DECEMBER 1994 PART II

NSS NEWS



American Caving Accidents

American Caving Accidents – 1993

On the following pages are the 1993 accounts of the annual report by the National Speleological Society on safety incidents during cave exploration in the Americas. This is more than just a recording of the unfortunate happenings through that period – it is a chance for readers to increase their safety awareness. If you read these reports, I think you cannot fail to be affected – there are messages here for any level of caver, beginner to expert. The extent of safety one wishes to realize is part of what one expects or hopes to experience in caving. Some want a lot of risk, some want little . . . but everyone should know what the hazards are.

I wish to thank all the cavers and newsletter editors who published or sent reports. It is you who have made this publication possible. Keep it up – **send any information on caving incidents to:**

American Caving Accidents
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For this issue the incident accounts and comments were proofread by George Dasher for coherence and grammatical correctness, by Bill Storage representing the NSS Safety Committee views and by Steve Hudson for the National Cave Rescue Commission. Layout, typesetting, and copy editing was done by Tom Rea. The overview and statistical comments represent the views of the editor only. The included essay represents the views of its author.

A Word on Report Reliability

A publication like *American Caving Accidents* is by nature somewhat controversial. The incidents are traumatic affairs; emotions run high and the friends and acquaintances of victims and participants are affected. When the report of an incident is read by any of these people discrepancies may be seen. This may be due to a difference in view – no two participants may see an incident, or remember the facts, quite the same. Another source of errors are newspaper accounts which often seem to be a bit at odds with the participants accounts. The actual participants and/or victims are the only ones who may know what really occurred – sometimes they are in shock and do not themselves realize what happened.

I don't feel that this is a problem. One puts the available information into a rational sequence of events, adds educated speculation, and the result is the incident report. When we read a newspaper we are educated and benefit from the reading in our awareness of the news. But only a fool will think that every word of what one has read is the truth. It is the same for *American Caving Accidents*. The reports are created as best the editor can from available information. Read *American Caving Accidents* and you will benefit.

The *relative* reliability can be estimated to some extent by looking at the references given at the end. The relative reliability will probably be roughly in the order following, from best to worst:

1. Multiple references including news accounts and participant reports.
2. Caver accounts by participants, as given to the editor; caver accounts by participants in newsletters or on electronic mail.
3. Second-hand caver accounts.
4. Newspaper accounts.

I would also like to point out that one may hear criticism of an incident account from *American Caving Accidents*. If you do, find out if the person being critical (undoubtedly a participant or an acquaintance) sent a report on the incident to the editor. If that person did, you may give credence to the complaint. If that person did not send information, he/she has absolutely nothing to complain about. If you don't send the information you have on an incident, you have only yourself to blame when that information fails to appear.

The editorials at the start of an issue (there are none in this issue) represent a particular point of view, as does any editorial, and are sometimes intended to be controversial, with the intent of promoting discussion of a topic.

Codes

Result of Incident

AA – Fatality
A – Requires Aid and involves Injury
B – Requires Aid or Aborts trip
C – Involves Injury
D – No real consequence

Cause of Incident

a – acetylene
b – bad air
c – caver fall
d – drowning
e – equipment
f – flood
h – hypothermia
i – illnes
l – lost
r – rockfall
s – stuck
t – trapped
x – exhaustion
o – other



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AMERICAN CAVING ACCIDENTS

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FRONT COVER

A swim in the Rio Oqueba Cave, 1994, Alta Verapaz, Guatemala

BACK COVER

The top of Jive-Ass Falls in the Rio Oqueba Cave, 1994, Alta Verapaz, Guatemala

Photographs © 1994 Steve Knutson

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Causal Breakdown of the Incidents

The statistical table shows that 1993 is a continuation of a trend, a gradual increase in the number of incident reports. Of course this may not correspond to the actual number of incidents that occur but if we assume it does, and also assume that the percentage of National Speleological Society membership among victims is the same each year, we can see that this increase is not as great as the increase in NSS membership. This is excellent. I suspect all the NSS training sessions are having an effect. Many cavers are getting National Cave Rescue Commission rescue training and I have always felt that the expertise created by this is not just for the very occasional formal rescue, it makes for better cavers and more self-rescues. Note that I use the term "spelunker" to denote someone untrained and unknowledgable in current exploration techniques and "caver" for those who are.

The main causes continue to be *caver falls, equipment problems, and rockfalls.* If anyone wants to look at all the incidents of one category, the following is a breakdown of incidents by cause, referencing them according to date.

(a) Acetylene Explosions

Companions headed off a potential explosion (5-29).

(b) Bad Air

Bad air while doing vertical work—potentially fatal (9-19).

(c) Caver Fall

About half by cavers, half by spelunkers. One occurred while the victim was climbing down a short rope (8-22). One was saved by a water belay (9-18). Many were serious enough—from severe bruises to broken bones—to require a rescue (2-6, 2-13B, 6-28, 7-3, 7-11, 8-12, 8-19A, 8-22, 8-29, 11-21, 12-18). An eight-foot fall without a helmet produced a fatality (11-20). One fall was from a cable ladder (5-30A). There was a notable self-rescue (5-16). No belayed fall resulted in an incident.

(d) Drowning (while swimming)

None.

(e) Equipment Problems

These included hand-over-hand ascent of a rope (2-28), Letting go of the main line while on a rock in a cave river (4-8A), a sweater caught on a rock in a near sump (4-24A), inability to ascend with an ill-fitting system (4-19, 10-12), inversion on ascent due to failing to clip into a chest harness, a rack problem (4-8A), webbing jammed in an ascender (Spring A), homemade vertical gear (November), ropes cut to seven core strands (11-29) and three core strands (10-23), and the token dead-batteries-in-the-flashlight spelunker trick (6-26A).

(f) Flooding

All were due to rain while the victims were in the cave. Cavers successfully aborted a trip (1-1), cavers were trapped overnight but self-rescued (12-4), and six spelunkers drowned (7-23).

(h) Hypothermia

None primarily this, but it was a factor in several, including a fatality (10-12).

(i) Illness

These included a diabetic experiencing low blood sugar and getting lost (11-13), collapse from hypoglycemia (8-16), and serious, continuing nausea in a deep cave camp (March 12).

(l) Lost

Yes, people do get lost in caves: (Summer, 7-10, 7-24A, 8-28, and 11-4). All required rescue.

(r) Rockfall

This is probably the major hazard in caving, since it is not necessarily subject to control, being a natural process. One collapse was a rope anchor (10-23), and one was from a kicked chockstone (10-10). Falling rocks trapped a caver in a crawl (11-6B). Some falls appeared to be spontaneous (1-9, June, 7-24B); some are probably caver caused as in (8-19B). One caver was nearly killed in a dig when it collapsed (1-9) and a citizen was killed in a dirt collapse into an underground hole (4-24C). A farmer dumped a log into an entrance sink (8-25).

(s) Stuck

Cavers usually get out of being stuck with help from companions (7-31, 11-6A) but one was freed by rescuers (Spring B), one freed herself with a rescue in progress (2-22), and one was not gotten out alive (5-30B).

(t) Trapped

Two cavers were trapped behind a stuck caver (5-30C).

(x) Exhaustion

One on a long vertical ascent (1-3) and one on a short entrance climb (4-3A)

(o) Other

One caver stepped into a hole and severely twisted an ankle (4-3B), one suffered internal bleeding from an operation prior to the trip (8-7), one poked a drill bit into his eye (11-3), and another had an entrance gate slam down on his hand (12-28).

Fatalities

There were five incidents that resulted in ten fatalities. One will be regarded by many as unrelated to caving (4-24C) since it was an earth collapse into a void with subsequent suffocation, but this is similar to many dig scenarios that cavers increasingly engage in. One was a caver stuck head-down in a vertical constriction, dying of compressive asphyxia (5-30B). This was the third in recent years to die while stuck despite being within reach of rescuers who worked for hours to no avail. Six spelunkers died in a flood during a heavy rain that had been forcast (7-23), though a seventh managed to survive. This may be the most to die in a single incident in the history of American caving. A rock climber died in a sea cave trying to use ill-fitting ascenders in a cold surf (10-12). Finally, a spelunker died in a six- to eight-foot fall, probably because he was not wearing a helmet (11-20).

Reported Caving Accidents—1993

Reports Prior to 1993, Previously Unreported

Code	Cave Name	Location	Synopsis	Date
Br	Blowing Grim Hole	Tennessee	rockfall	Aug 92
Bs	J-4 Cave	Pennsylvania	stuck	Sep 92
Bf	Crevice Cave	Missouri	flood	Nov 1, 92
Ac	Cave of the Falls	Missouri	caver fall	Dec 10, 92
Bs	Red Bridge Cave	Pennsylvania	stuck	Dec 19, 92

Reports From 1993

Code	Cave Name	Location	Synopsis	Date
Bf	Kings Cave	Tennessee	flood	Jan 1
Bx	Sotano de las Copilla	SLP, Mexico	equipment	Jan 3
Ar	Sinkhole	Missouri	flood	Jan 9
Ac	Bat Cave	Kentucky	caver fall	Jan 31
Ac	J-4 Cave	Pennsylvania	caver fall	Feb 6
Ac	J-4 Cave	Pennsylvania	caver fall	Feb 13A
Ac	Laurel Caverns	Pennsylvania	caver fall	Feb 13B
Bs	Airmans Cave	Texas	stuck	Feb 22
Be	Greises Cave	Maryland	equipment	Feb 28
Bi	Kijahe Xontjoa	Oaxaca, Mexico	illness	March 12
Be	Rocky Butte Deep Cave	Oregon	equipment	Spring A
Bs	Unnamed Sinkhole	Tennessee	stuck	Spring B
Bx	Sharps Cave	West Virginia	exhaustion	Apr 3A
Ao	Mammoth Cave	Kentucky	other	Apr 3B
Be	Semuc Champey	Guatemala	equipment	Apr 8A
Be	Stephens Gap Cave	Alabama	equipment	Apr 8B
Be	Rockpile Caves	California	equipment	Apr 19
Be	Pompeys Cave	New York	equipment	Apr 24A
AAr	New Sinkhole	New Jersey	collapse	Apr 24B
Cc	Eldon French Cave	Massachusetts	caver fall	May 15
Ac	Lechuguilla Cave	New Mexico	caver fall	May 16
Ba	Buffalo Creek Cave	Kentucky	acetylene	May 29
Ac	Buzzard Roost Cave	Kentucky	caver fall	May 30A
AAs	Buzzard Roost Cave	Kentucky	stuck	May 30B
Bt	Buzzard Roost Cave	Kentucky	trapped	May 30C
Ar	Gargantua Cave	Alberta, Canada	rockfall	Jun
Bc	Zartman Cave	Alaska	caver fall	Jun 23
Be	Perkins Cave	Missouri	equipment	Jun 26A
Ae	Crossroads Cave	Virginia	equipment	Jun 26B
Ac	Kelly Ridge Cave	Tennessee	caver fall	Jun 28
Bl	Bowden Cave	West Virginia	lost	Summer
Ac	Marshalls Cave	West Virginia	caver fall	Jul 3
Bl	Triple-J Cave	Indiana	lost	Jul 10
Ac	Laurel Caverns	Pennsylvania	caver fall	Jul 11
AAf	Cliff Cave	Missouri	flood	Jul 23
Bl	Organ Cave	West Virginia	lost	Jul 24A
Br	Stairsteps Shafts	New York	rockfall	Jul 24B
Dc	Surprise Cave	New York	caver fall	Jul 25
Ar	Porters Cave	Virginia	rockfall	Jul 31 A
Bs	Bone-Norman Cave	West Virginia	stuck	Jul 31 B
Bo	Scott Hollow Cave	West Virginia	other	Aug 7
Ac	Huccacove Cave	Colorado	caver fall	Aug 12
Bi	Wolf River Cave	Tennessee	illness	Aug 16

Ac	Mammoth Cave	Kentucky	caver fall	Aug 19A
Br	Whitings Neck Cave	West Virginia	rockfall	Aug 19B
Ac	Junkyard Cave	Tennessee	caver fall	Aug 22
Br	Denny Cave	Tennessee	rockfall	Aug 25
Bl	Roubidoux Cave	Missouri	lost	Aug 28
Ac	Oregon Caves	Oregon	caver fall	Aug 29
Dc	New River Cave	Virginia	caver fall	Sept 18
Bb	New Pit	Missouri	bad air	Sept 19
Br	Black Widow Cave	California	rockfall	Oct 10
AAe	Acadia Sea Cave	Maine	equipment	Oct 12
Ar	Paradox Cave	Tennessee	rockfall	Oct 23
Be	Warrens Cave	Florida	equipment	November
Ao	Oregon Caves	Oregon	other	Nov 3
Bl	New Trout Cave	West Virginia	lost	Nov 4
Cs	Jewel Cave	South Dakota	stuck	Nov 6A
Br	Icebox Cave	Arkansas	rockfall	Nov 6B
Bi	Bowden Cave	West Virginia	illness	Nov 13
Cr	Fletchers Cave	West Virginia	rockfall	Nov 14
AAc	Logan Cave	Utah	caver fall	Nov 20
Ac	Birthday Plunge Cave	Indiana	caver fall	Nov 21
De	Lechuguilla Cave	New Mexico	equipment	Nov 29
Bf	Wolf Creek Cave	Tennessee	flood	Dec 4
Ac	Vertical Petre Cave	Tennessee	caver fall	Dec 18
Co	Lechuguilla Cave	New Mexico	other	Dec 28

Cave Diving Incidents

Code	Cave Name	Location	Synopsis	Date
AAl	Roubidoux Spring	Missouri	lost	Nov 1, 92
AAi	Cenote Esquelito	Mexico	unconscious	Feb 26
AAe	Clearcut Sink	Florida	out of air	Jul 16
AAl	Devils Ear Spring	Florida	lost	Oct 9

SEND ANY

INFORMATION ON

ANY INCIDENT OR ACCIDENT TO:

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U.S.A.

Remote Situation Medical Planning

by Jeb Steward, EMT

In recent years most of the training and literature for managing caving incidents has been devoted to assessment and stabilization of injuries or illness in the field, followed by rapid transport to the nearest medical facility. However, some rescues may be delayed or prolonged and rapid transport will not be a reality. In remote locations it may be essential to be prepared to handle emergencies where they occur with stabilization and treatment of the patient in the field until they have recovered enough to exit under their own power.

I have now taken part, as Medical Technician, in three caving expeditions to a remote rainforest on a high plateau in southern Mexico. The nearest medical facility with a doctor is several days away, even in the best of conditions. This is complicated by the fact that most of the caves being explored are vertical in nature with the deepest attaining a depth of over 1,000 meters. Evacuation of an injured or ill patient from this environment is extremely complicated and can be risky work for the rescuers themselves.

Because this area is very isolated and any sort of outside help can be several days in arriving, I planned to manage emergencies either from base camp or in the cave itself. We hoped that over the course of perhaps a week, a patient's injury or illness could improve enough that he could assist in his evacuation to a medical facility where more extensive tests and treatments could be done.

If certain emergencies are planned for carefully, properly trained people can handle many things in a sane manner. Sometimes it may make more sense to mobilize people and resources to support and care for the patient (ie. food, water, shelter, and comfort) rather than using these people for a full blown rescue.

Of course, this will not always be the case. Not all medical emergencies or trauma can or should be handled in this manner. Rapid evacuation of a fully immobilized patient may be necessary. However, it is not within the scope of this article to discuss all possible scenarios and their outcomes. My intent here is to present a case history of an incident that was managed successfully in the field. Sometimes, by necessity, we are forced to react to circumstances using what resources we have on hand.

I prepared my medical kit for the expedition to this remote area knowing that, should an incident occur, I would be the sole care provider for quite some time. I brought basic assessment tools such as a thermometer, stethoscope, and blood pressure cuff. Being able to assess a patient's condition correctly will determine how aggressively to treat. Antiseptics and sutures were brought for simple wounds. Material for plaster casts and splints would provide for simple fractures. Pain medications were included as were Trimeth Sulfa and Flagyl for infections and ingested parasites. Also in my pack were two liters of IV fluids (Lactated Ringers), as well as syringes and supplies to administer IVs. This was brought to manage dehydration or blood loss due to an injury. Fluid replacement in the field can bring dramatic results for a person suffering from blood loss or dehydration. However, not everyone is capable of starting or maintaining an IV. For these people I recommend carrying something like the Dehydration Packet distributed by the World Health Organization. This packet, when mixed with water and given orally, contains necessary electrolytes and other ingredients for rehydration. These packets are made available to third world countries where IV supplies and trained people are in short supply.

Several sizes of cervical-collars (to immobilize the neck) and a backboard were brought and kept in camp. It is extremely important to immobilize the cervical spine and back on an appropriate board in cases where the mechanism of injury is severe enough to cause damage to the spine. I have witnessed many incidents where proper handling in the field has prevented paralysis. There can be no shortcuts here. If a back injury is suspected then the patient must be fully immobilized and carried to a medical facility.

The incident I refer to occurred in March of 1993 (See March 12 incident, this issue). Karlin Meyers became ill while on a surveying trip in Kijahe Xontjoa in Mexico. He had been staying at Deep Camp at a depth of 975 meters when on Friday, March 12, he experienced a violent recurrence of stomach problems he had had three days before above ground. He experienced nausea and vomiting and was unable to keep any fluids down. By Sunday, March 14, three other members of his group exited the cave to get help as Karlin was becoming weak and dehydrated.

They arrived in Base Camp (on the surface) early Monday morning and I quickly prepared supplies that I would need to care for him. As I was leaving Base Camp with two other cavers to go in to Karlin, three other people headed for the clinic in Huautla (a day's journy, one way) for more IV supplies and medications in case I didn't have enough.

When I arrived at Deep Camp, Karlin had been without food or water for four days. My physical assessment revealed he was severely dehydrated. An IV was started with the first liter going in in 0.5 hours and the second in a 1.5 hour period. The results of the IV fluids were significant and Karlin was able to stand without dizziness, which also improved his spirits.

The cause of the illness was unknown although we suspected it to be parasitic in origin, from drinking unpurified water, or from food poisoning, from eating an old MRE (military surplus "Meals Ready-to-Eat") package that had possibly spoiled. In either instance I felt it necessary to start him on oral antibiotics and an antiparasitic medication. These proved to be quite irritating to his stomach, and by Tuesday his condition was beginning to worsen. I had discontinued the oral medications due to the increased stomach irritation and I was out of IV fluids.

On Tuesday afternoon the supplies I'd sent for from Huautla arrived in Deep Camp. A new line of attack was started. Another IV of two liters of Lactated Ringers were infused with Vitamin B injected into the infusion. Intra-muscular injections of Torecan were given to fight nausea; an antibiotic shot was also given. Hiasinotic in pill form was given to help stomach pain. The vitamin B, Intra-muscular shots

and Hiasinotic were given per doctor's orders from the Huautla clinic. After some time the antiparasitic pills were started again. Dramatic results were soon felt and by Wednesday Karlin could keep fluids down and on the evening of that day he ate his first food. By Thursday Karlin had gained back enough strength to make a bid to exit the cave and by 1:00 A.M. on Friday everyone was back at the surface base camp. Karlin was seen by the doctor at the clinic in Huautla for a follow-up examination. The cause of his illness was never determined.

Looking back, I feel the turning point in Karlin's condition was the injection of the anti-nausea drug. This was a medication I had neglected to include. I did have Lomotil but since Karlin had no diarrhea it wasn't indicated. An anti-nausea medication will now be a part of my medical pack, in injection form or in suppository form to bypass the oral route on a person who is vomiting. I also plan in the future to bring more than two liters of IV fluid as two liters will stabilize a patient for only a short time.

This incident definitely proves the benefits of having a trained medical technician on expeditions of this nature. It is also a good example of a situation where the incident was managed in the cave itself, as opposed to having all the efforts and energies directed toward removing the victim immediately. Some of the reasons for deciding to treat in this manner were the complexities of the cave and the remoteness of the area. There are many caves on this planet that would fit into this category so it would be prudent for people venturing into these places to think of rescue as secondary to treatment. Furthermore, I feel that it is possible to take a new look at the way many rescues are carried out. The "in-cave-hospital" approach is new but it can have many applications. Here we have a case study where it was successful. I want to emphasize that I am not criticizing the way in which past rescues have been handled. My only desire is that patient care be delivered to the best of everyone's ability and we have only happy endings.

Steward would like to acknowledge his medical director, Dr Duane Ables, for his support and for training recieved.

Incident Statistics 1986 – 1993

The following is a breakdown of incidents for the last eight years by result and cause. This is admittedly simplistic but will serve to indicate the major hazards associated with caving.

Result of Incident

Code-Result	86	87	88	89	90	91	92	93
AA-Fatality	4	3	4	1	4	6	5	5
A – Injury and Aid	10	15	11	16	18	16	18	22
B – Aid (no injury)	21	15	20	20	23	20	32	33
C – Injury (no aid)	10	15	14	14	10	12	10	4
D – no consequence	19	16	12	21	9	12	16	3
Total	64	64	61	72	64	66	77	67
Total AA, A, B, C	45	48	49	51	55	54	61	64

Cause of Incident

Code-Cause	86	87	88	89	90	91	92	93
a-acetylene	3	0	1	1	0	0	0	1
b-bad air	3	2	1	1	1	2	1	1
c-caver fall	25	14	20	19	22	22	22	19
d-drowning	1	2	0	2	2	2	2	0
e-equipment	14	17	20	20	23	21	20	11
f-flood	1	3	3	4	2	2	1	3
h-hypothermia	1	2	0	5	0	2	4	0
i-illness	0	0	2	3	2	1	0	3
l-lost	8	5	3	9	4	3	4	5
r-rockfall	12	17	7	11	11	12	16	11
s-stuck	3	1	0	1	1	3	5	5
t-trapped	0	0	0	0	0	0	0	1
x-exhaustion	0	1	1	3	0	2	4	2
o-other	3	4	8	6	8	4	5	4
Outside Incidents	–	–	–	–	–	2	1	0
Cave Diving	9	7	10	5	9	8	7	3

Caver Population versus Incident Totals

At the end of Year	Total Membership	Total Incidents
1986	6811	45
1987	7298	48
1988	7986	49
1989	8469	51
1990	9056	55
1991	9823	54
1992	10544	61
1993	11164	64

Previously Unreported Incidents

Blowing Grim Hole, Tennessee

Br – rockfall entrapment
August, 1992

On a Sunday in early August 1992, a group of five cavers entered the Blowing Grim Hole in Overton County, Tennessee. The cave had only recently been discovered. The large entrance leads to blowing breakdown crawls. One caver stopped to work on a dig near the entrance while the others proceeded. A low 63-foot crawl led to a breakdown squeeze, then a hands-and-knees crawl followed by 1,000 feet of stoopway and several hundred feet of walking passage. A low crawl in a stream yielded an unstable breakdown pocket.

Larry Nolan was pushing into this when he was pinned by a sliding rock. A companion quickly wedged it with another rock to keep it from sliding further. While one caver worked to free Nolan, two headed out, collecting the one at the entrance dig. Outside, they fixed a pack with gear to help fight off hypothermia. With this, one of them headed back in to the victim; one then went to the landowner's house to get rescuers put on standby while the other waited at the entrance. The caver returning to the victim was to come back to the entrance to alert them to a need for outside help. Nolan's companion was able to free him and all exited about 2.5 hours later.

Reference: Michael Bose "A Blowing Grim Adventure in Overton County" *Subterranean Times* (Cumberland Valley Grotto, NSS) Aug-Dec 1992 pp 61-63.

J-4 Cave, Pennsylvania

Bs – stuck
September, 1992

In September 1992, a large group of cavers entered J-4 Cave in Centre County, Pennsylvania. It included eight or so new cavers and several guides, and was a newcomers, orientation trip by the Nittany Grotto, NSS.

At an intersection in the basement level, one of the guides pointed to a hole that would lead to a big room and suggested some of the novices have a look. Steve Yochum, apparently a rather thin person, and a companion decided to try it and Yochum crawled in. The guide advised him to drop down into a hole in the midst of the crawl and this would take him to the big room. Yochum missed this hole, crawled on, and squeezed unsuspectingly down a crevice into a narrow chamber. As he squeezed through he remembered thinking that he was glad that he wouldn't have to go out that way (there are apparently other ways out of the big room). On a mud-covered floor he looked around – there was no big room and no other way out!

After a brief episode of claustrophobic panic he yelled, telling the companion following him not to come in. The room was very small, about four by eight feet, with the walls sloping up to the entrance crevice in the ceiling. The room was not tall but there was only one handhold near the crevice and no footholds. Yochum managed to lift himself with this hold and got his chest to the narrowest point but it seemed that his body would no longer fit. He dropped back down.

Another of the guides approached as far as he could squeeze in the crawlway above and they discussed the situation. Without excavation no one else could get close enough to help. Yochum tried the climb again and again failed. He realized that when entering, he was relaxed – when he tried to ascend, his muscles were taut and took up more space. He passed his helmet and sweater out, tried again and failed. He took off his jeans and t-shirt – he still couldn't make it. He slumped tiredly to the floor. He swore to himself that if he got out he would never enter a cave again. After resting he tried again, to no avail.

As he rested he suddenly had an idea – if he were to go feet-first he might get his feet and legs up through the hole, and be able to push his chest to the narrowest part with his arms. His feet would then be within reach of the caver in the crawlway. If this caver could pull him out, he would be relaxed and effectively thinner. As Yochum says, "It worked!" He decided not to give upcaving.

Reference: Steve Yochum "Cave Stories" *Nittany Grotto News* Jul 1994 p 56.

Comments: Situations like this may seem like nothing once they are resolved but there is great potential for a huge increase in the seriousness of the problem. The successful outcome here may be due to the suppression of panic by the victim. He kept at the problem and found a solution.

Crevice Cave, Missouri

Bf – flood
November 1, 1992

On Sunday, November 1, 1992, a group of five, Rick Haley, Jim Sherrell, Mike Roos, Steve Murphy and Dave Jackson, entered the 28-mile Crevice Cave in Missouri. They intended to go to the Shotgun Barrels and push leads toward the nearby 18-mile Berome Moore Cave. Rain was in the forecast and as they descended the 130-foot Echo Pit entrance, it began to rain. As they proceeded along the cave, the smell of sewage increased. Further up the cave they could see that the water levels in the cave were rising. Outside it rained 2 to z2.5 inches in three hours. They began encountering more sewage than expected, as it was washed from the partly residential land above. This was enough for Haley – he turned back. The others continued on.

As Haley headed back the water continued to rise until he was in waist-deep sewage. At a 70-foot dome he encountered a thunderous waterfall and at Echo Pit there were two waterfalls coming down. He put on an extra polypropylene shirt and a trash bag with head hole under his coveralls and put the head hood up. The pit was a raging torrent of water with water-driven wind whipping the foam and spray about. He decided to go for it and arrived at the top about 1:00 PM.

The rest turned back at the first point where they thought the rising water would actually trap them in the cave.

They were able to get back to the entrance pit and exit at about 3:00 PM.

Reference: Rick Haley "Hell and High Water – the Fall Flushing of Crevice Cave" *The Underground* (Middle Mississippi Valley Grotto, NSS) *34*:4 Oct/Dec 1992 pp 76-78.

Comments: When someone is forced to retreat, they should not do it alone. Consensus at this point has no bearing – the rest of the group needed to assign Haley a companion.

Cave of the Falls, Missouri

Ac – caver fall
December 10, 1992

At about noon on Thursday, December 10, 1992 a group of three spelunkers, Mike Masterson, Joe Garcia, and Scott Tipton, entered Cave of the Falls in Missouri. They proceeded through a long crawlway and down a pit. They had been in the cave 3.5 hours when Tipton tried to free-climb a 20-foot waterfall. He fell, severely injuring an ankle. Masterson exited the cave and phoned the Mehlville Fire Department. National Cave Rescue Commission was notified and they mobilized rescuers who met at the entrance at 7:30 A.M. Three went to the pit, determined that the victim had a broken ankle, and applied a splint. Heat packs were applied and he was covered with a blanket. The pit was rigged and the victim hauled up. He helped himself through the crawlway by crawling over a line of rescuers who leap-frogged all the way to the entrance.

Reference: Editor "Rescue-December 10, 1992" *The MSS Liaison* (Missouri Speleological Survey) *34*:1 Jan 1993 p 3.

Red Bridge Cave, Pennsylvania

Bs – stuck, trapped
December 19, 1992

On Saturday, December 19, 1992 three cavers entered a new cave near Red Bridge in Franklin County, Pennsylvania. The cave entrance is a short crawlway leading to a very narrow fissure that drops about 25 feet to a sloping, mud floor. In the downslope direction is a pool and a continuing fissure lead. They explored a bit, getting wet, then went to exit. One caver climbed out. Allison Hazen went next. She tried chimnying with an ascender on the rope for safety but couldn't make it more than about 13 feet up. The more open part of the fissure was away from the entrance crawlway. It appears that simply following the rope would take you through the too-narrow portion. The other two tied her off at this point, to give her support, and one companion went for help.

Caver rescuers soon arrived. The victim's hands and feet had gone numb so they lowered her back down and then set up a haul system. Rescuers hauled her up, forcing her painfully through a couple of tight spots. Brian Snyder, the caver waiting with her, was by then hypothermic so he was also hauled up.

References:

1. Allison Hazen "Cave Rescue!" *Dead Dog Dispatch* (Tri-State Grotto, NSS) *8*:1 Jan 1993 pp 17-19.
2. Jim McConkey "Rescue at Red Bridge Cave" *Subterranean Sun* (Sligo Grotto, NSS) Feb/Mar p 3.

1993 Reports

Kings Cave, Tennessee

Bf – flood
January 1

On Friday, January 1, a group of four cavers went to survey Kings Cave, a small cave not far from Wolf River in Tennessee. A set of crawlways leads to a room with more passage beyond. The cave had been opened by a dig on a previous trip. They proceeded through the entrance crawl, as small as 14 by 20 inches, and reached the room where they split up, two proceeding to the back of the cave where they started surveying and two surveying toward the entrance.

After a couple hours the inner crew returned to the room to find it looking like the inside of a sinking ship – water was coming in everywhere. They assumed a mild panic mode and headed for the entrance. Passage that had been only muddy now had a running stream. They encountered the other team, still surveying, and all headed out. Fortunately the very small places were not sumped and they exited without incident to find a heavy rain occurring outside.

Reference: Wayne Neff "Rescue at Kings Cave" *Cleve-O-Grotto News 39*:2 Feb-Mar, 1993 pp 3-4.

Comments: When you see signs that conditions for the cave have changed don't wait around.

Sotano de las Copilla, SLP, Mexico

Bx – exhaustion
January 3

On Sunday, January 3, a group of ten cavers hiked to el Sotano de las Copilla, a 365-foot pit in the state of San Luis Potosi, Mexico. The pit was rigged and cavers descended. For the climb out Elizabeth Howe (40s) was lead climber in tandem with another. She reached a state of near exhaustion and made it to the lip of the pit only after a struggle of three hours.

There she climbed a bit too high and jammed a chest roller and safety ascender under a slight overhang. A second rope was rigged and her partner switched to it leaving less weight on the main line. This still didn't free her so an additional ascender was attached above the lip and down to her harness. They were able to load this with her weight and thus free the jam-up.

Reference: Richard Walk, NSS Incident Report, 2 pp.

Comments: On the hike to the pit Howe was observed to be slow, requiring rest stops despite carrying a small load.

Walk, one of her companions, states that, based on her performance hiking to the pit, "she should not have been allowed to rappel the pit." Easy to say, but difficult to do, especially if the trip involves a group with no real leader, as is all too common. It is similar to someone seeing a friend getting drunk and preventing the person from driving – you might save a life but lose a friend.

It is well to remember the harness-hang syndromes as discussed in the *1992 American Caving Accidents* – being exhausted on rope is not just a rescue nuisance – it is potentially fatal.

If you are on a trip where there is no actual leader or a lack of real leadership is apparent, everyone in the group should try to assume part of the leadership role.

Sinkhole, Missouri

Ar – rockfall, flood
January 9

On Saturday, January 9, Don Bittle went to work on a dig in a sinkhole near Mystery Cave in Perry County, Missouri. Conditions were muddy as the ground was saturated from a five-inch rain earlier in the week. The sink was about 6 feet wide, 12 feet long and 12 feet deep, vertical where it was narrow and overhung with loose rocks at one end and soil at the other. On a prior trip he had dug to a small opening that only needed some enlargement to be enterable.

When Bittle arrived he found that the rains had undone all his previous work – it had all slumped in. He went to work, making good progress but, after about three hours and at about 3:00 P.M., the muddy clay and rock that he had been excavating to the slopes around him, suddenly subsided and buried him up to his waist. He was able to dig down to the level of his knees five times but the suction of the clay was strong. Before he could pull himself out, the dug material would slide down again. Between 5:00 and 6:00 P.M. it began to rain and his efforts became obviously futile. He was wearing a waterproof oversuit and thermal underwear but his outlook was getting grim. The hole was filling with water – he hoped hypothermia would get him before he drowned. He tried to prepare himself for death.

At 8:00 P.M. Bittle had not returned home and his wife became worried. She called a resturant where Don might have signed out but there was no entry. At 9:15 P.M. she called cavers Steve Taylor and Jean Krejca. They all headed for Perry County to investigate.

The water was rising around Bittle and he knew he was in serious trouble. He called out occasionally, in the vague hope that someone might hear.

The location of the dig was approximately known to Bittle's wife. This narrowed the search down to about 40 acres of forest. The searchers soon found his car – signs there indicated he was still at his dig. They grabbed flashlights and headed into the woods, fearing the worst. In the cold, steady but moderate rain, they searched the numerous sinks for signs of collapse. Finally Bittle's wife thought she heard him shout – they turned in that direction and continued. Soon they heard a shout for sure and raced ahead, yelling.

It was 11:00 P.M. when they found Bittle. He was in water up to his neck, his breathing "labored and wheezing." His arms were free but his hands were swollen from his frantic but futile attempts to dig himself out. A length of webbing was tied around his waist and secured to a tree at the edge of the sink. He was "moderately aware," glad to see rescuers, but still felt it was too late. Two of the three rescuers headed back to fetch hot tea and ropes; they found their vehicle again only with some difficulty.

When they got back to the pit, Bittle was being given some coffee from his thermos and was trying to warm his face with a carbide lamp. A cable ladder was rigged to provide safer and easier access to the victim – every time they moved around in the pit a little more dirt and debris was dislodged. A Z-rig for mechanical advantage was fixed to a tree and attached to a webbing loop under the victim's armpits. They all heaved on this but Bittle didn't budge. The situation was not good – the water was still rising.

One rescuer went back to the vehicle for a come-along and the other two futily tried to bail with a cloth cooler. When the come-along arrived they soon found that the force it exerted was too great – the victim could not hold his arms down. They decided they needed some way to lower the water level fast, so one of them ran for the truck to go and call the Perryville Volunteer Fire Department. The authorities responded quickly to a 911 call at an all-night gas station.

When the fire department arrived at the sink they realized they couldn't use their pump – it would have to be down in the pit with the victim and the exhaust fumes would kill him. They decided buckets were the answer and a call went out for buckets and beams to bridge the pit. Some heat packs were placed in the victim's clothing.

When the buckets arrived the water was up to the victim's lower lip. Amazingly, Bittle was still conscious but later he remembered little of what went on at that point. They bailed, hauling the buckets up and out, dumping the water and rocks away from the edge. Soon the water was down to Bittle's chest. They tried the come-along again to no avail. The effort was concentrated to moving material away from the victims body and soon they could reach below his waist. Using a rope tied to the webbing under Bittle's armpits (the come-along was slow to release and caused the victim a lot of pain – plus by then there was plenty of manpower) they pulled again and finally managed to move him. With a few more pulls he was free. With a seat harness fitted, he was pulled from the sink – it was 3:45 A.M.

He was transported across muddy fields by ATV to a waiting ambulance. At the emergency room it was speculated that his temperature may have been as low as 85° F. Bittle had suffered only bruises, a touch of frostbite, abraded fingertips, a small facial burn, and a sore ankle. He was very lucky to be alive.

References:

1. Steve Taylor "The Rescue of Don Bittle From a Sinkhole in Perry County, Missouri" *The Crawlway Courier* (Little Egypt Grotto, NSS) *27*:1 Spring 1993, pp 15-18.
2. Don Bittle "Trapped 2" *ibid* p 19.

Comments: If this isn't an inspiration to potential victims everywhere to just hang in there, I can't imagine what would be. Bittle made mistakes, as Taylor points out at length, including going by himself and not taking the clue of the rain having caused the slumping of his previous efforts. But digs are a boring, difficult work and it is common for determined diggers to be on the job alone. Let this episode be a warning to us all.

Note that Bittle told his wife (basically) where he was going and when he would be back – vital elements in the happy outcome. The fact that he was alone, however, was very nearly his undoing.

Bat Cave, Kentucky

Ac – caver fall
January 31

On Sunday, January 31, a caving event, the Carter Caves Crawlathon, was taking place at Carter Caves State Park in Kentucky. One group was about 600 feet into the main entrance of Bat Cave, one of the caves at the park, when a female caver fell about four feet from a ledge, breaking both lower bones of one leg just above the ankle. There were numerous cavers at the weekend event, many of whom had had National Cave Rescue Commision (NCRC) training. She was packaged in a Stokes litter and carried out another entrance, past roosting bats, to save an hour's travel. Apparently there were minor problems with the wire of the Stokes litter catching on projections.

Reference: Frank Reid "Caver Rescue" Electronic Mail, Cavers Forum Feb 9, 1993, sent by Ian Ellis.

J-4 Cave, Pennsylvania

Ac – caver fall
February 6

On Saturday, February 6, a group of spelunkers visited J-4 Cave in Pleasant Gap, Pennsylvania. The cave has 4,350 feet of mapped passage and more unmapped. The entrance is 30 feet up on the 150-foot face of a quarry. The group was obviously inexperienced, being largely without helmets, proper caving lights (one flashlight each), suits, or other equipment. They proceeded through the series of tight, downward slots and tubes to a walking-height passage. This led about a hundred feet to a climb up over breakdown. At this point there is also a crawl to the left, under the breakdown, that leads 30 or 40 feet to more walking passage, about 300 feet from the entrance.

They proceeded some distance further and, a little after noon, were exiting when they again reached this point. One of the group, Chris Miller (21) was on his first caving trip. He was climbing above this walking passage when he fell 10 to 15 feet, landing on his back. He suffered immediate pain and reportedly felt numbness in his legs. His companions apparently helped him through the crawls to the first walking passage. At this point they encountered a group of nine cavers from the Tri-State Grotto, NSS. These cavers could see that Miller was in need of evacuation so one left the cave and, at about 12:30 P.M., phoned for help. Miller was moved to the start of breakdown and wrapped in winter jackets, fetched from the entrance room, and plastic bags.

The Eastern Region, National Cave Rescue Commission recieved the initial call and they spread the word, involving the Pleasant Gap Fire Company and the Nittany Grotto Cave Rescue Team. EMTs entered the cave at 1:00 P.M. and attended to the victim, applying heat packs, blankets, cervical collar and a spinal backboard. It was found that Miller had broken a wrist and it was suspected that he had spinal injuries. A SKED was sent for and arrived at about 2:15 P.M. The victim was packaged and moved to the narrow entrance series where it was known from previous rescues that he would have to go through without the SKED. This took about an hour and Miller arrived at the entrance at about 4:00 P.M. Maneuvering through the two three-foot-diameter (four- and eight-foot long) entrance gate pipes was tricky. Miller was placed in a Stokes and lowered down the quarry face and carried the half of a mile to an ambulance. The victim was found to have suffered a broken wrist and a fractured vertebra (L-2).

References:

1. Mark Jancin "Report of Rescue at J-4 Cave" unpublished report Feb 12, 1993, 8 pp.
2. Mark Jancin "Rescue at J-4" *Nittany Grotto News 40*:2 Apr 1993, p 5-6.
3. Bob Bennett "Cave Rescue" *Dead Dog Dispatch 8*:2 Feb 1993.

Comments: The rescue went very well; for critical details one might contact Mark Jancin or otherwise get a copy of his report. The victim should not have been moved or allowed to move after the accident, until strapped to a spinal backboard.

J-4 Cave, Pennsylvania

Ac – intoxicated caver fall
February 13 A

On Saturday, February 13, a group of four cavers visited J-4 Cave in Pleasant Gap, Pennsylvania. When they reached the Formation Climb they encountered a group of four spelunkers who claimed to have brought two cases of beer, much of which they had already consumed, by count of the empties already found by the cavers. One of the cavers lectured one of the intoxicated spelunkers on the virtues of a helmet and was informed that the latter was a better climber than all the cavers put together and didn't need one.

The spelunkers headed for the entrance – the cavers almost immediately heard the sound of a fall and the spelunkers calling for an EMT. One of the cavers was indeed an EMT and reluctantly offered his help. The spelunker was bleeding but not really injured. He was treated and left the cave without further incident.

Reference: John Walters "Two Trips to J-4" *Nittany Grotto News 40*:2 p 11.

Laural Caverns, Pennsylvania

Ac – caver fall
February 13 B

On Saturday morning, February 13 a group of spelunkers entered Laural Caverns near Pittsburg, Pennsylvania. They got as far as an area called The Post Office, where one of the group, Ronald Kostosky, fell about 12 feet and suffered a broken leg. At 11:00 A.M. one of the group exited and reported the incident. Hopwood and Farmington firefighters were called. With a guide and a portable litter they reached the victim in about an hour and a half. It took five and a half hours to get the injured spelunker out.

Reference: Colleen Gentilcore "Tedious Cave Rescue" *Herald-Standard* (Uniontown, Penn) 13:162, Sun, Feb 14, 1993, p 1, A7.

Airmans Cave, Texas

Bs – stuck
February 22

At about 6:00 PM. on Monday, February 22, Karen Schmidt (22) and a companion entered Airmans Cave in southwest Austin, Texas. The cave is mostly crawlway. In a section called the "One-Legged-Man Passage," a narrow floor slot that requires one to keep one leg up against the wall, Schmidt became stuck "from the hip to the knee in a crevice." Her companion left at about 7:00 PM. to get help, crawling for 45 minutes to reach the entrance and walking for 25 minutes to reach a telephone.

Emergency personnel from Emergency Medical Services, Austin Fire Department, Park Police, Oak Hill Volunteer Fire Department, and Travis County Precinct 2 Constable Office responded. Generators and lights were installed to illuminate the entrance of the cave and a crew started work on enlarging a constriction not far inside with a pneumatic hammer. Meanwhile the victim had freed herself, but apparently not knowing the way out, fell asleep waiting for directions. She was found at 11:00 PM. and led from the cave.

References:

1. Mike Burgess "Woman safe after 5 hours inside cave" *Austin American-Statesman* Tuesday, Feb 23, 1993 p B1.
2. Christopher Brick "Woman escapes cave after 5 hours" *The Daily Texan* 92:95 p 1,

Greises Cave, Maryland

Be – inability to ascend
February 28

On Sunday, February 28, three teenage spelunkers entered Greises Cave near Cumberland in Allegany County, Maryland. The cave is on the property of the Cumberland Bowhunters and the boys did not have permission. They proceeded 300 feet to the back of the cave which ends in a 25-foot pit. A small stream cascades into the pit creating wet, muddy conditions on the walls and floor.

They rigged a layed-nylon rope and descended the pit. The spelunkers had no vertical gear and, when they tried to exit, found it difficult to ascend hand-over-hand. One boy did make it up and left to call for help from the Bowhunters' Clubhouse. Allegany County Civil Defense called the Bowmans Addition Fire and Rescue Company and put cavers from Western Maryland Grotto, NSS, on standby. The cavers were soon requested and responded. At about 9:45 PM., a cable ladder was rigged at the pit and the trapped boys were able to ascend. The entrapment time was only a little over an hour.

References:

1. Debbie Meyer, NSS Accident Report, 2 pp.
2. Editor "Cavers Rescued" "Boys Rescued" *Cumberland Times News* Mar 1,2 1993.

Kijahe Xontjoa, Oaxaca, Mexico

Bi – illness
March 12

On Friday, March 12, a group of six cavers were camped at a depth of 975 meters in Kijahe Xontjoa, a 1,170-meter-deep cave in the Cerro Rabon near Huautla in northern Oaxaca, Mexico. This was part of a joint American-Swiss expedition. They had entered the previous day for a four day stay, exploring and mapping.

They had returned from a day of surveying and apparently were in camp when Karlin Meyer (30, an American from Long Island, New York) became violently nauseous. When he tried to take fluids later he could not keep them down. He did not have a fever or diarrhea. The condition persisted to Sunday, the 14th, with the victim becoming weak and dehydrated. It was decided that medical attention was necessary so three companions exited and arrived at the surface camp about 2:30 AM. on Monday.

An EMT participant prepared a medical pack for transport to the victim and, at 4:30 AM., headed for the cave camp with the three who had come out. Another three were dispatched on the long, hard trip to the health station in Huautla for more medical supplies. The cave crew arrived at the victim at 12:30 PM. Meyers had then been without food or water for four days.

The EMT assessed the victim and realized he was indeed severly dehydrated. An IV (lactated Ringers) was administered. The IV solutions were heated by boiling water, placing this in a fuel bottle and taping this against the hanging IV bag. The two liters brought were administered with significant effect upon the victim – he could now stand without feeling dizzy. He was then given oral antibiotics and antiparasitics but these proved to be very irritating to his stomach throughout that night. On Tuesday he tried to down some liquids but suffered a lot of distress fighting nausea. The oral medications were discontinued – the victim was again weakening.

That afternoon cavers from the surface arrived bringing more medication. Another two liters of IV was given with vitamin B injected into the infusion. Injections of anti-nauseant and antibiotics were administered. After some time the anti-parasite pills were again given. Meanwhile, two companions returned to the surface to prepare for a possible rescue.

By Wednesday Meyers could keep fluids down and could eat some Melba toast that evening. On Thursday Meyers felt better and was able to start out, accompanied directly by the EMT and supported by the rest. The route to the surface is mainly a series of vertical drops. They made good progress and used a haul system set up at the longest pit. The victim was out before the end of the day.

References:

1. Bill Steele "Rescue Insurance" Electronic Mail, Cavers Forum Apr 15, 1993.
2. Jeb Steward "Accident Report, Cerro Rabon 1993" unpublished report 5 pp.

Comments: It was learned that the Swiss, who apparently constituted most of the manpower involved in the cave in this incident, get insurance for the cost of a cave rescue for about $50 a year. With insurance there would be less tendency to wait on calling for outside help and this could be a factor in incidents such as this.

When the first group exited to get help, on Monday, there was discussion of trying to get a caver-doctor to come down from the U.S. but it was decided that they could handle it themselves. Having an EMT and a group of world-class cavers present were apparently the main factors leading to a successful conclusion.

It was reported that Meyers drank some water trickling down the wall at

the entrance before entering for his stay at the underground camp. A discussion back in the United States between Steward and his medical director brought forth the suspicion that plant toxins in this water may have been the culprit in this illness. In any case, the drinking of unpurified water is a very foolish act in an isolated situation such as this where even a simple illness can create a tremendous rescue problem. It is fortunate that the EMT was present and that Meyers was able to recover sufficiently for self-rescue.

Rocky Butte Deep Cave, Oregon

Be – vertical gear jam
Spring A

On a Spring day two cavers were at Rocky Butte in east Portland, Oregon to do some rock climbing practice. The routes were full so they decided to map Rocky Butte Deep Cave. They climbed down into the entrance room and rigged the southern of two pits. Both descended this tight, 35-foot drop. The cave did not go much further and they were soon back at the rope to ascend.

Ed Kuedell went up the narrow rift with a lot of cursing and difficulty and his companion, Marc Murcell, knew his larger body was going to be a problem. He realized his chest harness roller would not fit so he got Kuedell to lower an ascender with a long foot loop. Murcell ascended about 20 feet, to where a large rock was wedged in place. The rope was bent over this and now Murcell had to push away to get an ascender past it. He could hardly move at all in the narrow space but managed to get an ascender past the rock. Unfortunately the 1-inch webbing attaching the other ascender to his seat harness jammed between the rope and the cam of the ascender above the rock.

Murcell could not move to unjam the webbing or climb over the rock by brute force. Kuedell descended and offered another ascender and loop. Murcell could only attach it either too high or too low to do any good. By now Murcell was nearly exhausted, but Kuedell was able to pull on the rope and webbing and free the jam. Murcell was helped over the rock and was soon out.

Reference: Marc Murcell "Local Caving at Rocky Butte" *Underground Express* (Willamette Valley Grotto, NSS) *13*:2 Spring, 1993 pp 3-4.

Comments: Murcell points out a bit of poor judgement in not better assessing the difficulty of the drop before going down. Indeed, going vertically into a body-sized opening is a dangerous scenario – it is very easy to slide down but it may take a come-along to get you out.

Unnamed Sinkhole, Tennessee

Bs – stuck
Spring B

In an unnamed sinkhole in Lincoln County, Tennessee, caver Doil Ward found a tight lead and pushed it a bit. On exiting he became stuck. The authorities were called and rescuers gave him an IV and oxygen and tried to insulate him with a blanket. Finally Huntsville cavers arrived and were able to free Ward by digging soil from under him.

Reference: Chuck Man-glesdorf "Rescue Roundup" *Speleonews* Winter 1993 pp 3-5.

Sharps Cave, West Virginia

Bx – exhausted caver
April 3 A

On Saturday, April 3, an annual gathering saw cavers from several NSS grottos at Sharps Cave in Pocahontas County, West Virginia. That afternoon several groups entered the cave. One group of 15 or 20 cavers of all experience levels spent about four hours touring the cave. When they went to exit, one man (42) was too tired to make the narrow 10-foot entrance climb. A seat harness and rope were fetched from nearby vehicles and the man was pulled up only 45 minutes after his climbing attempts.

Reference: Anon. "Sharps Cave" unpublished report undated, 1 p.

Mammoth Cave, Kentucky

Ao – ankle injury
April 3 B

On Saturday, April 3, a group of cavers entered the Carmichael Entrance of Mammoth Cave [National Park] in central Kentucky. They were heading for Echo River to clean up the remains of some old tour boats and rotting pier wood. At about 11:45 A.M. they were about 0.25 miles along Sillimans Avenue and about 2.5 miles from the entrance. At that point, Johnette Gentry stepped on a loose rock or into an unnoticed hole and severely twisted an ankle, collapsing to the ground. The group had become spread out, but those nearby helped Gentry assess the injury. The boot was left on for support and she was helped to her feet. Gentry wanted to continue but was over-ruled and it was decided that she should exit with help from another caver. The accompanying ranger, with the key to the gate, had to go with the victim also.

Halfway back to the Snowball Dining Room, the ranger went ahead for more help and a wheeled dolly. The victim and her assistant were to wait at the Dining Room – an elevator and a golf cart there were out of service. The victim waited there for 20 minutes but was getting cold and so they continued until met by a group returning with the dolly. Though it probably wasn't necessary, the victim was wheeled to near the entrance where she had to climb two flights of stairs, one of 15 steps and one of 182. An X-ray later determined that the ankle was only severely sprained.

Reference: Don Shofstall, Trip Report *The Petroglyph 29*:1 Jun, 1993, pp 18-22.

Semuc Champey, Altaverapaz, Guatemala

Be – loss of rope attachment
April 8 A

In April an NSS expedition was at the Semuc Champey in the Altaverapaz of Guatemala. This is a cave formed by springs depositing travertine and bridging the Cahabon River for a distance of about 1,000 feet. On Thursday, April 8, the group was attempting the sumidero

(submergence) entrance. There the 500+ cfs flow rages between vertical, overhung walls before being completely bridged over. The group had already descended the right-side overhang (looking in) and found a traversable ledge that ended a short way downstream. It appeared that there was a waterfall just ahead and that there is a ledge on the left side of the river that would give direct access to this falls.

A rope was rigged on the left overhang and Mike Frasier rappelled down. He was also attached to a polypropylene canal-line which led to a short ledge under the southside lip that cavers had already reached.

The rappel put Frasier directly over the center of the raging stream. The plan for the second line was to use it to swing Frasier to help him pendulum over to the ledge under the left-side overhang.

Frasier commenced to swing, just above water level, and tried a number of times to get a purchase on a large rock he could just barely reach. Finally he dropped a little lower and switched from rappel to his ascenders so he could more easily adjust his height. He swung a little and landed on a nearly-submerged rock near the middle of the torrent. He stood on this, precariously, while he unrigged his rack. This done, he started to attach his ascenders but inadvertantly let go of the rope. It swung away, and stopped, out of reach.

Frasier was still attached to the canal-line, but this went horizontally to the right side ledge and would not keep him out of the stream if he slipped off the rock. He would be tethered in the turbulance and most likely drown. If he cast loose of the rope after slipping he would go over the falls.

Frasier was left to keep his balance while those on the left overhang frantically rigged a second rope, sent a caver down and were able to swing the original rope back to him. Frasier caught it and clipped on.

Reference: Steve Knutson "Semuc Champey" *NSS News 52*:9 Sep, 1994 pp 266-271, 286.

Comments: River caving requires special considerations. A primary requirement is to never leave yourself without some point of attachment in this sort of situation. Caves are hungry – this one almost ate Mike Frasier.

Stephens Gap Cave, Alabama

Be – rack problem
April 8 B

On Thursday, April 8, a group of four experienced cavers visited Stephens Gap Cave, Jackson County, Alabama. The cave is a 150-foot pit with a passage 30 feet from the bottom which leads to a second, horizontal entrance. To use the second entrance cavers must stop their descent at a ledge. The rope hangs 15 feet from the ledge so a length of webbing was tied to the ledge with the other end clipped with a carabiner to the main line. One could pull oneself, or be pulled, to the ledge when descending. One caver decided not to do the drop. The other three each descended and exited the lower entrance.

The three cavers went back to the upper entrance for another through trip. On this descent, one caver (21) decided to rappel to the bottom and ascend the pit. This required stopping just short of the carabiner and locking off the rack. This then enabled the carabiner to be unclipped and re-attached to the main line above the rack, allowing the descent to continue.

At the top the caver unrigged one of the five bars of his rack to negotiate a ten-foot-long velcroed rope pad. After passing this a loud "pop" was heard. The fourth bar was now unrigged as well. With a leg wrap and the control hand "in a fist shoved against the rack" the descent was stopped 10 feet below the ledge, apparently having taken all the slack out of the webbing attached to the ledge. A companion had to release the webbing at the ledge to allow the caver to finish his descent.

Reference: Anon. "Stephens Gap Cave" unpublished report undated, 2 pp.

Comments: The caver is left-handed and the rack was positioned on his seat harness carabiner so that it opened to the left. The bars, with slanted groves, were threaded onto the short side of the rack and not passed around the curved end (they wouldn't fit) – thus they latched onto the long side of the rack. The first bar, at the top curve of the rack was threaded so that the rope came into the rack from the bottom to start the weave between bars. This left the fourth bar so that it opened toward the caver. This caver had positioned the rope over the open end of the rack so that it applied pressure to the stub of the fourth bar outside the left edge of the rack and pivoted the bar open.

The caver advises having the rack on edge to the rappeller, with the locknut (short) side of the rack away from the body. Thus with the control hand anywhere at your side or behind you, the rope can't cause the problem encountered above.

Many seat harnesses, however, have separate leg and waist loops, so that the carabiner or quick-link joining them will have its plane perpendicular (on edge) to the caver. Such an attached rack will assume a position so that the bars open toward or away from the caver. I think keeping the control hand relatively close to the rack and the rope below the rack running between the two rack sides should prevent this type of problem with the rack in this configuration.

Rockpile Caves, California

Be – inability to ascend
April 19

On Saturday, April 19, a group of cavers visited the Rockpile Caves in the foothills of the Sierra-Nevada Mountains in central California. The cavers were of varied amounts of experience. The caves are mainly pits and are known to have bad air in the lower levels. One pit was done and the cavers rigged a second. The known depth of this pit was such that they suspected the rope might be too short. The leader of the group selected an experienced caver who stated he had practiced changing over from descent to ascent without getting off the rope.

The caver rappelled and indeed found the rope to be about three feet short. He switched to ascent and started up but in an hour had made almost no progress. Another rope was on hand so the leader rigged this and descended. He found the caver had two Gibbs ascenders in a Frog setup, but no chest harness or bungie loop. The leader tied some webbing as a chest harness and the caver was able to ascend.

Reference: Bryce Nesbitt "Rockpile Caves, California" unpublished report Jun 14, 1994, 1 p.

Comments: The caver had done a change-over in practice only with borrowed gear. Just before the trip he bought the Gibbs ascenders which he had never used. Nesbitt found that one needs to question stated experience and says "the leader should not feel inhibited asking cavers to demonstrate competence before entering a potentially tricky situation." The leader apparently did a fine job of handling the difficult situation.

Pompeys Cave, New York

Be – clothing
April 24 A

On Saturday, April 24, a group entered Pompeys Cave in Ulster County, New York. This was an Intercollegiate Outing Club Association trip and included four experienced cavers, one of whom was the leader. As one might expect, it also included beginners dressed in jeans, sweatshirts, and/or sweaters.

The main passage of the cave has a "good-sized" stream. In the middle of the cave the stream flows under a few large blocks in two parallel, low, wet passages to continue to a small breakdown room. There a constriction connects to the upstream portion of the cave. On this date the low passages had one and a half feet of fast-flowing water and six inches of air space.

The leader proceeded up the left-hand low passage, intending to do this alone, just to illuminate the room above. Several of the group chose to follow. The low section was only five feet long but required submerging part of one's face to traverse. No one had any trouble going up. With the leader at the upper end and an assistant at the lower end, they returned, letting the current carry them along. One had her sweater catch on a projection and was held with only her face above water. The leader, still upstream of her, was alerted by a caver downstream and was able to reach in and free the sweater. They continued without further incident.

Reference: Steve McLuckie, NSS Incident Report 2 pp.

Comments: The leader feels the situation, though unusual for a beginners' trip, did not expose the novices to any significant danger. This may be true, but flowing water is a very powerful, hazardous element and should be given the greatest respect.

New Sinkhole, New Jersey

AAr – surface collapse
April 24 B

On April 24, it is reported that a boy (7) was running across a yard when a hole opened beneath his feet. Reportedly his father could not pull him out before he disappeared into the collapse. For awhile there was voice contact with the victim and the authorities were called in to help. After seven hours of digging the boy was found dead in "an underground cavern formed by tree stumps and other debris eight feet below the surface."

Reference: Editor *Northeastern Caver* Sep 1993, p 77, from an article in the *Morning Call* of Allentown, Penn.

Eldon French Cave, Massachusetts

Cc – short fall
May 15

On Saturday, May 15, a group of eight cavers entered Eldon French Cave in Berkshire County, Massachusetts, as a field trip of the Spring North Region Organization, NSS. At one point in the cave Steve McLuckie was chimnying in a canyon passage about 18 to 24 inches wide. Where this passage intersected a room McLuckie started down, observing that the walls were widening a little. Suddenly he lost his holds and fell six to eight feet, landing on his feet and going to a sitting position. He was uninjured except for scrapes on two knuckles.

Reference: Steve McLuckie, NSS Accident Report 1 p.

Comments: McLuckie was lucky. Chimnying is a mode of climbing that can be deceptive – if you are using friction on smooth walls it is hard to know how secure you are.

Lechuguilla Cave, New Mexico

Ac – caver fall
May 16

On Saturday, May 15, a group of cavers entered Lechuguilla Cave in the Guadalupe Mountains of southern New Mexico. The cave has over 60 miles of passage and it is common for cavers to enter with bivouac gear for a stay of several days, as this group intended. The cavers proceeded to a bivouac site at the Deep Seas, reaching it at about 7:00 P.M. They left their camp gear, rested briefly, and headed into the Western Borehole to do some photography and acclimatize to the warm conditions in the cave. They returned to camp and were in bed by midnight. Their sleep was disturbed by the arrival of a second group of four and their noisy dinner at 12:30 A.M.

The next morning the cavers split up into three equal mapping teams. They agreed on a common meeting place at station EY 95. One team, led by Peter Jones (42) and including John Rowland and Doug Kent, left camp at 11:00 A.M. and just before noon had arrived at the Leaning Tower of Lechuguilla, the farthest Jones had been in the cave. As the group were supposed to depart the main route at around EY 75, Jones decided to find a station and see how far they had to go. He spotted the blue of a survey marker on a small hill just beyond the Tower and found it was EY 69. As he came back down the slope, he placed his left foot on a solid surface with knobby projections. In stepping down, however, his right foot came down on loose material and it shot away, causing him to twist and distort the left leg and ankle – his left boot had a too-firm grip on the surface.

There was immediate pain, but Jones hoped it was just a sprain and would be OK after some rest. He dispatched Kent to return to camp and retreive the bivouac gear. Rowland had EMT experience. He removed the boot and started devising a splint for it. Several of the others arrived and they made a splint out of pieces of thin foam pad, gauze, Duct tape and the outer plastic covers of one of the survey books, cut into an "L" shape. The boot was then replaced, and tied loosely. They decided to have Jones move toward the entrance instead of bivouacing there. Jones tried hobbling with support from companions on either

side but it was immediately obvious that this wouldn't work. When he tried crawling, he found that it did not cause pain if he held his injured limb up. At 4:00 P.M. he headed back down the Borehole, crawling.

At one place there was a steep slope with some exposure and few holds so he was given a belay and helped with the holds. The group made good progress and by 6:00 P.M. were back to the start of the Western Borehole, the ABCs Room. The passage now narrowed and involved more up and down climbing and ropework. At the first exposed downclimb Jones found a way around. On one he rappelled/crawled down. On the Cornflakes Climb he was able to climb/crawl down with some spotting from his companions. He arrived back at the Deep Seas bivouac at 7:00 P.M.

It was decided that Jones should continue to the bottom of the rope climb of the Great White Way, a difficult obstacle best attacked when he was fresh in the morning. This area was familiar to Jones and he reflected on how he had helped Emily Davis Mobely through this same passage two years before. At one point he noticed a boot heel, no doubt lost from an overworked pair of caving boots. A little while later he saw another, but quickly realized the odds against this. The party had gone in a circle around the top of the Fortress of Chaos. They got back on route and in an hour were at the bottom of the Great White Way. Another hour later the bivouac gear arrived. Jones was fed and went to bed.

At around 10:00 A.M. he started up the Great White Way, using a "combination Frog/Mitchell system" that allowed a secure ascent while using only one leg. It reqiuired two hours for the ascent. After a rest, the traverse through the Rift went smoothly as the walls in several places were sufficiently close together to allow Jones to hobble through supporting himself. By 1:00 P.M. he had reached the start of the Rift. There he rested for 15 minutes. He then proceeded on a slow, steady climb to the bottom of Boulder Falls, a long rope climb.

A group had been detached to exit and inform the Park Service of the self-rescue in progress and pass on a request for crutches, for use after Jones exited the cave. The climb of Boulder Falls started at 4:00 P.M. and took 25 minutes to complete. The remainder was relatively easy and straightforward. Jones reached the entrance at about 5:30 P.M. Crutches were not available and Jones hobbled to the vehicles supported by two companions. Part way there the Park Service arrived with a wheeled litter and Jones' ordeal was over. When he reached a medical center it was determined that he had sufferred a fractured fibula in his left leg.

Reference: Peter Jones "The Lechuguillan Self-Rescue" *Rocky Mountain Caving 10*:1 Winter 1993, pp 12-14; also presented as an NSS Accident Report, 7 pp.

Comments: Two years previously, Emily Davis Mobely suffered a broken leg in the same region of the cave resulting in a several-day evacuation. Yet Jones was able to self rescue. Jones explains this: "I effectively broke my "ankle" and was able to keep it raised and make use of my knees to crawl out on my own. Emily effectively broke her "knee" and could obviously not use it in her own exiting of the cave. Had I broken that part of my leg, I would have required very much the same rescue that she did."

As Jones also points out, his 25 years of caving experience and practice of vertical work gave him the confidence that this could be done. They tried to make use of a rescue cache in the cave but found it "to be woefully inadequate." There was no splinting material and much of the contents were moldy and out-of-date.

Jones feels that the blisters he accumulated on his knees might have been less severe if he had had some Mole Skin to apply to his knees for abrasion protection. He had knee pads, but they rubbed and eventually caused blisters. Jones also commends his companions, some of whom had NCRC and EMT training and experience which was very handy.

Buffalo Creek Cave, Kentucky

Ba – acetylene problem
May 29

On Memorial Day weekend a group of five cavers entered Buffalo Creek Cave in Mammoth Cave National Park in Kentucky. All were experienced cavers. The cave has two miles of passage including a lot with walking height and 200 feet with swimming depth water. The group was prepared for this. However, shortly after doing the swim, the smell of acetylene impurities was noticed and one caver noticed her cave pack was the culprit, having swelled a bit and emiting the offensive odor.

This caver had not put her carbide in a waterproof container and now, discovering that it was contaminated with water and would continue to outgas, wondered if she should dump it in the water. Fortunately the others realized that a pound of carbide dumped in the water all at once might provide enough acetylene for a tremendous explosion, assuming the nearest caver with a lit lamp was a ways away.

Reference: Steve McLuckie "How much do you see" *Northeastern Caver* Sep 1994 pp 85-86.

Comments: McLuckie comments on the fact that this caver knew how to use a carbide lamp but didn't really understand what carbide and acetylene were all about. While she was not a novice, the caver obviously lacked some essential information about carbide lamps. Decent training should have prevented this incident.

Buzzard Roost Cave, Kentucky

Ac, AAs – caver fall, stuck
May 30 A, May 30 B

At about 4:30 P.M. on Sunday, May 30, a group of seven entered Buzzard Roost Cave in Barren County near Cave City in south-central Kentucky. The group consisted of six tourists and cave guide, Dave Hardin, on a "wild cave tour," a paid spelunking adventure. Hardin was also the manager of the cave. Buzzard Roost Cave is a commercial cave with a lighted tour route; the wild tour section is entered via a narrow crawlway and contains crawls and climbs. The two climbs were permanently fixed with homemade cable ladders. None of the tourists had helmets and each was given two flashlights as a light source.

The group went through the initial breakdown crawl, up a narrow, tight slot and down 25-foot and 42-foot pits on cable ladders to the Big Room. They continued exploring for about three

hours and arrived back at the 42-foot pit on their way out. The guide left them at this point, explaining that the tour was running late and he had to check in on the surface. The tourists were told that if they were not out in 45 minutes he would come back for them.

Two of the group made it up, but when William Coughlin (27) tried, he could not get past a rock outcropping halfway up. He backed down and two more companions went up. Coughlin tried again with the same result. Two at the top headed out at this point. At about 7:00 P.M., Coughlin tried a third time but lost his grip at the outcrop and fell. His back hit a ledge partway down and his head hit a rock at the bottom, causing a two-inch scalp cut, but he was apparently otherwise uninjured. The cut reportedly bled profusely. The two at the top were told to get help. They exited and found Hardin who returned.

They decided Coughlin was alright and could get out of the cave on his own. With companions "pushing and pulling" he managed to get up the pit. Coughlin was belayed and similarly helped up the 25-foot ladder but when he tried to descend the V-floored slot head-first, he slipped and became stuck. He was the largest of the group, at 6 feet 2 inches and 230 pounds. One caver in front of Coughlin remained with him while the other three on the entrance side exited.

At about 10:30 P.M. the three called the Cave City Volunteer Fire Department. Other rescuers were mobilized and worked through the night trying to free the victim. The cave is cold for a Kentucky cave with a temperature of 44° F. The victim apparently became hypothermic and did not respond to questions after 1:00 A.M. Rescuers attempted to enlarge the hole but the area was too unstable. The head cut was treated and oxygen was administered. One very slim caver was able to squeeze over the victim and work from the in-cave side. At about 5:00 A.M. the victim was declared dead.

At 6:30 A.M. a crew of small cavers was obtained from the nearby Kentucky Speleofest, held at Smiths Grove. The body removal proved to be a difficult, strenuous job and the victim was not freed until 12:45 P.M. The Kentucky Medical Examiner listed the cause of death as "compressive and positional asphyxia." In lay terms, the lower body weighed upon the diaphram and chest and Coughlin was eventually unable to breathe, in his head-down position.

References:

1. Steve Gentry "Cave Death in Kentucky" *The Petroglyph 29*:1 Jun 1993 pp 30-32.
2. Gary Gibula and Ralph Erlandson "Accident Report, Buzzards Roost Cave, Ky" *The Windy City Speleonews* 33 Aug, 1993 pp 66, 69.
3. Dave Kligman "Caver criticizes cavern's owners in friend's death" *Chattanooga Times* Jun 4, 1993.
4. Steve Chaplin "1 of 3 trapped in cave dies" *Daily News* May 31, 1993, p 1.
5. Chris Poore "Tourist trapped in Cave City cave dies" *Lexington Herald Leader* Jun 1, 1993 p 1, A6.
6. AP "Cave guide speaks out about death" *Lexington Herald Leader* Jun 6, 1993.
7. Kirsten Haukebo "Caves like one where man died are unregulated" *Louisville Courier Journal* Jun ?, 1993 p B1.
8. Editor "Cave Mishap Fatally Injures Illinois Man" *Alabama Underground* Aug-Sep, 1993, pp 17-19.
9. AP "Caver who died was part of group seeking challenge" *Lexington Herald-Leader* Jun 3, 1993.
10. Kirsten Haukebo "Negligence Blamed for Death on Cave Tour" *Louisville Courier-Journal* Sep 16, 1993; reprinted in *CIG Newsletter* Dec 1993, p 180.

Comments: Hardin stated in an interview that "If I had to make the decisions today, I probably would make all those decisions exactly like I did." He also is paraphrased as having said "they all were appropriately dressed and had enough light." On September 15th a jury in a coroner's inquest ruled that negligent management was responsible for Coughlin's death.

There are a number of factors that probably contributed to this incident.

1. The spelunkers had no helmets.
2. Belays should always be used when climbing cable ladders.
3. The victim was wearing tennis shoes, which probably did not offer the purchase on ladder rungs that boots would have.
4. They had only hand-held lights. This meant that someone climbing a ladder would only have illumination from a companion above and/or below.
5. The spelunkers were left to their own devices by their guide at the point when they were tired and most susceptible to an accident.
6. The victim was head-down in the slot, and had entered the descent in this orientation apparently on advice from his guide.
7. Once the initial fall occurred, a decision was made to exit the cave. If outside rescue had been called at this time the result could easily have been different.
8. The spelunkers were dressed in "light, casual clothing." A 44° cave is a serious hypothermia risk and requires caving suits and thermal underwear.
9. It was suggested that the victim's grip would have been better if he had been wearing gloves. If his hands were cold this is probably true. Many cavers take gloves off when climbing to have better dexterity. It may be that a warm hand can grip better without gloves.
10. With tourist cavers the experience level is probably low and individuals are poorly equipped to assess their exposure to danger, state of exhaustion, quality of equipment, equipment and techniques required, and the like. It is thus imperative that they be treated as novices and closely supervised.

Once Coughlin was stuck, head-down, it may be that he was doomed. Testimony at the coroner's inquest stated that the methods used to remove the body could not have been used on a live victim for fear of injury. Other opinion is that he might have been got out if NCRC-trained caver rescuers had been called promptly.

Buzzards Roost Cave, Kentucky

Bt – trapped
May 30 C

In the incident described above (May 30 A), Troy Storlie (26) and Dave Hardin, the tour guide. were trapped on the in-cave side of the stuck caver, William Coughlin, and had to spend the night in that situation. There was a small open space above the trapped man and rescue workers were able to pass blankets, hot food, hot coffee and chemical heat packs to them. They were freed

when the body was removed at about 12:30 P.M. the next day.

References: See May 30 A.

Gargantua Cave, Alberta, Canada

Ar – rockfall
June

In June a party of seven was doing a pull-down through trip of Gargantua Cave above Crowsnest Pass in southern Alberta, Canada.

At one pitch, Martha Fleming was struck in the back by rockfall. She reportedly "twitched like the robot in Terminator." The group was able to get her on out of the cave in an 11-hour effort. She had suffered two fractured vertebrae and a bruised kidney. There was reportedly no direct cause of the rockfall.

Reference: Taco Van Iperen, personal communication, Apr, 1994.

Zartman Cave, Alaska

Bc – caver fall
June 23

On Wednesday, June 23, Greg Zartman and Kevin Boston, two engineers, were doing preliminary survey for a proposed road on Chichagof Island, about 200 miles north of Prince of Wales Island in Alaska. Zartman was backing through thick brush, presumably trying to keep his eyes on the last station, when he suddenly fell into space. He grabbed the brush and stopped his fall, just over the edge of what later proved to be a 100-foot-deep pit. He called to Boston and his partner ran to him and helped him back up over the brink. A second entrance was later found to the cave below and it was named for the near-victim.

Reference: Mark Henderson "Another one for Alaska" *Underground Express* (Willamette Valley Grotto, NSS) *13*:4 Fall, 1993 p 6.

Perkins Cave, Missouri

Be – lost, bad light
June 26 A

At about 2:00 P.M. on Saturday, June 26, two men, Jim McAdams (26) and Don Young (28), were fishing and drinking with three companions. They decided to go spelunking and drinking and entered a cave they had seen from the road, Perkins Cave in Camden County, Missouri. They were equipped with only one light, a flashlight, and a small cooler containing a six-pack of beer. They were dressed in jeans and t-shirts; one wore tennis shoes, the other cowboy boots. The cave is very wet and muddy.

As they explored they got wet and soon became cold and tired. As their flashlight batteries drained, the light waned and they lost the way. At 8:00 P.M. they gave up hope of finding their own way out. They sat down and waited for help.

In the afternoon three of their companions, who had continued to fish in the nearby creek, became concerned. At 5:00 P.M. they entered with a single flashlight and went as far as the Name Room area before giving up, wet, muddy, and cold. They left and called the Camden County Sheriff's Office.

Three cavers from Lake Ozark Grotto were called by the Sheriff's Office. At around 9:15 P.M. they entered and began to sweep the cave. Empty beer cans were soon encountered. They found several rimstone dams full of water – the previous Friday's rain had made the cave wetter that usual. They continued past the Name Room and the Canoe Room, checking every nook and cranny. At 10:25 they finally found the lost spelunkers a few hundred yards from the end of the cave. Their light was out and McAdams was shivering uncontrollably.

The spelunkers were each given a dry shirt and McAdams was fitted with a garbage bag with a head hole. Two carbide lamps were placed inside the bag to add warmth. They were given water and some candy. When McAdams had warmed up, they were given lights and the group started out. The rescuers stopped occasionally to reassess the victims. They exited the cave a little after 11:00 P.M.

References:

1. Jim Troyer "Rescue in the Dark" *Lake Sun Leader 114*:129 Jul 2-3, 1993 p 1, 12.
2. Ken Olive "Ozark Vertical Rope Rescue Incident Report" unpublished report Jun 27, 1993, 6 pp.
3. Ken Olive "Hey Mr Bartender: A 6-Pack of Beer, One Flashlight, and a Cave to go" *Ozark Speleograph 20*:3,4 Jul-Dec 1993, pp 2-4.

Comments: Olive feels that another two hours in the cave would have made McAdams a litter case.

Crossroads Cave, Virginia

Ae – inverted ascent
June 26 B

At about 11:00 A.M. on Saturday, June 26, a group of five cavers entered Crossroads Cave near Woodland Church in Bath County, Virginia. On a previous trip an unexplored rift had been found about 10,000 feet from the entrance. The group had brought ropes in order to push this lead. The rift proved to be about 200 feet long with a 30-foot rope drop at the end. At about 3:30 P.M. the group was exiting and Earl Copp (38) started up this drop. Unfortunately, he failed to rig the main line into his chest harness. Apparently he only got up about a step or two before losing his grip on the rope and inverting. In the processs a shoulder struck the wall and became dislocated. His companions freed him from the rope and made him as comfortable as possible. He was in pain and unable to proceed under his own power so two went for help.

It so happened that the Eastern Region of the National Cave Rescue Commission (NCRC) was finishing a week-long cave rescue class at Dailey, West Virginia. These rescuers, including an expert in orthopedic joint trauma, were mobilized. They arrived at the cave at 10:00 P.M. and reached the victim about midnight. They rigged the pit for hauling and the fissure passages with a high line. By 6:00 A.M. Sunday they had moved Copp, packeged in just his seat harness, up the pit and along the fissure passage, which had to be traversed at the top. When he was put in a litter the pain was increased considerably and morphine was administered. When this

had taken effect, they moved him "through a tough spot and into a room."

At this point Dr Keith Conover, the joint expert, reduced the dislocation and after some rest the victim was in much less pain. The arm and shoulder were immobilized and the victim could now move, with help from rescuers, under his own power. There were numerous breakdown slopes, vertical constrictions and other obstacles to overcome to gain the entrance. At an 8-foot pitch Copp Jumared one-handed with a belay for safety. He reached the entrance at 9:45 A.M. Sunday. He had suffered a broken humerus as well as the dislocated shoulder.

References:

1. Greg Springer "Crossroads Cave Rescue" *The West Virginia Caver 11*:4 Aug, 1993, pp 9-10.
2. Editor "Cave Rescue at Crossroads Cave, Virginia" *Subterranean Sun* Jun/Jul 1993, p 9. (Excerpted from *Carbide Dump 28*:7 July 1993.)
3. Margo Oxendine "Crossroads Rescue" *The Groundhog* (Shenandoah Valley Grotto, NSS) Jul, 1993 pp 5-6; also in *Subterranean Sun* (Sligo Grotto, NSS) *23*:3 Sep/Oct 1993 pp 8-9.

Comments: The bad news is that you are in agony and can't make it out of the cave; the good news is that National Cave Rescue Commission has just finished a rescue training session not far away. The NCRC group had reportedly just been served a celebratory meal at a steak house when the call came. All 85 volunteered for the rescue and left.

Kelly Ridge Cave, Tennessee

Ac – caver fall
June 28

On Monday, June 26, a group was doing rescue training in Kelly Ridge Cave in the Great Smokey Mountains near Townsend, Tennessee. The cave has a depth of 570 feet. At a point about 300 feet into the cave, Tim Williams (23) was climbing down a slope and a rock he was using as a hand hold gave way. He fell about 25 feet and landed in a stream passage with the rock landing on one of his legs. It appeared that he had suffered a broken leg. He was attended to by his companions while some exited to notify the authoruities and call for outside assistence.

Local fire departments, rescue squads, and National Park Service personnel responded and the victim was extricated about nine hours after the accident. He was taken to a hospital by a helicoptor. The leg proved to be only severely bruised.

Reference: Chuck Man-gelsdorf "Rescue Roundup" *Speleonews* Winter 1993 pp 3-5.

Bowden Cave, West Virginia

Bl – lost,
Summer

Apparently sometime in early summer three spelunkers (two males, one female) entered Bowden Cave in Randolph County, West Virginia. They either used up their lights or just became lost. NCRC rescuers found the three In the Big Room, only 200 feet from the entrance 18 hours after they had entered. They were reportedly burning their clothes to stay warm.

Reference: George Dasher "Rockin' Chair" *The West Virginia Caver 12*:5 Oct 1994 p 13.

Marshalls Cave, Virginia

Ac – caver fall
July 3

On Saturday evening, July 3, a group of six cavers entered Marshalls Cave in Highland County, Virginia. They were not familiar with the cave, but had been told that it wasn't difficult to explore. Finding the main passage to the back of the cave required exploring a number of other leads. The correct route involved a 25-foot pit which was rigged with a length of webbing to use as a handline. Two of the group returned to the entrance at this point.

A canyon passage continued, floored with water and deep mud. They traversed this by climbing along the wall, about three feet up. Some of the group had completed this and had gone up a short climb into a passage leading to the Big Room. Jason Kyler (21) was coming last along the traverse when a loud "pop" was heard and Kyler said, "Oh, shit!" His left foot had slipped off a hold and caught again, twisting and injuring the ankle.

His nearest companion was Garrett Czmor, 20 feet away, who asked Kyler if he was alright. Kyler replied that it really hurt and he felt faint. Czmor struggled back through the mud, yelling that Kyler should put his feet in the water and lean back against the wall, so he wouldn't collapse in the water. Kyler didn't faint. He soon recovered his senses and the others were called back. They examined the leg, and suspected a tendon torn just above the ankle. One person was sent out of the cave, found the two who had already exited and made a call to the NCRC. They also went to nearby Butler Cave to get help from the cavers there.

The cavers with the victim waited an hour and then decided to get the Kyler out of the wet passage. They were able to help him along, with one in front and one behind, and were soon back at the pit. After waiting another hour, Kyler was becoming cold so they helped him up the pit and and soon made it out to the entrance.

A rescuer with a rope and a large first aid kit arrived and a splint was fashioned and fixed in place with duct tape. The victim was then belayed by one caver while the other two descended just in front of Kyler down the 200 foot talus slope outside the entrance. A rain had made the rocks very slick and they did a lot of sliding on their back sides. A road was some distance away and they first tried letting the victim hobble along with the aid of a crutch made from a tree limb. This proved too painful so cavers made a drag litter and proceeded some distance before becoming exhausted. The victim insisted on continuing by crawling before additional help arrived and the carry was completed. It was dawn when the rescuers got back to their camp. X-rays showed no broken bones.

References:

1. Garrett Czmor "Accident Report on Marshalls Cave" unpublished report 2 pp.
2. Garrett Czmor "1993 Summer Grotto Trip to Virginia" *The Cave Hunter* (Huntingdon County Cave Hunters Grotto, NSS) *9*:2 Aug 1993.

Comments:
This is one of the more common injuries in caving and the group certainly did a good job of self rescue when it became apparent that it should be done. Czmor points out that self rescue is something that should be carefully considered: Do you have the resources and ability to carry it off? Will the condition of the victim allow it?

Triple-J Cave, Indiana

Bl – lost
July 10

At about 5:00 P.M. on Saturday, July 10, a group of three people, Eric and Mike Fehlauer (25 and 17) and Leigh Ann Vaughn (22), entered the Triple-J entrance to the Triple-J/King Blair/Brinnegar Cave System near Bloomington, Indiana. They proceeded to a point near the connection to the Brinnegar section of the cave. There they became confused. They were already wet and becoming cold. They decided to wait for help rather than continue until their energy was used up. They wrung out their socks and wet clothes, insulated themselves from the floor, and huddled together for warmth. They soon had consumed their store of food but rationed their water supply.

When the trio failed to return home that weekend, their parents called the State Police who called local cavers. On Monday their vehicle was found outside Buckners Cave and a quick search of that cave was done, to no avail. Fortunately, cavers had clues to their location, since one had heard the clerk in a caving supply store give them directions to Triple-J Cave.

One rescue crew was organized to go in Triple-J while a second searched in King Blair. The Triple-J crew found footprints going in the seldom-visited entrance and were encouraged. They entered at 7:30 P.M. Monday and found the victims at about 9:00 P.M., cold but in good condition. They were given heat packs and all the water the rescuers had. At 9:12 they started for the entrance and were out by 10:45 P.M. They had been in the cave almost 54 hours.

Reference: Anmar Mirza "Bloomington Cave Rescue" Electronic Mail, Caver Forum Jul 13, 1993.

Laural Caverns, Pennsylvania

Ac – caver fall
July 11

On Sunday, July 11, a group of four was spelunking in Laural Caverns in Fayette County, Pennsylvania. After about an hour and a half in the cave, they had made their way to the Post Office, about 3,000 feet from and 300 feet below the entrance. One of the group, Kelly McKenzie, slipped, landed on the sloping rock below the Post Office and fell another ten feet into the crack between that rock and the wall. When her companions reached her they found she had suffered head, arm, and knee injuries and was unconscious.

Meanwhile the Western Maryland Grotto, NSS, was sponsoring an NCRC Basic Cave Rescue Orientation in the cave with 25 students carrying out a practice rescue. They were proceeding with a mock victim in a litter and had reached the Ballroom when word came of the real victim. One caver exited to make calls for additional manpower and others headed for the Post Office.

Rescuers soon reached McKenzie to find her conscious, but disoriented and amnesiac. They feared a head injury and soon had her packaged and transportation underway. This was slowed by breakdown and the ascents (apparently non-roped) required. Resscuers had the litter handlers line up, then pass the litter along on their laps, then leapfrog the crew and repeat the action. About every ten minutes they would check the victim's vital signs. She appeared to improve as they went along.

When they were about halfway out a rescue helicoptor arrived outside, bringing two doctors. They entered and asssessed the victim. The extrication continued and was completed about seven hours after the accident. McKenzie was found to have suffered fractures to both arms and various bruises.

References:

1. Editor "Spelunker picks right time to fall" *Dead Dog Dispatch* 8:8 Aug 1993, p 129; from an Associated Press article in *The Herald Mail* (Hagerstown, Md) Jul 12, 1993.
2. Jim Kennedy "Laural's rescue report" *The Loyalhanna Troglodyte* 7:1 Fall 1993 pp 16-17.

Comments: Perhaps incidents like this are to remind us that caves are hazardous even with rescuers nearby.

Cliff Cave, Missouri

AAf – flood
July 23

On Friday, July 23, a group entered Cliff Cave in Cliff Cave County Park in Saint Louis County, Missouri. They were adult counselors and boys, wards of the state, all from Saint Joseph's Home for troubled youths, run by Catholic Charities of the Saint Louis, Missouri, Archdiocese. Others from the Home had explored the 1,500-foot cave earlier in the week. Since that trip, however, the park had been closed with barricades erected at the driveway entrance because of flooding of the nearby Mississippi River. The flooding affected the low lying areas of the park, not the cave. This group had passed the barriers and walked almost a mile to reach the cave. Before they entered the cave, a neighbor had apparently stopped by and warned one of the counselors of the flood danger, especially with the given forecast of thunderstorms. Some distance from the entrance, and a bit higher, are sinkholes, one with a normally dry streambed leading to it. Moreover, the soils were saturated from recent rains. The cave usually carries a few inches of water flow from the back part of the cave to a resurgence at the entrance.

Apparently a large group entered the cave but some turned back a short way in at the end of walking passage. Seven, two adults (one male, one female) and five boys (10 or 11), continued. The boys reportedly asked the counselors if the cave was safe, if water could get in, and were told that it could not. The Home later reported that before arranging the trips they had met with a park ranger who had not said anything about the cave being dangerous or conveying flood water during storms. There was heavy rain that afternoon.

As the group penetrated deep into the cave they encountered ankle deep water.

Suddenly there was a noise which quickly became the sound of a "freight train" coming toward them. Some yelled that the water was rising and then the flood swept them away. Gary Mahr (13) found himself underwater but somehow heard the advice once given him by a lifeguard aunt: "Don't panic!" He held his breath and finally reached the surface. Grabbing wildly, he encountered a ledge of rock and clung to it. Others were screaming in panic, but after a bit it was quiet. He watched bodies float past.

Those outside eventually went for help and rescuers soon arrived. The bodies of two boys and a counseler were found outside amid logs and debris washed from the entrance. Another boy's body was encountered about 1,000 feet inside the cave, past several waterfalls, by rescuers who braved waist-deep water. The high water prevented a thorough search. Local cavers continued the search the next day and to their surprise found Mahr, still alive, 18 hours after the flood. The other two bodies were found later, in the cave.

References:

1. Editor "In the Media" *Dead Dog Dispatch* (Tri-State Grotto, NSS) *8*:8 Aug, 1993, pp 129-131; various newspaper clippings reprinted.
2. Editor "Group braves warnings – and six die" *The Groundhog* (Shenandoah Valley Grotto, NSS) Sep 1993 p 3.
3. AP "Floods claim camp counseler, 3 boys" *Marion Star* Jul 24, 1993.
4. Joel Laws "Caving Deaths Update" Electronic Mail, Cavers Forum Jul 26, 1993.
5. Dave Adams "Four Dead, Three Missing in South St Louis County Cave Flood" Electronic Mail, Cavers Forum Jul 24, 1993.

Comments: The ground in the area was already saturated and rain was predicted. To take novices into a cave under these conditions is surely irresponsible. Cavers helping in the rescue were reportedly angry that the group went in under existing conditions.

Organ Cave, West Virginia

Bl – lost cavers
July 24 A

At about 1:00 P.M. on Saturday, July 24, a large group entered the Lipps Entrance of the Organ Cave System, a 36-mile-long cave in southern Greenbrier County, West Virginia. These included two cavers John Gillespie (15) and Matt McDonald (17) along with several younger cavers and John's mother, Kathy. Their destination was Lipps Maze, about 40 minutes travel time from the Lipps Entrance.

At about 4:15 P.M. most of the group was tired and ready to leave but Gillespie and McDonald were not. They got permission to exit the commercial Organ Caves entrance about four hours to the east. Gillespie had been through this route twice before but not on his own. McDonald had started caving that summer and his experience in the Organ Cave System was limited.

They had trouble finding the Handley Room, about halfway along this route. When they found it, they stopped to rest, lighting several large all-day candles. They signed a register and indicated they thought they had it made. They then exited the room by the Flack-Handly Turnpike, an exposed bedrock ledge leading to the Flack Room. They were now off-route, heading down into the lower level of the cave. The vast majority of the standard Lipps-Organ route is in the upper level. They traveled downslope to the Fun Room, then went north, through Octopus Alley and to the Sarver Room. Eventually they went up the steep side of the Caldwell Syncline and into the Bone Room where they decided to get some sleep.

Meanwhile they had been missed and the first search was instituted at about 11:00 P.M. A group entered the commercial entrance and searched along the standard route to the Handley Room. They found the candles still burning and the note in the Handley Room register. Others searched from the Lipps Entrance to the Handley Room.

A second call-out brought in about 20 local cavers and the search was expanded. Two cavers were stationed at the Throne Room, a major junction along the upper streamway, as a communication aid and in case the lost cavers were on the move. The various groups were unsuccessful and exited the cave late Sunday afternoon. A small crew, including Gillespie's parents, entered with a dog (the family dog?) to see if the dog could track the lost cavers. There was concern at that point that the victims would become hypothermic. It was decided to do a saturation search and more cavers were called in.

That evening a note from the victims was found in the Sarver Room saying that they thought they now could find the way out and were proceeding back toward the Handley Room. One group of rescuers set out immediately for the Handley Room while another crew did a pass of the cave south toward the Handley Room. A crew of volunteer firemen was meanwhile stringing a telephone line down the Organ Mainstream.

At about 9:30 P.M. the lost cavers were found in the Handley Room. They were in good condition and were able to exit the cave on their own. A sweep was done to call off the various rescue groups and all exited the cave by 4:00 A.M. on Monday morning.

References:

1. Editor "Organ Rescue Callout" *D.C. Speleograph* Aug/Sep 1993 p 10.
2. George Dasher "WVACS Activities" *The West Virginia Caver* Dec 1993 p 17.
3. Greg Springer "Two Rescues in Brief . . ." Electronic Mail, Cavers Forum Jul 30 1993.
4. Bob Frostick to George Dasher, personal communication, Jul 1993.
5. Ed Swepston "Rescue in Organ Cave, July 25th and 26th, 1993" *The West Virginia Caver* Oct 1993, p 16.

Comments: Swepston points out that this is the second lost-caver rescue in Greenbrier County (see McClungs Cave, 1985) where the victims did not run out of light and continued to move about, making their rescue difficult. Here it proved to be impossible to outthink the lost cavers.

Dasher comments on the impressive number of cavers that not only knew the cave but knew the proper names for passages and rooms in the cave, making rescue organization and operations much easier.

Stairsteps Shafts, New York

Br – rockfall
July 24 B

On Saturday, July 24, a group of six cavers visited the Stairstep Shafts, a

multi-drop cave in New York. The first drop of this cave was at one time accessed via a crawlway entrance but five or six years previously the top of the pit had collapsed affording direct vertical access. A platform had been erected to make getting in and out of the steep-sided entrance pit easier and safer. This first drop is considered to have rockfall danger and the leader advised the first down to get off rope only when beyond the pit bottom, out of the rockfall zone. This first person down did not follow this advice and the leader advised him again when he also got down. The others were given the same message.

They continued down other drops and later returned to the entrance pit. One caver was ascending and a companion came into the rockfall zone and gave tension on the rope. Suddenly a rock slid from the sides above and fell. The caver on rope yelled as did the leader, below. The caver giving tension dove out of the way and a 70-pound slab landed where he had been standing. They continued without further incident.

Reference: Roland Vinyard, NSS Accident Report 2 pp.

Comments: Vinyard makes the point that no unusual conditions or human action caused the rockfall. This is probably one of those situations where there is simply a lot of potentially unstable rock and one is faced with either not doing the cave or minimizing the exposure to the danger as much as possible. The caver who narrowly escaped was defying this procedure and nearly paid for his indiscretion.

"Bottom belays" (giving tension), as illustrated here, can place the tensioner in what could be unneccessary danger. Practice your vertical work at home until you don't need such help – then go caving. Bottom belays should be given only in emergency situations.

Surprise Cave, New York

Dc – caver fall
July 25

On Sunday, July 25, a group of five entered Surprise Cave near Port Jervis, New York. They were led by an experienced caver; the others were two beginners and two very inexperienced cavers. The leader went in second, following one of the novices. After an hour of caving one of the beginners became afraid but was consoled and encouraged by one of the novices and was able to continue. About two hours later they came to the steep traverse leading to the Round Room.

The footing here was wet and slippery. They went across in a sitting position with their feet down the slope, with the leader going last. Nydia Morales (39), third in line, had trouble with footholds. The caver to her right told her to grab his foot but she suddenly slipped and fell. She fell some 10 to 15 feet, hitting the slope with her chin, chest and right side. Still, she landed on her feet and was only bruised. The leader climbed quickly down and asked her if she was all right. She was stunned but recovered and they continued out.

References:

1. Nydia Morales, NSS Accident Report, Oct 9, 1993 4 pp.
2. Peter Welles, unpublished report Dec 22, 1994.

Comments: I think that novices and beginners need close supervision; a ratio of four beginners to one leader is more than I would want in anything but a level, horizontal cave. On exposed traverses and climbs one should use a handline or belay.

Porters Cave, Virginia

Ar – rockfall
July 31 A

On Saturday, July 31, a group of five cavers was exploring in Porters Cave in Bath County, Virginia. They reached a point about 8,000 feet from the entrance. At about 1:30 PM., one of the group, Bryan Devary, was sitting on a rock ledge, waiting to descend a mud slope, when the ledge collapsed. He fell about 20 feet, landing on his back and suffering arm and leg injuries. He was pinned by the boulders which fell with him.

His companions tried to free him but could not. A rescue was initiated and the victim was freed from the rocks and evacuated from the cave by 6:30 A.M. Sunday. A particular problem was the Keyhole, a 75-foot length of 2- by 6-foot passage. A total of 134 rescuers were involved.

Reference: George Dasher "The Summers Cave Rescues" *The West Virginia Caver* Oct 1993, p 15.

Bone-Norman Cave, West Virginia

Bs – stuck caver
July 31 B

On Saturday, July 31, a group of ten cavers were doing a through-trip of Bone-Norman Cave in West Virginia. At a constriction called "The pinch" they had doubts that two of the group, Harry Fair and George O'Neill, would be able to make it. Three went through but when Fair tried, as speculated, he could not make it, though he tried several orientations. O'Neill then tried, failing several times but continuing to strip down until he was shirtless, greased with vaseline, and sliding on plastic laid down in the constriction. With one companion pulling and another pushing, he made it through. Fair had to retrace the route in, by himself.

Reference: Chuck Frostick "Bone-Norman" *The West Virginia Caver 11*:6 Dec, 1993 p 17.

Scott Hollow Cave, West Virginia

Bo – existing injury
August 7

On Thursday, August 5, two cavers entered Scott Hollow Cave, a 20-mile-long system in Monroe County, West Virginia. They intended a three day exploration and survey trip to the Birthday Pit area. Two cavers, Mike McFall and Michelle Bostic, entered and joined them at their upstream camp on Saturday to help with the survey. When Bostic arrived at the camp she was suffering abdominal discomfort in the area of the abdomen where she had had surgery six weeks before. Bostic was in good spirits and no one was alarmed at her problem. She stayed in camp with McFall that day while the other two did a tourist trip.

Sunday morning the original two broke camp first and had exited the cave by 11:00 A.M. The other two followed

later, with Bostic initially in good condition. As she progressed the pain increased and at Kansas, about 1.5 miles from the entrance, she was no longer able to walk. McFall exited at about 2:30 P.M. on Sunday to bring the news of her incapacitation.

The authorities were alerted and at 3:30 P.M. three cavers went back to the victim with hot packs, warm clothes and hot drinks. Rescuers soom followed and Bostic was packaged in a SKED, carried downstream to Middle Earth and up Mastodon Avenue to the entrance. The vertical culvert pipe was rigged for hauling and Bostic was put in a seat harness and brought up, at about 1:30 P.M. on Monday. About 100 cavers were involved in the rescue.

References:

1. Greg Springer "Scott Hollow Rescue . . ." Electronic Mail, Cavers Forum Aug 16, 1993.
2. Chris Anderson "Rescue in Scott Hollow Cave" *Ibid* Aug 17, 1993.
3. Mike Dore "Rescue in Scott Hollow Cave" *The West Virginia Caver* Oct 1993 p 17.

Huccacove Cave, Colorado

Ac – slight fall
August 12

On Thursday, August 12, Steve Reames and Jim Wilson, both of the Colorado Cave Rescue Network (CCRN), were teaching a short course in cave rescue to a group of 29 Explorer Scouts. This was to be followed by a practice transport in Huccacove Cave, Colorado. They split into two groups, Reames taking 15 students on a loop trip near the Steve-Tried-and-Died section of the cave while Wilson took 14 students to conduct a short mock search followed by the transport practice in the Buffalo Room.

Wilson's group started the transport work but at about 12:45 P.M., as they were lifting the volunteer patient onto the SKED, one of them, Casey Diaz (15), stumbled. She inadvertantly pulled the patient and several students toward her. Her foot caught between two rocks as she went down and companions fell on her left leg, forcing it down and hyperextending the knee. The students were left to insulate the victim against hypothermia while Wilson went to get Reames and the others.

When Reames reached the victim he examined the knee, finding it swollen and tender to the touch. There was pain response radial to the injury and Diaz was unable to apply any force to the ankle or knee without severe pain. She could possibly hobble on one leg but there was Angel Falls, a 30-foot exposed chimney ascent, and a steep 200-foot descent from the cave entrance to the road to be negotiated. Reames left to notify the El Paso County Search and Rescue to provide a haul team for the climb and scree slope. Two students were sent out to fetch cardboard for a splint and one of the scouts, an EMT, was placed in medical command. Two students were sent to the entrance for control there.

Wilson led the carry to the base of Angel Falls. A team from EPCSR arrived and set up a 1:1 haul with a haul team of eight in the passage nearby. A newly-installed ladder at Angel Falls aided in moving personnel up and down but interferred with the haul. Once the victim was up the pit the carry continued with most of the scouts now replaced by search and rescue personnel. Diaz reached the road at about 6:00 P.M.

Reference: Steave Reames "Colorado Cave Rescue Network Mission Report" Aug 18, 1993, 2 pp; also published in *Rocky Mountain Caving* Summer 1993 p 9.

Comments: As one might expect, the rescue was well done. Still, Reames says that the pain experienced by Diaz during the extrication has prompted them to consider using a spinal backboard for all such problems, regardless of injury.

Wolf River Cave, Tennessee

Bi – illness
August 16

At about 11:30 A.M. on Monday, August 16, a TV film crew of four and their support crew of six entered Wolf River Cave (Blowing Cave, Jaguar Cave) in Fentress County, Tennessee. The objective was to continue filming sites for a documentary on Patty Jo Watson. They had normal caving gear but were also burdened with heavy batteries and packs containing other film related equipment.

They proceeded across a stream several times, over several breakdown piles, up a steep, 50-foot, mud-covered breakdown pitch and through about 200 feet of three- to four-foot high crawlway. The group reached the Register Room at about 2:30 P.M. At this point one of the support crew, Ken Carstens (45), told the others he felt "ill" and "dizzy."

The group allowed him to rest and the two most-knowledgable left to find the easiest way to the Aborigine Avenue, a filming objective. However, within moments of sitting down to have some food, Carstens felt worse and felt he should lie down. After a few more minutes he started shaking uncontrollably and stated that if he passed out it was because of hypoglycemia. He complained of a very dry mouth. They tried to give him water and fruit juice and turned on one of the video lights to try to warm him. He was wrapped in extra clothing and garbage bags. By 2:45 he no longer knew where he was and could only give his name and those of a few companions.

The group realized they needed to stabilize the victim and exit to seek medical aid. Two set out to find the two who had departed for Aborigine Avenue but quickly returned after realizing they might get lost. The other two soon returned. Carsten's condition had gotten worse, and it was assumed this was due to hypoglycemia, compounded by hypothermia and dehydration. It was decided that two would leave to get help while the rest tried to keep the victim stable. They kept him talking and took turns rubbing his extremities.

The two exited the cave at 3:45 P.M., drove to Jamestown, and at 4:00 P.M. notified the Fentress County Sheriff. The Fentress County Rescue Squad and Pall Mall Fire Department responded. Eleven of these rescuers were led into the cave to the victim. They were without proper cave gear but had gear to treat the victim as well as a Stokes litter. The victim was given an IV and placed in the litter. Other rescuers were on the way; East Tennessee Grotto Cave Rescue and Fentress and Cumberland County Rescue Squad personnel soon arrived. The Cumberland personnel had heard that the victim had been drinking, had fallen, and was "foaming at the mouth." Still, the various rescuers worked well together and the victim was transported to the entrance by 9:45 P.M.

References:

1. Philip DiBiasi and Jan Marie Hemberger "Medical Emergency and Evacuation from Wolf River Cave, Fentress County, Tennessee" Unpublished Report Sept 1, 1993 6 pp.
2. Philip DiBiasi and Jan Hemberger "Ken Carstens Rescued from Jaguar Cave, Tennessee" *CRF Newsletter* Nov 1993 p 5.
3. Editor "Kentucky Archeologist Rescued From Blowing Cave Monday Night" *Fentress Courier* Wednesday, August 18, 1993; reprinted in *Cave Cricket Gazette 18*:5 Aug-Dec 1993 p 55.

Comments: Apparently the victim had suffered a mild attack of hypoglycemia a few weeks previously but a doctor did not try to steer him away from strenuous activity. Thus it does not seem reasonable for the victim to forsee an episode such as this.

Mammoth Cave, Kentucky

Ac – caver fall
August 19 A

On Thursday, August 19, a group of cavers was doing volunteer restoration work in Mammoth Cave National Park in central Kentucky. They were to have that afternoon off for a wild caving trip as a reward for work done. A group of 14 chose to be led by Norm Rogers on a sporting trip into Floyds Lost Passage in Floyd Collins Crystal Cave. This is a section of Mammoth Cave – at 340+ miles of passage mapped, the world's longest cave.

The group entered the cave early in the afternoon and proceeded through the old tourist section, arriving at Scotchmans Trap at about 2:30 P.M. This was the start of their wild cave adventure and they pushed on through stoopways, crawlways, the S-Curve, and finally through the Keyhole, a body-sized opening. Where the cave proved to be complex they flagged their route. Beyond the Keyhole the group traversed tall fissures by chimnying along high above the floor. They passed Ebb and Flow Falls, a rare water source where the climbing moderated.

At Straddle Canyon, however, they were faced with traversing on small ledges 40 feet above the floor. At 4:00 P.M. John Marquart, following a lighter weight caver, stepped on a ledge just used by his predecessor. It collapsed under his 200 pounds. He had no other holds and fell, but immediately caught himself in the fissure with outstretched arms. He fell only four feet but dislocated his right shoulder. He was in pain but able to hold his position. He called to his companions for help.

Cavers quickly checked his injury, helped him back up to the ledges and then back up the passage to a section that had a solid floor. They tried to reduce the dislocation but had no knowledge of the procedure and failed. The group then split up, most going out with the leader to get help and four staying with the victim. Marquart was wearing jeans and a tee shirt which were soaked with sweat from his exertions. In an effort to deal with potential hypothermia in the 56° F cave, the shirt was removed and the victim's polypropylene shirt and skull cap, from his pack, were put on him as well as a sweater donated by a companion. The injured arm was secured across his chest with tubular nylon webbing. He was laid on a space blanket and dry clothing and covered with more space blankets. A few mild pain tablets were available and administered sparingly. As long as he didn't move, the victim was fairly comfortable. One companion heated some Pepsi-Cola for him to drink.

The first rescuers reached the victim at about 9:30 P.M. They brought food and drink and the news that a doctor was enroute to reduce the dislocation. When Marquart occasionally grew cold and started shivering, his companions would have him get up and move around. In addition, carbide lamps were held under the space blankets and chemical heat packs were applied. A second team arrived but these first two teams were merely attendents for the victim – a third team would start the evacuation.

The third team arrived at 5:30 A.M. Friday with the doctor and a sleeping bag. They tried reducing the shoulder without pain medication but failed and a Valium injection was administered. The shoulder was reduced and a counteractant to the tranquilizer was then administered. At 6:00 A.M., with Marquart's right arm secured across his body, they started the evacuation.

In the traverse fissures they rigged a line across, put the victim in a seat harness and attached him to the line with a carabiner. This allowed support all the way across. At more complicated climbs, a rescuer would go across first, simulating the victim and then make recomendations. At some ledges Marquart could crawl across with rescuers spotting him against the exposure. At one place they made a human bridge.

At the Keyhole, Marquart's arm was unstrapped, his helmet removed, and his chest bared, in hopes he could squeeze through. He went feet first and when his chest stuck in the hole he had rescuers pull him through. He was able to crawl onward after this, on his knees when it was spacious enough and on his left side when the passage was lower. At the contortion of the S-curve he was able to get through on his left side with the injured arm elevated. The passage gradually became bigger and they finally reached walking passage.

At 11:00 A.M. they climbed out of Scotchmans Trap and the victim was forced to accept a litter ride to the entrance. Just short of the entrance he was allowed to walk and at about 11:30 A.M. he stepped out into the noonday sun.

References:

1. John Marquart "My Rescue from Floyd Collins' Crystal Cave" *The Near Normal News* (Near Normal Grotto, NSS) *3*:5 Sep 1993 pp 5-9.
2. Brian Braye and Jim Jacobs "Crystal Cave Rescue" *Ibid* pp 3-5.
3. Larry Reece "Crystal Cave Rescue August 19/20, 1993" *CIG Newsletter* (Central Indiana Grotto, NSS) Oct 1993 pp 150-152.

Comments:

This is the first real rescue carried out at Mammoth Cave but seems to have been well prepared for. Still, the operation would have been exceedingly difficult if the victim had not been able to do much of the movement on his own. There seemed to be few problems. The sleeping bag should have gotten to the victim sooner and a telephone line strung to Scotchmans Trap was reported to have gotten in the way of crews going in and out. Communications between the victim and the outside could have been better and a runner team was sugested.

I'm afraid I must suggest that exposed climbs and traverses should have a belay. I also must remind cavers of the rule of three points of support when climbing.

Whitings Neck Cave, West Virginia

Br – rockfall entrapment
August 19B

A little after noon on Thursday, August 19, a large group entered Whitings Neck Cave in Berkeley County, West Virginia. There were 9 to 14 youths and 2 counselors, part of "Adventure Camp," a day camp program sponsored by the Howard County, Maryland, Department of Parks and Recreation. This program has made use of this cave in this manner for the past 15 years. The cave has two entrances and has both walking passage and crawlways.

After about an hour, one of the counselors began the group's exit by splitting them up and taking five youths out the second entrance. He returned via this entrance but when he entered the Entrance Room, he found the passage blocked by a large rock and a quantity of dirt, with the rest of the group trapped inside. A "lot of screaming and yelling was coming from the other side." The counselor could see three helmets in the collapse and, thinking some of the youths had been hurt, he exited to send some of those waiting outside to get help.

A couple of youths ran half of a mile to the nearest telephone and called 911. The counselor took the rest and re-entered the cave via the main entrance and reached the others. He found that there had been no injuries. Various rescue groups responded but the spelunkers had in the meantime pushed the rock out of the way and dug through the dirt.

References:

1. George Dasher "The Summers Cave Rescues" *The West Virginia Caver* Oct 1993 p 15.
2. George Dasher "Whitings Neck Cave Rescue" *Ibid 11*:6 Dec 1993 pp 10-11.
3. Michael FitzPatrick, NSS Accident Report, 2 pp.
4. Kelli Shores "Between a rock and a hard place" *The Journal* (Martinsburg, W Va) Aug 20, 1993 pp A1, A2.
5. Liz Thompson "Minor cave-in gives Md youths brief scare" *The Morning Herald* (Hagerstown, Md) Aug 20, 1993 pp A1, A8.

Comments: I guess once you start a through-trip, there is no turning back.

Junk Yard Cave, Tennessee

Ac – short-roped
August 22

On Sunday, August 22, a group of five entered Junk Yard Cave located in Tennessee, about a half-mile from the Ashland City Highway near the Cheatham-Davidson County boundary. The cave is apparently popular with spelunkers and boy scouts and this group claimed that spelunking was a "Sunday ritual" for them.

At one point they were high above the floor of a room which they wanted to enter. Tommy Watts (26) spotted a rope already rigged and started to "climb" down a 50-foot drop. Unfortunately the rope was only about 35 feet long and was coated with slimy mud. Watts fell about 15 feet, landing on his back. Two friends waited above the drop while the other two headed out to get help.

At a nearby fire station they notified authorities and borrowed a rope. Returning to the cave they were, about three hours after the incident, able to pull Watts up. Paramedics arrived and the victim was placed in a SKED and carried from the cave. He was not seriously injured.

Reference: Kym Gerlock "Spelunking jaunt ends in near tragedy" *Nashville Banner* Aug 23, 1993 p B1.

Comments: It is not clear if the victim was rappelling or doing it hand-over-hand. Their friends told rescuers they had taken rappelling classes. In any case, these spelunkers were extremely lucky.

Denny Cave, Tennessee

Br – rockfall
August 25

On Wednesday morning, August 25, Bobby Biddix entered Denny Cave in Wilson County, Tennessee. The cave is described as an easy, horizontal cave with about 1,000 feet of passage. The entrance is in a large sink, about 40 by 60 feet across. The sides of the sink are steepest on the south side where the depression is about 75 feet deep. Cavers had visited the cave several times previously without incident. As Biddix walked across a field to the sink he noticed a man driving a tractor in the same field, some distance away.

About 400 feet into the cave he stopped at a pool to look for a particular endangered cave salamander, the *Gurinophilius Palleucus*, with which he was apparently familiar. Suddenly there came a thunderous sound of collapse from the direction of the entrance. The great rumbling continued and he jumped up and raced toward the sound. Biddix immediately thought of the innocent-looking farmer – was he filling in the sink? What was happening? Maybe the farmer did not like cavers.

He rounded a corner and could see daylight amid swirling clouds of dust. The sounds had stopped and he cautiously approached. At the portal he was faced with a 2- to 3-foot diameter log some 15 feet long with a length of large chain still wrapped around it. In a pile with the log were several new boulders. All was quiet so he exited and climbed out of the sink. There was no one around and no sign of the tractor.

Reference: Bobby Biddix "Solo Caving: A New Perspective" *TCB Passages* (Tennessee Central Basin Grotto) *3*:4 Aug/Sep 1993 p 15.

Comments: Being solo had nothing to do with the incident. The lesson is that it is a good idea to make contact with a landowner or tenant farmer before entering a privatly-owned cave. After all, it is his cave and if he decides to close it, that is his business.

Roubidoux Cave, Missouri

Bl – lost
August 28

On Saturday, August 28, a group of four, two adults and two children, entered Roubidoux Cave (also called Pikes Peak or Indian Cave) near Waynesville, Missouri. They were armed with a flashlight and a Coleman lantern. The children were without shoes or socks. A sufficient distance into the cave they became lost. At 7:30 P.M. they became overdue and the authorities were alerted. The Dixon and Waynesville Fire and Rescue Team began searching the cave at 11:30 P.M. The Missouri School

of Mines Rescue Team was called at 1:30 A.M. Sunday and found the lost people at about 3:00 A.M. The spelunkers were tired, shaken, and cold but not hurt. All were out by 4:30 A.M.

References:

1. Simon Broomhead "Rescue at Pikes Peak Cave, Mo" Electronic Mail, Cavers Forum Aug 30 1993.
2. Scott House "Pikes Peak Cave, Signing" *Ibid* Sep 1, 1993.

Oregon Caves, Oregon

Ac – caver fall
August 29

On Sunday, August 29 a tour in Oregon Caves, the main feature of Oregon Caves National Monument, was ascending the steep stairs out of the Imagination Room when a tourist dropped a camera case. It fell between the steps and came to rest on a ledge just below. The tourist informed the guide who called the registration booth on the phone at the next stop, the 110 Entrance. Ron Tygart, a guide between tours, offered to retrieve the lost item. Tours are run by a concessioneer and the National Park Service was not informed.

Tygart reached the site at about 4:00 P.M. A platform at the base of the stairs overlooks a 15-foot drop as does the adjacent ledge under the stairs. Tygart climbed over the rail and reached for the missing camera case. Loosing his balance, he reached for a hold on what he thought was part of the nearby railing. It proved to be an electric cable and was not rigid. Tygart was not able to regain his balance and fell backwards into the 15-foot pit.

A tour soon arrived and noticed a flashlight lying on the platform. The guide looked down the pit and saw Tygart lying on his back; a call got little response so the guide told his party to stay there and rushed ahead to call for help. A doctor and his friend, part of the tour group, took it upon themselves to climb down to the victim and determined that he was not seriously injured. At about that time two National Park Service cavers happened by and joined the doctor at the victim.

A Stokes litter and backboard were brought in and the Tygart was packaged for evacuation. He was hauled up the pit by manpower and carried back down the tour route to the main entrance. An ambulance was waiting to convey him to a hospital.

Reference: Steve Knutson, personal communication, Jul 1993.

Comments: National Park Service rules specify travel off the tour route only by permission so Tygart's trip was contrary to their regulations. Tygart was very lucky – he had suffered only minor injuries.

New River Cave, Virginia

Dc – caver fall
September 18

On Saturday, September 18, a group of five entered New River Cave in Virginia. They proceeded through much of the cave and at one point found themselves at the Mud Room, a large chamber floored with fine, slick silt deposits. At one end of this room is a steep descent overlooking a continuation of the stream passage. The climb is covered with the same hard, slick mud.

Tom Spina was fourth in line to descend. He descended a short way and was groping along the left wall for a handhold when his feet lost traction and he "rocketed down." He left the steep slope and did a half roll before hitting the bottom, head first. Fortunately the stream formed a deep pool at that point and he was uninjured, quickly coming to the surface and swimming to shore.

The trip continued without further incident.

Reference: Tom Spina "Good Times, Bad Times . . . in New River" *Tidewater's Ooze* (Tidewater Grotto, NSS) *13*:11 Nov 1993 pp 3-4.

Comments: Use a handline or belay on exposed climbs and traverses.

New Pit, Missouri

Bb – bad air
September 19

On Sunday, September 19, three cavers, Rick Haley, Aaron Addison, and Bill Rudolf, visited an unexplored pit in Saint Genevieve County, Missouri. The entrance was tight and it appeared possible to chimney as far down as they could see. Addison climbed down and reported that it continued. They rigged a 170-foot rope and Rudolf descended as far as Addison. They both chimneyed out, huffing and puffing, as Haley changed into cave gear. Haley commented that they were both out of shape.

Haley descended, using an electric headlamp, to an offset about 15 feet down where he applied a rope pad. There looked to be another 80 feet of drop. He called up and asked if Addison wanted him to wait or rappel down the rest of the drop. Addison replied "Whatever." Haley decided to wait. Soon Addison, also using an electric light, came down, again out of breath. Haley noticed that he too was short of breath, even though he had been sitting and waiting. They began to suspect bad air.

Addison got out a Bic lighter and it refused to light. Was it defective? Addison and Haley dug a spare carbide lamp out of a pack and tried to light it – it refused. They passed it up to Rudolf, outside, and he was able to light it. When he handed it down into the pit, the flame flickered and sputtered. When it was passed down to the offset, it went out.

They grabbed the pad, pulled the rope up the offset drop, and chimneyed up. "It resembled rock climbing at 14,000 feet." Addison and Haley both had headaches for several hours. At no time had they detected an odor.

Reference: Rick Haley "The Lemming Effect" *The Meramec Caver* (Meramec Valley Grotto, NSS) *24*:11 Nov 1993 pp 5-6.

Comments: Haley points out that they were very lucky one of them had not gone down the second drop. In the thrill of coming upon a virgin pit, there was excitement and haste in the air. And if one had descended, and become unconscious, would not a second caver have descended to help? And if the two became unconscious, why wouldn't the third go down? He termed this "The Lemming Effect." All three cavers could have died.

Black Widow Cave, California

Br – rock collapse
October 10

On Sunday, October 10, Cynthia Ream and Mark Fritzke entered Black Widow Cave in the Marble Mountain Wilderness of northern California. The cave was the product of several short digs in the bottom of a sinkhole, each dig leading further in and down. On the dig trip Fritzke had been wearing only shorts and a t-shirt. He had pushed on from the last dig and down a flute in the wall of the pit chamber. The rest of the pit was a mass of breakdown. A short horizontal section required squeezing past a rock that had the look of a chockstone – it appeared that it may have been bracing everything above. He carefully slid past and found the passage curved back under into a chamber below the chockstone. At this point the sub-40° temperature and air movement took its toll and he retreated.

The two proceeded back to the chockstone. Fritzke was in front with most of his body in the flute; Ream was just above in a little alcove. They were now fully dressed for alpine caving and they realized it would take more effort to squeeze past the chockstone with the bulky clothes. Fritzke reached out with a foot to test the stone's stability. He kicked it twice and the whole affair, floor and ceiling, collapsed, just missing the two cavers and filling the chamber below. They exited.

Reference: Mark Fritzke, personal communication, Nov 27, 1994.

Acadia Sea Cave, Maine

AAe – inability to ascend
October 12

On Tuesday, October 12, two rock climbers, Paul Ryan and Doug Rose (20), rappelled down a cliff to explore a sea cave in Maine's Acadia National Park. The cave was said to go into the cliff about 30 feet, but its height was not specified. They fixed an anchor at the top of the entrance and rappelled to the floor. At about 2:00 PM. they started aid-climbing up the back and across the roof of the cave using chocks for anchor points and protection.

The weather changed and a storm arrived. Wind now coming off the sea and an incoming tide soon brought unusually high water into the cave. The two decided to abort the climb, ascend the rappel line and come back later for the gear. Because of the storm and tidal conditions, this now involved swinging out into the surf. One then ascended with mechanical ascenders to the anchor at the entrance. They were already wet, cold, and tired.

Ryan ascended first and made it to the anchor in about 20 minutes. Unfortunately they had only one set of ascenders so Ryan had to take them off and send them back down the rope to his partner. This worked and in minutes, Rose was rigging himself with the ascenders.

Rose had not used ascenders before this day and had only used them briefly during their aid-climb. It is not known if he rigged the ascenders properly. He struggled to ascend for 45 minutes with occasional calls of confidence: "I can do it. I'll be up in a minute!" which were answered by calls of encouragement: "You can do it!" from Ryan. With the vertical rig not working for him, Rose was losing a fight with hypothermia and exhaustion. He began to call for a pully. Ryan knew this was nonsense – they had no pully. After 6:00 PM. the calls stopped and Ryan knew that Rose had succumbed. The body was retrieved by volunteer climbers, rescue workers, and park rangers the next day.

Reference: AP "Climber's death haunts companion" *Maine Sunday Telegram* Jul 17, 1994 p 6B.

Comments: Don't share vertical gear! On another note, it sounds like their clothing was not up to the potential environment – plan something for worst case scenarios.

Paradox Cave, Tennessee

Ar – rock collapse
October 23

At 12:30 on Saturday, October 23, A group of nine cavers entered Paradox Cave in Van Buren County, Tennessee. The entrance leads to a body-hole, a series of climb-downs, and a crawlway that yields the low, wide Attic Room. Holes in the floor of this room drop to a ledge 25 feet down. From there a 100-foot drop reaches the Hartselle Chamber, a two-acre room where the route from another entrance comes in and pits lead on. A 155-foot pit leads directly to the lower section of the cave via a long and steeply sloping climb, a slope descent, a 30-foot walking canyon and a 25-foot-deep pit. At the bottom of this a muddy stream passage can be followed for 200 feet to a second 25-foot pit. Below this is a muddy room with a passage leading downstream to a sump.

On the way down to the Attic area, a boulder was dislodged in a tight slot below the entrance, making it difficult to get by. They proceeded to the Hartselle Chamber where they split up. Andy Porter would lead four cavers to the bottom of the cave while Alan Cressler would do some other pits with three of the others.

Porter's group proceeded down the 155-foot drop and on to the first 25-foot pit. There Porter found a rope already in place (apparently this is left rigged). He rigged in his rack, leaned back to load the rope and looked up at the anchor. The canyon above was 20 feet high, 3 to 4 feet wide at the bottom, and wider higher up. There was a large mass of breakdown perched about halfway up (five feet overhead), consisting of two large blocks with an assortment of smaller rocks and mud on top (about 6 to 10 thousand pounds total). The floor of the canyon was smooth mud, with no signs of rockfall. The rope was rigged over this mass, the rope coming down the backside and closing on itself with a bowline, making a slip-noose of the whole loop. Porter could see that the rope rubbed against three rocks on the near, left corner of the mass and thought that it was not a very good rig. Still, it seemed usable. The group continued, getting soaked where a stream made a waterfall at one of the drops.

After reaching the bottom, they headed back to try the pits that Cressler was rigging. Porter, ahead of the rest, reached the first 25-foot drop and climbed slowly up using a Texas rig. When he got over the lip, he saw one of the three rocks the rope had been rubbing, lying on the floor. He looked up and could see that it was still rubbing the other two. He thought, "One of those rocks could dislodge and hit someone."

He decided it was time to fix the main-line rig, so he pulled up on the rope to get some slack. With a great crash, the whole affair fell on him.

When the violence ended Porter found himself kneeling in a fetal position, with his left arm pinned above him at an odd and painful angle. He was buried under the mass of rocks. At first he prepared himself for the death he thought imminent, but soon realized that he was not really crushed, just pinned in place. He could breathe but suddenly noticed a warmth on his side and an acrid smell as from burning electronics – his light was shorting out. He worked his right arm free, removed his helmet and switched off the light.

His companions arrived at the bottom of the 25-foot pit and called to him. He instructed John Stembel to climb up if he could. Stembel pulled some new slack down and carefully ascended. When he got to the top he found a place on the rope where it was nearly severed – only three core strands remained. He worked to free Porter but another rock fell hitting Stembel's helmet, breaking the Wheat lamp lens, and striking the collapse pile, causing it to settle more forcefully on Porter.

When a rock was worked out from under one leg, Porter was able to worm his way through along the hole provided. He stood up, detached his ascenders and, thinking his left arm was just asleep, reached for a hold on the wall. His shoulder was actually dislocated and the arm had no strength. He lost his balance and Stembel had to grab him to keep him from going over the drop.

Cressler and his group arrived at this time and a rescue was organized. Porter was tended to while cavers exited and called outside help. Involved were Chattanooga Hamilton County Rescue, Cave and Cliff Team, Knox County Volunteer Rescue Squad, Tennessee Emergency Management Agency, Walker County Rescue, a Med Flight Helicopter, and numerous cavers. The victim arrived at the entrance at 4:45 A.M. the following morning. The 25-foot drop was named the Breakdown Death Compactor.

Reference: Andrew Porter "The Paradox Cave Breakdown Death Compactor" *Georgia Underground 30*:4 pp 20-24.

Comments: Apparently the rig had rearranged itself a bit from its original configuration, which was over the large wedged slabs. Use of it had caused flexing of the slip-loop and a movement to the left side. Still, as Porter admits, he saw the problem and failed to correct it. Porter also suggests putting a five to ten-amp fuse in a Wheat lamp circuit to prevent the effects of the shorting of the lead-acid battery, a rapid discharge, and potential burns. If he had not had the cord from his battery to the headpiece run outside his shirt, he would have had a three-foot-long second degree burn across his body.

Warrens Cave, Florida

Be – caver hang
November

In November, a group of eight visited Warrens Cave in Florida. This cave has some 4.5 miles of passage. They descended the 35-foot entrance pit and toured some of the rest of the cave. When they returned to the pit to exit, they found two people already there. The two were at a ledge about halfway up, one just below the edge, attached by a safety tether to the rope and the other on the ledge, hanging on to the first. The tether was fixed to a homemade seat harness and the man on rope was clearly having trouble. Severly overweight (estimated at 300 pounds), he was thrashing about, apparently trying to make it past a tight spot and onto the ledge while the other, much-smaller man (130 pounds), tried to help. The victim looked like "An enormous gunny sack filled with struggling cats."

The seat harness didn't fit and was being displaced down the man's legs by his struggles. A dark fluid occadionally ran down his face and dripped into the pit. It wasn't blood, as those below first feared, but tobacco juice. His helmet had fallen off and the smaller man had given him his. The latter was holding on to the big man's collar to keep him from falling over backwards. As they watched the smaller man lost his grip and the other toppled over. He was now held by his harness, tangled around his right knee and lower legs. The knee dislocated "With an audible 'pop.'" The big man soon became unconscious.

Several of the cavers ascended past the victim and brought up the bottom part of the rope. This was tied around him and when the three strongest were ready, the tether was cut and he was lowered to the floor. One of the cavers left the cave to get more help.

With more gear and manpower, cavers were able to fix a pully at the ledge and run a rope through this with both ends going down. One end was tied to the victim and everyone pulled on the other. An ascender at the pulley prevented the victim from falling if the rescuers let go.

The victim was now conscious but lacked the comprehension to help himself as he was being hauled. Consequently he arrived at the tight place sideways and wouldn't fit. One of the rescuers had to turn him and then heave him up onto the ledge. There he lay strangling from excess pressure on his chest from the haul line and had to be raised into a sitting position by a rescuer. The haul process was repeated to the surface. The victim was grateful and offered a case of moonshine as a reward.

Reference: Bruce Morgan "The Great Redneck Rescue" unpublished report, Nov 30, 1993 4 pp.

Oregon Caves, Oregon

Ao – drill injury
November 3

On November 3 two cavers were fixing ropes on sites requiring leader climbs in Oregon Caves [National Monument] in southern Oregon. Willy Ondrichek (25) climbed Whitfield Dome and used a battery powered drill to place bolts to anchor a fixed line. When it came time to rappel down, he stuffed the drill into his side pack without removing the debris-covered bit. This was left protruding out the top. The pack was on the same side as his control hand for the rappel.

As he rappelled, he hunched over, watching his progress. He chanced to bring his knee up under the pack, driving the drill bit up into one eye. He finished the rappel and was attended to by his companion. The eye appeared bad and his companion did what he could, actually licking debris from it. Though in pain, Ondrichek continued caving but sought medical treatment the next day. The eye has since recovered.

Reference: Bill McGahey, personal communication, Oct, 1993.

New Trout Cave, West Virginia

Bl – lost
November 4

At about 1:00 P.M. on Thursday, November 4, Wendy Wellis and Mary Davis (both in their early twenties) entered New Trout Cave south of Franklin, West Virginia. A friend was told that they would call at 5:00 P.M., after their planned exit from the cave. They explored for a while and then headed for the entrance. At about 4:00 P.M. they realized they had become disoriented and no longer knew the way out. They decided to wait for help.

That evening the friend called the police and an officer found their car still parked near the cave. At 9:00 P.M., a technical rescue group, the Skills Team, was called. It was not obvious whether the lost cavers were in New Trout or in nearby Trout or Hamilton Caves, so the rescuers formed three teams and searched all three. Wellis and Davis were found in a small passage near the back of New Trout at about 11:00 P.M. Their lights were still functioning.

References:

1. Joan Ashley "Skills Team Rescues Virginia Women from Cave" *The West Virginia Caver 12*:1 Feb 1994 p 8.
2. Editor "Virginia Girls Rescued from local Cave" *Pendelton Times* (Franklin, West Virginia) Nov 11, 1993 p 1; paraphrased in *DC Speleograph* Nov 1993 p 9.

Jewel Cave, South Dakota

Cs – stuck
November 6 A

On Saturday, November 6, a group of five cavers was exploring in Jewel Cave in the Black Hills of southwest South Dakota. They were in the process of exiting and came to The Slim Chance, where (in the outward direction) a belly crawl leads to a vertical, body-width slot. Paul Burger was the largest and tallest of the group and had barely got through this on the way in, with gravity working in his favor. Now he found he could not get through – there was nothing to push on with his feet.

A companion tried to push from below but couldn't offer enough support. There was an alternative route but it apparently involved a considerable detour. Burger removed his pants and forced himself through "with some degree of bodily injury." He "limped and found it difficult to breathe for the next hour."

Reference: Paul Burger "Deep Space" *Rocky Mountain Caving 11*:1 Winter 1994 pp 12-14.

Comments: Another example of someone sliding down something narrow in a relaxed state and having difficulty getting back up when they have to use muscle power (see September, 1992, this issue). The body is thinner in the relaxed state. Beware.

Ice Box Cave, Arkansas

Br – rock entrapment
November 6 B

On Saturday, November 6, a group of three entered Icebox Cave in Newton County, Arkansas. They brought digging tools to use on a low, wide lead that was taking air. They dug on this for an hour, prying some rocks loose, and opened up ten feet of passage that had previously been too tight. Leo Thompson crawled into this and proceeded for about 45 feet to a "nine-inch" (it may have been smaller) constriction. Beyond, the passage became a vertical slot about two feet high encrusted with popcorn (cave coral) with loose, corroded flowstone slabs above the slot. Thompson could see another 15 feet of passage beyond. He could not get through the constriction so he backed off and let Chuck Bitting (30) have a try.

Bitting got through to the slot and worked on the slabs. He was able to remove all but one, about two by three feet long and five inches thick. Looking ahead, he thought it looked possible to turn around, so he tried to go through. He went in on his left side and to keep from getting stuck in the bottom of the crack, he sought a handhold above. The slab was available so he used it and moved forward. As he got under it, the slab began to move. Bitting called to Thompson to get the third caver, Carol Thompson, to help him. He hoped she could bring him some tools to dig with. Meanwhile he forced himself forward so the slab wouldn't rest on his head and chest.

Carol could not fit through the first constriction and Bitting could not reach her to get tools. The slab was now on his hips and his pants were snagged on the cave coral, so he loosened them and crawled out of them. When the slab was at his knees, it fell parallel to his legs. Hoping to be able to turn around, he slid ahead but the passage proved too small. He tried backing up and, with Carol directing his feet, he was barely able to force himself back out.

References:

1. Leo Thompson "A Caver's Worst Nightmare" *The Ozarks' Underground 15*:3,4 pp 15-16.
2. Charles Bitting, NSS Accident Report 1 p.
3. Chuck Bitting "Living under a rock" unpublished report 1 p.

Comments: Take heed, friends. This sounds close to a non-incident, but there may have been little margin between the happy outcome described above and death.

Bowden Cave, West Virginia

Bi – lost diabetic
November 13

At around noon on Saturday, November 13, a large group entered Bowden Cave in Randolph County, West Virginia. These were Boy Scouts and their adult trip leaders. They were engaged in a through-trip, from the Main Entrance to the third entrance, which normally takes two to three hours. After some time, they reached the "Pinch," about 500 feet from the third entrance. One of the adults was unable to fit through this, so another counselor, who knew the cave, volunteered to accompany him back to the Main Entrance.

The two headed back, but the leader was a diabetic and apparently began to suffer from low blood sugar. Becoming disoriented the two got into a maze-like side area. The leader realized they had lost the way and they sat down to wait for help. One fell asleep but the other could not – the first was snoring too loudly.

The scouts meanwhile failed to find the third entrance and had to retrace their steps. They exited at 4:00 P.M. to find the other two missing. The authorities were called and apparently searched a bit without success. At 10:00 P.M. NCRC was called. The mobilized rescuers found the cave to be in high water conditions with a 3.5-foot standing wave in the 2-foot-wide by 6-foot-high entrance passage. The initial searches were not successful and the cavers were not found until 6:00 A.M. on Sunday. They were led from the cave without further incident.

References:

1. Alan Jackson "Bowden Rescue" *Tite Times* (Western Maryland Grotto, NSS) Dec, 1993 pp 2-3.
2. George Dasher "Rockin' Chair" *The West Virginia Caver 11*:6 Dec 1993 p 12.
3. Greg Springer "Bowden Cave Rescue" *Ibid 12*:5 Oct 1994 pp 5-6; also in *D.C Speleograph* (D.C. Grotto, NSS) Jun 1994 pp 5-6.

Logan Cave, Utah

AAc – caver fall
November 20

On Saturday, November 20, a group of more than 16 visited Logan Cave in Cache County, Utah. They were 14 Varsity Boy Scouts plus "other youths" led by several adults, including Ronald Ashton and Charles Johnson (39). At a junction in the cave, Johnson and some of the scouts took one branch for a distance but decided it was not the right way and turned back. At a climbdown of about 6 to 8 feet, Johnson was helping some of the boys when he slipped and fell. He landed on his "head and stomach" on the rocky floor.

The boys started yelling to the others for help and Ashton rushed to the scene. Johnson was unconscious and bleeding from the head. He soon stopped breathing so Ashton began CPR. He kept this up for more than an hour while another adult went for help. The Cache County Sheriff's Office responded as well as medical personnel from Logan, but they could do nothing to save him. The body was carried from the cave two hours after the fall.

Reference: Jennifer Skordas "Tremonton Man, Father of 5, Dies After Fall in Cave" *The Salt Lake Tribune* Monday, Nov 22, 1993 p D1.

Comments: The victim was not wearing a hard hat. Apparently Ashton was interviewed by local TV News and is paraphrased as saying that the accident was unpreventable . . . unless the victim had worn a hard hat. Could these Scout leaders really think that a cave is a place for someone who does not wear one? An obvious lesson here is that people teaching youths how to be responsible should know what they are doing and be responsible themselves. It is also important to note how short a fall can kill.

Birthday Plunge Cave, Indiana

Ac – caver fall
November 21

At around 9:30 A.M. on Sunday, November 21, a group of three cavers entered Birthday Plunge Cave in Harrison-Crawford State Forest in southern Indiana. The cave has a 70-foot entrance pit and eventually reaches a depth of 140 feet. They explored for some time. At about 3:00 P.M. Kenny Carrigan (36) reportedly unclipped from a rope and was traversing a ledge when he fell into a 30-foot pit, suffering head injuries and a fractured pelvis. One companion climbed down to him and the other went for help. This caver had to hike miles through the muddy woods to get to a phone.

Rescuers from various agencies responded and the caving community was mobilized. Medical personnel got Carrigan into a litter and packaged for travel while ropes were rigged in the vertical parts of the cave. A narrow point, the Rectum, was enlarged using a pneumatic drill, requiring a painstaking shuttle of compressed air bottles. The victim arrived at the entrance at 7:50 A.M. on Monday. He was flown to a hospital in an Army helicoptor, arriving at 8:45 A.M.

References:

1. David Goetz "Rescuers chisel away rock, get injured caver to the surface" *The Courier-Journal* (Louisville, Ky) Tues, Nov 23, 1993 p 1.
2. Kenneth Byrd "Carrigan Rescue Update" Electronic Mail, Cavers Forum Nov 22, 1993.
3. Anmar Mirza "Rescue 11-21-93 Comments" *Ibid* Nov 24, 1993.

Comments: It was pointed out that when the litter was passed into the tight place, the rescuers would be helpless if the victim should vomit, have breathing difficulties, or other medical emergency.

Lechuguilla Cave, New Mexico

De – frayed rope
November 29

On Sunday, November 29, a group of cavers was in Lechuguilla Cave in the Guadalupe Mountains of southern New Mexico. This was the second day of a five-day stay. At the High Hopes climb they ascended. The climb is two pitches, the first of 150 feet and the second of about 50 to 60 feet. A short ledge with a handline for safety connects the two pitches. The first ascent was rigged with the anchor point, a flowstone column, about 25 feet above the ledge with the anchor point itself out of sight of anyone ascending the ropes, as the flowstone above the ledge curves back. The group planned to do this climb three days in a row to pursue their objectives.

The fourth caver up apparently watched his ascenders a little too intently and missed getting off at the ledge. He suddenly found himself near the anchor staring in horror at a rope fray – the sheath was gone and the core had only 7 strands remaining!

The rope was rerigged at the ledge to some natural anchors in flowstone.

Reference: Mark Fritzke, personal communication, Nov 27, 1994.

Comments: A rope rigged as this one was is very dangerous – it could not be inspected by the people using it. Worse, the reason for the fray was shards of sharp bedrock in the flowstone, in a natural groove where the rope would lie, about two feet below the anchor. If you are rigging a rope that must lie against the surface you must either pad the surface or get rid of sharp edges, and always regularly inspect such a rig for damage.

Wolf River Cave, Tennessee

Bf – trapped by flood
December 4

On Saturday morning, December 4, a group of six cavers entered Wolf River Cave in Fentress County, Tennessee. They were Grant Van Hemert, Pat and Kim Newby, Ray Rough, Roy Logan, and Jonathan Schwer. There had been a lot of rain and they discussed going to a less flood-prone cave. Still, the weather forcast was favourable and visible outside water levels were as remembered from previous visits so they went ahead with their trip.

The group proceeded along the stream passage through rooms 50 feet wide and 20 feet high, up the Towering Inferno and on, to a terminal breakdown beautifully decorated with five waterfalls.

As the cavers started back, they passed a waterfall that goes into a pit. On the way in it had been seven feet down to the water level in the pit – it was now overflowing. At the Towering Inferno a trickle of water could be heard where there had been silence before. Near a normally dry dome was a waterfall. At a four-foot high rimstone dam the stream is normally four inches deep; now the dam was barely showing. Finally, at the first of the large rooms along the stream passage, the stream had become a lake. Van Hemert walked out on a mud bar to check a potential way across only to find himself suddenly over his head. A companion helped him back to shore. The group found a way across and continued downstream, doing several traverses in swim-depth water, clinging to mud banks for support. At a true swim crossing, a rope was used to help Rough, a poorer swimmer, across. Past a breakdown hill was the last 100 feet of stream passage before the entrance. It was sumped.

They had extra food, four space blankets, a rain poncho, three carbide lamps, and lots of carbide, so they settled down on the breakdown, huddled together with the space blankets over them. After six hours the water level had fallen three feet and they shifted their bivouac to a more sheltered spot against a wall. A cheery carbide camp fire allowed them to heat drinking water.

At 5:00 A.M. they found the sump open; at 6:30 a car could be heard to come and go outside and it was realized that rescuers must be scouting the scene. The trapped cavers decided to see if they could make it out. Van Hemert led Rough into the water and they found air space no less than 18 inches; the rest soon followed and at 7:45 A.M. all were out. Their cars had been in five feet of water. Rescuers were aware of their entrapment but rightly assumed they were waiting it out and planned to enter the pit entrance to the cave that morning.

Reference: Grant Van Hemert "Tennessee Caving at its Finest" *CIG Newsletter* (Central Indiana Grotto, NSS) Feb 1994 pp 17-19.

Vertical Petre Cave, Tennessee

Ac – caver fall
December 18

On Saturday, December 18, a group of four cavers entered Vertical Petre Cave in Putnam County, near Monterey, Tennessee. They wanted to tour the cave and do some photography. They did the entrance crawlway then a canyon passage with a pit. A wooden Civil War winch they wanted to photograph was adjacent to a wooden platform spanning the near side of the pit. They rigged and descended the pit, some 35 feet, to a large room, about a quarter of a mile in and 300 feet below the entrance. At the far end was a climb to a higher alcove where a pole had been placed against the wall to assist saltpetre miners in ascending. Cheryl Brown (34) tried to climb this 10-foot pitch.

She got to the top but could not make the last move into the alcove. As she started to downclimb, she lost her arm strength and fell. She fell past a companion at the base of the climb, tumbled head-over-heels down a steep slope and another eight feet vertically into a jumble of breakdown. The sound of the fall and her screams of pain brought her companions on the run. There were apparent injuries to her lower back and a shoulder and she was in extreme pain. One companion stayed with Brown, keeping her motionless and as warm as possible, while two exited the cave to get help.

The Tennessee Emergency Management Agency was called and passed the word to the various rescue agencies. The first rescuers, from the Putnam County Rescue and Cumberland County Civil Defense entered the cave at 5:00 P.M. but were not equipped to descend the pit. They did lower a medical kit and a cervical collar was applied; they found that her blood pressure was dropping. About an hour later two paramedics reached the victim and found that she had suffered a collapsed lung. She was packaged for transport. Word was sent for oxygen and a helicoptor for transport from the entrance. Rescue Squads from Murfreesboro, Nashville, and Knoxville were activated for the transport through the cave. Brown reached the entrance at 8:30 P.M. She was then carried down the hillside to a truck and driven half of a mile to the helicopter. She reached a hospital at 10:30 P.M. In addition to the collapsed lung she had a cracked L-1 vertebrae.

References:

1. John Hickman "December Rescue at Vertical Petre Cave" *TCB Passages* (Tennessee Central Basin Grotto, NSS) Aug-Sep 1994 p 3.
2. Joe Douglas "Cave Rescue in Tennessee" *Speleospace* Mar 1994 pp 4-5.

Lechuguilla Cave, New Mexico

Co – slamming gate
December 28

In December a LEARN expedition was pursuing the exploration and mapping of new passage in Lechuguilla Cave in southern New Mexico. On Tuesday, December 28, a group was exiting the cave. At the culvert, Steve Reames went through, pushed the gate open and reached up to pull himself out. The gate suddenly slammed down on this hand resulting in a painful injury. Another caver carried his pack, but Reames was able to ascend the entrance pit using a Texas rig. It was later found that the tip of one finger had been fractured.

Reference: Paul Burger "The December LEARN Expedition" *Rocky Mountain Caving 11*:1 Winter 1994 pp 10-11.

Cave Diving Incidents

Roubidoux Spring, Missouri

AA – lost
November 1, 1992

On the weekend of November 1, a group of three divers entered Roubidoux Spring at Waynesville, Missouri. One, Harold Downs (35), apparently became separated from his companions and was unable to find his way out of the cave. Rescue divers found the body about 150 feet below the surface. This incident was reported even more sketchily in last year's *American Caving Accidents*.

Reference: Editor "Kansas Man Drowns in Cave Diving Accident" *Register* (Southern Plains Region, NSS) May 1994 p 6.

Cenote Esquelito, Mexico

AA – unconscious
February 26

On Sunday, February 26, Carl Sutton, a "long time cave-diver instructor" was exiting Cenote Esquelito when he "lost consciousness in open water" and died.

Reference: Rob Korn "Cave Diving Fatality" Electronic Mail, Cavers Forum Mar 5, 1993.

Clearcut Sink, Florida

AA – out of air, inexperience
July 16

On Friday evening, July 16, two certified cave divers, William Mayne and Ariel Goldberg, entered Clearcut Sink in Wakulla County, Florida. Mayne was described as a highly skilled technical diver with over 150 logged cave dives, 20 in the Clearcut System. Goldberg was less experienced. They stashed extra tanks near the entrance to use for decompression on the way out.

Apparently they became separated with Goldberg becoming disoriented and getting lost. Mayne then spent too much time trying to find him before starting out. He ran out of air a few minutes from the extra tanks. His body was found about 500 feet from the Clearcut Entrance at a depth of 90 feet. Goldberg apparently found the way out after a while but ran out of air. His body was found about 50 feet from the Venture Entrance to the system. There were no signs of panic or fear. Their equipment was checked by the Navy and there was no sign of malfunction.

References:

1. Rob Korn "Comments on the Wakulla County Sheriff's Dept" Electronic Mail, Cavers Forum Jul 19, 20, 1993.
2. Charlie Mayne "In Memory of" *Ibid* Jul 21, 1993.

Devils Ear Spring, Florida

AA – lost
October 9

On Saturday, October 9, two divers, R D Milhollin and Allen Jonushaitis, entered Devils Ear Spring in Gilchrist County, Florida. Their plan called for two stages, Tekna scooters, and a "loosely structured dive." To avoid problems with navigation and allow them to focus on the stage diving and scooter handling, they decided to go up the unbroken main passage. They reviewed the plan after gearing up and made secondary checks just after entering. Milhollin's scooter failed at the beginning but they decided to continue to let Jonushaitis practise with his.

They proceeded slowly to the "Lips" constriction where they exchanged OK's. Milhollin proceeded the 40 to 60 feet through and when he reached the other side he observed his partner's light move in a controlled pattern for about a minute, then disappear.

After a short pause, Milhollin swam back to see what had happened. Jonushaitis was not there so Milhollin continued his exit. At the junction where a small branch passage leads to Devils Eye Spring, he found his partner. Jonushaitis was in the side lead, facing out with his regulator not in his mouth. Milhollin tried to pull him out but the stage tanks and scooter still attached impeded this. Toward the entrance, at the stop sign, Mulhollin could see an instructor with a student. He signalled "emergency" with his light and the instructor immediately responded. They removed the victim's tanks and accessories and pulled him to the surface at the nearby entrance. A physician and an EMT were on the scene but resucitation failed. He had died only feet away from indirect surface light and almost within sight of the cave diving warning sign.

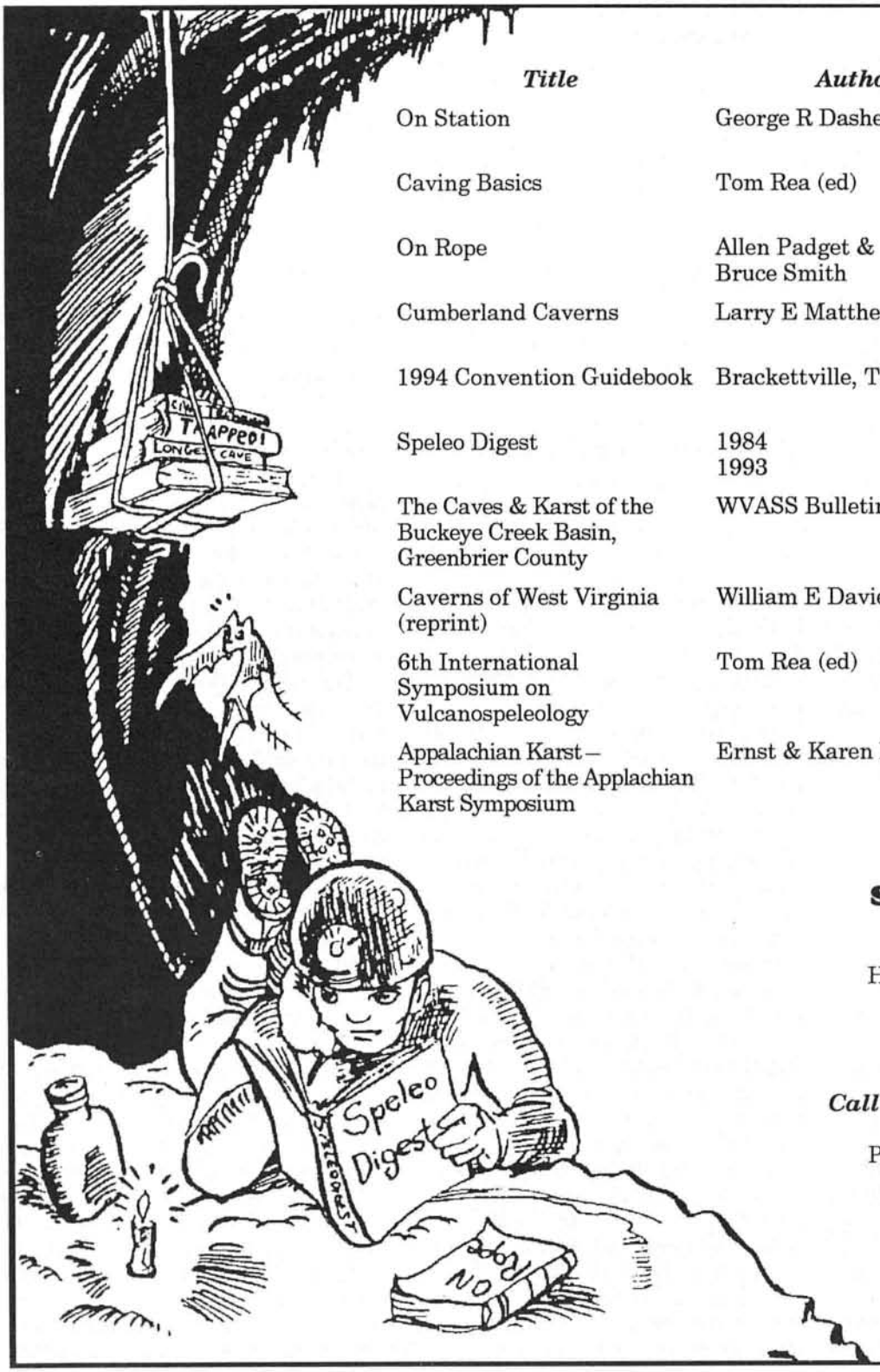
Reference: R D Mulhollin "Accident Report" unpublished report Mar 5, 1994, 9 pp.

Comments: The victim was a certified cave diver, with experience in 55 non-training cave dives. He had recently dived for four hours on a two-stage dive reaching 4,000 feet from the entrance. Mulhollin feels they were a bit ambitious with the dive plan, neither having dived for at least a month. Also, he did not know at the time that this was the victim's first scooter dive. He feels such initial scooter work should not involve stage complications and initially be done in open water with safety drills. "If Allen was fighting the scooter and simultaneously having to deal with adjusting bouancy, as his position near the floor on the way in would suggest, he may have built up a considerable amount of carbon dioxide during that short period of time."

"The dive team did not run a guidline to the surface as is recommended by cave diving training organizations. Instead they relied on the permanent line leading from direct sunlight into the unlit interior of the system. That guideline runs several feet up the side of the cave wall. If Allen was suffering the effects of CO_2 buildup on the way out, the narrowing of visual perception common in such cases, combined with a lack of bouancy control, would have effectively put him off the line. If he was relying on following the current out of the cave and was not consciously aware of the Devils Eye tunnel along the floor he may have been very confused and anxious when the apparent way out suddenly began to narrow much more than

he remembered going in. The combined effects of confusion, physiological CO_2 induced stress, gear related task loading, and the strong inflowing current he was dealing with may have been enough to overwhelm him as he fought to regain a regulator second stage."

If the victim had not been driven to seek the entrance, he would presumably have been fine – he had two hours worth of air from four independent sources, his partner returned quickly and other divers would have happened by on a busy Saturday such as this. "Allen was a good cave diver but in this one instance was unable to deal effectively with a serious situation that got worse and then bad very quickly. This could happen to any cave diver. We must be vigilant."



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Accident/Incident Report Form

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

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Reported by:

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Address _____

City _____ State _____ ZIP _____

Name(s) of Person(s) Involved	Age	Sex	Experience	Affiliation	Injuries or Comments

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

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

The Accident/Incident

( ) Description of how it occurred.

( ) Nature of injuries sustained.

( ) Analysis of main cause.

( ) Contributory causes (physical condition of caver, weather, equipment, clothing, etc.).

( ) What might have been done to prevent the accident.

Rescue

( ) Actions following accident/incident.

( ) Persons contacted for help. A flowchart may be helpful.

( ) Details of rescue procedures.

Further details were reported in:

( ) Newspapers ( ) Grotto Newsletter ( ) Other

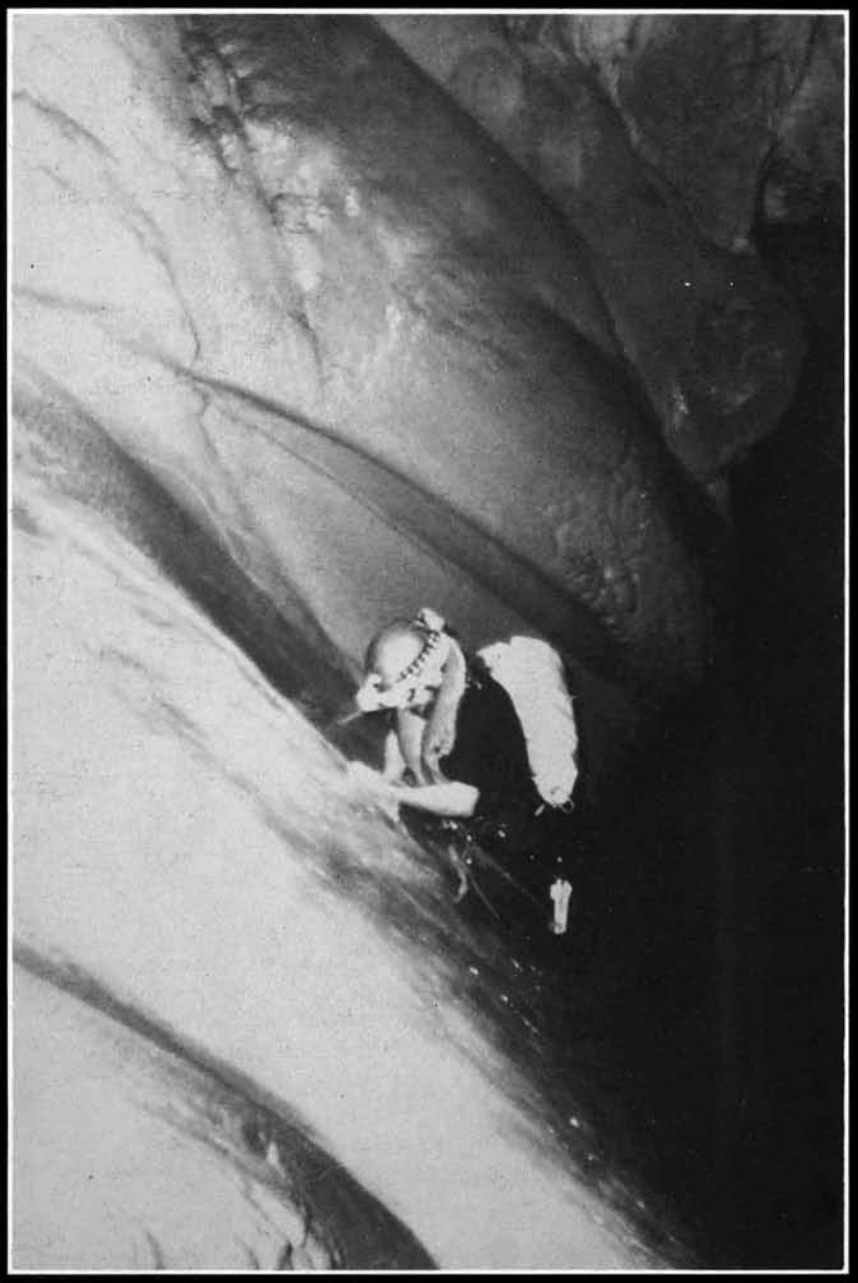
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