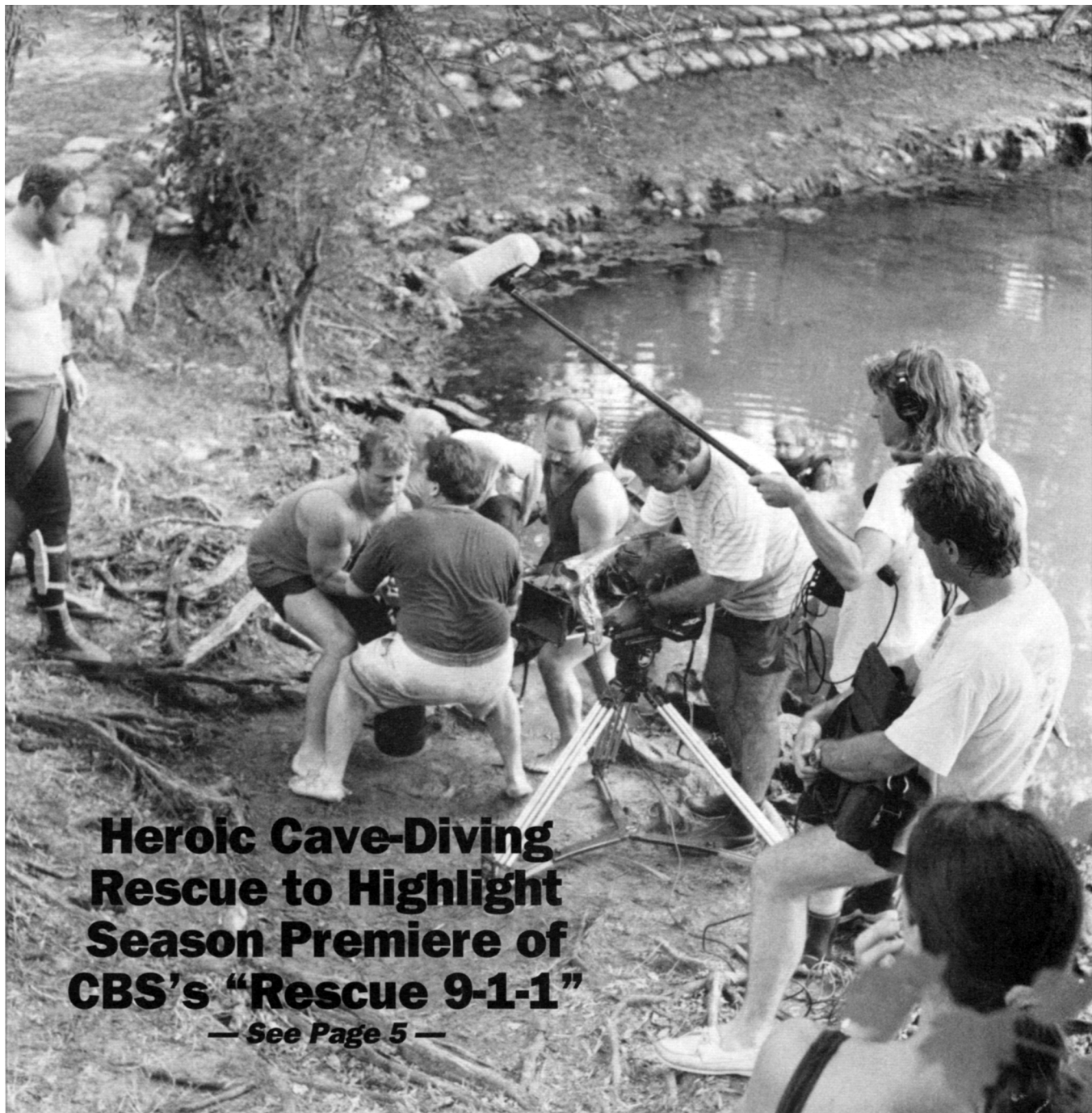




# UNDERWATER SPELEOLOGY

NATIONAL SPELEOLOGICAL SOCIETY • CAVE DIVING SECTION

VOL 17 • NO 3



**Heroic Cave-Diving  
Rescue to Highlight  
Season Premiere of  
CBS's "Rescue 9-1-1"**

— See Page 5 —

**Cave Diving Section of the  
National Speleological Society, Inc.**

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Cow Spring	Suwannee	70004	71004
Green Sink	Lafayette	70005	71005
Little River	Suwannee	70006	71006
Peacock/Orange Grove System	Suwannee	70007	71007
Rock Bluff	Suwannee	70008	71008
Twin Springs	Jackson	70009	71009

Cavern	Florida County	Blueline	Laminated
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(Gosh, folks — it sure pays to belong to the CDS, doesn't it? If you'd like to get member prices on these maps, just complete the membership application on the back cover and include it and your membership fee along with your order.)

As you've already read, cave-system map orders must include a photocopy of your Cave Diver card (equivalent of Basic or Intro to Cave, or higher) or, for cavern maps, your Cavern Diver card. Additionally, cave-system maps may not be offered for resale by dive stores, instructors or other individuals or organizations. (Sorry, folks, but you know what happens if these things find their way into the wrong hands...)

# UNDERWATER SPELEOLOGY

The official publication of the Cave Diving Section  
of the National Speleological Society, Incorporated  
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**Are you letting this copy of  
*Underwater Speleology* go to waste?  
— Pass it on to friends • Encourage them to join —**

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**The NSS and Cave Diving** — Founded in 1941, the National Speleological Society joins together thousands of individuals dedicated to the safe study, exploration, and conservation of caves. The first cave-diving information ever published in the United States was in a 1947 *NSS Bulletin*. In 1948, NSS divers were responsible for the first cave dives in the United States using scuba. Prior to 1973, cave diving within the NSS was on a purely local level. That year saw the creation of the NSS Cave Diving Section to provide a vehicle for information exchange. Today, with over 500 members, the Cave Diving Section promotes safe cave diving through semi-annual workshops; cavern- and cave-diving training programs; warning-sign installation; search, rescue, and recovery through the National Cave Rescue Commission; cave exploration and mapping; several texts and publications on cave diving; and the bi-monthly publication, *Underwater Speleology*.

**Membership** — The National Speleological Society welcomes the interest of anyone who has a sincere concern in the safe study, exploration, and conservation of caves, wet or dry. You may join the NSS either by writing to the NSS main office directly (National Speleological Society, Inc., Cave Avenue, Huntsville, AL 35810) or to the Cave Diving Section, using the form appearing on page 16.

As a sub-organization or section of the NSS, the Cave Diving Section is subject to the by-laws and ethics of the NSS. Membership in the Cave Diving Section is open to anyone who is a member in good standing of the NSS.

**Subscriptions** — If you do not wish to join the Cave Diving Section, but would like to keep current on cave-diving events, exploration and technology, you are invited to subscribe to *Underwater Speleology* for \$15.00 per year.

— See the Membership/Subscription Application on page 16 —

# UNDERWATER SPELEOLOGY Readers Help Shape Future Issues

At press time, nearly 10% of CDS members had completed and returned the *Underwater Speleology* Reader Survey that appeared in the last issue. From the data received, we were able to assess the type of subject matter readers would like to see in future issues of *Underwater Speleo*.

According to the surveys, our readers have a keen interest in news and commentary, followed closely by demand for "how to" and equipment-related articles. Articles, on topics such as geology and biology, were not as much in demand.

Now that we have a better idea of what you would like to see in *Underwater Speleology*, the next step is to figure out ways to get that information to you. It would be one thing if we were overwhelmed with submissions from a broad range of topics. In that case, we could simply pick and chose the submissions that best represented the mixture of articles our readers want.

Unfortunately, the range of topics from which people seem to be sending us articles is fairly narrow. We have, for example, a wealth of high-quality submissions on cave diving locations and procedures in Australia, New Zealand, the western U.S. and Canada. It will take us several issues to use up these articles.

Among the articles we seem to be short on those dealing with:

- How specialized cave diving equipment works, and aspects of its operation with which all cave divers should be familiar.
- Basic, consumer-level equipment maintenance procedures for cave-diving equipment.
- "How to" articles — particularly those dealing with new cave-diving techniques that may have been introduced after many of our readers learned to cave dive.

Therefore, if you are considering submit-

ting an article to *Underwater Speleology*, we certainly encourage you to do so. However, as you can see, we're really not looking for unsolicited manuscripts. Rather, we'd prefer that you call first, to help make certain that the subject matter you'd like to write about is something we can actually use. This way, you'll avoid writing about a topic that is of little use at the moment and we, on the other hand, will be able to guide you into writing an article that is one our readers want *right now*.

## Answers to Questions

To encourage response to the Reader Survey, we asked CDS members to respond anonymously. As a consequence, there were some comments and suggestions sent along with the survey forms that we cannot respond to personally. We simply don't know who sent them. Therefore, I'd like to address a few of the questions that survey responders asked.

- A small number of respondents expressed concern over *Underwater Speleology* accepting advertising. One only need look at diving's largest consumer publication to understand the basis of that concern. Fortunately, several factors should make us immune to such influence. For example, none of us who work on *Underwater Speleology* is paid for our efforts. Therefore, it makes no difference to us personally whether we offend an advertiser that makes a shoddy product or not. Additionally, the Section is healthy financially, making advertising a "nice to have," as opposed to a "need to have," item.
- While the topic most requested by readers was "news," at least two survey respondents indicated that they could do without the perpetual obituaries. The fact is, cave-diving accidents *are* news, and we would be ducking our responsibilities if we pretended they did not exist. The real issue is not whether we should cover cave-diving

accidents, but rather how much coverage they should receive. Look for this topic to be discussed in greater depth in future issues. (The best way to not have accident stories, however, is to figure out how to not have accidents.)

- One respondent asked why he could not have received the Workshop Program issue well in advance and, thus, have been able to base his decision to attend upon the Workshop's content. Because the Section's Workshops are volunteer affairs, it is difficult to nail down commitments from speakers until the last minute. Consequently, it is simply not possible to put together an accurate Program issue until shortly before each Workshop.
- One person asked us to print "how-to" articles on overhauling regulators. That type of information is readily available in general diving publications, such as *Scuba Equipment Care and Maintenance* and the *Encyclopedia of Recreational Diving*. (Not to mention that there are legal ramifications in suggesting that consumers service their own life-support equipment without factory training and authorization.)
- Finally, a reader suggested we use larger type in *sidebars* (the small stories that accompany larger ones). Not an unreasonable request; none of us are getting any younger. Presently, our "normal" sidebars are set in nine-point type — the same as *Time*, *Newsweek* and many newspapers. As of this issue, we kicked the type size used in "Accident Analysis" sidebars up a point and a half.

## "Rescue 9-1-1"

This issue's hot story is that Woody Jasper's heroic rescue of two very foolish divers will appear on the CBS series, "Rescue 9-1-1." Look or it on page 5. It's definitely the story of the year. — Harry Averill



# Popular Caves, Permanent Lines

by Wendy Short, Safety Program Coordinator, South

Imagine visiting a cave you have not been to for a while. You know your way around fairly well, so you plan a circuit dive. You and your buddy start the dive and, when you get to the second jump, *you can't find the offshoot line*. It was tied off to a prominent rock near the floor six months ago — where did it go?

You search for the missing guideline with your light, but to no avail. Did you perhaps not know this passage as well as you thought — *or did someone move the line*? What do you do? Tie off your jump reel and begin a search for the missing offshoot? Or simply call the dive?

At best, this unexpected change alters your dive plan. At worst, it causes stress, which may lead to more hazardous developments. *Clearly, if someone took it upon themselves to move the line without consulting others, he or she was not doing any one any favors.*

Recognized individuals from within the cave-diving community have, over the years, installed an extensive — but well

thought-out — system of main guidelines, offshoot lines and gaps, and directional arrows and distance markers in nearly all of north-central Florida's popular cave systems. If you have been in any of these systems over the past few years, you most likely have noticed how this system has evolved.

Most often, the main passages (those leading directly to an exit) in these systems have 1/8-inch *kernmantle*, or — as it is more commonly referred to, "golden braid" — installed in them. This heavy-duty line is made from Dacron, woven over a monofilament core. It's distinctive, gold color makes it easy to see, while its size and strength holds up well to heavy traffic and strong currents.

These "Main lines" (Bill Main often says, jokingly, that they are named after him) may be marked, at 100-foot intervals, with distance indicators — line arrows showing the direction and distance to the entrance. Other common permanent-guideline conventions include:

- Placing two or more line arrows next to one another on the line to indicate the close proximity of an offshoot line.
- Placing two line arrows back-to-back, indicating a mid-point (in distance — *not necessarily in swimming time*) between two entrances.

Offshoot lines are typically made from lighter-weight (number 24 or 36), braided, white nylon — the same as is commonly used on reels. With time, these lines may darken in color. Other than these differences in color and weight, however, offshoot lines in popular systems generally follow the same conventions as main lines.

Regardless of whether they are main or offshoot lines, the permanent guidelines you will find in most popular systems have been carefully laid to stay in place, not damage fragile structures, and avoid hazards such as line traps. Offshoot lines are generally installed in such a manner that you can see the start of the offshoot line from the main line.

...continued on page 4

## Letters & COMMENTARY

### Cave Divers Unfriendly?

*(Excerpted from a longer letter.)*  
This past Memorial Day I took an NSS Cavern Diver course and attended the NSS-CDS Spring Workshop. I am looking forward to my "Intro to Cave" course — despite the lack of encouragement (with the exception of a few individuals) from the cave-diving community.

Over the course of the weekend, I heard, "Keep open-water students out of our caves," "Teach them about the hazards," and "Teach them about cavern

diving" — yet, when I made the effort [to learn more], I suffered the cold arrogance of a closed community.

I have heard stories of famous explorers such as Sheck Exley and Wes Skiles. Well, *we* are the underwater explorers of the future. Groom us to be the best we can be.

— Donna Welch

*Editor's Note* — Complaints such as those of Ms. Welch are, unfortunately, not that uncommon. Cave divers do, at times, come across as a closed, aloof community.

*Let's face it: It's tough to con-*

*vey a message of safety if people think you're "above" talking to them. Just something to think about...*

### Holtzendorf Remembered

I believe Lewis Holtzendorff is missing from your list of Abe Davis Award recipients.

Lewis was killed in a Florida cave-diving accident in 1976. I do not know if he ever applied for the award, but I believe he did. At the time of his death, he had well over 100 cave dives. I noticed that his partner,

Courtland Smith, received the award; it is likely that Lewis did as well.

— Lawrence Lane

*Editor's Note* — Lewis Holtzendorf (also mentioned on page 7), was among the pioneers of cave diving. His demise was actually related breathing pure oxygen at depth, and was not technically a cave diving accident.

Holtzendorf is remembered, among other things, for inventing one of the first directional indicators, the "Dorf" marker. He has been sorely missed by the cave-diving community. ■

# The Safety Line

...continued from page 3

It is important to remember that, as with NSS-CDS and NACD warning signs, these permanent guidelines and directional markers have been installed to increase diver safety. *Please do not take it upon yourself to add to, change or move permanent guidelines, directional markers or distance indicators without consulting others.* Even a discrete change, such moving the start of an offshoot line from one wall to another, may cause others stress and confusion.

Now, whom should you consult with? That depends on the system:

- Steve Berman, Jay Bromenschenkel and Marc Eyring are the de-facto "line masters" of the Devil's Eye/Ear system.
- Consult either Steve Gerrard or Lamar Hires for anything pertaining to guidelines in the popular Suwannee River Valley systems.
- Steve Gerrard also has among the greatest familiarity with and involvement in the installation of guidelines in Tallahassee-area systems.

Each of these gentlemen is extremely familiar with the systems with which they are associated. Typically, they installed much of the present popular guideline in

these systems themselves. They are easy to reach by phone, and you are very likely to run into them at these popular dive sites on most weekends.

If you would like to become involved in the repair and/or replacement of lines within these systems, begin by contacting one of these individuals. A possible exception to this practice would, of course, be the installation of new, knotted survey line in virgin passageways. Still, having done so, it would not hurt to keep these gentlemen apprised of your progress.

Now, what if you do not intend to alter a cave's guideline system, but:

- Accidentally cut a guideline or disturb a tie-off or placement?
- Come across a guideline, tie-off or

placement that has been accidentally cut or disturbed?

If you are the person responsible for the damage, do your best to return the guideline to its original condition. If you did not cause the damage, repair the guideline to as close to its original condition as you remember. If you are not absolutely certain that a guideline has been returned to its original condition (and cannot repair the damage yourself on the next dive), report the situation to the appropriate person.

IF YOU HAVE additional questions or suggestions regarding the installation of permanent guidelines, please write to me and your comments will be addressed. The address is: Wendy Short, NSS-CDS, P.O. Box 950, Branford, Fla. 32008-0950. ■

## Who You Gonna' Call?

Before you do anything to alter the permanent guideline system in any of north-central Florida's popular cave-diving sites, contact and consult with one of the following individuals:

Area	Contact Name	Phone Number(s)
Devil's Eye/Ear	Steve Berman, Marc Eyring Jay Bromenschenkel	(904) 454-2202 (store)
Suwannee River Valley	Lamar Hires	(904) 752-1087 (work) (904) 755-5913 (home)
Suwannee River Valley Tallahassee Area	Steve Gerrard	(904) 877-8196 (phone) (904) 877-9782 (fax)

## Rescue/Recovery Team Area Coordinators

Rescue/Recovery Team members should immediately report any change of address or telephone to their Rescue/Recovery Team Area Coordinator.

### United States

*For areas outside those listed*  
Steve Ormeroid  
629 West 4th St.  
Marysville, OH 43040  
(513) 642-7775 (day)  
(513) 644-2559

### Alabama

Joe Dabbs  
1815 Inspiration Lane  
Huntsville, AL 35801  
(205) 534-8668 (day)  
(205) 544-0623 (eve)

### Arkansas

Cliff Rooker  
Rt. 1 Box CC  
Henderson, AR 72544  
(501) 488-5144

### Florida — North (Area One)

Lenny Kolczynski  
8338 Knotts Landing Dr. East  
Jacksonville, FL 32244  
(904) 246-6506 (day)  
(904) 771-1522 (eve)

### Florida — Northwest (Area Two)

G. E. O'Brien  
5429 Hamilton Bridge Rd.  
Milton, FL 32571  
(904) 994-6082 (day)  
(904) 994-4540 (eve)

### Florida — Central (Area Three)

Joe S. Harrell  
8162 Darts St.  
Brooksville, FL 34613  
(904) 596-4395 (day)  
(813) 847-8102 (eve)

### Florida — South (Area Four) Caribbean

Joe Prosser  
7400 N.W. 55th St.  
Miami, FL 33166  
(305) 592-3146 (day)  
(305) 966-0619 (eve)

### Georgia

John Crea  
P.O. Box 1906  
Bainbridge, GA 31717  
(912) 246-9349 (day)  
(912) 246-3500 (eve)

### Texas

Jim Bowden  
P.O. Box 49461  
Austin, TX 78765  
(512) 928-4747

To initiate a request for the NSS-CDS Rescue/Recovery Team, call the Jacksonville (Duval) County Sheriff's office at (904) 633-4159, and ask for the National Crime Information Center (NCIC) operator.

## WANTED: Map Requests

CDS Vice Chairman and Map Program Coordinator, Frank Howard, has asked Section members to forward their requests for "the three maps you'd most like to see added to the Section's inventory."

You can send your list directly to Frank at 334 Portico Court, Chesterfield, MO 63017.

# Heroic Cave Diving Rescue to Highlight Season Premiere of CBS's "Rescue 9-1-1"

**W**oody Jasper's rescue of two open-water divers from the cave at Otter Spring will highlight this season's opening episode of the CBS's prime-time series, "Rescue 9-1-1." This episode, tentatively slated to air in early September, will help underscore the danger of cave diving without proper training, as well as document the heroism of one of cave diving's most-accomplished, yet least-known participants.

Thanks, to a large degree, to the underwater videography of Wes Skiles, this episode faithfully recreates virtually every aspect of the accident and rescue. It was shot on location at Otter Spring the week of July 16. Several of the individuals present at the incident, including Woody, play themselves. The role of the accident victims was recreated by cave divers Tom Morris, Pete Butt, Lamar Hires and Jim Gabriel.

While videotaping the re-creation, Wes and his team of actors pioneered several new and dramatic methods of underwater stunt work. As a result, the story you will see represents the most accurate depiction of the events, as they unfolded, as is humanly possible.

You can help promote safe cave diving by alerting divers in your area to this episode, and encouraging them to watch and heed the message the show offers. ■

## Woody Jasper's Courage Makes Possible the "Miracle at Otter"

If you've not already had the opportunity to read about Woody Jasper's unprecedented rescue at Otter Spring in either *NACD News*, the *Gainesville Sun* or other Florida or national newspapers, here's a synopsis:

On Saturday, May 19, an International Diving Educators Association (IDEA) Instructor Trainer and four past Open Water Diver students left the Tampa Bay area for a day of spring diving in north-central Florida. Before leaving, and repeatedly throughout the day, the instructor admonished her group not to enter underwater caves. Nevertheless, she took them to Otter Spring — a site where, at the present time, there is little else for divers to do but visit the very advanced cave that lies at the bottom of the basin. Additionally, she allowed the divers to enter the water with lights — in violation of park rules.

The instructor accompanied the divers to the cave entrance, where she again signalled them not to enter — and left. One of the divers accompanied her to the surface. The remaining three entered the cave.

Almost immediately, the three divers stirred up the fine, feathery silt that coats the caves floor, walls and ceiling. Disoriented, and unable to see, the three searched in vain for the entrance until running out of air. One

diver passed out, settled to the floor and drowned. The remaining two ascended to a small air pocket where, after consuming what little oxygen the air there contained, they, too, passed out.

While all this was going on, employees of Continental Water Company were enjoying a company picnic overhead. At this point, the fact these employees had been trained in Basic Life Support (CPR) was of little value. Not only were they unaware of the tragedy taking place below them, there was nearly fifty feet of limestone between them and the victims.

By all rights, this story

should have ended in a triple drowning. However, it just so happened that among the picnickers was Continental's Vice President of Operations, Woody Jasper.

Alerted to the emergency, Woody immediately suited up and entered the water. Within minutes, he located the two unconscious divers who were lodged in the air pocket.

Because he thought he felt one of the divers move, Woody used his octopus to fill the air pocket with oxygenated air. As neither diver took the octopus, Woody pulled one down from the air pocket and towed him

rapidly to the entrance. Here Continental employees began CPR and successfully restored breathing and circulation to the lifeless victim.

Woody, meanwhile, was on his way back to the second diver. By this time, the oxygenated air with which Woody had filled the air pocket had brought the unconscious diver around. This diver gratefully accepted Woody's octopus and was escorted to the surface.

On his third trip into the cave, Woody located the body of the third diver, who drowned 20-30 minutes earlier. Still, what should have been a triple drowning was reduced to a single one.

Woody's actions constitute the first successful underwater rescue of divers in a cave of which we are aware. Since the rescue, people who have learned of Woody's action have praised his courage in entering such a dangerous cave. The irony is, due to Woody's training, equipment and years of experience, his willingness to simply enter Otter was no big deal.

*What truly establishes the measure of Woody's courage is the fact he did so knowing full well that he might encounter violent, panicky, air-starved divers whose numbers could have easily overwhelmed him.*

Yet, his willingness to take this risk resulted in the saving of two lives. Truly, what Woody has accomplished is a miracle. ■

### Accident Analysis

**Training** All three accident victims were certified as entry-level, open-water divers. None had any formal training in cave or cavern diving, other than their instructor's admonishment to not go in caves.

**Guideline** The Otter Springs system has a permanent guideline that begins just out of sight of the entrance. The victims, however, did not run a temporary guideline between open water and the beginning of the permanent guideline. Additionally, none of the victims had training that would have prepared them to follow their guideline to open water in low visibility.

**Air** What type of air-management plan the victim's may have formulated is not known. It is not likely that any air management planning was done.

**Depth** The entire Otter system is less than 50 feet deep. It is unlikely that depth played any significant factor in this incident.

**Lights** Most or all of the divers carried a single, small, battery-powered light. Although light failure, per se, was not likely a significant factor in this accident, no light — no matter how powerful — can penetrate the fine, feathery silt usually present in Otter.

**Other** Due to the small passageways and the presence of fine, easily-disturbed silt, Otter Spring is considered by most experienced cave divers to be an advanced cave dive. Many cave divers are not even told about the existence of Otter until they have completed several dozen cave dives.

The victims' instructor admonished them on several occasions not to go in caves; nevertheless, she took them to a site where there will little else to do but go in a cave, allowed them to enter the water with lights, conducted them to the entrance and then left them there. So, while the victims' verbal instructions were to do one thing, their unspoken instructions may have implied something very different.

# Cave Diver Drowns at Diepolder Sink Number Two

May 11, 1990, Weeki Wachee, Florida — A 25-year-old Hudson, Florida, man — who completed a Full Cave Diver course in December, 1989 — drowned after becoming separated from his buddy, in heavy silt, while exiting the downstream section of Diepolder Sink Number Two. This was the fourth of five overhead-environment fatalities that have taken place in Florida this year, and the sixth in the past two years involving a certified Cavern or Cave diver.

The victim and his buddy entered the water after dark and just prior to two other teams of cave divers. Their intention was to complete the downstream circuit. It was the victim's first dive at this site. Recent, heavy rains had reduced visibility significantly in the basin and entrance.

Following the guideline through the entrance restriction, the pair encountered near-zero visibility in the junction room. Taking the downstream guideline, the divers broke into blue water on the upper circuit line, briefly corrected a buoyancy problem, signalled *okay* to one another and began a slow descent on the lower circuit line, heading farther into the cave.

Halfway through the dive, the victim dropped momentarily below the lower line, which lies at a depth of 250 feet. He then began to exit at a quickened pace.

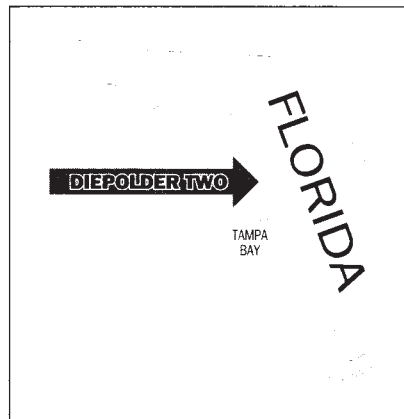
After swimming some distance, both divers re-entered the junction room (now heavily silted) at a depth of 210 feet. Losing grasp of the exit guideline, the victim apparently became disoriented and attempted to swim back into clear water. Unseen by either the two exiting survey teams or his buddy, he wandered back out into the downstream ballroom and, after some time, re-located a marked line. It was at this point that the victim was apparently overcome by anxiety, coupled with a host of other problems.

Thinking the victim had exited, his buddy began decompressing in the basin, in low visibility. Then, with mounting concern, the buddy began a search of the basin during his 30-foot stop. A repeat dive into

the junction room by the buddy and another cave diver failed to locate the victim.

Seventeen hours later — and after 25 minutes of searching — the first team of recovery specialists located the victim's body on the cave floor, at a depth of 241 feet. The team placed an underwater beacon near the body and exited. Shortly after entering, the second recovery team located the body and began towing it toward the junction room. Seven hours later, the third recovery team completed the final step: extrication of the victim and his equipment through the entrance restriction.

It appears that the victim was disoriented for a period of time, re-established his bearings — but was then overcome by



*The Diepolder System is located near Weeki-Wachee, close to the Gulf coast between Crystal River and Tampa. It has been closed indefinitely by the Board of Directors of Florida Speleological Researchers, Inc.*

CO<sub>2</sub> buildup and narcosis. Apparently unconscious, he drifted to the bottom and, at some point, breathed the remaining air from his tanks.

The first recovery team could not determine in which direction the victim was headed, even though a line marker was within eight feet of where his body landed. The victim was found in a vertical, head-down/fins-up attitude. There was no evidence of a struggle. — *Dustin Clessi* ■

## Accident Analysis

**Training** The victim was certified as a Full Cave Diver just six months prior to the accident and had logged only 75 cave dives since that time. Others have reported that the victim had a penchant for pushing himself "too far, too fast" for the limited experience he had gained over so short a period of time. A desire to emulate more-experienced cave divers may have been a factor in his attempting such an advanced dive.

**Guideline** Separation from the guideline was the apparent catalyst for the chain of events that followed. Losing guideline contact in unfamiliar caves is uncomfortable at best; in low or zero visibility, it can be disastrous. While the victim in this situation eventually re-located the line, he lost precious air and time doing so.

**Air** The victim's buddy reported that the victim began the dive with 3,600 p.s.i. This matches notes on the victim's slate. The slate also indicated a planned turn-around at 2,000 p.s.i. However, due to the excitement of seeing a new cave for the first time, there is a good possibility that the victim turned with less than this amount — with the intention of relying on previously placed decompression bottles at the conclusion of the dive. The victim's buddy — who was much more experienced at this type of diving — reported having "called" the dive upon reaching two-thirds of his starting pressure.

**Depth** The victim's body was found at a depth of 241 feet — 20 feet deeper than any of his previous dives. His computer indicated that he reached a maximum depth of 252 feet during the dive, which was close to the planned maximum depth of 250 feet the victim had written on his slate.

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

**Lights** The victim was equipped with numerous backup lights and a primary light with a 100+ watt bulb. It is unlikely that lack of adequate lights was a contributing factor to this accident.

**Other** Diepolder Sink Number Two is noted for its size, depth and outstanding water clarity within the cave. Visibility near the entrance normally equals or exceeds 20 feet. However, due to heavy rains prior to the dive, visibility in the basin was reduced to three feet. In the entrance restriction and junction room, there was no visibility.

This system is regarded as a very advanced cave dive. It is not recommended for newly-certified cave divers using standard equipment — particularly in any attempt to set personal depth records. The cave is popular among highly experienced cave divers, who occasionally use mixed gas to penetrate deeper levels. Although he was low on air, had the victim used mixed gas, his probability of survival would have been enhanced.

# NSS-CDS Introduces New *Cave Diving Communications* Text

The National Speleological Society Cave Diving Section (NSS-CDS) has introduced a brand-new reference manual and textbook devoted entirely to the art of underwater communications in caves. Written by CDS Training Chairman Joe Prosser and publications specialist H.V. Grey — with illustrations by Wayne McKinnon and Grey — the book covers all aspects of in-cave, underwater communications, including:

- Sound signals
- Light signals
- Hand signals
- Use of slates
- Touch-contact
- Use of reels and guideline markers for communication

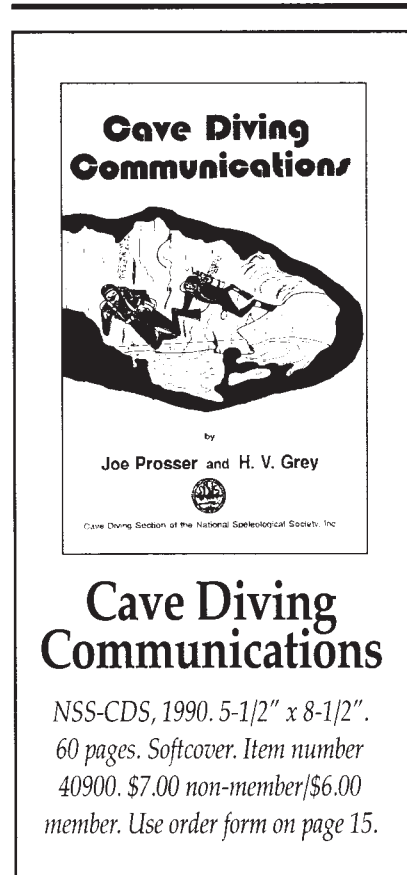
Because underwater communications in caves is a highly visual activity, virtually every concept discussed in the book is accompanied by one of McKinnon's or Grey's extremely clear and precise illustrations. And, just so that *Cave Diving Communications* is not too serious, it is liberally sprinkled with Grey's cartoons.

*Cave Diving Communications* was designed to fulfil a variety of purposes. Any cave or cavern diver will find it to be a valuable addition to his or her reference library. Additionally, instructors and students will discover that it makes a significant contribution to the curriculum at any level of Cave or Cavern Diver training.

The new *Cave Diving Communications* text is a good example of the NSS-CDS's emerging "modular" approach to educational materials. Rather than publish an all-encompassing — yet difficult to up-

date — text on cave and cavern diving, the CDS has committed to producing smaller, more specialized books such as the *Cavern Diver Manual*, the *Student Cave Diver Workbook* and, now, *Cave Diving Communications*. These books can be much more readily added to, changed or replaced as future needs dictate.

*Cave Diving Communications* is available now, either through the CDS, or from one of the many dive centers that specialize in cave and cavern diving. ■



## Whoops!

The first printing of *Cave Diving Communications* contains two errors that have since been corrected.

On page 29, the hand signals for the numbers six through nine are shown backwards. When giving these signals, the signaller should show the receiver the back of his or her hand — not the palm side, as was depicted in the first printing of the book.

On page 38, Lewis Holtzendorf and Lewis Henkel are identified as being the same person. Although both were pioneer cave divers, they are separate individuals.

In the early 1970s, Lewis Holtzendorf invented and popularized the concept of marking guidelines with directional indicators made from tape. These "dorf" markers remained the preferred method of marking guidelines until plastic line arrows were invented some time later. Holtzendorf died in a mixed-gas accident in 1976.

A contemporary of Holtzendorf, Henkel is responsible for much of the early exploration of Florida caves. It is for him that the Henkel restriction in the Devil's Ear system is named. Lew has retired from active cave diving and today operates the Odyssey chain of scuba centers in central and northeast Florida.

Only a few hundred copies of *Cave Diving Communications* containing these errors were printed. Those that were in stock after the errors were discovered we destroyed and replaced with corrected versions. If you, by chance, received an incorrect copy — either at the Spring Workshop or at the Instructor meeting that took place at the same time — return the erroneous copy to the Section. We will replace it at no charge. ■

## And, Speaking of Corrections...

In the last issue of *Underwater Speleology*, I managed to misspell Milledge Murphey's name, not once, but several times — and in at least two different, incorrect manners.

Well, at least it wasn't intentional.

For the record, the correct spelling is M-u-r-p-h-e-y. I apologize for the error. In the future, I intend to concentrate on misspelling other peoples' names instead. — Harry Averill, Editor ■

## For Sale

**Orca EDGE Dive Computer**  
Excellent condition. \$425.  
Call Dave Engelbrecht at  
(407) 859-1925.

# UNDERWATER SPELEOLOGY to Accept Advertising

**B**eginning immediately, *Underwater Speleology* will accept paid advertising from manufacturers, resorts, dive centers, instructors and other businesses that wish to reach cave-diving consumers. Advertisers will benefit from the fact that *Underwater Speleology* provides an inexpensive, cost-effective means to reach one of the most highly-desirable consumer groups in diving. *Underwater Speleology* readers (i.e., CDS members) will benefit in two ways:

- They will receive more up-to-date, comprehensive information about the products and services available to cave and cavern divers than they may be presently getting.
- Advertising income will not only cover much of the cost of producing and mailing *Underwater Speleology*, it will eventually enable us to expand the size and content of *Underwater Speleo* at no increase in cost to readers.

The acceptance of advertising is a "win-win" situation for all involved. It enables advertisers to reach the vast majority of active cave divers for a fraction of the cost of direct mail. Yet the cost of each page of advertising, while eminently affordable, nevertheless pays for itself and two additional pages of editorial content.

The acceptance of advertising in *Underwater Speleology* was approved by the CDS Board of Directors at their May 26 meeting in Branford, Florida. After ensuring that the key concerns of all involved were addressed —most notably, how to keep *Underwater Speleo* from turning into an advertiser-controlled piece of mindless drivel (like a certain well-known diving-consumer magazine is often characterized as being) — the Board agreed to go ahead with the proposal to accept advertising.

Within the next few weeks, advertising rate and contract information will be sent to prospective advertisers. Ad rates and sizes are presented here for reference; advertisers should consult the forthcoming

rate information package for more details. Our ad sizes are the same as those used by the vast majority of dive-industry publications; thus, an advertiser's existing ad materials will generally work in *Underwater Speleology* without modification.

Specific requirements to which advertisers must adhere include:

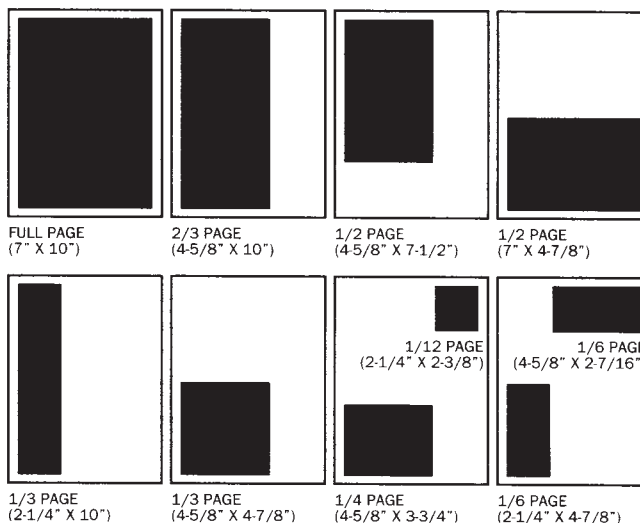
- Advertising must be consistent with the NSS-CDS's efforts to promote cave-diving safety and conservation.
- Advertisements must not contain retail prices nor encourage readers to purchase life-support or specialized cave-

diving equipment through the mail or over the telephone — a situation in which proof of training cannot be adequately verified.

The CDS reserves the right to reject any advertisement it feels is not in the best interests of *Underwater Speleology* readers.

THE ACCEPTANCE OF advertising in *Underwater Speleology* presents new opportunities for the CDS and the businesses and organizations that service the cave-diving community. It is an important step in the growth and development of cave-diving and its participants. ■

## UNDERWATER SPELEOLOGY Ad Sizes



## Advertising Rates

Frequency (times per year)	1 Time	3 Times	6 Times
<b>Four Color</b>			
Full page	\$249	\$237	\$225
<b>Black and White</b>			
Full page	\$135	\$128	\$123
2/3 page	\$100	\$95	\$91
1/2 page	\$81	\$77	\$74
1/3 page	\$61	\$58	\$55
1/4 page	\$47	\$45	\$43
1/6 page	\$34	\$32	\$31
1/12 page	\$28	\$26	\$25

# New Guideline Installed at Devil's Eye and Ear System

Earlier this year, an NSS-CDS Instructor took a group of Cavern Diver course students within site of the first warning sign in the Devil's Ear system. As is a common practice in courses taught at that site, his intention was to show them how rapidly surface light disappears as soon as one turns the corner into the main corridor, thus emphasizing the importance of staying within sight of the entrance. This was not the only lesson the students learned that day, however.

"I know what this dive was *really* about," beamed one of the students at its conclusion. "You wanted to see if we could dodge all six of those guidelines and not get entangled, right?"

Well, this was *not* the intention of the dive — although it is certainly understandable why the student might feel that way. Until a few months ago, the main corridor from Devil's Ear, through the Lips and on to the start of the permanent line at the Key Hole, has often looked less like a popular cave-diving site and more like an obstacle course.

The problem is that individual teams of cave divers, in a conscientious effort to adhere strictly to the rules of accident analysis, would each run their own temporary guideline from the entrance all the way to the start of the permanent line. Strictly speaking, of course, this is the only way in which a number of teams, entering and leaving the system at different times, could be assured of having at least one continuous guideline that could take them from the end of the permanent line, to the entrance, in an emergency. Unfortunately, it takes only a small number of such guidelines in a convoluted, high-flow system such as Devil's Ear, to present a greater risk than they eliminate.

An additional problem is that some cave divers, with motivations ranging from, "I don't want to add to the problem," to, "I'm too good to ever have an accident," have been diving the system with-

out laying a temporary guideline. Their belief has typically been that they "knew the system well enough" to be able to make it all the way from the Key Hole to the entrance in total darkness. Unfortunately, a controlled experiment conducted by CDS Board members Mark Leonard and Lamar Hires several years ago demonstrated that even highly experienced divers (ones with over 1,000 dives each in the Devil's Ear system) have, at best, only a 50% chance of reaching the entrance in total darkness — and then only by taking 30-40 minutes to

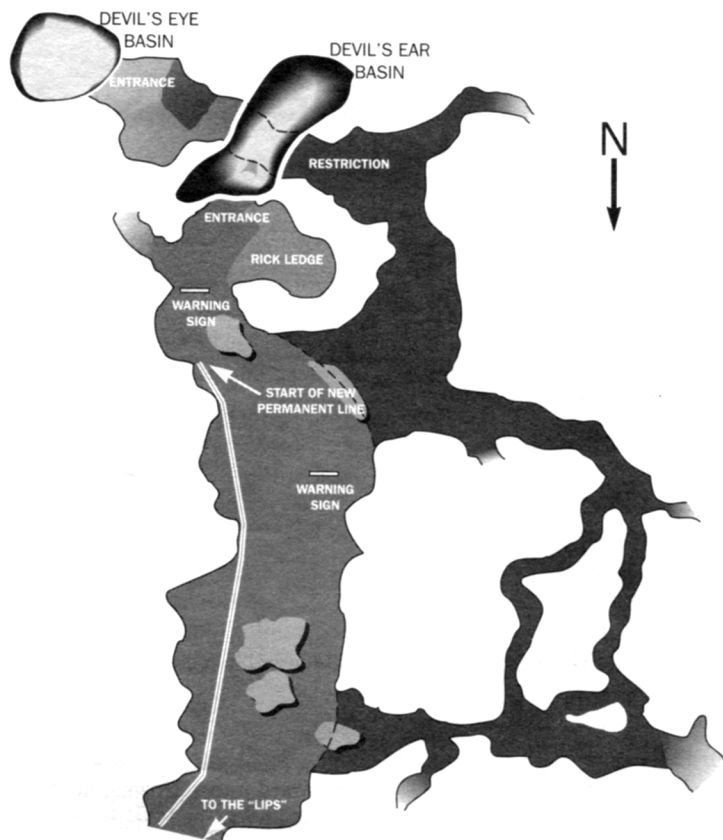
grope their way along what is usually a five-minute swim.

Obviously, with the increasing number of cave divers using the system — particularly during the early-Spring floods — something had to be done to rectify the situation. Fortunately, NSS-CDS Instructors Steve Berman, Jay Bromenschenkel and Marc Eyring — with an assist from Chris Van Winkle — have done just that.

Their project began when Marc Eyring made the decision to take a primary

...continued on page 10

## Devil's Eye/Ear Entrance



**Please Note** — This map is intended to show the approximate location of the start of the permanent guideline only. It should not be used for navigation.

# New Line at Devil's Eye

...continued from page 3

reel, run the guideline from a popular tie-off point inside the entrance to the start of the permanent line and leave it there. Thus, at the height of the increased cave-diver traffic during the flood, dive teams did not have to install their own separate temporary guideline to dive the system.

During this period, Marc, Steve, Jay and others gathered opinions as to what type of permanent alternation in the guideline should be made. The consensus was:

- Increased supervision at the entrance to the system has greatly decreased the likelihood of untrained divers entering the systems with lights. This had been the original reason for starting the permanent line so far back in the system.
- A number of divers expressed a desire to have the start of the permanent guideline moved significantly closer to the entrance, thus reducing the risk of entanglement in others' lines.

During the latter half of April and early

May, Steve, Jay and Chris installed new golden-braid guideline 1,900 feet back into the system. This line, which was donated by the NSS-CDS, begins near the top of the right-hand wall of the main corridor, immediately above the first warning sign. Although it is within a few feet of being in direct sight of the entrance, its near-the-ceiling location makes it difficult for untrained divers who might sneak into the system to find it. Such divers tend to remain at the floor; being 20 feet overhead, the line will be all but invisible to them.

From its starting point, the line continues along the right-hand wall of the corridor, through the Lips, and on to the Key Hole. From here, it continues along the path of the old main line. Line arrows with distance markings are placed every hundred feet, and indicate the total distance to the system's entrance at Devil's Ear.

With the exception of cavern

dives, it has been a long-standing standard of practice to *not* tie off temporary guidelines outside the entrance of the Devil's Ear system. (This is done to discourage open-water divers from following cave divers into the system.) Because the start of the new line is less than 50 feet from where most teams used to tie off inside the entrance, and almost within direct sight of the entrance, most divers who are aware of the new line have dispensed with running temporary guidelines altogether.

Although this is contrary to a strict interpretation of the rules of accident analysis, any risk is largely mitigated by the system's high flow and almost total lack of silt in this area. Additionally, dispensing with temporary lines all but eliminates risk of entanglement at the end of the dive.

For more information about the new guideline, or about any aspect of the Devil's Ear system, contact Steve Berman or any of the staff of Ginnie Springs by calling (904) 454-2202. ■

## 1990 NSS-CDS Instructor Institutes Scheduled

At the May 27 instructor meeting in Branford, Florida, the CDS Training Committee set the dates for this year's CDS Instructor Institutes. The dates are:

- Cavern Diver Instructor Institute — September 8-9
- Cave Diver Instructor Institute — November 10-11

The institutes take place in the Peacock/Orange Grove area and at Ginnie Springs — one day at each.

This year's institutes will provide the opportunity to test and evaluate a new Instructor Evaluation curriculum being developed for the NSS-CDS by Steve Berman and Harry Averill, under the direction of Training Chairman Joe Prosser and Instructor Evaluators Jamie Hempstead and Lamar Hires. Patterned, in part, after the instructor training and evaluation materials and procedures Harry helped develop while working at NAUI and PADI Headquarters, the new curriculum is designed to provide for greater objectivity in

the evaluation process while, at the same time, making it possible for instructor candidates to achieve even higher levels of performance.

CDS Instructors and Instructor Sponsors are invited to participate in this year's institutes. In so doing, they can help assess and refine the new curriculum — as well as begin to master the art of being an Instructor Evaluator. Those instructor who are not yet Sponsors — yet who would like to learn how to be effective ones — can also begin this process at the Institutes.

Candidates for Cavern or Cave Diver Instructor, who will have completed all internship requirements and other prerequisites by the time of their respective institutes, are encouraged to attend. Sponsors, Instructors and candidates who are interested in participating in the institutes are asked to contact Harry Averill as soon as they can, so that they may receive program materials as early as possible. For registration and other information, call (904) 454-4585, or fax (904) 454-4602. ■

## NSS-CDS to Exhibit at International Dive and Travel Show

On October 11-14, the NSS-CDS will exhibit at the 1990 International Dive and Travel Show (IDTS) in Orlando, Florida. As they did last year, the show's sponsors, the Florida Association of Dive Operators (FADO), have graciously provided the Section with a complementary booth.

The IDTS is held each year at the Orange County Convention Center. It affords the Section a chance to interact with the diving public and businesses.

The first two days of the show, Thursday and Friday, are open to the dive stores, resorts and instructors only. The last two days, Saturday and Sunday, are open to the general public.

If you are interested in helping staff our booth, contact Pete Butt at (904) 497-4823. The Section can use your help providing cave diving safety information and interacting with the diving trade and the general public. ■

## 1992 Wakulla Springs Expedition Asks For Scientific Proposals

On June 1, the organizers of the 1992 Wakulla Springs Expedition issued a Request For (Scientific) Proposals (RFP). The request is for scientific projects that can be conducted in conjunction with the primary scientific objective of the expedition, which is to explore and map the underwater caves conveying water to Wakulla Springs. RFPs were sent to university professors and senior research scientists with various state and federal agencies.

Relevant research topics include: hydrology, archeology, paleontology and hyperbaric physiology — although other topics may be pertinent. Preference will be given to proposals for studies that either require the support of advanced diving equipment or that would directly benefit from being conducted simultaneously with the expedition.

Scientific proposals are due by October 15. The expedition organizers are required to submit a scientific study proposal to the Division of Parks and Recreation by December 1. The scientific

studies program will then be incorporated into the final permit.

Persons who wish to obtain a copy of the RFP are invited to contact: Bill Wilson, Science Coordinator, 1992 Wakulla Springs Expedition, 3543 Norwich Court, Casselbury, FL 32707, (407) 695-3414 (work), (407) 695-8563 (home).

*The RFP is not a request for volunteer divers.* Divers who know professional researchers may wish to bring the RFP to the researchers' attention and discuss assisting the researchers with their studies. Please do not respond by sending a resume.

The 1992 Wakulla Springs Expedition will be conducted from September 1 through December 31, 1992, at the Edward Ball-Wakulla Springs State Park. It may well be the largest expedition organized for the purpose of geographic exploration, in the United States, since Lewis and Clark.

The expedition is entirely a volunteer effort. The organizers are counting on the cave-diving community's support to realize this voyage through inner space. ■

## Romanian Cave Divers Seek Contact

For several years, a group of Romanian cave divers has been actively exploring underwater caves in their country, in association with the Emil Racovita Speleological Institute. Until the December, 1989 revolution, this group operated informally — and, technically, illegally. Now, however, things have changed.

Able to operate in the open, the group is actively seeking correspondence, information exchange and visits from cave divers around the world. If you would like to get in touch with these folks, write:

Speleological Institute "Emil Racovita"  
Bucharest Group for Cave Diving  
Explorations  
Str. Frumoasa nr. 11.73114  
Bucharest-12, Romania  
(011) 40-0-50-3465

As you can imagine, this group is most likely very much in need of safe, modern equipment. This should be high on your list of discussion topics when you contact them. ■

## In Memory of a Friend

**June 25, 1990** — Dr. Sanchez called from Key West this morning. Mario Mitchell lost his latest battle in a two-year fight against insurmountable odds: intestinal blockages and surgery in 1988, colon cancer and a colostomy in 1989, a debilitation physical condition what did not help, and a brief recovery in 1990 that put that "twinkle" back into his 34-year-old eyes — briefly.

Those of you who are new to cave diving or who have not had the opportunity to meet this fine man may not be able to give his passing the thought it is due. But, those of you who did know Mario will, I'm sure, be saddened by it.

Mario was a genuine friend of diving — cave diving in particular. He was an academician in the truest sense: an Open Water, Cave Diving, Water Safety, CPR and First Aid Instructor. He held Associate, Bachelors and Masters degrees, and was an Emergency Medical Technician (EMT) and cave photographer.

Mario was fragile of frame and stature (so what if we helped him get those 104s down the hill at Olsen?). More than once we

transferred his equipment to my vehicle because his new Toyota smelled like a sink-hole. And more than once did I trip over equipment on his apartment floor in Tampa — only to land, face-first, on a fresh stack of diving-medicine journals.

Mario had more back issues of *NACD Journal* and *Underwater Speleology* than their respective editors did. Okay, so he may not have been Jochen Hassenmeyer in the water; however, he was our number one pick for being on the bank or in the boat if a diving medical emergency did occur.

Mario was the "absent-minded professor" who staunchly supported in-water oxygen decompression back in 1983. He contrived theoretical mixed-gas tables before we even knew who Bill Hamilton was. And he never said a bad word about any diver or instructor — even if that person was *really* bad.

Mario, before you run that last reel (and providing Saint Peter agrees), I'd like the opportunity to back you up one more time — when my time comes. I miss you Mario. We all miss you. — *Dustin Clessi*

## More Warning Signs to be Installed

NSS-CDS Instructor Phil Sirota is in the process of constructing additional aluminum frames for the NSS-CDS/NACD/PADI "Grim Reaper" warning signs. When completed, these signs will be posted at cave sites, throughout Florida, that have been identified as needing new or additional signs.

The aluminum frames that Phil has designed have proven to be a rugged, tamper-resistant means of installing the plastic signs. Phil has donated considerable time and energy to this project — all with the aim of protecting the lives of uneducated divers.

You can help Phil in this effort by volunteering to help install the sign at those dive sites that need them. For more information, contact Phil by calling (904) 963-2904. ■

# Cave Diving on Bonaire

by John Burge

The average cave diver probably thinks of Bonaire, Netherlands Antilles, as simply a "basic bubbler's paradise" — and indeed it is. However, contrary to popular belief, Bonaire *is not* a tropical island. In fact, it is rather arid and sustains only about 20 inches of rain per year. There are no rivers or streams. Consequently, there is little drainage of land matter into the surrounding waters to have any detrimental effect on the water clarity or reef pollution.

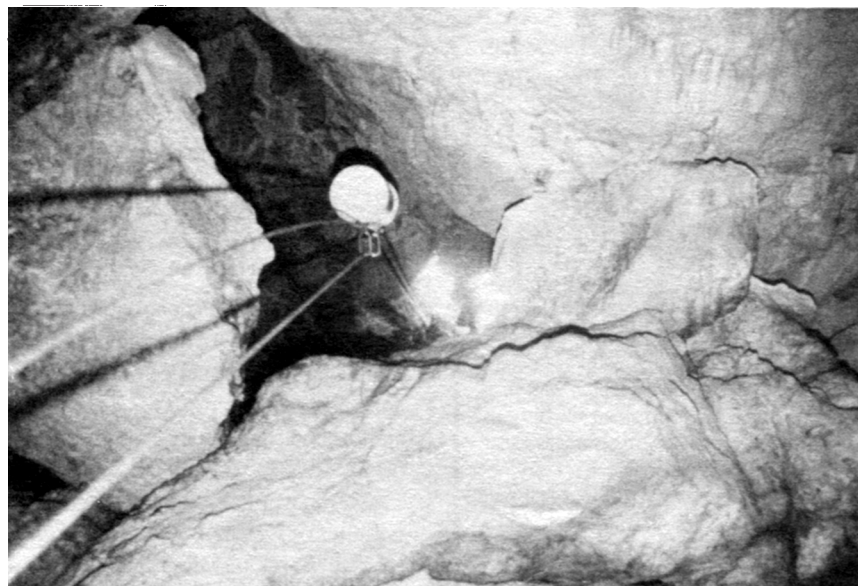
As you would expect, there are caves in the coral reef. Typical surface sea caves are abundant along the walls, and subsurface coral caves among the buttresses are not uncommon. However, unknown even to many Bonairians and local expatriate dive experts, there are also some in-

land, underwater caves on Bonaire. Not well known, mostly unexplored, none surveyed, and virtually all of them sumps.

Geologically speaking, Bonaire is a relatively young island. Unlike most other Caribbean islands, its origins are volcanic — from eruption some two million years ago. During these past two million years, there have been four distinct water levels, which resulted in the formation of four different reef structures and, therefore, four distinct levels of limestone plateaus. These limestone plateaus, in some areas are up to 40-50 meters thick. The first and lowest level, which is the level of the beach front, the city of Kralendijk, and the airport runway, is some 90,000 to 110,000 years old. The second level, some 5-15 meters above the first, dates back over half a million

years. The third level, back over a million years, and the fourth and highest, of course, to origin.

The island is a volcanic mass covered with plateaus of limestone — a condition which favors the formation of solution caves by the gradual erosion of the limestone through the percolation of surface water, albeit relatively little. These caves

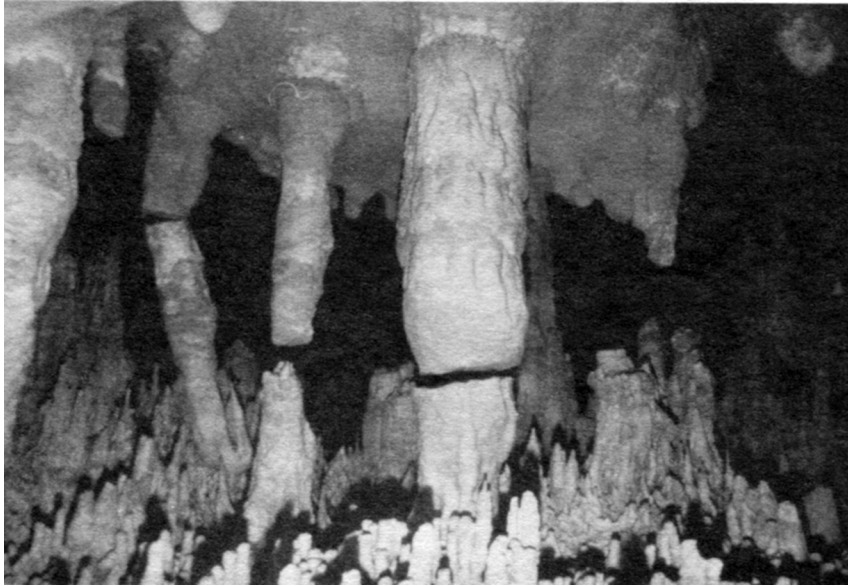


*Looking up the gear-haul pitch in Rooi Cadushi*



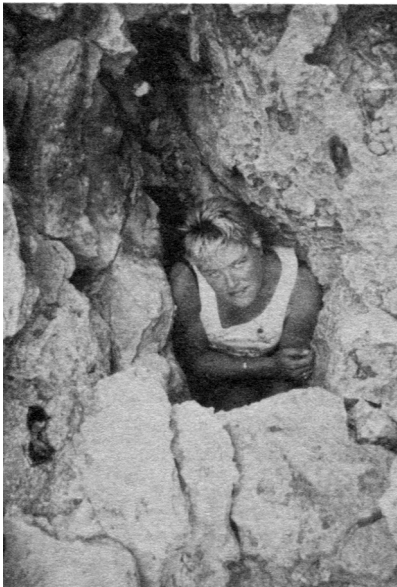
*The author and Anne Louise Tuke rigging the pitch for an 80-foot vertical descent into the Greco system*

are generally located above the first level and typically between the lower reaches of level two and the upper reaches of level three. Between these levels lies the subsurface water. Through some of the dry cave breakdowns this subsurface water level



Formations in the passage beyond "The Lake Room" in the Greco system

can be reached, thereby allowing access to the underwater sections of some of these caves which I suppose to be the Bonaire aquifer. Also, having been once dry and subjected to solution and then refilled, some of these caves contain beautiful



Malin Kaijser in main and largest entrance to Urugyan di Suid

speleotherm formations. These underwater spectacles are all sumps and can be reached only by access through a dry cave which requires more than jumping down a hole with some cave dive gear. In fact, special equipment and some vertical cave techniques of varying degrees of sophisti-

cation are required to access those of any significance. These caves have several characteristics in common:

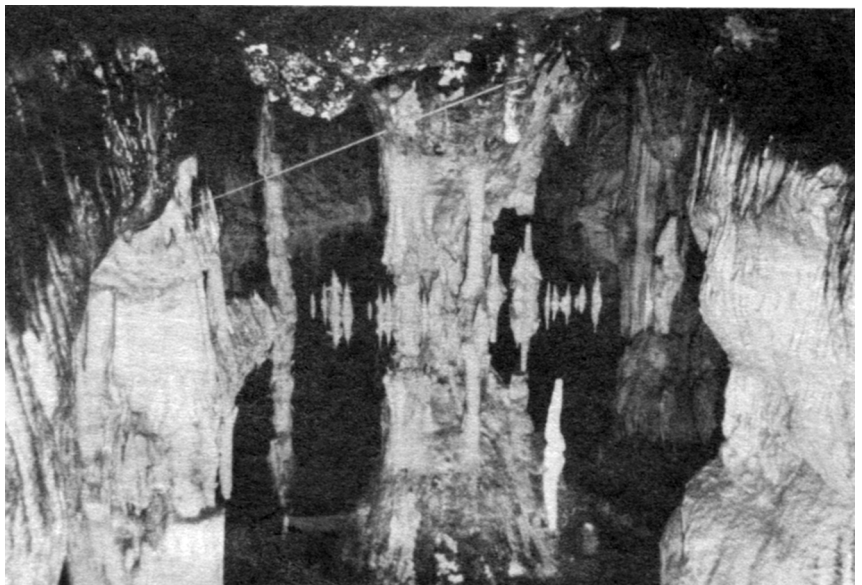
- They all are *no-flow* sumps, having been in this state for some several hundred thousand years to over a million years.
- *Silt* is the byword of the day. The visibility upon entering is typically infinite, but the bottoms are Silt City and passages are frequently low — with two to three feet of height being common.
- The karst structure is complex — like a big chunk of Swiss cheese, so care in navigation and good line protocol are mandatory.

- The environment is *extremely* delicate. Some of the formations from both the floors and the ceilings are like glass, and just bubble percolation hitting the ceiling in all instances dislodges large flakes from the overhead. A careless diver could wipe out half a million years of speleo beauty in a wink!
- Hydrogen sulfide appears to be quite abundant and, of course is layered, thereby causing some extreme haloclines as the water is mixed by the movement of a diver's body mass through the passages. *Great* going in; *weird* coming out!

Two of the underwater systems which I have accessed and in which I have begun survey and photo documentation projects are Cueva Rooi Cadushi (Cave of the River Cactus) in the Greco system and Cueva Urugyan di Suid (Cave of Quicksand of the South) in the Watapana system.

Cave diving in Bonaire is *caving and diving*. The dry caving implications can't be ignored. The silt is big time — requiring exceptionally good technique. The logistics are such that this activity is best done there on an extended stay. Don't even bother unless you have vertical gear.

I have a second home on Bonaire, so I am very fortunate to have had the time to dive Bonairian caves. I keep a complete set of cave diving and vertical gear there and am now doing survey and photo documentation. A grade 3C survey of Urugyan di Suid is well under way. ■



A chamber deep in to the Watapana system that I have named Reflection Perfection

# NSS-CDS Cave/Cavern Diving Instructors

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608 Heather Lane  
Orange City, FL 32763-4832  
(904) 775-4032
- ★ Harry Averill .....218  
The Idea Factory  
P.O. Box 873  
High Springs, FL 32643  
(904) 454-4585 (office)  
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## Symbol Key

- ☆ Cavern Instructor
- ★ Basic Cave Instructor
- ★ Full Cave Instructor
- ⊕ Instructor Sponsor
- ◇ Survey Instructor



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### NSS Policy on Conservation (Please Read and Sign at Bottom)

The National Speleological Society believes: that caves have unique scientific, recreational value; that these values are endangered by both carelessness and intentional vandalism; that these values, once gone, cannot be recovered; and that the responsibility for protecting caves must be assumed by those who study and enjoy them.

Accordingly, the intention of the Society is to work for the preservation of caves with a realistic policy supported by effective programs for: the encouragement of self-discipline among cavers; education and research concerning the causes and prevention of cave damage; and special projects, including cooperation with other groups similarly dedicated to the conservation of natural areas. Specifically:

All contents of a cave — formations, life and loose deposits — are significant for its enjoyment and interpretation. Therefore, caving parties should leave the cave as the find it. They should provide means for the removal of waste; limit marking to a few, small, removable signs as are needed for surveys; and, especially, exercise extreme care not to break or soil formations, disturb life forms or unnecessarily increase the number of paths through an area.

Scientific collection is professional, selective and minimal. The collecting of mineral or biological material for display purposes, including previously broken or dead specimens, is never justified, as it encourages others to collect and destroys the interest of the cave.

The Society encourages projects such as: establishing cave preserves; placing entrance gates where appropriate; opposing the sale of speleotherms; supporting effective protective measures; cleaning and restoring over-used caves; cooperating with private cave owners by providing knowledge about their caves and assisting them in protecting their cave and property from damage during cave visits; and encouraging commercial cave owners to make use of their property to aid the public in understanding caves and the importance of their conservation.

Where there is reason to believe that publication of cave locations will lead to vandalism before adequate protection can be established, the Society will oppose such publication.

It is the duty of every Society member to take personal responsibility for spreading a consciousness of the cave conservation problem to each potential user of caves. Without this, the beauty and value of our caves will no longer remain with us.

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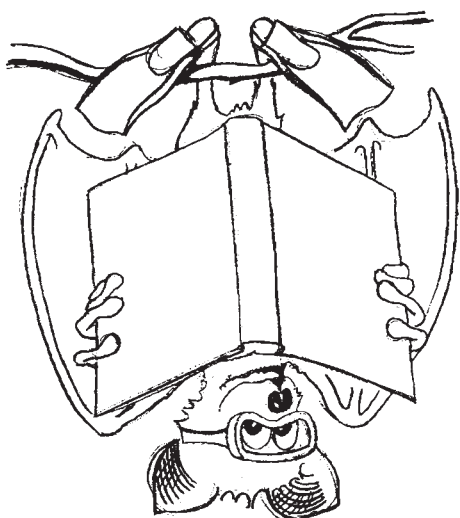
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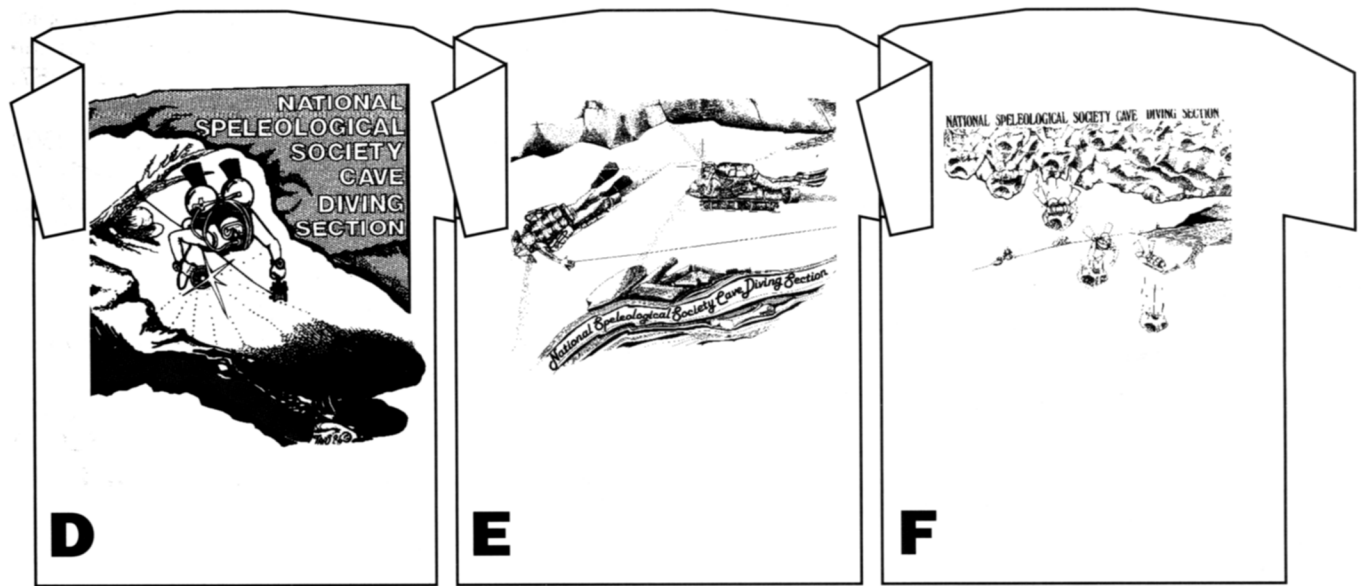
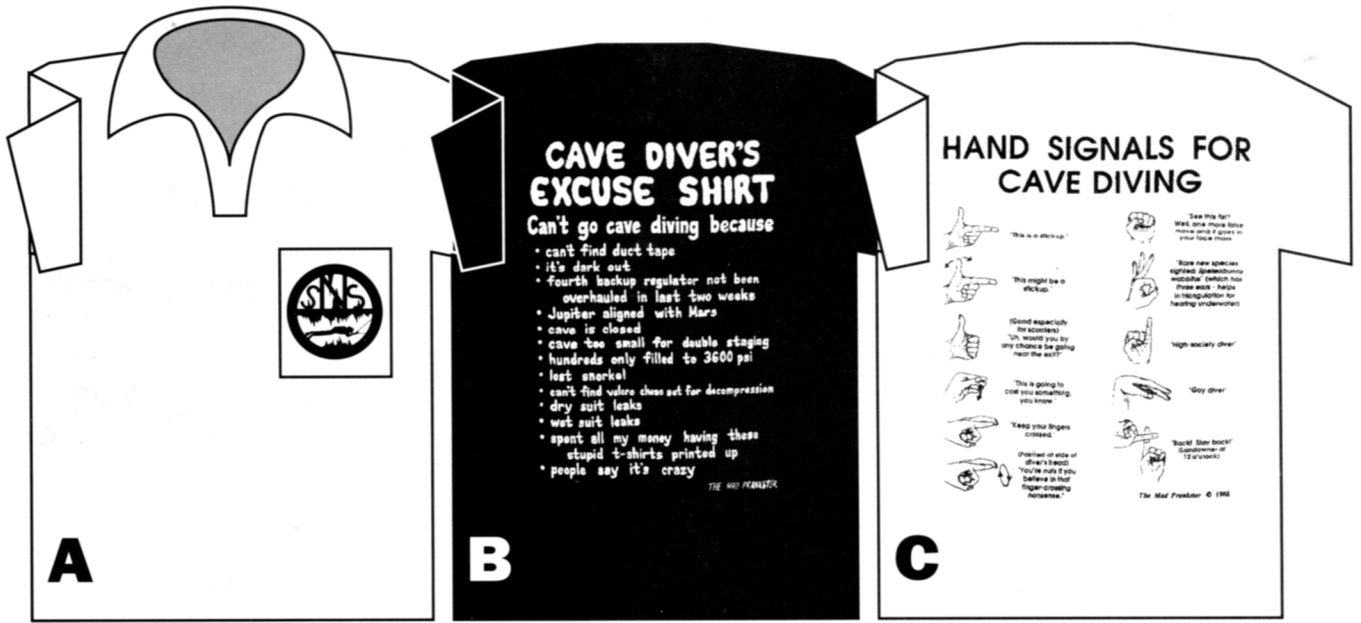
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