louis Alderman and R. C. Schroeder entered Rorie Cave, Stone County, Arkansas. Derbyshire is a journalist and was on assignment from an adventure magazine. Schroeder and Smith are experienced cavers

and the last two able outdoorsmen and occasional cavers. This was to be a photo trip for the magazine photo essay. The cave is reported to be 300 feet long with two levels.

Some distance into the cave, Smith, seeking an easier route out of a room, attempted to climb to an obvious crawl lead about 20 feet up the wall of a room which also contained a pit. Smith had requested that Schroeder spot for him by bridging the pit. This proved to be impossible. Fifteen feet up, Smith lost his footing and fell backward, striking his head and shoulders on the edge of the pit. To the horror of those watching, he continued his fall into the 20 foot pit and after hitting the bottom, careened down a 25 foot talus slope to a pool of water. Schroeder quickly negotiated the difficult route to where the victim lay, at the bottom of the talus slope, partly in the water. He was breathing heavily but could not be aroused; his head had 5 or 6 two inch cuts that were bleeding profusely and his lips were badly torn and bleeding. A couple of minutes later Alderman and Blackfeather arrived. The latter is a licensed practical nurse and checked Smith for obvious broken bones, finding none. To guard against hypothermia, the victim was eased out of the water but there was really no safe or comfortable place for him.

Smith regained consciousness but was not coherent. Derbyshire and Schroeder went for help and blankets. At the nearest house they called for an ambulance and sent word to Richard Neidhardt and John Weaver to bring gear for a vertical rescue.

With Dave Webb, three blankets and a dacron sleeping bag, they returned to the scene of the accident. Deputy Sheriffs Kirk Hicks and Troy Haney arrived about 15 minutes later with two stretchers (flat board and aluminum frame canvas), a 30 foot rope lariat, and a first-aid kit. Compresses were applied to the victim's head and he was strapped to the board stretcher so that it would bend with him at the waist. Their choice was to take him out up the pit he had fallen down, with unstable talus to contend with, and through a passage with tight bends, or through a "corkscrew" crawl. The pit, which narrowed at the top, seemed best. At this point Dick Neidhardt and John Weaver arrived with vertical gear.

The first attempt to raise the victim was unsuccessful. It was too tight at the constriction. The victim was then taken out of the stretcher, a rope tied around him under the armpits and a second attempt was made. The victim had now recovered sufficiently to aid in his removal. Once up the pit, a safety line was attached and, with much assistance, he was walked out of the cave. In the process he was hoisted up two more climbs and down one at the entrance. Two men assisted him up the very steep trail from the cave to the ambulance. Besides the lacerations to the head and lips, Smith was found to have a mild concussion and a chipped vertebrae. He was hospitalized for a week.

References: Editorial "Accident in Arkansas Cave" *The Underground* 21:7 Oct. 1977 p 61-62.

R. C. Schroeder "Accident Report—Rorie Cave, Stone Co., Arkansas" *The Underground Leader* 7:3 p 2-4 and *Rock River Spelunker* 2:5 Dec. 1977 p 8-10.

Analysis: In any dangerous sport one would like the freedom to endanger one's self as one pleases. But friends and society are unfortunately com-

elled to aid us in time of accidental injury. This fact should temper our judgement. To my way of thinking we should also temper judgement by the importance of what we are attempting. An exposed, difficult climb should always be belayed. In ordinary caving when one is faced with such without a rope, the safe thing to do is go home and get one.

* * * * *

Incident: Kentucky, Morrison's Cave

September 10, 1977

On September 10, Jim Borden, Don Coons and Mark Stock entered Morrison's Cave in Barren County, Kentucky. They proceeded to a 30 foot drop with a dome over it. Borden down-climbed the pit via a narrow canyon while Coons and Stock ascended the very steep, unstable, mud and rock wall to look for leads at the top of the dome. About 40 feet up they reached the top where a crawlway led off. This needed digging out so they yelled to Borden to beware. Then Coons began to dig with Stock behind him, bridging the dome at the ceiling. The digging apparently caused vibrations and small rocks began to fall out of the ceiling around Stock's head.

As Coons wriggled into the crawl, Stock took notice of a 1x2x1 foot rock above him with nothing to support it. As he moved to one side, it and much debris around it, plummeted into the pit, knocking the lamp off Stock's helmet. At the same time another rock 4.5x3x1 feet slipped down onto Stock's shoulder and smaller rocks fell all around him.

Coons, in the crawl, gave Stock some light. Stock then grabbed Coons' foot and made a desperate lunge into the crawl. The boulder, as it and material around it groaned and fell, missed him by only a foot. The two then watched as "the unstable ceiling would gasp and moan in a most grotesque manner as the rocks and mud would settle downward...then massive avalanches would thunder into the void...." When the ceiling had retreated upward for some 15 feet in this manner it seemed to stabilize and thrown rocks had no effect. The two quickly retreated and, with Borden, who had sat it out in an alcove, left the cave.

References: Mark Stock "Letter to the Editor" *Windy City Speleonews* 17:6 Dec. 1977 p 120-1.

M.D.D. "Explorers nearly 'Buy Farm' in Massive Cave-in" *D.C. Speleograph* Nov. 1977 p 18.

Analysis: Rockfall is especially dangerous in unexplored caves, perhaps, but can occur anywhere. Instabilities can often be seen. At any rate, don't think it can't happen!

* * * * *

Accident: Canada, British Columbia, Quatsino Master Cave October 1, 1977

On October 1, Lee Sellers, Dalton Pitchford and Martin Davis (20) visited Quatsino Master Cave, a resurgence cave on Vancouver Island. At 3 p.m. they entered and proceeded up a succession of short climbs (some close to freezing waterfalls), fissure traverses and flowstone ledges. One pool is traversed by swinging on a fixed rope. Another, called the Nasty Pool, is passed by a tricky leap. Sellers and Pitchford made it but when Davis leaped with a hand assist from Pitchford, he fell short. As he fell backwards Pitchford pulled too hard

and Davis' arm was dislocated at the shoulder. Even so, he made the other side where the efforts of the other two did not improve his painful, useless arm. In fact it was soon discovered that Davis would have to use his good arm to hold the injured one in a horizontal position—the only way the pain would be lessened. Also, he could only move a few feet at a time before needing to stop to alleviate the pain. Time thus became a factor since their electric lights were not fully charged and they were not wearing wet suits and their clothes were already fairly wet.

Pitchford went to the next drop and retrieved a length of goldline rope. This they tied around Davis so that Pitchford could lower him down drops while Sellers aided from below. It was soon found that the victim had to be lowered in this fashion down even the simplest pitches. On one drop he had to be lowered through a waterfall and into the plunge pool. Davis became quite cold and began shivering uncontrollably. A few more difficulties however, and they reached the entrance.

The group had been in the cave 5 hours and night had fallen. Sellers and Davis walked straight down hill to some old logging roads where they could be picked up and Pitchford crossed a treacherous ravine to the vehicle to proceed to town to get a 4-wheel drive with which to make the pick-up. Once this was done they proceeded to town to get medical aid only to find they would have to drive another 50 miles to Campbell River. It was 10 hours after the accident before the injury was treated.

References: Martin Davis "Accident in Quatsino" *Subterraneus* Sept. 1977 p 1-4.

Editor "Accident in Quatsino" *VICEG News* 7:10 Oct. 1977 p 113.

Analysis: Davis cites the following considerations as contributing to the difficulty of the situation: lack of backup lights, lack of wetsuits, lack of pain killers and starting late in the day. In short, they were very lucky the victim was not totally immobilized. A fatality from hypothermia would surely have resulted.

* * * * *

Accident: Maryland, Twigg's Cave

October 14, 1977

Jim Wright, Jr. (19) and Steven Earnst entered Twigg's Cave in Alleghany County, Maryland at about 8 p.m. on Friday, October 14. Reportedly, both were experienced cavers. They explored to a point some 850 feet horizontally and 300 feet vertically from the entrance. This included roped drops of 25 and 40 feet. The cave is made difficult by its voluminous, slimy mud.

Wright then pushed a very tight crawlway to the lip of a narrow, keyhole-shaped, vertical fissure. This was rigged and Wright descended the short drop to a small room. On attempting to ascend, using Jumars, he found he was too tired to negotiate the lip of the drop and make the tricky move to force himself into the crawlway. This fatigue was certainly due at least in part to bad air in the cave which was to plague rescuers later. Shortly after midnight Earnst went for help.

They had entered the cave without permission so Earnst drove 14 miles to phone rather than go to the closest house. The State Police were called and began operations at 2 a.m. Saturday. Calls went out to various

groups—CRCN, ASRC, Pittsburgh Grotto and Mountain State Grotto. Before dawn two cavers arrived and checked on Wright's condition—he was still standing in Jumars at the top of the drop.

In the morning, as rescuers arrived the bad air was considered and a call went out for an air compressor and electric head lamps. The 40 foot pit was rigged with a cable ladder and for hoisting. Field telephone lines were run to the 40 foot pit. The victim was revived with bottled oxygen and lowered to the floor of the room he was in.

Saturday afternoon the air compressor arrived and was set up with 1000 feet of one inch hose run to the accident site. Rescuers worked in shifts of 4 to 6 hours. Between 3 and 6 p.m. a thin caver was able to give Wright a drink of water. Between 10 p.m. and midnight two cavers talked Wright out of his Jumars and got him to tie in to the hoisting line with a chest loop.

At around 4:30 a.m. Sunday, the smallest caver available got to the lip of the drop and gave Wright some hot chocolate. He was then aided in tying a foot loop. A hoist was attempted and failed. This exhausted the hoist team and a fresh team was sent it. The victim was raised over the lip at about 9:30 a.m. He was hoisted up the 40 feet and made his way out, with assistance from there. He reached the surface at 11 a.m.

References: Ray Garton "Rescue from Twigg's Cave" *NSS News* March 1978 p 45-47.

Eleanor Chute *Pittsburgh Press* Oct 18, 1978 p A-8.

Editorial *York Grotto Newsletter* 14:3 Oct. 1977 p 50-51.

Analysis: The bad air in the cave was undoubtedly the real cause of this entrapment. But explorers need to remember that it is relatively easy to slip down into something it may be nearly impossible to get out of. The rescue was greatly hampered by the bad air and the restricted passage beyond which the victim was situated.

* * * * *

Accident: Tennessee, Twin Airplane Cave (Tiftonia Pit) October 17 1977

At about 4:30 on Monday, October 17, Ricky Kates (15), George Hackler (16), David Hammonds (15) and two companions went caving on Elder Mountain near Tiftonia, Tennessee. At Twin Airplane Cave they tied a rope to a tree and Kates, Hackler and Hammonds descended, hand over hand for about 80 feet to a ledge above a deeper drop.

After some time they tried to ascend but were afraid of a fall down the drop below and yelled for help. The two on the surface tried to pull them up without success and then went for help. The Hamilton County Rescue Squad was called and several units soon arrived. In the course of two hours additional ropes were rigged and two men descended. Harnesses and cables were attached to the victims and they were hoisted out.

References: Anon. "3 Tiftonia Youths Safely Rescued from Elder Mtn. Cave" *Chattanooga News Free Press* Oct. 18, 1977 p D-1.

Anon. "3 Youths are Rescued from Cave at Tiftonia" *Chattanooga Times* Oct. 18, 1977 p 20.

Analysis: Another example of "non-organized" cavers unaware of current

single rope techniques and utilizing the somewhat out of date hand-over-hand technique.

* * * * *

Accident: British Columbia, Afternoon Delight Cave November 2, 1977

On Saturday, November 12, a group of five experienced cavers entered Afternoon Delight Cave on Vancouver Island in British Columbia, Canada. They soon arrived at an unexplored 30 foot drop. A ladder was rigged, angling slightly against a boulder wedged in a narrow place about 10 feet below the top. During descent the boulder was checked and found immovable.

Four descended with one staying above as belayer. The continuation was found to be tight and the going was very slow. Tich Morris (35) offered to trade places with the belayer. At 4:20 p.m. he was ascending when the boulder, some 80 pounds, fell out of the crack. Morris was looking up and was struck on the helmet, forehead and the right side of his face. The helmet was knocked off and Morris called out and came off the ladder, being held by the belay. He remained conscious, however, and soon continued his ascent. Bleeding profusely he arrived at the top of the drop. He "seemed relieved" when the blood was wiped from his eye. The belayer gave Morris his helmet and at about 4:30 Morris began his way out. When he reached the entrance at 4:55 the bleeding had stopped. All others were out by 6:10 and the victim was transported to a hospital where the wound was closed with six stitches.

Reference: Paul Griffiths "The Trip to Afternoon Delight"

Subterraneus Nov. 1977 p 6-7.

* * * * *

Accident: Georgia, Ellison's Cave

November 25, 1977

A group of 12 cavers from the Windy City Grotto went to Ellison's Cave, Georgia, on November 25. The cave was experiencing high water at that time. Two went in the Toroded Entrance and found a waterfall blocking the way. Another, nearby entrance with a stream running in was possible to enter without getting completely soaked. The group entered the cave at 1:30 p.m. and proceeded to the 130 foot Warmup Pit where they caught up with two cavers from a Pittsburgh Grotto group that was ahead of them. The waterfall at the Warmup was away from the rappel rope but the spray at the bottom added to their dampness. At the edge of Fantastic Pit (about 510 feet) the two groups, totalling 19 with 17 wanting to do the drop, talked it over. The Pittsburgh group went first.

The rappels took a very long time. About 200 feet down a waterfall sprayed the rope with a heavy mist and the rappellers chose to be cautious. The waterfall also sprayed most of the bottom and the water-generated breezes whipped the spray around. Everyone huddled in the back of TAG Hall trying to keep warm and dry. Many used plastic bags as tents with candles as heaters. One was suffering from cramps from the exertion of descending. The Pittsburgh group had departed for a tour of the bottom

but the others decided to start out with those waiting taking short tours to keep warm.

Jim Quade and another ascended first, then Quade left the cave with the two Pittsburgh cavers waiting at the top. Outside it had turned cold (23°F) and one of the Pittsburgh cavers became confused and incoherent on the way down the mountain. He was guided to the cars and warmed up with the car heater.

Quade now made a decision—to get help for the rest. He went to nearby houses and located Smokey Caldwell who dropped his plans and rounded up some cavers. This group built a fire at the entrance and maintained a 10-hour vigil until all were out. Caldwell entered the cave to assess the situation.

Meanwhile, the Pittsburgh group had returned and were going out first because they were suffering more from the cold. They ascended in tandem but took about two hours per team. Those getting up were sent out to avoid piling up at the other two drops. Caldwell arrived to lend assistance at the top of Fantastic. Finally all were up and heading out. At the Nuisance drop one Pittsburgh caver could not continue until given warm food and clothing. At the Warmup Pit Caldwell attached himself to the rope, this hypothermic caver attached below and a sling attaching the two. Thus aided, this near-victim made it out. The last Pittsburgh caver became confused and had trouble rigging his ascenders. Thirty hours after entering, the last cavers exited.

Reference: Editorial *Windy City Speleonews* 18:1 Feb. 1978 p 6-9.

Analysis: Commendable actions by several people kept this from becoming more serious. Obviously the cave was more suitable for wet-suited cavers under these conditions. The slowness of one large group, much less two, made for ideal hypothermic situations. Perhaps both groups needed stronger leadership and/or the judgement to leave the cave alone under these conditions. Probably the "prestige" of doing Ellison's clouded their thinking.

A number of cavers had carbide only and made ascents in the dark. Electric headlamps should be used on wet drops.

* * * * *

Accident: Kentucky, Sloan's Valley Cave

November 26, 1977

On Saturday, November 26, Steve and Eric Kunneheimer and Rick Scholle (26) entered Sloan's Valley Cave via the Minton Hollow Entrance. While exploring in the left cave area, Scholle had climbed partway down a canyon, lost his footing and fallen. He was unhurt, but couldn't find a way out of the canyon though he felt he could climb out if belayed. Steve went for help and encountered John Barnes, Phyllis Bradshaw and two other cavers at the Sloan's Valley fieldhouse at about 2:30 p.m.

Barnes, Bradshaw and Kunneheimer, armed with a 150 foot Bluewater and vertical gear, entered the cave at 3:04 and a half hour later were at the canyon. The canyon was 15 feet deep, 16 inches wide for the top 9 feet and belled out below that. The rope was rigged to a breakdown block in an adjacent room, strung through a crawlway, then down the canyon. A seat sling and carabiner were lowered which Scholle, with instruction, was able

to use as a figure-8 seat sling. The belay was tied onto this. The belayer was anchored to the belay line. The first attempt was unsuccessful so one caver lowered his lug-soled boots to the trapped caver. By climbing and being hoisted where there were no holds Scholle then made it up. The group exited the cave at 4:40 p.m.

References: John Barnes "Rescue in Sloan's Valley Cave" *Kentucky Caver* 12:1 January 1978.
John Barnes *Personal Communication* Feb. 22, 1980.

Analysis: It is easier to go down than to come up. Fortunately the situation was such that there were no serious consequences. A short line carried for belay in situations like this would probably have averted the accident.

* * * * *

Incident: Mexico, Sotano de Huiztmolotila

December 13, 1977

On Tuesday, December 13, a touring group of cavers did Sotano de Huiztmolotila in Mexico. Six cavers entered the cave, doing the 364 foot, dry, entrance drop and the 156 foot waterfall drop into a long stream gallery. They did about 3000 feet of the stream gallery and headed out.

Some trouble was encountered at the 156 as the spraying water tended to put out carbide lamps. Finally, all but Jerry Hassemer (45) were up the 364. Hassemer rigged in and had just started up when he came out of his chest harness and fell over backwards to be stopped hanging from his foot loops. He was using a Mitchell system with a Gibbs safety to a seat sling. His carbide lamp was extinguished and so he was hanging a few feet off the floor in the dark. Communication with those on top was not possible because of the sound of the waterfall. With great effort Hassemer righted himself and continued his ascent.

At the top he needed to undo his chest attachment to pass the lip. He asked for a sling to hold onto and one was provided with a loop quickly tied on the end. He got out of his box but when he put weight on the hand sling, the loop came untied and Hassemer again found himself hanging upside down, this time at the top of the 364 foot drop. He again righted himself and with help from the others, passed the lip.

References: Jim Pisarowicz "Deep in the Heart of Mexico" *Caving in the Rockies* Jan.-Feb. 1978.
Jim Pisarowicz *Personal Communication* March 20, 1980.

Analysis: Talk about bad luck! Still, in heavy duty vertical caving, one should have his system together. By the same token, with a sling loop is offered to one in trouble, it should at least be tied with a real knot.

* * * * *

Incident: Mexico, Sotano de las Golandrinias

December 17, 1977

In the evening of December 16, a 1500 foot length of Bluewater II was rigged for a descent of el Sotano de las Golandrinias. One caver made the descent and ascent that evening and noticed nothing unusual. The rope hung in the pit that night.

At dawn on the 17th the first caver descending noticed nothing unusual.

The second saw a frayed place but continued to the bottom. R. E. Whittemore went next with a Bluewater rack with five bars in use. About 50 feet below the lip he noticed a frayed place coming up. He continued slowly to inspect it. Besides being frayed it had a blue color in the area of the fray. As he passed the fray, however, it jammed between the top two bars of the rack and the sheath separated completely, exposing 8-10 inches of the core.

Whittemore decided to retreat and informed those above he was coming up. He attached his knee Gibbs but couldn't attach the foot cam, so he called up to have a portion of the rope not used (the excess beyond the anchor) lowered. This was done and he transferred to it and ascended.

Reference: Mike Fichesser *Personal Communication* Feb. 29, 1980.

Analysis: It is apparent that the rope suffered deterioration from a chemical agent. On this particular trip it was transported with care so can be presumed to have been slowly deteriorating.

To be watchful is always recommended. Even though others had descended just before, Whittemore was commendably cautious. Whether a rope is damaged from abrasion, rock fall or chemicals, hitting the weak spot slowly rather than fast could be the difference between life and death.

* * * * *

Accident: Missouri, Crevice Cave

December 18, 1977

On Sunday, December 18, at about 3 p.m., Dr. Allen Carleson (late 30's) entered the Echo Pit entrance of Crevice Cave. He rigged the 115 foot shaft and descended. At the bottom he found the rope a few feet short. When he dropped off the end, the rope recoiled its stretch leaving the end out of reach. Carleson sat down to wait.

At 10 a.m. on Monday Carleson was missed when he failed to show up for surgery. Carleson's associates called local authorities who soon reached the scene. Meanwhile Mr. Rollets, the landowner, had realized Carleson was still in the pit and made voice contact. The rope was extended (about 7:30 a.m.) but by that time Carleson was too fatigued to climb out.

The Sheriff's deputies were talked out of descending hand-over-hand by Mr. Rollets who also got them to contact local cavers.

A team arrived at about noon and rigged the pit. One man descended to find Carleson unharmed but hungry and shivering uncontrollably. A plan was conceived and the rescuer ascended. Carleson was then hauled out on his rope rigged through a pulley on a tractor boom, onlookers supplying the power. The second rope was used as a belay. Carleson was out at 2:30 p.m.

References: Charles Oswald *St. Louis Globe Democrat* Dec. 20, 1977. Jim Palmer "Rescue in Perryville" *The Southeast Caver* 4:1

Jan.-Feb. 1978 p 1-2.

Analysis: Carleson either forgot about the stretch of the rope or was unable to stop when he saw the shortness of the rope and switch over to ascent. Either way, his shortsightedness would have been bad enough on a normal cave trip, but on a solo effort, it is really inexcusable.

* * * * *

Accident: Oregon, Oregon Caves

January 28, 1978

On January 28, Mike Sims (41) and Tim Anderson (36) were in Oregon Caves, the main cave at Oregon Caves National Monument, on a meteorological study project. They were just upstream from the tour bridge over the River Styx, working to place a chart recorder for monitoring water levels. As always in the winter the cave was very wet, drippy and muddy. The site is at present the furthest upstream point of penetration along the River Styx—beyond, the 15 foot high canyon is walled in and filled for an unknown distance with football-sized rocks deposited in the 1930's when a tunnel to facilitate the tour was blasted nearby.

At 1 p.m., without warning, a number of rocks dislodged and fell, one of them striking both Sims and Anderson on their left hands. Sims suffered a bad cut and contusion to the fleshy area between the thumb and forefinger. The hand was bandaged using supplies from a first-aid kit and the work continued, the two leaving the cave at 5 p.m.

Reference: Mike Sims "NSS Accident Report Form" *Personal Communication* Feb. 1978.

Analysis: Constant water activity had, over the years made the unnatural fill unstable. A different site should have been chosen.

* * * * *

Accident: Tennessee, Motlow Cave

February 22, 1978

On Wednesday, February 22, at about 4 p.m. Randy Speck (18) and Joe Owens (17) entered Motlow Cave, in Moore County, Tennessee. Both had explored in this particular cave before. Speck "apparently had begun to climb up to (a) ledge when a homemade grappling hook snapped." This apparently left him hanging just below the ledge by handholds. He hoisted himself to the ledge, but was trapped 40 feet up, with no way to descend. The ledge was a "quarter mile into the cave." Owens went for help.

At about 5 p.m. Owens contacted the Moore County Sheriff's Office. The Sheriff in turn notified the Tullahoma Rescue Squad and the Tullahoma Auxiliary Police. At 6 p.m. a rescue squad member and Owens went into the cave—the other rescuers being "too large." They apparently talked Speck down and were back out by 8 p.m.

References: Michael Smith "Lynchburg Youth is Rescued from Ledge in Motlow Cave" *The Elk Valley Times Observer and News* Thursday, Feb. 23, 1978.

Bill Carbine "Lynchburg Youth Resting after Hours Stuck in Cave" *The Tennessean* Feb. 23, 1978.

Analysis: The grappling hook should have been made sufficiently strong for the job plus a wide safety margin and tested before use.

* * * * *

Accident: Illinois, Krueger Dry Run (Old Schoolhouse) Cave

February 26, 1978

Five cavers from St. Louis, Lisa Albrizzi (18), Greg Berry (22), John Koeckner (18), Tony Nenninger (20) and Mike Thompson (18) entered Krueger Dry Run Cave near Waterloo, Illinois at 1:30 p.m., Sunday,

February 26. Berry was the only novice in the party; Nenninger was the only one with experience in that cave.

A short distance into the cave water was encountered and wading was necessary. The group was headed toward another entrance which would allow them to exit near their parked vehicle. Once wet, they did not want to leave by the first entrance to avoid a long walk across frozen fields. Near their projected exit, however, they reached a place where the 40 degree water nearly reached the ceiling. The group rested on some rocks and then turned back. After covering a considerable distance, they found a high place and huddled together for warmth, awaiting rescue. Hypothermated, Nenninger was subject to vomiting. Their carbide lamps and flashlights were in bad shape. The group waited in darkness. That night the farmer on whose land they had parked called authorities.

At first rescuers were uncertain which cave to search. On Monday two dried fruit wrappers were found a short distance inside the entrance of Krueger Dry Run. These were identified by the wife of one of the cavers. Four unsuccessful rescue attempts were then made.

The first was made Monday morning but the rescuers gave up after 4 hours due to a lack of wet suits. That evening the O'Fallon, Illinois Underwater Search and Rescue Team and members of the Waterloo Fire Department made attempts but were turned back by the cold water. About midnight two cavers from St. Louis, Hank Roth and Kevin Barton who had mapped the cave, tried, but were also turned back by the cold.

Tuesday morning, Barton and Roth returned with dry suits, accompanied by a local caver and four members of the Cahokia Civil Defense Corps Rescue and Underwater Unit. This group methodically explored the cave until the lost group was finally encountered. The victims drank some water, then all headed out. Nenninger was the only one who had to be evacuated, teams of two rescuers taking turns carrying him. The group exited the cave about 12:30 p.m. Nenninger's body temperature had dropped to about 90-91°, a serious hypothermic situation. They had been underground about 47 hours.

References: Chuck Roberts "Water Trapped Spelunkers Found Safe, but Shivering" *The Tennessean* March 1, 1978.

Associated Press Times - Picayune March 1, 1978 Sec. 1 p 2.

Charles Roberts *Huntsville Times* March 1, 1978 p 26.

Paul Wagman and Tom Robertson *St. Louis Post Dispatch* March 1, 1978 p 1, 4.

Andy Flurky "Cave Rescue" *Agarond 7:7* March 1978 p 3.

Bill Eddleman "Five Cavers Rescued from Krueger's" *The Southwest Caver 4:2* March-April 1978 p 28.

Analysis: The group should have considered the active snowmelt feeding the water table and either aborted their trip or used wet suits. Plastic bags or space blankets would have been an obvious asset. They did show the good sense not to struggle to the end of their strength. According to Dr. Robert Schettler at St. Clement Hospital, the victims would not likely have survived another 12 hours. Their only injuries were scraped hands and knees.

The Sheriff's Office was criticized for not calling cavers sooner. It is actually the common occurrence for officials to try to "handle" a situation,

even if it is beyond their previous experience, for thus can they broaden their jurisdiction. It is the cavers' job everywhere to convince local authorities to call on them when a cave emergency occurs.

* * * * *

Accident: Alabama, Canoe Cave

March 16, 1978

On Thursday, March 16, Mark Hajos (16) and Andy Debs entered Canoe Cave on Huntsville Mountain near Huntsville, Alabama. About 40 feet into the cave Hajos slipped and fell. Hajos was unable to get out so Debs went for help. Hajos was rescued four hours later by members of the Madison County Rescue Squad, the Huntsville Fire Department and local cavers.

Reference: Anon. "Out of the Dark" *The Huntsville Times*

March 17, 1978.

Analysis: Too little information.

* * * * *

Accident: Alabama, 23 Dollar Pit

March 19, 1978

On Sunday morning, March 19, Mike Evans, Mike Hackett, and Paul Locascio entered 23 Dollar Pit on Maxwell Mountain. The cave is a multi-drop affair. At 2 p.m. the group was at the top of the seventh drop preparing to descend to the 532 foot level. As Hackett was checking Locascio's rack, the ledge he was on collapsed and he fell about 24 feet. Locascio rappled down to Hackett and ascertained his injuries. Evans then started out for help.

At the bottom of the first drop Evans met Bill Torode and Lynny Byrd and reported Hackett to have a broken arm, dilating pupils and to be losing consciousness. Torode went down to the victim and the others went for more help. They exited the cave at 4 p.m., proceeded to the nearest phone, and called the Huntsville Grotto Rescue Squad. Driving to Eddy Pit #2, they left a note for a group caving there to come and help. Then they ate supper.

The group from Eddy Pit #2 arrived at 6:30 p.m. and was sent to get more of their group from their camp west of Scottsboro.

A short time later the rescue squad arrived and a group carrying four ropes, medical kit and a Stokes litter hiked to the cave entrance at 8:30. Two, one a paramedic, went into the cave right away to secure the victim's condition.

Meanwhile, Torode had reached the victim, splinted his arm, and since he was feeling OK, started him out. He was pulled up the 24 foot drop with the aid of a rescue pulley. The next drop (6th, 81 feet) was double rigged with Torode rappelling down to fit Hackett with a Mitchell Box system. Torode then worked the top Jumar via a sling from the second rope. On the 5th drop a Bilgeri method was used, as in crevasse rescue, where two ropes are used with a loop tied in the end of each for the victim's feet, one rope at a time being pulled up. At 10 p.m. they were at the bottom of the 4th drop (139 feet) where they met the two advance members of the rescue party. The arm was air splinted and Torode went on out.

The victim proceeded using the Mitchell system with a rescuer working the upper Jumar from a second rope. Other rescuers double rigged the pits, then derigged them as the victim made his way up. Hackett was out at midnight.

References: Anon. "Florida Man Rescued" *The Huntsville Times*

March 20, 1978 p 20.

Lynny Byrd "Rescue" *Huntsville Grotto Newsletter* 19:3

May-June 1978 p 17-18.

Analysis: Communications in the cave were difficult because of waterfall noise, but the rescue seems to have proceeded well. The success was aided by intelligent coordination on the surface.

It is difficult to know if the victim should have foreseen the crumbling of the ledge. It would be best to be safetied in some way when working around the lip of a pit.

* * * * *

Incident: West Virginia, Nutt Cave

March 25, 1978

On March 25 a group of six to eight cavers led by Bruce Randall entered Nutt Cave, West Virginia. On the way in they met a group from a college outing club being led by a couple of NSS cavers. Randall's group proceeded in while the others headed out. About 30 minutes later they reached the back room. Soon a part of the outing club group arrived thinking they were headed out. Randall speculates that their leaders had exited the Register Room (the exit is obscure) with this part of the group not observing the way and later taking a different route. Randall took them back to the Register Room, through the proper exit and headed them out.

References: Editor "Trip Reports" *York Grotto Newsletter* 14:5

April 1978 p 128.

Bruce Randall *Personal Communication* Feb. 26, 1980.

Analysis: This is a minor incident where inexperienced cavers were separated from their experienced leaders. One could speculate that difficulties from hypothermia and loss of light could have occurred had Randall's group not been present.

* * * * *

Incident: Kentucky, Jingle Hole Knob Cave

Spring 1978

Two cavers found a pit on Jingle Hole Knob in the Somerset area of Kentucky in the Spring of 1978. The entrance led to a 12 foot steep slope to the top of a pit which they plumbed at 55 feet. With no experience in vertical caving they went home, read McClurg's *An Amateur's Guide to Caves and Caving*, bought some rope and gear, practiced and returned to do the pit.

They had 120 feet of $\frac{1}{2}$ inch laid poly rope for the rappel-ascent and 120 feet of $\frac{1}{2}$ inch manila for belay. Using a Bluewater rack Larry Baldwin descended. A brief exploration was disappointing, producing no continuation. Baldwin prepared to ascend. Prusik slings were tied and the belay rope attached. After five steps the stretch in the poly rope was taken up and the novice began his ascent.

Spinning round and round, he only got up about 40 feet before the belay

rope, slings and mainline were so hopelessly tangled he could move neither up nor down. He explained to those above but no one could help. In desperation he saw a thin ledge about eight feet away and swung over to it. With weight off the rope it still took an hour to get untangled. He then proceeded up and out.

Reference: Larry Baldwin "First Pit" *COG Squeaks* 21:6-7

July-Aug. 1978.

Analysis: Sound like your first pit trip? Perhaps this represents the typical problems of a novice but one can't help think that these problems would be lessened if organized cavers offered more instruction to the unaffiliated caver. After all, no instruction book by a vertical caver is available to the public. What experienced caver would use poly rope, with its low melting point, for mainline, or use a belay on ascent?

* * * * *

Incident: West Virginia, Sites Cave

May 28, 1978

On May 28 a group of six cavers from Ohio was exploring in Sites Cave near Franklin, West Virginia. In the afternoon they returned to the entrance pit to exit the cave. Beside their main and belay lines, a third rope had been rigged, by a group of three Pennsylvania cavers who were also now exiting.

Cavers from the two groups ascended at the same time. At one point two from Ohio, and one Pennsylvania caver, were up, one Pennsylvania caver was on rope 140 feet up and one Ohio caver was 180 feet up. The remaining cavers were on the bottom, pressed as closely to the sides of the pit as possible. An Ohio caver was putting his Gibbs on the rope to be ready to start up and Charles Short of the Ohio group was talking on a phone they had rigged to the surface to see if the rope was free.

Suddenly a rock fell from near the top of the pit, whizzed by the Ohio caver, glanced off the sleeve of the Pennsylvania caver and struck Short squarely on top of his fiberglass hard hat. The force of the blow caused Short to bounce off the wall and begin tumbling down the steep incline away from the site of the rigged lines. He was caught by another caver. Examination showed no injuries but his hard hat had suffered two 1-inch cracks on top and been jammed down hard over his forehead, resulting in temporary loss of vision due to mud and water in the sweatband being forced into his eyes.

Short felt OK and moved back up to the rope. At this point he began to shake uncontrollably. The cavers were wet and cold before the incident and shock had probably reduced his circulation further. Short was therefore put on the rope next and exited under his own power.

Reference: Charles H. Short "Incident at Sites" *COG Squeaks* 22:3

March 1979 p 22-24.

Analysis: Short was lucky to have a good hard hat. If possible one should not be in an exposed place while someone is climbing, ascending or moving about above. Note that a person can suffer shock even though not injured.

* * * * *

Incident: Kentucky, Sawdust Pit**June 10, 1978**

Three cavers from the Central Ohio Grotto went to Sawdust Pit, Pulaski County, Kentucky on June 10. The entrance drop was rigged with six wraps around a tree with a bowline securing the free end. A figure 8 knot was clipped into a bolt near the breakover and a rope pad tied to the bolt.

After lengthy exploration and mapping they returned and began to ascend. The first up found the rope pad loose and retied it. When all were up the rope was untied and they found it had been chewed by an animal at the bolt knot, at the portion going to the tree and in five places where it went around the tree.

Reference: John Barnes "Near Miss in Sawdust Pit" *COG Squeaks*

Sept. 1978.

Analysis: Even though the rigging was first class, the group was nearly done in by an animal. Perhaps it would pay to bounce on the rope before ascending to see if it has been weakened in some manner, like animal gnawing or rock chopping.

Accident: Indiana, Riverside Cave**June 18, 1978**

Mike Gunn (27), Glenn Lemasters (25), Lynn Miller (37), Pat O'Connell (28), Dean Meyer (26) and Larry Wade entered Riverside Cave on Sunday, June 18. Wade was not equipped with a wetsuit and returned to the entrance an hour later and waited. The group proceeded upstream in a passage of just walking height. At one point they noticed a high room to one side. Pushing virgin crawlway with air space down to five inches the group broke into larger passage and spent several hours exploring.

On their way back out the water crawls, they each got out a waterproof light source. They got through the worst part, but still had about a thousand feet of 18 inch average height with 2-8 inch water depth to go. While relighting their carbide lamps they experienced a sudden surge of foamy, brown water! The passage behind was filled and that ahead was only a few inches higher. The "room" they were in was only a couple feet higher. The group fled in panic! Fortunately their wetsuits gave flotation and the force of the water was with them. They made good time. Near the entrance was a low place with deep water. This was found to be sumped, with the ceiling at least a foot below water. In waist-deep, flowing water the group forced their way upstream to the higher room noticed on the way in. They made it. In the course of this flight, more than one caver was forced to use waterproof light sources, cylumes or flashlights, made ready earlier.

Wade exited the cave about 3 p.m. A storm hit shortly afterward, dumping 3-5 inches of rain. He waited for hours, finally became apprehensive, and walked a mile to a friend's house to make calls to start a rescue. Cavers around Bloomington were called, and a wetsuit crew of five plus two with diving gear were raised. They started from Bloomington at 11 p.m. At 12:30 they were at the place where one walks to the cave. The County Sheriff showed up at that point to investigate the activity, was informed of the situation and called the State Police for assistance. A group sent to the cave at 1 a.m. became lost and didn't find the cave. Wildcat Cave was checked to see if a connection had been made which would have left the lost

cavers at the bottom of the entrance drop of that cave. Another group checked Riverside Cave and estimated the entrance crawl to be 6 feet under water. At dawn they returned to Riverside and found the water level had dropped 4 feet. Rescuers then worked on a breakdown dam to further lower the water. Soon there was an air space.

Meanwhile in the cave, food and light were pooled and a watch was kept on the water level. By evening it had started to invade the room and the group moved into a crevice at the back where there was a dry dirt floor. Meyer began experiencing chills and was wrapped in a space blanket. By food was consumed and rest was alternated with walking to keep warm. By early morning the water began dropping. About 8:30 a.m. it stopped retreating but was still several inches above normal level. Hearing a hammering sound, Miller and Gumm went downstream to the low, deep water place, and made voice communication with the rescuers, just outside. They went back and got the others, passed through a length of 3-inch air space and were out.

References: Lynn Miller "Riverside Cave" *CIG News*

July-Aug. 1978 p 33.

Lynn Miller "Riverside Cave Rescue" *Bloomington Indiana Grotto Newsletter* Nov. 1978 p 13-17.

Steve Maegerlein "Riverside Cave" *Bloomington, Indiana Grotto Newsletter* 13:4 Aug. 1978 p 79-80.

Analysis: The cavers showed much good sense, which saved them, and some bad, which nearly killed them. To explore a stream cave with low, small passages conducting the water and a near sump at the entrance without assurance of good weather is not good judgement and has killed a number of cavers—it would have killed these except for the fortuitous high room. In such a cave one should always look for and note high places, as these cavers did, *before* it is needed. Carrying waterproof light sources is a must and the wetsuits provide more than comfort—they give a big margin of safety from hypothermia.

Accident: Montana, Silvertip Cave**Summer 1978**

During a prolonged expedition to caves on Silvertip Mountain in the Scapegoat wilderness of Montana, a group was surveying a connection between Silvertip and Bell Caves. On the trip out of Bell afterwards they traversed a wide chimney. Nancy Boice (early 20's) found she couldn't make the stretch and fell about 25 feet. She was knocked unconscious for a short time and suffered broken ribs and a bruised knee. After a while she was able to make her exit, with some assistance from the others.

Reference: Warren Anderson *Personal Communication* June 1979.

Analysis: Anderson feels they should have known the chimney was too wide for Boice, and given her a belay. Of course, one should ask for a belay in such a situation but the group apparently was anxious to proceed rapidly through the newly discovered easy way out. In such an atmosphere, less able cavers will try to keep up, moving faster than they should. In this wilderness setting, the accident could have had serious consequences if Boice had been immobilized.

Accident: West Virginia, Canadian Hole**July 3, 1978**

At 12:30 p.m. on July 3, John Gerber (23) and four companions entered Canadian Hole in Pocahontas County, West Virginia.

At about 9:30 p.m. the group was exiting the cave and was at the third of five pits of the entrance series. Gerber went up first. About 30 feet up he came to a very narrow slot. The rope was rigged with a sling at the top so that it came down through the widest part of this slot. It is a difficult place. Gerber was using a two-Jumar "modified Texas" but couldn't quite get his entire body into the slot. After struggling for 20 minutes he decided to rappel back down. Speaking to those below, he related that he couldn't get his chest Jumar off and asked for a knife. None was available. He apparently burned the chest Jumar sling through with his lamp. It was observed that he dropped a foot or so and was heard to say "I can't breathe!" He struggled for a minute, then went limp.

As Gerber burned his chest Jumar sling, he dropped due to slack above his rack. Unfortunately his Joe Brown (Ultimate) helmet caught in the crack and his chin strap strangled him. After 20 minutes, another caver was able to ascend and free him from the crevice. He was lowered to the floor where CPR failed to revive him.

A rescue call went out and a large group of cavers carried out the body removal. Some difficulty was encountered from the tight, wet vertical nature of the cave and stiffening of the body from rigor mortis.

References: Editor "Fatality in Canadian Hole" *Subterranean Sun*

8:7 July 1978 p 1.

Doc Dogherty "Letter to the Editor" *NSS News* 36:9 Sept. 1978 p 202.

Editor "Death in Canadian Hole" *NSS News* 37:2 Feb. 1979 p 31.

Doug Medville "Letter to the Editor" *D.C. Speleograph* 34:9

Aug. 1978 p 20.

Analysis: How many cavers would have been aware of such a possibility? Obviously a chin-cup strap arrangement rather than the more common under-the-chin type would have prevented this fatality.

Incident: Tennessee, Stamp's Pit**July 1978**

During a Southeast Regional Association Weekend a number of cavers visited Stamp's Pit in Tennessee, a nice 192 foot freefall drop. The pit is hazardous however, due to a great deal of loose rock around the upper edge. One group arrived to find another already descending the pit. The first group was allowed to complete their descent and leave the bottom of the pit to explore before the second began their descent. As they descended, a third group arrived and waited in turn. Soon a fourth group arrived, rigged a second rope and descended. The second and fourth groups were only doing the pit and began to ascend simultaneously. Meanwhile a fifth group arrived and rigged a third rope. They received protest from the waiting third group and encouragement from the fourth group. It wasn't long before a member of the fifth group began his rappel and a rockfall as well. Cavers from groups two and four were ascending in tandem so there were four cavers on rope at the same time. The rockfall included stuff "up to the size of watermelons" but only one caver was struck, in the back by a

baseball-sized rock. Unbelievably, a second member of group five then prepared to descend and had to be physically forced by the group there to wait until the climbers on rope had reached the surface. There was no further incident.

Reference: Don Davison "Safety and Techniques" *NSS News*

April 1979 p 86.

Analysis: Davison points out that "the same activity should be conducted on each rope simultaneously" so that no one is exposed to someone else's rockfall. The real point in this incident however, is that if one acts in a sufficiently irresponsible manner, in the face of protest from those endangered, and such act results in a fatality, a court of law could well judge such to be manslaughter. Think about it.

Accident: Texas, Dead Dog Cave**July 5, 1978**

At about 7:45 p.m. Wednesday, July 5, four cavers entered Dead Dog Cave near the Steck Avenue and Balcones Drive intersection in Northwest Austin. These were Jorg Schwitzgebel (14), Richard (12) and John (14) Fant, and a fourth caver (25). The cave begins as a 4-foot diameter hole dropping 20 feet to a room. A short, narrow crawlway descends to more cave. The fourth caver was left in this room and the others explored further. Schwitzgebel had been in the cave three times previously.

At about 8:30 p.m. they were on their way out, with Schwitzgebel in the lead. As he negotiated the 2-foot wide crawl leading to the entrance room he was trapped as portions of the crawl suddenly collapsed, pinning his legs below the hips. The 25-year-old went for help, apparently stopping a truck driver who dug for a bit at the collapse, then stopped another driver who called the police on his CB.

A crew of firemen and local cavers dug carefully at the collapse for hours. Schwitzgebel was freed at 12:30 a.m. Thursday.

References: Ronald Powell "Rescue Fear 'Am I Next?'" *Austin American-Statesman* July 6, 1978.

Allan Turner "Youngsters avoid injury in Cave-in; Entrance sealed" *Ibid.* July 6, 1978.

Ron Powell, et al. "3 Youths Rescued after Cave Ordeal" *Ibid.* July 6, 1978.

Analysis: The cave-in was perhaps due to nearby road construction involving blasting. The cavers were lucky that no collapse involved their heads as they were not wearing hard hats.

Accident: Washington, Cave on Cave Ridge**July 29, 1978**

On July 29, Tim Holland and a companion were exploring in one of the caves on Cave Ridge above Snoqualomie Pass in Washington. In exiting the cave Holland was leading. As he was chimneying up a narrow, 20-foot shaft with loose, rotten rock, he began having light problems. His companion started to climb up to help when a "sizable" rock was dislodged above. The rock fell about 10 feet hitting the lower caver on the hand, badly

fracturing a finger. It was not far to the entrance but the victim had to ascend a 25-foot roped pitch one-handed and then negotiate a very tight semi-vertical crevice. The finger was injured further during the exit.

References: Mike Dyas "Cave Accident Report" *D.C. Speleograph Sept. 1978* p 21.

Ken Byrd *Personal Communication* Feb. 22, 1980.

Analysis: Two rules to live by—don't move about below someone climbing and don't knock rocks down if someone is forced to move about below.

* * * * *

Accident: Florida, Peacock Slew Cave

July 30, 1978

On Sunday, July 30, Tim Thomlinson (26), Mike Stephens (21) and Steve Romero (Marine 1st Lieutenant) were scuba diving in an area called Peacock Slew in Suwanee County, Florida. They were exploring an underwater cave and had strung a safety line into it for some 200 feet. Apparently they had then gone beyond the line, become disoriented in the zero-visibility, silty water, run out of air, and drowned. The bodies were found 80 feet below the surface, 250 feet into the cave and only 15 feet beyond the end of their safety line.

Reference: UPI "3 Scuba Divers Drown" *The Marietta Daily Journal Monday, July 31, 1978* p 7-A.

Analysis: Cave Diving is very hazardous and takes special equipment, planning and training. There is too little info here to determine the exact cause of this fatality.

* * * * *

Accident: West Virginia, Bowden Cave

September 1978

On Labor Day weekend a group was caving in Bowden Cave, near Elkins, West Virginia. At about 9:30 p.m. Tom Brooks of the Syracuse University Outing Club took a 30-foot fall about $\frac{2}{3}$ mile from the entrance. The cave is only $\frac{1}{2}$ mile from where an Old Timers Reunion (NSS) was being held. When Brooks' companions notified the local rescue squad, word got to the OTR. A crew was dispatched to the cave to verify the report while others got their gear together. The State Police and a fire department as well as the rescue squad were involved. Field telephones connected the entrance with the accident scene. The rescuers were divided into teams which relayed the victim, warmly covered and strapped to a stretcher. The victim reached the entrance at 4:30 a.m. He later underwent skull surgery and has since recovered.

Reference: John Powers "Bowden Cave Rescue" *Subterranean Sun* 8:9 Sept. 1978.

Analysis: Too little information. The victim was lucky in his proximity to the OTR.

* * * * *

Accident: Texas, Jacob's Well

September 2, 1978

On Saturday, September 2, Steve Walker (23) and Richard Taylor were scuba diving in Jacob's Well, southwest of Austin, Texas. The well is a water-filled cave, one resurgence for the Edwards Aquifer. It is open for diving only to licensed divers and Walker, an experienced diver, had explored in Jacob's Well on previous occasions. Both divers were students at Houston Baptist University.

The two proceeded to the "Third Chamber", some 110 feet below the surface where Walker removed his tanks and pushed into a narrow passage. There he became stuck, perhaps from shifting gravel, and tapped on his tanks for help. Taylor could not pull him free. He drowned when his air supply failed.

A volunteer force of divers from Austin, San Marcos and Wimberly spent nearly 24 hours removing the body.

Reference: Ronald Powell "Diver Drowns in Jacob's Well" *Austin American-Statesman* Sept. 4, 1978.

Analysis: Insufficient regard for the hazards of underwater cave exploration.

* * * * *

Accident: Missouri, Roubidoux (Indian) Cave

September 16, 1978

On Saturday afternoon, September 16, three cavers (ages 12 to 17) entered Roubidoux Cave near Waynesville, Missouri. They were wearing short-sleeved shirts, pants and tennis shoes and were without hard hats. After exploring for some time, their flashlights began to fail. As they tried to find a non-existent back entrance their lights failed entirely. They proceeded a ways without light but gave it up and huddled together, awaiting rescue.

That evening they were missed and eventually the Pulaski County Sheriff was called. Later the boys' bicycles were found at the entrance of the cave. Some relatives apparently entered and found a flashlight and a picture carried by one of the cavers. Even so, it wasn't certain that the boys were still in the cave and presumably the search was carried on elsewhere. Finally, at about 6 p.m. on Tuesday, the MSM Spelunker's Club was called. By 11 p.m., 20 cavers from MSM and SEMO were at the cave. They searched for some distance into the cave, eventually finding the lost cavers in a small, low room. They were all cold and the youngest was shivering. They were given warm clothes, spare lights and food and water. On the way out the youngest had to be carried for a short distance. The exiting was otherwise without incident and all were out by 1:30 a.m., Wednesday, after more than three days in the cave.

Reference: Jerry Wagner "Rescue in Roubidoux" *Southeastern Caver* Sept.-Oct. 1978 p 73-74.

Analysis: The length of time before a thorough search of the cave was undertaken seems excessive and was largely due to the unfamiliarity of the local authorities with the work of cavers in the area and their rescue capabilities.

The condition of the boys was good considering the length of their stay in the cave. They drank cave water with no ill effects. When they stopped,

while attempting to find their way in the dark, they were 200 feet from, and heading for, a 40-foot pit. Another example of cavers outside the "organized" caving community using inadequate equipment.

* * * * *

**Accident: New York, Wards-Gregory
(Clarksville) Cave**

September 23, 1978

In the early afternoon on September 23, five Cornell Grotto members entered Wards-Gregory Cave in Clarksville, Albany County, New York. After touring the Wards section, they decided to do a thru-trip, exiting the Gregory entrance. In the Upper Cook Avenue section, shortly before the Chutes, they encountered two adults and a ten-year-old. They had earlier met this group in Perry Ave. of the Wards section. These people had no head protection, carried only a flashlight apiece plus some candles, and were wearing blue jeans and windbreakers. By the time of the second encounter, these three were all quite cold from wading in the cave stream. The youngster was shivering. The candles were exhausted and their last working flashlight was almost dead. They had gone through Brindley's Sump, a pool, three times trying to find the Gregory Entrance. The youngster was given an extra wool sweater and the group was led out the Gregory Entrance.

Reference: John Coraor "Lost Locals Aided in Clarksville Cave"

Dripstone 9:1 Fall 1978 p 7-8.

Analysis: The group was lost due to inadequate sources of light. Even though they could not find the Gregory Entrance, they still, with adequate light, could have retraced their steps to the Wards Entrance. Once lost in total darkness, their inadequate clothing would have led to hypothermia. The lack of head gear is another obvious deficiency.

* * * * *

Accident: Washington, Dynamited Cave

October 7, 1978

At around 4 p.m. on October 7, Steven Brown (28), Thomas Carter and Terria Caldwell entered Dynamited Cave in Skamania County, Washington. They went at least past the climable 10-foot drop and the 40-foot pit. On the way out Carter and Caldwell reached the top of the 40. As Brown ascended he reached the upper, sloping part of the drop and then fell to the talus pile below.

Caldwell left to notify the Forest Service and Sheriff's Office, while Carter stayed with the victim. Sheriff's Deputies and an ambulance were dispatched. Three and a half hours later the victim had been evacuated. His injuries were later diagnosed as multiple abrasions and tension pneumothorax.

Reference: Editor "Accident in Dynamited Cave" *Speleograph* 15:6 June 1979 p 78.

Analysis: Too little information.

* * * * *

Accident: Iowa, Skunk Cave

October 8, 1978

At around noon on Sunday, October 8, seven students from Grinnell College entered Skunk Cave, near Kendallville, Iowa. At about 2 p.m. one of the group, Pete Ersperer (19) was inching along a ledge in a crevice when he lost his footing and fell seven feet, becoming wedged in a narrower portion of the crevice. The group did their best to free him but could not and finally went for help.

Calls went out and many volunteers responded, including fire departments, Sheriff's deputies, and students from Luther College. The problem was not a simple one, however, in the restricted confines of the narrow cave. A block and tackle was tried first but could not be properly set up in the space available. A porta-power unit proved too big for the crevice. The victim meanwhile was suffering both mental and physical exhaustion. Levering the victim out was tried to no avail. Chisel and hammer were brought in to widen the crack but were not used. A doctor went in and gave the victim sugar intravenously. Finally Ersperer was freed by moving him down slightly, then horizontally through the crack with people both pushing and pulling at either end. At 2 a.m. he was free and at 3 a.m. was outside being taken to a local hospital. He had suffered no injuries.

References: Jim Turvold "College Student Trapped in Crevice of Cave Rescued" *Times-Plain Dealer* (Cresco, Iowa) Oct. 11, 1978 pA-1, 11. Editor "Spelunker Rescued after 12 Hours Trapped in Cave" *Decorah Public Opinion* Oct. 10, 1978.

Analysis: The tight crevice-type cave makes a rescue very difficult. Here a great deal of time and manpower went into what looked like a simple situation. An experienced cave rescue group would have proved useful.

* * * * *

Accident: Georgia, Johnson's Crook Cave

October 15, 1978

On Sunday, October 15, Gary Moss and Dick Sears visited Johnson's Crook Cave north of Huntsville, Alabama. They found the narrow, twisting, 20-foot entrance drop rigged with two cable ladders, two Bluewater ropes and a ragged, rotten, knotted hemp rope. Rigging their own Bluewater, they entered. They soon encountered the two kids who had rigged the hemp rope and joined up for a few hours exploration. When they decided to leave, they found all other groups gone. The kids insisted on using their rope but evidently had not actually tried their method. Hand-over-hand, neither could get up more than 10 feet. With the novices borrowing some vertical gear and receiving some instruction, all four made it out by nightfall.

Reference: Dick Sears "Johnson's Crook Cave, Georgia" *Huntsville Grotto Newsletter* 20:4 p 37.

Analysis: If the two novices had been alone, they would have been trapped. The difference in technique, in this example and others, between cavers in contact with the "organized" caving scene and those entirely self-motivated and out of touch with that scene is amazing.

* * * * *

Accident: New Mexico, Hell's Below Cave**November 11, 1978**

On November 11 a group of nine cavers were in Hell's Below Cave, Eddy County, New Mexico. Following others, Carol Belski (33) was ascending a 75-foot pit on 7/16 Goldline. She was using a rope-walker system, with Gibbs ascenders rigged to knee and foot and a Mother Lode (imitation Jumar) ascender rigged to a chest sling as a third point of attachment.

About 60 feet up her knee-Gibbs sling failed at the sewn joint. As she lurched to one side the Mother Lode turned and the rope twisted out. Fortunately her foot-Gibbs harness held, leaving her hanging by one foot! Mark Wetherald quickly ascended and secured her to the rope with a Jumar which he attached to her chest sling.

Meanwhile an additional rope was rigged and Dave Belski descended to the victim. He attached himself to the original rope with two foot-rigged Jumars while the victim was secured to his seat harness. Her foot harness was then cut and she resumed an upright posture, hanging from D. Belski's seat sling. Wetherald then ascended a bit further and cut the Jumar slings attaching D. Belski to the original rope. The Belskis then rappelled as one to the bottom. C. Belski was inverted for 45 minutes and on rope for an hour. Muscle pulls and soreness were the only bad results. Total time in the cave was 5-6 hours.

References: Dave Belski "Accident" *Personal Communication*

Dec. 1978.

Carol Belski *Personal Communication* March 11, 1980.

Analysis: The harnesses were made of one inch tubular nylon webbing and sewn with "Dual-duty polyester" cotton thread. This is really just cotton thread and should never be used for sewing vertical gear. The name is deceptive. Use only heavy, pure-synthetic thread.

The Mother Lode ascender is a copy of the Jumar, produced in California until Jumar threatened suit for copyright infringement. They are fairly widely used and seem to be dependable. In this case the Mother Lode twisted off the rope because the safety gate spring broke. This can happen to Jumars also.

Accident: Kentucky, Cool Springs Cave**November 19, 1978**

On Sunday afternoon, November 19, Tim Robinson (17) and Wesley Allen (17) went exploring in Cool Springs Cave in Trigg County, Kentucky. In mid-afternoon their single flashlight failed. With no obvious way out, they elected to wait for help. That evening they were reported overdue to the State Police and about midnight a search in the cave was begun. They were found, safe, about one and a half hours later, having spent 13 hours in the cave.

References: Associated Press "Teen-agers Rescued from Cave in Trigg" *Louisville Courier-Journal* Nov. 21, 1978.

Mike Dyas *D.C. Speleograph* Feb. 1979 p 16.

Analysis: Another case of cavers with no contact with the organized caving scene using a "classic" approach to exploration—get a light and go for it.

Accident: Kentucky, Sloan's Valley Cave**November 24, 1978**

A group of six cavers entered Sloan's Valley Cave in Pulaski County, Kentucky via the Minton Hollow Entrance at 11:30 a.m. on Friday, November 24. For three members it was only their second cave trip. For that reason they had planned a trip of about seven hours through relatively easy walking or stooping passages to the White Grotto beyond the Minton Big Passage.

After seeing the White Grotto the group was heading out taking a slightly different route than the one taken it. This route led over huge breakdown blocks forming a high, long ridge through a passage 50 feet in diameter. The leader stopped to help others get up a high spot on the ridge. Kathy Green (32) was first and as the leader helped the next, she continued. Though the ridge is flat and several feet wide at that point, she apparently lost her balance. She screamed and the leader turned to see her go over the edge, falling about 20 feet onto breakdown.

The leader, Dennis Green, climbed down to find the victim wedged between two slabs of breakdown. She was unconscious, bleeding from the mouth and her face and neck were puffy. She was checked for fractures and then lifted from her wedged position and laid on a flat rock. She became conscious, but was in shock. She was made as warm as possible. It appeared her injuries were confined to her head and one wrist. The situation was complicated in that Dennis Green was the only one knowledgeable in first-aid and also the only one who definitely knew the route to the entrance.

Green and one other went for help. They made it to the entrance in about an hour despite losing their way at one point. His companion was left at a road junction to wait for one of their party who had not gone into the cave and Green drove on to the field house. Two cavers were there, so they got gear and medical supplies and headed back to the cave. A map of the cave showing the site of the accident was left with the landowner. Meanwhile, Green's companion had stopped someone with a CB radio who had called the Sheriff's Office.

The rescuers entered the cave at 9 p.m. and reached the victim at 10 p.m. Kathy Green had improved and was able to walk. She required assistance over breakdown and was not able to wear her helmet because of her head and facial injuries. She exited the cave at about 12:45 a.m.

Meanwhile, Sheriff's deputies and the Pulaski County Rescue Squad had arrived and tried to go to the victim in the cave, spending two fruitless hours searching.

The victim's injuries were diagnosed as multiple fractures of the jaw and cheekbone, a severely sprained wrist, a concussion, and multiple contusions on the right side of her back and body.

References: Editor "Rescue in Minton Hollow Cave" *The Cave Cricket Gazette* Jan. 1979.

Dennis Green *Personal Report* undated.

Analysis: The accident was apparently due to stumbling or vertigo in a situation where even a very cautious caver would not belay.

The cavers criticized the Sheriff's Office for threatening to arrest them for committing a rescue without permission. The Sheriff's Office was actually within reason. One is not supposed to partake in rescue of a reported

accident victim without the permission of the County Sheriff. This liaison is a problem for rescue groups everywhere. It is the cavers' job to properly establish their rescue capability with every County Sheriff in cave country so that they will be utilized when an accident occurs.

* * * * *

Accident: Alabama, Natural Well

November 24, 1978

One November 24, Ker Varnadoe, Mark La Roche (15) and Ray Kenler visited Natural Well in Madison County in Alabama. All three rappelled the 185-foot entrance drop and explored the cave. In exiting, Kenler ascended the 185. La Roche came next using a Mitchell System but panicked about 15 feet off the floor and refused to continue. He was talked back down by Varnadoe but could not be talked into ascending. Varnadoe ascended and at 6:35 p.m. called for help. Kenler rappelled back down to keep the victim company. The Huntsville Grotto Rescue Squad and Madison County Rescue Squad soon supplied eight rescuers. A second rope was rigged and a mechanical advantage pulley system had the victim out by 8:30 p.m.

Reference: Bill Varnadoe "Natural Well Rescue" *Huntsville Grotto Newsletter* 20:1 Jan. 1979 p 4.

Analysis: Varnadoe says the cavers had done several 100 foot pits and 70 foot cliffs previously. This is apparently a case of a caver not being psychologically "up" for such a pit on that particular day. We all have mental "ups" and "downs" and one should try to know oneself enough to recognize when one is "down."

* * * * *

Accident: Mexico, Cueva del Brinco

December 1, 1978

On Friday, December 1, at 11 a.m. a group of cavers entered Cueva del Brinco on the highlands west of Victoria in the state of Tamaulipas, Mexico. They were Chris Kerr (22), Hal Lloyd, Jim Smith and Steve Zeman. They intended to push upper leads in the Valhalla section. Traversing the Historic Section, they ascended the Chute, passed the Laguna Verde Cutoff, climbed up to the Helictite Room and on up the wet and arduous Tin Can Alley, through several tight places, including Argonaut Crawl. Beyond this is Valhalla.

In the first part of Valhalla, the floor is covered with breakdown. After 120 feet one encounters an unclimable dropoff covered with unstable, muddy breakdown. Backtracking about 100 feet allows one to bypass this drop via a fissure. The group missed this bypass. Kerr arrived first, then Smith. Kerr saw tracks going down around a breakdown block and tried to follow them. At the block it got very vertical and he turned to face the slope. As he reached around the block to get a handhold, he lost his footing and fell, hitting his chin on the lip, knocking off his helmet and light. He screamed. It was 1:30 p.m.

The others rushed to the edge of the pit; luckily he had only fallen 20 feet but still had, apparently, suffered a disabling injury—broken leg or ankle. It took 10 minutes to find the bypass and get to Kerr. They decided he had

a broken left femur, ankle injury and possible broken ribs. A space blanket was gotten out and wrapped around the victim and carbide lamps were placed under it for warmth.

At 3 p.m. Lloyd and Smith left for the surface to get help. There were no other cavers in the area at that time but Smith wrote, in English and Spanish, a basic rescue message and gave it to a local resident, Antonio Ledezma, to take to Victoria, 6 to 8 hours away, where a call could be made to Texas for additional manpower. Smith and Lloyd, armed with first-aid material (pack frame, food, stove, water, warm clothes, sleeping bags and aspirin) returned to the accident site. A note was left on the fieldhouse door. Operations were begun to move Kerr out of the cave. By 3 a.m. he had been gotten up the drop. This exhausted the three rescuers and caused Kerr much pain. It was decided to bivouac. Zeman and Lloyd made a 4-hour round trip to the Dressing Room to get some of the first-aid gear they had stashed there. Kerr was then placed in a sleeping bag with wet suits under him. Smith prepared food and then he and Kerr slept; Zeman and Lloyd left the cave.

At 3 a.m. Ledezma arrived at Victoria to find the telephone office closed until 7 a.m. At that time he got through to Bill Stone in Austin. The basic situation was conveyed but the victim was wrongly interpreted as Jim Smith. Calls were made and rescuers made ready in Austin and McAllen. A call to the National Cave Rescue Commission for possible medical support produced instead international diplomatic activity and Air Force participation. Two trucks of rescuers from the Rio Grande Valley and one from Austin were flown to Victoria, in Mexico, on C-130's saving hours of travel time. By midnight on Saturday the three trucks were at the fieldhouse, finding Zeman and Smith asleep. It was decided to start operations in the morning. Meanwhile a group reconnoitered an entrance unknown to the accident caving party, the Entrada de Vapor, less than 300 feet from the Argonaut in Tin Can Alley. The report was favorable.

Early the next morning Art Centeno (medical student) and Tracy Johnson (nurse) proceeded to the victim and other teams went in to enlarge passage. A great deal of effort was expended in that direction, using sledge hammers and blasting.

At 8 p.m. (Sunday) the move was begun with Kerr strapped in a Robertson litter and six cavers as bearers. In some places only two people could handle it at a time and on occasion a rope was rigged to support it while it was guided along. In several tight places Kerr was obliged to pull himself along. At 2 a.m. he was hauled up the 25-foot entrance pit and carried to the fieldhouse. At 10:30 Monday morning Kerr was trucked down the mountain, across the border and arrived at McAllen General Hospital at midnight, where he was treated.

References: Gill Ediger "The Brinco Rescue" *Speleonews* April 1979 p 35-37.

Editorial *NSS News* Jan. 1979 p 17.

Memphis newspaper clipping "Spelunker Recovering after Caving Accident" *D.C. Speleograph* Jan. 1979 p 15.

Chris Kerr "Oh! Mexico" *West Tennessee Chapter Newsletter* 8:1 Feb. 1979 p 4-8.

Lucius Lomax "Austin Cave Experts Rush to Rescue Injured Explorers"
Austin American-Statesman Dec. 3, 1978.

Analysis: This rescue is a fine example of competent cavers, each assuming an appropriate role, working together to reach the common goal, the extraction of the victim. Leadership was by suggestion and example—there was no rigid structure to the rescue groups. The accident itself seems avoidable, however, and such things should not happen to competent cavers. Kerr was lucky he was not critically injured and that there was an entrance nearby. When climbing one should be able to assess a situation and have reasonable assurance that one can do it, if it is to be done without a belay.

Kerr's helmet came off in the fall and this could have cost him his life. A helmet should have a chin strap that does not allow this to happen.

* * * * *

Accident: Vermont, Morris Cave

December 6, 1978

At 1:30 p.m. on Wednesday, December 6, Charles Cranian (43), a teacher, entered a cave near Route 7 near Danby, Vermont in the company of another teacher and several boys from the school. Some distance into the cave Cranian announced he "wasn't having fun" and started out. The rest continued for a short distance and then started out also. They soon encountered Cranian, lying down and gasping for breath. They couldn't move him and so left the cave for help.

The first rescuers on the scene were two locals who entered the cave at 4:30 p.m. and found the victim some 200 feet from the entrance, "lying on his back screaming for help." The two got one in front and one behind and began dragging the man toward the entrance. This proved too difficult in the narrow, twisting cave and they went to the entrance and got a rope and two members of the Manchester Rescue Squad. The four then returned to the victim and used a rope arrangement to maneuver him through tight and difficult places. Meanwhile the victim "kept moaning and yelling that he was in shock." At 9:15 they emerged from the cave, with the victim semi-conscious and talking weakly. At a hospital he was found to be unhurt.

References: Charles Anzalone "Spelunker Rescued in Danby Following Four-Hour Ordeal" *Rutland Herald* (Vermont) Dec. 7, 1978 p 1.

Brian Fitzgerald *Personal Communication* June 1979.

Analysis: This appears to be a simple case of claustrophobia. I believe that many people have a potential for this and that one result is the relative unpopularity of caving as a sport. Certainly anyone with a dislike for closed spaces should not be talked into caving or he could end up as a basket case like this one.

* * * * *

Accident: Alabama, Un-named Pit

December 27, 1978

M. O. Smith (36) and R. W. Schreiber were checking pits in Vaught Cove, Jackson County, Alabama, on December 27. They had just done a 35-foot un-named pit and were coiling the rope when Smith realized his glasses had been left below. Instructing Schreiber to carry on, Smith re-

rigged the pit and somewhat hurriedly with "a few coils" of rope thrown down and tied off to a tree. Quickly he rappelled down, and right off the end of the rope which was short of the bottom by 15 feet. Smith landed on his behind and rolled backward, causing pain in his back.

A little later Schreiber returned, lowered the rope and Smith prussiked out without further incident. The ridgewalk was shortened as Smith felt some effects from the fall and the following day X-rays revealed a compressed vertebrae and a backbrace was applied.

Reference: Marin Smith *Personal Communication* Jan. 8, 1979.

Analysis: Possibly Smith was careless because it was only a 35-foot pit. Even a caver as experienced and knowledgeable as Smith is not immune to mistakes.

* * * * *

Accident: Georgia, Anderson Spring Cave**March 3, 1979**

On Saturday morning at 11:30 a group of 11 cavers entered Anderson Spring Cave on Pigeon Mountain near LaFayette, Georgia. These were student members of the Outdoor Club of Georgia Southwestern College, their leader Barry Beck (40), an assistant professor of geology, and Beck's son, Eric (13). The students, all in their late teens, included Cheryl Gillis, Tony Able, Mark McKoy, Tony Johnson, Mary Faye Smith, Warren Moore, Dennis Hudgins, Louis Pounds and Steen Madsen. Beck and his son are experienced cavers, the rest were not. All were well-equipped with hard hats, spare lights, warm clothes and a lunch.

At between 3 and 3:30 they neared the end of the large effluent stream passage, nearly a mile from the entrance. Lunch was eaten and Johnson, having lamp trouble, and Eric Beck, getting cold, decided to leave. The other nine continued to a breakdown choke and unsuccessfully explored it for an hour. At this point they decided to leave the cave.

Meanwhile, outside, a thunderstorm described by some as the worst in decades struck the southeast. Up to 15 inches of rain fell in some areas. Torrents of rain descended on Pigeon Mountain.

As the cavers headed for the entrance the rising water was noticeable. Former drips from the ceiling were now gushing water. In the large passage the rising cave stream meant little, but the entrance area is constricted, so they hurried on. To their dismay they found the entrance passage nearly filled with water. Two students, McKoy and Able, wanted to push on out and received Beck's permission. Fortunately the passage had not quite sumped and they exited successfully. The rest retreated upstream and climbed breakdown to an upper level to wait out the flood. They were wet to the neck but huddled together to stay warm and also exercised every hour. After 8 to 10 hours their clothing dried and their stay became quite tolerable.

In the meantime the four who had left contacted the Walker County Civil Defense. Other agencies were alerted, and late Saturday an attempt was made to enter the cave but the force of water flowing out made this impossible. Sunday morning, four scuba divers from the Walker County Cave Rescue Squad were also beaten back by the water flow just inside the entrance. The National Cave Rescue Commission coordinated the flying in by the Air Force of a special hypothermia treatment team from Virginia. At around 7 p.m. on Sunday two divers struggled through a 60-foot near- sump with a strong current of 45 degree water. When they entered the large passage they found the cavers already prepared for an attempt at leaving. Using an extra regulator on one of the scuba tanks, the trapped cavers were escorted one-by-one through the 4-inch air space of the near- sump. The last person was out 33 hours after entering. The cavers were checked at a nearby hospital and found to be in good condition.

References: Edgar Miller "7 Explorers Rescued from Cave Near LaFayette" *The Chattanooga Times* Monday, March 5, 1979 p 1, 2. Associated Press "Cave Rescue" *Bakersfield Californian* March 5, 1979 p 1, 2.

Editorial "Daring Diver Rescues Seven Trapped Cavers" *Inside Connection* (Southern Bell Telephone Company Newsletter) May 1979 p 1, 9.

Editor "Divers Save 7 Trapped in Cave" *New York Daily News* March 5, 1979.

Barry Beck "The Long Wait Underground" *NSS News* May 1979. p 103-104.

Editor "Two Southeastern Rescues" *NSS News* April 1979 p 92-92.

Analysis: Entering the cave in the face of bad weather is perhaps excusable in this case since the leader was familiar with the cave and knew that even heavy ordinary rain would not close it. However, when the entrance was found to be nearly sumped when they first went to leave, no one should have been allowed to make the attempt to get out. If the low air space had gotten lower as Able and McKoy proceeded they might have panicked and drowned in an attempt to force their way. Better for all to wait it out.

Accident: Tennessee, Sinking Cove Cave**March 3, 1979**

At 10:15 on Saturday, March 3, Rick Buice (31), Will Chamberlain (26), Elizabeth Ferguson (38) and Tom Selmon (22) entered Sinking Cove Cave in Franklin County, Tennessee. Depending upon susceptibility to cold they were wearing from shorty to full wetsuits. Sinking Cove is a resurgent stream cave and they planned on doing some surveying. They pushed upstream, mapping side leads. One lead broke into big passage and they surveyed about 800 feet. When they tired, they started out.

They reached the main stream to find it beginning to get muddy and rising. Making their way with some difficulty they reached the first room, some 300 feet inside the entrance. They went for it, with Chamberlain in the lead. As he neared the entrance he had to fight to keep from being swept away. Ahead he could see an air space of only three inches high and ten inches wide and a raging current below it. He retreated and at 6 p.m. the group decided to sit it out.

Outside, the same storm that was the cause of the contemporaneous Anderson Springs Cave entrapment had struck. Three friends who had gone ridgewalking took notice and began a wait outside the cave. Explosives were obtained to modify the entrance to allow it to drain more quickly, but were not used.

The trapped cavers retreated to the first room and began a watch on the water level with occasional exercise to keep warm. After six hours, the water began to rise again, gaining four to six feet in height in two hours. At 2 a.m. Sunday the group retreated to a higher place a bit upstream. Time passed slowly.

At 10 a.m. the water had dropped over a foot and they moved back to their first sanctuary. More waiting. At 7:30 p.m. Sunday the water seemed well down so they headed out. Where they had turned back before was now 12 to 14 inches of air space. They emerged around 9:30 p.m., having been in the cave some 34 hours.

References: Editorial "The Speleolog" *Speleonews* June 1979 p 55. Editorial "Two Southeastern Rescues" *NSS News* April 1979. p 92-93.

Will Chamberlain *Personal Communication* March 1980.

Analysis: The heaviness of the rain was extremely unusual. A normal rainfall probably would not have affected the cavers. In general, however, one should consult and heed weather forecasts when planning a trip to a cave even possibly affected by rain.

* * * * *

Incident: New Mexico, Hidden Cave

Easter Weekend 1979

Paul Simmons, Ed LaRock and others were caving in the Guadalupe Mountains of New Mexico where they visited Cottonwood and Hidden Caves. At Hidden Cave they encountered four cavers, two male and two female. These four were doing the 50-foot entrance pit. One fellow apparently experienced as a rock climber rappelled in, followed by the two girls. The last fellow "stumbled around" for some ten minutes and managed to get the rope clipped through one brake bar of his rig. "With Gibbs hanging by slings from both arms, seat harness around his knees, one hand grasping the rope above the rappel gear and the other clutching his battery pack, he asked for a bottom belay" and made to rappel. Simmons and LaRock grabbed his seat harness and told him to at least fix that and to hold the rope below the rappel device. Rearranging things, he still only held the rope below the 'biner "with his little finger while still holding the battery pack." Simmons and LaRock convinced him not to descend. His companions had to be directed out of the cave by other cavers. They later explained that he had just drunk a pint of whiskey.

Reference: Ed LaRock "Easter in the Guads" *Caving in the Rockies* 22:4 July 1979 p 3-4.

Analysis: Obviously drinking and caving don't mix. Simmons and LaRock did well to turn off an accident in the process of occurring.

* * * * *

Accident: Virginia, Pig Hole Cave

March 10, 1979

Three cavers, Mark Emerson, Jay Kennedy (18), and Mark Neas, rappelled into the 120 foot pit entrance of Pig Hole Cave, Giles County, Virginia on March 10, at about 10 a.m. An hour's travel took them to the Empire Ledge drop (170 feet). This was rigged and Kennedy rappelled to the bottom, Hess' Hollow. Emerson descended next to a ledge halfway down in order to rig ladders down a bypass drop to the Hollow to "alleviate rub points on the rope." Neas then rappelled into the Hollow. Neas and Kennedy traversed a tight crawlway to the ladder drop just rigged. To reach the ladder drop it was necessary to cross a 15-foot pit. Neas crossed and climbed the ladder preparing to belay Kennedy. Kennedy experienced difficulty with the pit and decided to try to descend the pit and climb up the other side. He found a route leading beneath a large slab of breakdown. At that point his carbide lamp began to go out so he hurried under the slab to where he could hug a smaller rock to reach a foothold. As he hung over the edge hugging the rock, it moved, threatening to trap him beneath the large slab which it supported. He panicked and let go and fell six feet to the bottom of the pit. As he fell he lacerated his wrist and bruised his arm and left knee. He shouted that he was OK. Emerson descended the

pit and both climbed out. After a rest, Kennedy was able to exit the cave unassisted.

Reference: Jay Kennedy *Accident/Incident Report, Pig Hole Cave, Virginia* 1979.

Analysis: Kennedy reports that he got off easy—his thick clothing took most of the laceration and he missed a sharp-edged block of breakdown by only a foot when he landed. He also feels he should have (1) had Emerson wait for him and rig a handline, (2) carried a second light source, and (3) not relied on one hand-hold.

This party was obviously of unequal abilities. The more experienced should look out for others. All too often it is the novice or least experienced caver who gets into trouble.

* * * * *

Accident: Indiana, Buckner's Cave

March 24, 1979

In the evening of March 24, 1979, Sandy Ead (19), Greg Combs (23) and Rod Evans entered Buckner's Cave near Bloomington, Indiana. They were not experienced cavers but planned to stay overnight in the cave and were presumably burdened with sleeping gear and food. They were not wearing hard hats.

The cavers proceeded past the T Room to the Big Room. In that area, Ead lost her footing and fell about ten feet, striking her head on the wall. It was 9:30 p.m. She was unconscious for about one minute and began bleeding from the side of her head just above the left ear. The wound was closed with a pressure dressing made from a shirt, but the bleeding continued. They started out of the cave.

In the crawlway Combs struck his forehead on the ceiling and suffered a scalp cut which began to bleed. They kept going. Near the entrance they met a group of cavers checking leads. One of these, an Emergency Medical Technician, examined the victims, treated Combs, and the combined group left the cave. The injuries were later diagnosed as laceration, shock and concussion for Ead and laceration and contusion for Combs.

References: Will Ott "Accident Report - Buckner Cave" *Personal Communication* 1979.

Richard Blenz *Personal Communication* February 18, 1980.

Analysis: What caver exposed to the organized caving scene would enter a cave without a hard hat? The money spent for one visit to the doctor for a scalp laceration would buy the finest helmet made. The root cause of this accident is probably some degree of alcoholic intoxication. The victims reportedly had been drinking.

* * * * *

Accident: California, Soldier's Cave

March 31, 1979

On March 31 a group of cavers entered Soldier's Cave in the Sierra Nevada foothills of Tulare County, California. In the early evening they had reached the Ladder Room. As they were exploring, the floor suddenly gave way beneath John Potter (30) and he fell about 15 feet. He suffered

leg and hip injuries and was unable to proceed. A party member was dispatched to summon help.

At 11 p.m. the National Park Service was notified and Larry Brown, Paul Fodor and four other personnel were dispatched from Ash Mountain Station. They arrived and began rigging the cave for the evacuation. Fodor descended the 60-foot drop to assess injuries and direct the rescue from that point. Brown was stationed above the 60 and the other four rangers were scattered through the upper part of the cave. The two uninjured cavers remained with the victim.

The injuries were assessed as badly bruised hip and thigh and a possible broken ankle. The evacuation began at 3 a.m. and ended at 9:15 a.m. when the victim was placed in his car for transport to a hospital.

Reference: Editor "Accident in Soldier's Cave" *The Explorer* May 1979 p 76.

Analysis: Although Potter had been in the cave before, he was unaware that the floor of boulders and small cobbles across which he was walking was a false floor only 10-12 inches thick. An accident like this is probably unavoidable.

* * * * *

Accident: Arizona, Pit near Lyman State Park May or June 1979

In early summer of 1979, novice caver Lyle Dimbatt and companions were attempting to explore a 70-foot pit near Lyman State Park in Apache County, Arizona. The descent was made. As Dimbatt was being hoisted out via a rope attached to a car, the system failed. Either the rope abraided and broke or a knot came apart. He fell about 60 feet, suffering severe injuries. These included spinal injuries and the victim may be permanently paralyzed.

Reference: Arlin Pound *Personal Communication* Feb. 28, 1980.

Analysis: This appears to be yet another case of a caver out of touch with the organized caving scene and current vertical techniques.

* * * * *

Incident: Kentucky, Un-named Cave May 5, 1979

Five cavers were exploring a new cave in Dry Valley in Wayne County, Kentucky. Digging open the entrance, it was found to lead quickly to a 50-foot drop where a cable ladder was rigged but no belay was used. The cave at the bottom soon ended and the cavers started to leave. Dean Redshaw (55) became arm weary a little over halfway up the pit. He began backing down but lost his hold completely when a foot slipped. He slowed his descent somewhat by pressing in on the sides of the ladder with his hands. He landed on small breakdown, severely bruising his left foot, but luckily was otherwise unhurt. He rested and then was belayed up the drop.

References: Bill Walden "A Most Unlikely Cave" *COG Squeaks* 22:5 May 1979 p 38-39.

Dean Redshaw "From My Point of View" *COG Squeaks* 22:5 May 1979 p 39, 42.

Analysis: Cable ladders are deceptive. They look easy but in fact are more tiring than a properly set up SRT rig. Moreover, people tend to use them without belay, and in this near-accident. Also, visual inspection will not reveal the strength of a ladder.

* * * * *

Incident: Missouri, Hamilton Cave

May 20, 1979

On May 20, a group of cavers visited Hamilton Cave in Washington County, Missouri. Included were Chuck Malone, Rose Malone, Scott Guyer, Larry Zykan and Bob Ronecker, all in their late twenties. All were experienced cavers with Chuck Malone the assigned leader. They proceeded along 2,000 feet of large stream passage to a 500-foot crawl leading to more large passage and a waterfall. The weather outside was cloudy and all were aware of and on the lookout for signs of rising water.

Zykan, C. Malone and Ronecker negotiated a very tight place about 100 feet into the crawl and were waiting for the others. Suddenly there was a commotion and R. Malone yelled to the waiting group that they should leave the cave immediately. It sounded serious and all began, rather frantically, to head out. The three behind quickly realized that the problem was not rising water, as they first suspected, but a choking, noxious odor that soon filled the crawlway and made breathing difficult. A panic situation resulted, to the point that "some of the members of the group...lost all sense of direction, lost their shoes, knocked out their lights by bumping their heads, spilled the contents of their packs, etc."

In the larger passage the smell was much less and they calmed down and proceeded out without further incident.

References: Chuck Malone "Hamilton Cave Trip Report" *Meramec Caver* 10:6 June 1979 p 3-4.
Chuck Malone *Incident Report* July 1979.

Chuck Malone *Personal Communication* Feb. 12, 1980.

Analysis: The cavers discovered later that a lithium battery (2.8 volt, D-size) in a single cell flashlight had overheated due to rapid discharge when the terminal strip inside, by faulty design, shorted against the metal base of the bulb socket. The overheated battery released sulfur dioxide through a vent.

The really dangerous aspect of this situation, however, is the panic that set in, causing an every-man-for-himself atmosphere. This is not to condemn these individuals, since I believe anyone will panic under the right circumstances. The lesson is obvious. Try to stay calm, communicate, and choose a rational course of action.

* * * * *

Incident: Georgia, Climax Cave

May 31, 1979

On May 31, Frank Hutchison (30) and Chris Kerr (23) visited Climax Cave in Georgia. Dark clouds were on the horizon but Hutchison is very familiar with the cave and felt there was nothing to worry about.

Several hours after entering, in the north end of the cave they noted several anomalous, rapid changes in air flow. This contributed to a decision

to cut short the trip. As they reached a low area just before a long crawl near the entrance there were signs that the water level had risen some six to eight inches. The crawl is about one foot above this level and a sandy portion showed signs of water flow. At a vertical crevice was a buildup of white foam. Just beyond this the ceiling drops to a 15-inch sand crawl about 20 inches in width. This leads to a short section of low ceiling called the "Second Dig" since it occasionally has to be dug out. This was one such occasion. At the Second Dig there was only about one-half to one inch of air space above a pool of mud! After perhaps ten minutes of digging Kerr was able to squeeze through. Hutchison, somewhat larger, could only force his way with help from Kerr. They were soon out of the cave.

References: Editor "Activity Log" *Speleonews* August 1979 p 78.

Frank Hutchison *Personal Communication* March 1980.

Chris Kerr *Personal Communication* March 2, 1980.

Analysis: The air reversals appeared to coincide with the end of a storm. While the silting of the entrance was of no great consequence, it appears that a water rise could have been a problem in the new area toward which they were headed. Hutchison's familiarity with the cave helped at the silt-in since someone less familiar might have decided the silt-in was the wrong way out and become lost. The lesson here is to have respect for the weather in any cave even potentially affected by water.

* * * * *

Incident: West Virginia, Schoolhouse Cave

June 1979

A group of cavers entered Schoolhouse Cave, West Virginia, in June 1979. Mike Bruist was rappelling the first drop when his foot became wedged in a crevice in the wall. Before he could stop, he became inverted. Clipping into the rope with a Jumar, he was able to free his foot. This left him hanging from the Jumar which was attached to his chest harness. Unfortunately the latter was not attached to his seat harness and began to constrict around his neck, choking him. Party members above quickly rigged a second rope and another caver rappelled down to Bruist. Weight was taken off the offending Jumar with additional ascenders and he was able to exit the cave with no further problem.

Reference: Editorial "Cave Pearls" *The Dripstone* 9:2 Spring 1979 p 6.

Analysis: Such things happen. It is well to remember that chest harnesses, even well made ones, are not suitable for suspending a body. All points of potential suspension should be attached to a seat harness or chest-seat combination.

* * * * *

Accident: Missouri, Indian Cave

June 23, 1979

On the afternoon of Saturday, June 23, Kenneth Sekola (22), Steve Mercado (20) and Lynn Mercado (20) visited Indian Cave in Missouri. The first two were soldiers stationed at Ft. Leonard Wood. They had explored in the cave a few times previously. Lynn Mercado, the wife of Steve Mercado, was a novice. They intended to stay only a couple of hours and carried only flashlights with a couple of extra sets of batteries. They had no extra food,

water or clothing for emergencies in the 58° F cave.

The group penetrated "a little faster and a little farther" than on previous occasions. Soon they were resorting to arrows painted on the walls for direction and found these to be ambiguous. It seemed they were lost. Two of their flashlights became exhausted and finally the last was accidentally dropped down a shallow pit. The men tied their belts together and Sekola was lowered to retrieve the light. The belt belay failed and he tumbled 40 feet to the bottom. He was apparently unhurt but they decided to remain where they were until help arrived. Below, Sekola was able to find some muddy water to drink. They felt rescue would not be too long in coming since their car was at the entrance. Time dragged on. One day passed. Then two.

Finally, in the early hours of Wednesday, they were found by rescuers from the caving club at the University of Missouri at Rolla. They had been in the cave some 84 hours.

They were treated at a local hospital for exposure and Sekola for a scalp cut caused by a rock dislodged by rescuers.

References: Associated Press "Cave Explorers Rescued after 3½ Days"

Knoxville Journal June 28, 1979 p A11.

Associated Press "Three Lost in Cave Saved by Rolla, Missouri Spelunkers" *St. Louis Post Dispatch* June 28, 1979.

Associated Press "Cave Rescue" *The Mercury* (Pottstown, Pa.) June 29, 1979 p 16.

Analysis: Too many casual cavers feel that flashlights are adequate as primary light sources. These were lucky as the cave is relatively warm and that Sekola was not injured by his fall. The most important lesson here is that a vehicle or vehicle with note left at the cave entrance is no guarantee that rescuers will be sent immediately on your failure to return. Someone should be informed of your objectives and instructed to notify authorities when you fail to return at an appointed hour.

* * * * *

Accident: Tennessee, Cave near Pall Mall

May or June 1979

It is reported that a bank robber died in a shoot-out with police and the FBI in a cave near Pall Mall, Tennessee, which he had been using as a hideout.

Reference: Editorial *CIG Newsletter* July-August 1979 p 52.

Analysis: No Comment.

* * * * *

Incident: New Mexico, Carlsbad Caverns

July 10, 1979

On July 10, in the early afternoon, Eugene Maroney (31), William Lovejoy (28), Dennis Mark (39) and David Kuczynski (28) took the commercial tour at Carlsbad Caverns in New Mexico. At 3:20 p.m., in the Lunchroom area of the cave, the four men tried to push the potential of the cave. Pulling out weapons, they seized Linda Phillips (24), a tour guide, and demanded one million dollars and a plane to fly them to Brazil.

About 100 tourists were kept from leaving the cave via the elevators due

to their fear of getting too close to the kidnappers. Despite the poor health of some, all eventually were escorted out via the historic entrance by rangers. Meanwhile, negotiations were conducted. At around 7:30 p.m. the four surrendered after meeting with Ned Cantwell, publisher of the *Carlsbad (New Mexico) Current-Argus*, and being promised to be charged with only a misdemeanor, attempted false imprisonment.

Later, at their trial, District Court Judge Harry W. Fort rejected these promises and the defendants stood trial for kidnapping.

References: Associated Press "Four Held in the Seizing of a Hostage at Caverns" *New York Times* July 11, 1979 p B13; July 13, 1979 p A14.

Analysis: Even commercial caves are not without hazard—don't be fooled by false promises.

* * * * *

Incident: West Virginia, Hellhole Cave

July 20, 1979

On July 20, several groups of cavers, including a survey party and a push team were in Hellhole Cave, Pendleton County, West Virginia.

As one caver was ascending the triple entrance pit, the sewn harness of his foot Gibbs ripped apart but the foot was held on the rope by a chicken loop. He continued out with no problem, along with the rest of his group.

Meanwhile, a thunderstorm developed, sending torrents of water down the entrance drop. Several cavers had emerged just before it struck and reported that one of their party was still below, safe at the bottom of the drop but too tired to make it out. It was assumed that the still absent push team would join this caver at the base of the drops. Nevertheless, preparations were made to descend and render aid once the rain stopped. One caver finally volunteered to descend. The stranded caver was then able to ascend under his own power. The push team eventually exited at around midnight.

Reference: John Powers, et. al. "A Trip Report" *Subterranean Sun* 9:8 August 1979 p 3.

Analysis: The sewing of any harness for vertical work must be carefully done and with synthetic thread. The chicken loop backup should always be used. Better to be stranded at the bottom than part way up a flooded drop.

* * * * *

Accident: Tennessee, Wildman Cove Cave

August 11, 1979

Around noon on August 11, a group of cavers entered Wildman Cove Cave in Tennessee. The entrance pit is 111 feet, part of this being a narrow slot. Following several other cavers, Jonathon Hoag (14) began his rappel descent. About halfway down his hair caught in his rappel rack, stopping him with his head pinned against the rack.

Those below soon ascertained the problem, a knife was tied to the rope and Hoag pulled it up. While cutting himself free, he also cut his scalp, causing much pain and bleeding. Hoag was able to continue the rappel to the bottom where one of the other cavers, a paramedic, stopped the flow of blood and bandaged the wound. With assistance from other cavers, Hoag

was able to ascend out. His wound received further treatment at a nearby hospital.

Reference: John Hoffelt *NSS Accident Report* Undated.

Analysis: Hoag had long hair, not tied back, and was reportedly doing a quick rappel. He had been warned, but had not previously caught his hair in a rack and so was not prepared. Especially in a narrow pit such as this, clothes, hair, breasts, etc. can come against the rack and be caught. One must be aware.

* * * * *

Accident: Tennessee, Worley's Cave

August 24, 1979

On Friday, August 24, at 11 a.m., Randall Gilmore (16) and Don Simcox (16) entered Worley's Cave near Bluff City, Tennessee. They soon became lost.

At 3:30 p.m. their brothers reported them missing to the Sullivan County Sheriff's Department. A search team from the Bluff City Volunteer Fire Department found the lost cavers at 7:10 p.m.

References: Associated Press "Ordeal Ends" *The Huntsville Times* August 26, 1979 p 16.

Editor "Rescue" *Huntsville Grotto Newsletter* 20:9 September 1979.

Analysis: There is insufficient information for analysis, but one can suspect the cavers were poorly equipped. Poor lights probably contributed to their getting lost. A photo showed them with no hard hats.

* * * * *

Accident: California, Ice Cave

August 1979

A Youth Conservation Corps (YCC) group was on an environmental outing and was visiting an ice cave at Laitonda Wells near Medicine Lake north of Redding, California. Twenty youths had been assisted into the cave when Bob Hess (22), a "recreation leader" made his descent using a different method from the others. Unfortunately, his "rope failed" and he fell 32 feet.

This is an isolated site. After the accident, the group contacted the Orr Mountain Lookout by radio. The lookout phoned the Goosenest Ranger Station (USFS) and a fire-fighting tanker and crew were dispatched. The Butte Valley ambulance was also called. The tanker crew included three EMT's who descended to the victim and determined that his injuries wouldn't allow transportation by ambulance over the rough roads. A call was made for the only available helicopter, one operated by the California Division of Forestry, out of Bieber, California. Forest Service and YCC crews meanwhile labored to prepare a landing site. The ambulance arrived and its equipment was helpful in removing Hess from the cave. The litter had to be maneuvered over several overhangs on the wall of the pit. Hess was taken to a Klamath Falls, Oregon hospital and treated for a broken leg, internal injuries and shock.

Reference: Emilie A. Frank "A Word of Caution" *Siskiyou County Playlander* 10:3 Fall 1979 p 11.

Analysis: Too little information available for comment. Luckily, it was an organized outing with good communications and resources.

* * * * *

Accident: Indiana, Wildcat Cave

September 1979

At around 10 p.m., Bob Hoffmeyer, Doug Cherry, Willis Cherry and Bill Goshen (28) entered Wildcat Cave near Valeene, Orange County, Indiana. They rappelled the drop in the entrance room and explored a maze of wet passage until about 3 a.m. They returned to the pit and at 4 a.m. began to ascend. Cherry went up first, followed by Goshen. After ascending for 10 to 12 minutes, Goshen reached the upper lip but complained of fatigue and was suffering cramps in his hands. Even with Cherry's help he couldn't get over the lip. Goshen rested for 15 minutes but still couldn't get over the lip. He was told to descend. He complained of hand cramps and dizziness and in 20 minutes had made it only halfway down. Exhausted, he hung there for a while then continued. He got five feet further down, then began to pass out. Cherry was told to go for help by those below and Goshen hung, semi-conscious, where he was.

A land owner, State Trooper, Conservation Officer and County Sheriff were brought back in an hour and a half. A line was passed down to Goshen and he clipped it to his chest harness. He was then pulled up to a natural bridge that divides the pit. From there he was able to make his way out of the cave, exiting at 7:30 p.m.

Reference: Bob Hoffmeyer "Wildcat Rescue" *CIG Newsletter*

Oct.-Nov. 1979 p 68.

Analysis: An unfortunate situation perhaps the result of caving into the night after putting in a full day at other things.

* * * * *

Accident: Alabama, Natural Well

September 1, 1979

Four cavers entered Natural Well, Alabama, on the afternoon of September 1. Two were experienced and two had been caving only six months with "some" experience in vertical caves. All were about 25 years old. They had not slept since driving down from Indiana the previous night and had no food with them. Their dress was jeans and T-shirts with one extra dry shirt.

At 4:30 p.m. they arrived at the entrance pit, rigged it, and rappelled in. This pit is 180 feet with two normally dry inlet streams. Below is 57° F cave with large horizontal passage that never floods.

The trip was basically a bop of the pit entrance, and at 6 p.m. the first of the cavers, Brian Finnigan, started out. Shortly before 6:30 a thunderstorm broke, yielding intense rain. A second caver, Jim Gaskell, got out but the water flow was by then so great that the others, Mark Kiselke (25) and George Cesnik (25), could not ascend. They took refuge on a protected ledge about 12 feet off the floor. The flow continued to increase, carrying large rocks and debris into the pit. Communication with those below was impossible so Finnigan and Gaskell went to the nearest house and called for help.

They called the emergency phone number which resulted in contact with the Huntsville Police State Park Rangers, Madison County Rescue Squad and the EMSI Ambulance Service. MCRS contacted the Huntsville Cave Rescue Unit at 7:15 p.m. Heavy rain continued. Help began to arrive at 7:30. Two teams began diverting the streams flowing into the pit and wet-suits and warm clothes were called for.

By 9:30 p.m. the water flow had decreased such that Carl Craig descended without a wetsuit. He carried a space blanket for the trapped cavers and was able to signal that all was OK. By 10 p.m. the water flow was further reduced and Craig signalled that one man was ready to be hoisted. As this was done a National Guard field telephone was lowered. This hastened the completion of the rescue and all were out by 10:30 p.m.

References: Anon. "Two Men Rescued From Local Cave" *The Huntsville Times* September 2, 1979 p 67.

John Cole "Cave Accident Report—Natural Well—September 1, 1979" *Huntsville Grotto Newsletter* 20:10 October 1979 p 82.

Analysis: The cavers were perhaps prepared for normal conditions. However, in any cave even potentially subject to flooding, one must be aware of local weather conditions. If thunderstorm conditions are forecast, the trip should be cancelled.

* * * * *

Accident: Texas, Jacob's Well

September 9, 1979

Shortly after midnight on September 9, Kent Maupin (20) and Mark Brashier (20) and a few others made a dive into Jacob's Well, near Wimberly, Texas. Maupin was an experienced diver—an assistant instructor and part-time employee at a dive shop.

The entrance to the Well is a small crevice in the bottom of Cypress Creek. For some distance the clear waters and spaciousness provide for safe diving. A point is reached, however, beyond which few had penetrated. This squeeze was rumored to lead to a vast room and had previously claimed the lives of four divers. Maupin had spoken of making this penetration but on September 9 had not done the planning nor gotten any specialized equipment for such—no backup lights, no safety line.

At the squeeze Maupin and Brashier apparently decided on impulse to go for it. In turn each removed his tank and backed into the crevice, pulling his air supply after him. Another diver, Joe Moye, saw this and flashed his light to get their attention, with no effect.

Moye's aluminum tank held more air than the steel tanks of Maupin and Brashier and with their deeper exploration, their air consumption would be greater. With his own air supply running low, Moye finally had to leave. He banged hopefully on his tank with his knife, but no response came. He left his light shining at the squeeze and retreated. Just after he reached the surface, the clear water became silty—an impenetrable brown. Whatever the reason, it meant the lost divers would not be coming out.

The police were called and the Hays County volunteer body-recovery unit put together a team of four divers. They arrived at the Well before dawn. The other members of the original diving party had gone back in with no success but one diver, in the course of two ninety minute dives,

claimed to have seen the bodies buried in a pile of gravel. Two divers went down but failed to see any bodies, only that the squeeze was almost closed with gravel. It was decided to get more divers.

At 10 a.m. on the 10th of September two divers went down and tried to move gravel with trowels to make a passable space, but failed. Don Dibble, the leader of the rescue team, then descended with another diver to assess the situation. Using a safety line and with ten minutes of air left, he cautiously entered the squeeze. Observing with his light it seemed obvious that the gravel bed would have to be removed before body recovery would be feasible. At that point Dibble himself was suddenly trapped by a gravel slide. Both arms were pinned—he could neither jerk on the safety line nor bang on his tank. He frantically tried to release himself and in a short time was out of air. As he prepared to die, his body automatically went into its final spasms and, amazingly, he lurched free. However, when given the regulator of the spare tank he inserted the mouthpiece and inhaled with sufficient force that he swallowed air as well. He tried to belch but couldn't. As he surfaced, the air expanded and caused extreme pain. He suffered a ruptured stomach wall and subsequent peritonitis—he was initially diagnosed as suffering from an embolism and it was sometime later before his true condition was realized from X-rays.

Another expert was called in and also was of the opinion that the gravel would have to be removed. A professional diving company was contracted. After a week of removing gravel with a suction device, a worker was pinned by a slide. Another diver was sent down and the trapped man was safely released. Two more days of dredging went on and a passage was opened enough to allow a videotape camera on a broom handle to be thrust through. It showed a "low, broad, vaulted room" of uncertain size. Replays of the tape allowed a glimpse of a tank valve and regulator mouthpiece to be identified.

A day later, with more gravel cleared away, a diver made it almost to the end of the squeeze passage. The floor dropped off into the chamber seen on the camera. No scuba gear and no bodies were seen, though it was possible they were above the observer since the ceiling could not be seen. To actually enter the room would require the removal of two large boulders.

At that point operations were suspended while the funding was clarified. Two days later the crew was back at work with their previous efforts nullified by a refill of gravel. It soon became obvious that their efforts were futile. A second professional opinion was the same—call off the body recovery. The recovery efforts had taken 12 days. Three months later a barrier was constructed, sealing off the Well at the 75 foot level.

References: Stephen Harrigan "Down in the Depths" *Texas Monthly* February 1980 p 96-99, 162, 164-166.

Lee Kelly "Two Divers Drown While Exploring Well" *Austin American-Statesman* September 10, 1979.

Lee Kelly "Scuba Tragedy" *ibid.* September 12, 1979.

Sue Story and Tom Cotner "Divers Warned of Underwater Cavern's Dangers" *ibid.* September 16, 1979.

Analysis: Cave diving properly conducted is very dangerous. To cave dive without planning and proper equipment would seem to be insanity or extreme stupidity. What is it, then, that seizes normally sane, intelligent

people and leads them into situations such as this?

The involved recovery operations in this double fatality point out a blindness common among adventurous people. It is often stated by those undertaking exceptionally hazardous and perhaps foolhardy enterprises that no one should come for them if they fail to return or that no one should worry about recovery of their body if they are killed. Those making such a statement apparently feel better about their activities since it is then only *their* lives placed in jeopardy. This is rank foolishness. Society places a great value on human life and even on the human body and insists upon going to great expense and even the endangering of other lives to recover one of its own, even if already dead.

* * * * *

Accident: Missouri, Perkins Cave

September 20, 1979

On Thursday, September 20 at about 9:30 p.m., Dale Campbell (18) and Randy Welch (18) entered Perkins Cave near Montreal, Missouri for a couple of hours of exploration. After 2½ hours they were about a half mile into the maze cave when their only flashlight began to fail. They started out but after another half hour the dimming flashlight failed completely. They tried to continue with cigarette lighters but these also failed and they were left in the dark. Occasionally they would sleep or move about in an attempt to keep warm. Time passed. The cavers began to lose hope.

Meanwhile, the fall meeting of the Middle-Mississippi Valley Region of the NSS was going on not far away. Three cavers, desiring an interesting cave to explore were directed to Perkins Cave. On Sunday, they went to the cave and were exploring when their talking was heard by the lost cavers who yelled to attract their attention. The rescuers gave the lost cavers some food and water and led them out. It was reported that others had searched part of the cave for the lost boys earlier using dogs.

References: John Baz-Dresch *Personal Communication* October 1, 1979. Nick Sacco "Camdenton Pair Are Lost in Dark Perkins Cave Three Days" *The Lake Sun* September 25, 1979.

Dwight Weaver *Personal Communication* April 14, 1980.

Editor "Rescue, an unexpected feature of cave explorer convention"

The Eldon Advertiser October 4, 1979 p 7.

Analysis: If authorities did search the cave unsuccessfully, the boys were probably lost for good except for their chance meeting with cavers. Cavers need to work on county authorities in cave areas to get them to call on cavers to help in cave accidents. The boys, so poorly equipped, are another example of cavers not involved with organized caving undertaking exploration in a way no organized caver would.

* * * * *

Incident: West Virginia, Organ Cave

October 27, 1979

On October 27, three cavers were on a trip to Organ Cave, West Virginia as part of a dye tracing project. After much arduous caving, they were on the way out. As they neared the commercial trail, Russ Rhoads (38) stepped up on a medium sized piece of breakdown and at that moment suffered

a ruptured achilles tendon. This caused him to collapse, falling backward to the ground. With some assistance he made it out of the cave. The ruptured tendon required an operation, physical therapy, and several month's convalescence.

References: R. Healey "Accident" *D.C. Speleograph* November 1979 p 15.

R. Rhoades *Personal Communication* February 26, 1980.

Analysis: The weak tendon was judged to be an inherited trait. Rhoades believes it was aggravated by extensive running in poor running shoes in the preceding months. It was therefore only coincidental that the injury occurred in a cave.

* * * * *

**Accident: Indiana, Hoosier National Forest
Swallowhole Cave**

November 3, 1979

On November 3, Randy Jackson (22), Dave Black and Dan Dible were exploring and mapping in Hoosier National Forest Swallowhole Cave in southern Indiana. The group had been going for some seven hours and was taking a break to change carbide. Jackson fired up his lamp, but the bottom caught fire from gas leakage. Thinking he had dropped the gasket into his dump bag, he blew out the fire, then opened the bag and shined his light in. There was a flash of flame as acetylene and air in the bag exploded. Jackson experienced a sharp burning pain in his eyes. Even after several minutes with his eyes closed, it was extremely painful to move either eye. It became obvious that the trip out would be difficult. They began the long crawl, with Jackson opening one eye occasionally to get direction. A ten foot rappel was done without much problem. At a traverse over a 15-foot pit, he had some difficulty since one-eyed vision gives little depth perception. The other two guided him vocally. More crawlway and the climb out the 40-foot entrance pit were done without incident.

At Bloomington Hospital a piece of carbide was removed from Jackson's right eye leaving a 3-mm burn scar and slightly impaired vision. The eye later recovered completely.

Reference: Randy Jackson *Personal Communications* January 1980; February 25, 1980.

Analysis: Acetylene from "spent" carbide will mix with air in any closed space, dump bag, cave pack, etc., to form an explosive mixture. Such explosions are usually minor in the force they generate and are a relatively common occurrence. In this case, it had serious consequences. Beware.

* * * * *

Accident: California, Santa Cruz Island Sea Cave **December 2, 1979**

At about noon on Sunday, December 2, Tom Campbell, Cindy Campbell (27) and Dr. Bruce Smith (30) decided to go scuba diving to hunt lobsters in a partially submerged cave. Leaving Campbell's 27-foot boat they entered the cave. They were about 100 yards in when they stirred up enough silt to obscure their vision. Becoming uncertain about the direction out, they decided to wait. About four hours later they realized they might

not have enough air left to make it out, so Tom Campbell took a tank from one of the others and headed out. The other two braced themselves against a sloping rock in an air space and kept out of the water as much as possible.

Campbell found the exit at about 6 p.m. but suffered ear trouble and dizziness and could not find his way back. He was overheard talking to a friend on radio by the Coast Guard and a Ventura County Sheriff's Department Search and Rescue Diving Team was sent off at about 8 p.m. At midnight they were at the scene and were guided to the cave by Campbell. The other two were found in good shape and were out of the cave by 3:30 a.m. Monday, having been trapped for about 14 hours.

Reference: John Kendall "Two Divers Trapped 14 Hours" *Los Angeles Times* December 4, 1979 Pt 1, p 3.

Analysis: The divers were not prepared for underwater caving. They used no safety lines and had only flashlights. If the cave had been more complex, Campbell might not have gotten out. If they had had powerful lights, the silt might not have trapped them.

* * * * *

Accident: Tennessee, Cedar Creek Cave

December 2, 1979

On Sunday, December 2, a group of cavers were in Cedar Creek Cave near Greenville, Tennessee. Beyond the Duckunder, a 200-foot water crawl with six inches of air space, Francis Murphy suffered a broken leg. The evacuation reportedly took six hours.

Reference: Editorial *COG Squeaks* October 1979.

Analysis: Too little information.

* * * * *

Accident: Tennessee, Rattling Cave

December 22, 1979

At about 11 a.m. on Saturday, December 22, Arthur Cathers (26), William Copeland (27) and Jean Copeland (27) entered Rattling Cave near Newport, Tennessee. They explored for a while and then went back to the 135-foot entrance drop to leave. They found their rope hung up on a ledge, out of reach, and they could not climb up to get it. They sat down and waited, eating some fudge they had with them.

The mother of one of the cavers reported them overdue to the Newport Police Department. Their car was found outside the entrance and they were rescued at about 8 p.m. on Sunday. They had spent some 33 hours in the cave.

Reference: Associated Press "Three Cave Explorers Spend 33 Hours Awaiting Rescue" *The Huntsville Times* December 24, 1979.

Analysis: It sounds like someone found the rope rigged in the cave, pulled it up and then threw it back whereupon it hung up on a ledge above the floor.

STATISTICAL SUMMARY

The following is a tabular breakdown of accidents and incidents using categories traditional to previous ACA issues. Obviously the date would be more revealing if statistics on the activity of caving itself were included. In judging the cause of an accident it is inevitable that my own views on such things will be expressed. For instance, the category of "inexperience" has almost no place in my scheme of causes yet in previous ACA's was a major "cause" of accidents.

It is also difficult to precisely draw the line between accident and incident. Moreover, it must be admitted that every year accidents go unreported, both in and out of the organized caving scene. Finally, a single entrapment could include a number of victims and thus equal a number of injury-type accidents, throwing off a statistical sampling which is already too small.

Please view these statistics in light of the above-mentioned limitations.

	1976	1977	1978	1979	TOTAL
TOTAL ACCIDENTS	15	27	24	18	84
TOTAL VICTIMS	19	45	43	37	144

SITUATION:

(Number of victims)	1976	1977	1978	1979	TOTAL
General	9	22	29	25	85
Vertical	8	22	10	10	50
Diving	2	1	4	2	9

TYPE: (An accident may be of more than one type)

(Number of victims)	1976	1977	1978	1979	TOTAL
Entrapment	7	16	26	28	77
Lost - Search Involved	2	6	5	6	19
Physical Injury	10	13	8	9	40
Evacuation or Aid Up Pit	8	12	10	8	38
Fatality	3	7	5	2	17
Aid out of Situation	1	8	10	17	36

CAUSE - IMMEDIATE (Some accidents have more than one cause)

(Number of accidents)	1976	1977	1978	1979	TOTAL
Fall:					
Exceeding abilities	6	7	4	2	19
Climbing hold or anchor failure	2	3	1	1	7
Projectile	1	1	0	0	2
Equipment failure	2	2	1	3	8
Inexperience in technique	1	3	0	0	4
Fatigue	0	0	0	0	0
Poor vertical technique	3	2	1	1	7

	1976	1977	1978	1979	TOTAL
Entrapment:					
Light failure	0	0	3	2	5
Inability to ascend	0	2	3	1	6
Moving rock or collapse	0	0	0	0	0
Disorientation	0	2	1	4	7
Flooding	0	3	2	5	10
Passage too tight	0	0	2	0	2
Fatigue or hypothermia	0	2	1	1	4
Hair, etc. caught in rappel	0	0	0	1	1
Equipment failure or removal	0	2	2	0	4
Psych-out	0	0	1	0	1
Fatigue	3	3	0	2	8
Flooding	0	3	0	0	3
Projectile	0	1	2	0	3
Asphyxiation	0	0	1	1	2
Hypothermia	1	2	0	1	4
Claustrophobia	0	0	1	0	1
Rope burns	0	1	0	0	1
Carbide explosion	0	0	0	1	1
Animal bite	0	1	0	0	1
Drowning	2	3	4	1	10

CAUSE - CONTRIBUTORY (Some accidents can have more than one contributory cause)

(Number of accidents)	1976	1977	1978	1979	Total
Poorly equipped	6	7	6	5	24
Faulty equipment	0	0	2	0	2
Lost	2	1	0	0	3
Lack of belay	5	3	4	2	14
Lack of preparation	3	6	6	5	20
Act of God	1	2	4	3	10
Unsafe methods	2	8	5	3	18
Bad weather	1	4	2	2	9
Poor judgement	0	8	14	9	31
Bad air	0	1	0	0	1

MONTH OF THE YEAR	A	I	A	I	A	I	A	I
January	1	-	1	-	1	-	-	3
February	2	-	2	-	2	-	-	6
March	2	1	4	2	2	1	5	1
April	-	-	2	1	-	-	-	2
May	1	-	1	-	-	1	2	3
June	3	1	1	-	1	1	1	6
July	8	-	3	-	4	1	-	15
August	2	1	3	-	-	3	-	8
September	1	-	2	1	4	-	4	11
October	-	-	3	-	3	-	-	1
November	1	-	3	-	4	-	1	9
December	-	-	3	-	3	-	3	9
Not known	-	-	1	1	1	-	-	1

DAY OF THE WEEK

(Number of Victims)

Monday	1	8	1	0	10
Tuesday	0	0	0	0	0
Wednesday	2	0	6	0	8
Thursday	0	7	1	2	10
Friday	1	3	3	3	10
Saturday	8	12	10	23	53
Not known	3	3	2	3	11

SEX OF VICTIMS

Male	17	39	39	29	124
Female	2	6	3	8	19

AGE OF VICTIMS

15 or under	0	5	9	1	15
16 - 20	2	15	10	16	43
21 - 25	4	4	9	6	23
26 - 30	4	9	4	9	26
31 - 35	3	5	2	1	11
35 - 40	0	2	2	1	5
40 - 45	1	0	2	1	4
Over 45	2	1	0	0	3
Not known	3	4	4	2	13

AFFILIATION WITH ORGANIZED CAVING

Victims Affiliated	10	21	15	12	58
Victims Not Affiliated	7	23	25	20	75
Not known	2	1	2	5	10

EXPERIENCE OF VICTIMS

None or little	7	14	11	13	45
Moderate	0	0	7	8	15
Experienced	9	22	14	11	56
Not known	3	9	10	5	27

PARTY SIZE

(Number of Accidents)

1	0	1	0	0	1
2	4	5	8	2	19
3	0	7	5	7	19
4	2	5	2	3	12
5	2	2	3	0	7
6	2	1	2	0	5
7	1	2	1	0	4
8	1	0	0	0	1
More than 8	1	3	1	2	7
Not known	2	1	2	4	9

ACCIDENTS BY AREA and STATE or COUNTRY

	1976	1977	1978	1979	Total
Eastern					
Maryland	1	2	—	—	3
New York	—	—	1	—	1
Virginia	—	—	—	1	1
West Virginia	5	4	2	—	11
Southeast					
Alabama	1	2	4	1	8
Florida	—	1	1	—	2
Georgia	—	1	1	1	3
Mid-East					
Indiana	1	—	1	3	5
Kentucky	2	2	2	—	6
Tennessee	1	3	1	6	11
Mid-West					
Arkansas	—	1	—	—	1
Illinois	—	—	1	—	1
Iowa	—	—	1	—	1
Missouri	—	3	1	2	6
Texas	1	—	2	1	4
Western					
Arizona	—	—	—	1	1
California	1	2	—	3	6
Montana	1	—	1	—	2
New Mexico	1	—	1	—	2
Oregon	—	—	1	—	1
Washington	—	—	2	—	2
Wyoming	1	—	—	—	1
Canada, British Columbia	—	2	—	—	2
Mexico	—	5	1	—	6

INDEX OF ACCIDENTS AND INCIDENTS

Cave and State	Date	Page No.
Afternoon Delight, Canada	11-12-77	S38
Anderson Springs, GA	3-3-79	A60
Blue Hole Lake, NM	3-10-76	A9
Bowden, WV	9-1-78	A50
Brinco, Mexico	12-1-78	A56
Buckner's, IN	3-24-79	A63
Canadian Hole, WV	7-31-77	A29
Canadian Hole, WV	7-4-78	A48
Canoe, AL	3-16-78	A43
Carlsbad, NM	7-10-79	A67
Cass, WV	8-29-76	A15
Cass, WV	8-28-77	A31
Cave Ridge, WA	7-29-78	A49
Cedar Creek, TN	12-2-79	A75
Climax, GA	5-31-79	A65
Connie's, CA	4-2-77	A25
Cooch-Webb, KY	1-2-77	A18
Cool Springs, KY	11-19-78	A54
Cornwell, WV	6-25-76	A12
Crabtree, MD	7-19-76	A16
Crevice, MO	12-18-77	A40
Crookshank, WV	6-13-76	A11
Crookshank, WV	7-4-76	A12
Crookshank, WV	8-7-76	A15
Cumberland, TN	4-16-77	A26
Dead Dog, TX	7-5-78	A49
Devil's Eye Spring, FL	2-7-77	A18
Dynamited, WA	10-7-78	A52
Ellison's GA	11-25-77	A37
Fair Oaks Pit, TX	2-28-76	A8
Hamilton, MO	5-20-79	A65
Hell Hole, WV	7-20-79	A68
Hell's Below, NM	11-11-78	A54
Henson's, MO	8- -77	A31
Hidden, NM	3- -79	A62
Ice, CA	8- -79	A69
Indian, MO	6-23-79	A66
Indian Creek, MO	3-27-77	A21
Indian Grave Pit, TN	2-20-77	A19
Jacob's Well, TX	9-2-78	A51
Jacob's Well, TX	9-9-79	A71
Jingle Hole Knob, KY	Spring-78	A44
Johnson's Crook, GA	10-15-78	A53

INDEX OF ACCIDENTS AND INCIDENTS

Cave and State	Date	Page No.
Krueger Dry Run, IL	2-26-78	A41
Kudzu, AL	3-20-76	A10
Lake Purdy, AL	8-8-77	A31
Lost Hollow, AR	3-6-76	A9
Lyman State Park, AZ	5- -79	A64
Meanderbelt, MT	7- -76	A13
McClure's, PA	Summer-77	A27
Morris, VT	12-6-78	A58
Morrison's, KY	9-10-77	A34
Motlow, TN	2-23-78	A41
My Cave, WV	7-30-77	A28
Natural Well, AL	11-24-78	A56
Natural Well, AL	9-1-79	A70
Nutt, WV	3-25-78	A44
Oregon, OR	1-28-78	A41
Organ, WV	7-9-77	A27
Organ, WV	10-27-79	A73
Pall Mall, TN	5- -79	A67
Palos Verdes Peninsula, CA	6-11-77	A27
Peacock Slew, FL	7-31-78	A50
Perkins, MO	9-20-79	A73
Pig Hole, VA	3-10-79	A62
Pryor Springs, TN	7-11-76	A14
Quatsino Master, Canada	10-1-77	A34
Rasdell's, KY	6-5-76	A11
Rattling, TN	12-22-79	A75
Riverside, IN	6-18-78	A46
Rorie, AR	9-3-77	A32
Rouibdeaux, MO	9-16-78	A51
Rubber Chicken, WV	5-8-76	A10
Rubber Chicken, WV	11-13-76	A17
Santa Cruz Island, CA	12-2-79	A74
Sawdust Pit, KY	6-10-78	A46
Schoolhouse, WV	6- -79	A66
Shaft, IN	8-7-76	A15
Sheepman's, MD	5-23-77	A26
Silvertip, MT	Summer-78	A47
Sinking Cove, TN	3-3-79	A61
Sites, WV	5-28-78	A45
Skunk, IA	10-8-78	A53
Sloan's Valley, KY	6- -76	A12
Sloan's Valley, KY	11-26-77	A38
Sloan's Valley, KY	11-24-78	A55

INDEX OF ACCIDENTS AND INCIDENTS

Cave and State	Date	Page No.
Soldier's, CA	1-24-76	A7
Soldier's, CA	3-31-79	A63
Sotano de Las Golondrinas, Mexico	12-17-77	A39
Sotano Huiztmolotila, Mexico	12-13-77	A39
Sotano San Agustin, Mexico	3-28-77	A23
Sotano San Agustin, Mexico	3-31-77	A24
Stamp's Pit, TN	7- -78	A48
Sumidero Yochib, Mexico	3- -77	A19
Sumidero Yochib, Mexico	3- -77	A20
Sumidero Yochib, Mexico	3- -77	A20
Swallowhole, IN	11-3-79	A74
Tongue River WY	9-2-76	A17
Twenty-three Dollar, AL	4-2-77	A26
Twenty-three Dollar, AL	3-19-78	A43
Twigg's, MD	10-14-77	A35
Twin Airplane, TN	10-17-77	A36
Un-Named, KY	5-5-79	A64
Un-Named Pit, AL	12-27-78	A58
Valhalla, AL	9-3-77	A32
Wards-Gregory, NY	9-23-78	A52
Wildcat, IN	9- -79	A70
Wildman Cove, TN	8-11-79	A68
Worley's, TN	8-24-79	A69

Printed by

