

# UNDERWATER SPELEOLOGY

Volume 10 No. 1

NATIONAL SPELEOLOGICAL SOCIETY  
**CAVE DIVING  
MANUAL**



**NSS CAVE DIVING SECTION**

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\* \* \* NEWSLETTER SUBMISSIONS \* \* \*

All submissions to the newsletter are  
gratefully accepted. We will mail you  
a notice that your article has been re-  
ceived and the estimated time of publica-  
tion only if requested. Since all art-  
icles must be re-typed anyway, all we  
want is a readable copy. It is not nec-  
essary at all that the article be typed.  
Further, we need short notes to fill in  
spaces at the end of articles as well as  
longer works to more thoroughly explore  
certain subjects.

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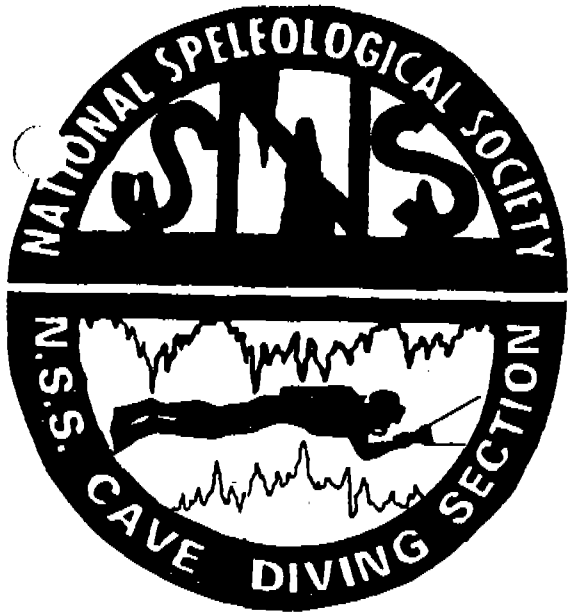
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*You're Invited!!*

**21st Cave Diving Workshop**

**May 28, 1983**

**Branford High School**

**BRANFORD, FLORIDA**

**SLIDE SHOWS, TALKS  
DEMONSTRATIONS, FUN!!**

This invitation is extended to all those interested in spending an enjoyable and educational day in beautiful North Florida Spring Country. Please note the one day format and location.

TALKS AND PRESENTATIONS ON A VARIETY OF SUBJECTS INCLUDING:

- Introduction to Vertical Caving for the Cave Diver.....Steve Hudson
- Sump Diving.....Forrest Wilson
- What's New in Research and Medical Aspects.....John Zumrick
- The Florida Manatee.....Dave Reed
- News from the NSS CDS Recovery Team.....Henry Nicholson
- History of the Cave Diving Section.....Sheck Exley
- Cave Adventures.....Wes Skiles
- Building a Gap Reel and Equipment Modifications.....Wayne Marshall

PLUS MUCH, MUCH MORE....YOU WON'T WANT TO MISS THESE AND OTHER INFORMATIVE PRESENTATIONS, SLIDE SHOWS AND DEMONSTRATIONS.

**Registration Begins at 8:00**

**Workshop At 9:00 A.M.**

Registration:

Name \_\_\_\_\_

Address \_\_\_\_\_

NSS# \_\_\_\_\_

Certifications Held \_\_\_\_\_

Enclosed is check or money order made payable to  
NSS Cave Diving Section for \$ \_\_\_\_\_

Postmarked on or before May 10th...NSS CDS MEMBERS...\$3.00

All Others.....\$5.00

After May 10th...PAY AT WORKSHOP...NSS CDS MEMBERS...\$5.00

All Others.....\$7.00

\* \* \* FREE FLOW \* \* \*

by Wayne Marshall

Well here we are again, friends. The hot off the presses juicy stuff that dreams are made of. I don't want to mention any other names as they might be embarrassed to have them known, but a recent trip to Die Polder's resulted in the direct observation of one of our Section member's behaving in a most unusual manner. Vaughan Maxwell was observed to be wearing purple nail polish with sparkles mixed in. The quote of the hour from Vaughn was "At least my buddy doesn't mind diving with a homosexual!" When questioned further, Vaughan tried to recruit your Editor into what he claimed was the latest rage for all "REAL MEN". Wrong again, Vaughan. I have a note from my mother that says that I am normal!

I am trying hard to be objective about this, but it is only my job to present the facts as I know them. I leave it to you dear readers to make your own value judgements. You really had to be there! I hope Connie doesn't find out. The girl friend is always the last to know.

Next stop takes us up to the Branford Dive Center. Gene tells us that he and Wes are touring the Eastern Seaboard giving an hour and 20 minute talk about cave diving and promoting the virtues of cavern diving instruction. A very commendable job, guys. Also congratulations to Wes Skiles for being promoted to supervisor of the Dive Shop and Second Stage restaurant operations. This means that Lamar Hires is now the manager of the Dive Center. Lamar tells me that he was really happy to be made manager just in time to clean up the flooded shop! Nice timing, Wes!

Wes is also now entered in the great log book in the sky for the invention of probably the newest and best contribution to cave diving techniques in this

decade. It seems that he wanted to save a little time exiting from Azure Blue Sink in his vertical climbing gear. Now for those of you not familiar with the entrance to this system, it really does require vertical gear to negotiate the 30 ft. entrance shaft to the water.

Wes was finished with his dive, a little tired, and wanted to avoid having to raise his doubles up on a separate rope. The idea was to clip onto the rope with his ascenders and then just climb out, tanks and all. No problem until he realized that the tanks were upsetting his balance and causing him to flip over backwards! Seems like he might have thought of that before he was 10 ft. out of the water! Anyway, when his arms started shaking from the strain and gave way, Wes did a beautiful back flip into the water as his chest ascender pulled loose. Only problem was that he was still connected by his knee walkers! He is now suspended head first and waist deep in the water and highly motivated to find a regulator! One of those deals where you really had to be there to see that one! Paul Smith was underwater below all this and I'm certain he could have sold tickets to the show.

Steve Straatsma tells me that diving and surveying has resumed in the Nexus Sink system. This cave has the potential to regain the world's longest underwater cave back from Lucayan Caverns in the Bahamas.

The system has zero visibility most of the year, which hampers surveying the 35,000+ feet of passageway just a little bit. That figure would be the minimum needed to regain the title for an American Cave. No sweat, right Steve?

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NEW MEMBERSHIP RENEWAL PROCEDURES! !

You may have noticed a slight change in your mailing label for Underwater Speleology. This is due to a subtle

but very significant change made in the way that membership renewals are processed. In the past, whenever a member renewed or joined the Section their period of membership was entered into the system for a period of time equal to six issues of Underwater Speleology. This created a situation whereby memberships were expiring throughout the year. While there are many good reasons for using this system, there are also many good arguments in favor of an annual renewal date. Foremost among these is that the Section can better plan its finances and activities.

We have observed the greatest amount of activity in renewals at the two annual workshops anyway, so the Board of Directors decided that we would establish May 15th as our annual renewal date. This would allow anyone that had not renewed by the deadline to do so at the Summer Workshop. In addition, this would insure the largest number of current members for the October-November mailings of Ballots and other pertinent items.

Certainly the potential for someone to be inconvenienced by this measure exists, but it will result in considerably less work for the Treasurer and will also produce more consistency in mailings of our newsletter to all our members. Before, we had members that were in effect renewing whenever their sixth issue of Underwater Speleology came out. If a person was not aware of this fact or if it slipped by, then there was not any real notice until one noticed the lack of any newsletters for a while. NOW YOU'LL KNOW!

\*\*\*\*\*  
 \* \* \* YOUR NEW EDITOR \* \* \*

Please allow me to take this opportunity to introduce myself to those of you that I have not had the pleasure of meeting and getting to know as friends yet.

While the last 6 months has been one of transition for the newsletter, it has resulted in not quite as many issues of Underwater Speleology as we had planned, but the transition is now complete.

I would like to thank John Zumrick on behalf of the membership for his continuing efforts to bring a measure of professionalism to our newsletter. This job is one that no one should ever have to do alone, and John received assistance from many of you to make the newsletter the success that it was. The fact remains however, that it is always easier to talk about sending an article to the editor than it is to actually sit down and produce. I know that John's style and dedication is appreciated by all of you that have enjoyed the fruits of his labors for these past two years. I for one have looked forward to each issue of Underwater Speleology as it has come out so that I could keep up with the antics and goings on of the many friends that I hold dear in our little community of cave divers. Thank you John Zumrick for your energy and work for these past two years.

By way of self-introduction, let me tell you a little about your new Editor. I intend to be here a while, and you will all come to know a little more about my slightly irreverent philosophy and perspective as we go along. I have served as a newsletter editor once before, and I guess enough water has passed under my bridge that when the opportunity presented itself to become Editor of Underwater Speleology, well, it seemed like the thing to do at the time! Until one year ago, I was a Diving Officer for a scientific and vocational training organization based in Florida. I have been diving for about 15 years now and have some 3,000 dives to date, most of which have been to depths in excess of two feet. I have been a certified diving instructor for 12 years and a Cave Diving Instructor since 1979.

I tire very easily so must generally talk others into carrying my gear. This results in only a few hardy souls that will let me dive with them. I cannot understand the rumors about my kinky habits to do with neoprene, either. It seems only fitting that the newsletter be produced by someone that is already crazy as I have been assured that the job will drive me crazy anyhow. I have stayed up late many nights rehearsing my lines in order to convince those who know me that I have in fact STAYED on the good side of the sanity curve! We shall see.

I believe that any job taken on must meet several criteria. Among these are;

- 1) It must be worthwhile. That is, some benefit to others must accrue.
- 2) It must possess challenge and reward in relation to the difficulty of the task at hand.
- 3) It must bring me in contact with as many nice people as possible.
- 4) It must be personally rewarding.
- 5) It must be fun.

Let me assure you folks that I want to have a good time as your Editor. We intend to have a pretty relaxed and informal approach to the job and still reserve the right to speak to serious issues when the subject matter or the mood requires such treatment.

Hopefully, you will all read the intended humor between the lines! It is placed there in the dark of the night by my word processor and I truly have no control over its production!

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\* \* CUBA, KARST, AND CAVE DIVING \* \*

by JILL YAGER

The adventure began in the Havana Airport on a rainy day in January. The Immigration officers were amazed to find two gringos in the country without visas

but apparently planning to stay for a while. Dennis Williams and myself were on our way to the first Latin-American and Caribbean Speleology Federation meeting, in Vinales, Cuba. We did have an official telegram, and after about an hour we were out the door and totally on our own.

It was like stepping back into a scene from a night in Casablanca: a taxi ride in a vintage 1950 automobile through dark rain-swept streets. The only clue as to where we were was an occasional neon billboard proclaiming the virtues of the worker or something about Yanqui imperialism.

After jokingly checking our spartan, but clean hotel room for electronic devices, we met Tom Iliffe, the Bermuda representative (and NSS/CDS member) in the bar over glasses of Cuban Rum.

The next morning we travelled about three hours by tour bus to Vinales, a small town east of Havana, in the heart of spectacular tower karst. Our hotel for the week of meetings was unbelievable in all respects. It was out in the country several miles from Vinales and quite charming with a red tile roof, huge swimming pool, and Spanish balconies. The room had a refrigerator stocked full of Cuban cerveza, a bottle of Bulgarian red wine and Cuban gold rum. The view from the balcony overlooked a valley dotted with mogotes, Spanish for tower karst. As soon as we checked in, we all ran to our windows, and all I could hear were contented sighs and cameras clicking!

Tuesday morning the delegates went to the opening ceremonies in a small valley surrounded by mogotes, in front of the Mural of Prehistory. This was a huge scene depicting evolution from protozoans to dinosaurs to man, painted on the side of a mogote. The ceremony was attended not only by delegates from Latin America and the

Caribbean, but also quite a few other countries worldwide and approximately 500 Cuban members of SEC, their national Speleological Society.

With about 2 minutes notice, I had to prepare a short speech in Spanish because each representative brought greetings from their country to the group and to Antonio Nunez Jimenez, the president of SEC. At this time various scientific publications and gifts such as cave books and posters were also presented. The following countries were represented: Bahamas, Bermuda, Jamaica, Dominican Republic, Puerto Rico, Venezuela, Peru, Brazil, Canada, France, Spain, Czechoslovakia, Poland, England, Russia, Belgium, Hungary, and Italy.

We had two all-day excursions to caves. These were not for exploration, but were tours led by Senor Jimenez, and everyone was invited! So over 300 of us piled into buses, trucks, and cars and then walked for miles along fields of tobacco to get to the huge cave systems. Despite the teeming masses we were able to cave quietly and in a small group. Dennis took many slides which we hope to share with the Section during some Workshop.

Cave diving in Cuba began 18 years ago, in cenotes south of Havana. However, it was not until recently that wet caves were explored by trained divers. In 1980 a team of 7 Czechoslovakian and 7 Cuban cave divers pushed caves in the south of the country along the coast. In caves 20 KM from the ocean they found tidal flow. Most of the caves were reported to be well decorated, and some had a hydrogen sulfide layer. Twenty caves were explored and 5 were chosen to be looked at in detail.

In 1982 another Czech-Cuban team was organized. In three weeks, a small region of the country with over 50 caves was explored and a film was made documenting the effort.

So far, none of the work is available in print and no one in Cuba has yet seen the movie.

We met only one Cuban cave diver while at the conference and there seem to be only 2 or 3 in the country. Reinaldo Perez Machado was very eager to speak with us about techniques and gear used to explore caves. Renny was trained in Czechoslovakia and from seeing some of his underwater cave pictures, he seems to be off to a good start. Equipment there is somewhat of a problem and is expensive. As with all cases, ingenuity prevails. Renny's primary dive light is made from the top of a SCUBA tank, lathed out and fitted with a motorcycle reflector and quartz bulb.

The objective of the meetings was to organize and kick off the formation of FEALC, the Latin-American and Caribbean Speleology Federation. From the enthusiasm of the participants, I think this organization will be an active one.

In all, the conference was a terrific international exchange of ideas. The lack of any political overtones also helped set an atmosphere of good will. I hope I am able to attend the next one.

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 \* \* \* IMPROVE DIVER VISION \* \* \*  
 \* \* \* WITH POLARIZERS \* \* \*

by SCOTT MORRIS

Lights are one of the most necessary devices a cave diver has. However, while everyone is always trying to make them brighter and/or smaller, few give consideration to the properties of light. There are several ways to improve your vision without fiddling with the actual light source. This article will discuss one such technique.

One of the properties of light that few people think much about is polarization.

This is the property of light to tend to have its wave structure oriented along a specific direction or plane.

Normally the beam from your dive light will be polarized in a random fashion. That is, it will not be oriented in any specific direction (i.e. horizontally or vertically polarized). However, several things can happen to change this state of affairs.

In a silt-out condition the predominate feature we all notice is the sheet of light in front of us. This light reflects off the silt back into your eyes. This is analagous to driving in the fog with your lights on. The brighter you make your lights, the less you see.

However, this reflected light has an interesting property. Approximately 80 % of it is polarized in a horizontal plane. If you could remove this component of the light you could see further. This phenomena is explained by the fact that light tends to polarize itself along the plane of the surface it strikes (i.e. the glare across a lake on a sunny day). Also, calcite is a natural polarizer used in laser systems.

Well, removing the horizontal component is easier done than said. At most photo shops you can buy polarizer material, preferably adhesive backed, and apply it to your mask. There is a specific way that it should be applied. The polarization pattern must be in the vertical plane. There are two simple techniques to test with;

1) If you have a set of Polaroid sunglasses you should still be able to see thru them if the polarizer material is applied properly.

2) If the polarizer is installed properly you should be able to read your LCD watch or calculator.

Some of you won't like it because the effect is like looking thru sunglasses and this defeats the purpose of your mega-

candlepower lights. However, if you only polarize the bottom 2/3 of your mask all you have to do is shift your eyes to see thru one or the other.

(Ed. note: the last suggestion should be no problem for all the shifty-eyed people I dive with!)

I personally prefer to look through the polarized section, as this tends to keep my dark adaptation intact when my light reflects into my eyes. It also seems to increase my depth-perception of what I see.

Of course this is not a cure all. Your light can still only penetrate so far in silty water, but it does increase your ability to see. You can't see clearly, but by removing that glare and letting your eyes remain dark adapted, you can see shapes and shadows, which beats the heck out of seeing nothing.

Ed. note (This is a technique which is probably new to many of you, as it was to me. Sure does sound interesting! A few other methods of dealing with the problem of vision in silty water are to switch from your primary to a less powerful backup light until out of the silty area and also to move your light as far away from your eyes as you can. By moving your light out to the side, many times the bounce-back of light will not be directly into your line of vision. This will allow you to see much better under certain conditions.-GWM)

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\*\*\* DONATION MADE TO \*\*\*  
\*\*\* N.S.S. BUILDING FUND \*\*\*

The Board of Directors has voted to donate the sum of \$235.00 to the N.S.S. Building Fund on behalf of the Section. This amount was determined by figuring one dollar per current member in the section as of April 30, 1983. The first dollar of YOUR donation has been paid, NOW WHAT ABOUT THE REST !

The following addresses are for those of you that are interested in subscribing to other International Cave Diving newsletters.

Info-plongee

Federation Francaise de Speleologie,  
94 Rue Michelet, 01100 Oyonnax, France

Cave Diving Group Newsletter

Z Oliver Lloyd, Withey House,  
Withey Close West, Bristol BS9 35X

We will continue to publish other addresses as they are obtained.

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\* \* \* MANATEE SPRINGS UPDATE \* \* \*

After receiving reports from all over the country that Manatee Springs was closed to diving operations, I was understandably concerned. Upon checking with Capt. Perras, Park Superintendent, I found that was not the case at all! In fact, the recent heavy rains had caused the main Spring and the run to be closed to swimmers! When the river is very high, there is a safety factor which prevents adequate supervision of the swimmers. Now the plot thickens!

The local people that were being denied their swimming hole felt that it was not appropriate for them to be restricted from swimming if divers were being allowed in the spring and the run. Capt. Perras has asked me to explain that he doesn't want to be in position of discriminating against the local swimmers in favor of divers, or vice versa.

Therefore we are being asked to cooperate with the Park Management to assist them in their efforts at preventing drownings of the swimmers. It all makes good sense to me! Catfish Hotel was never closed to diving and is not affected by this situation.

Now doesn't it make sense that we would be most cooperative with the rangers in this area? Can you say SAFETY? I thought you could! Can you say GOOD RELATIONS? I thought you could!

In addition, Capt. Perras advises me that permission must be obtained IN ADVANCE AND THAT DIVERS MUST LOG IN WITH HIM OR THE ASS'T PARK SUPERINTENDANT in order to dive Friedman's Sink. I suggest that you plan in advance whenever possible to make certain that you are expected on the day that you plan to dive.

No fooling folks, we have regained access to this site by virtue of our promises to cooperate with their year-long survey of the diving traffic in Friedman's and in the other areas of the Park. This survey is for both Open Water and Cave/Cavern diving.

Sue's Sink remains closed to diving because of the desire to provide privacy and security to the overnight campers in the area of the sink.

I will continue to correspond with the Captain and to speak with him directly on this matter whenever possible.

He has also requested some volunteer help from Section members to assist with the Park's annual Hydrilla Weed Clean-up and Party. As you may know, this plant is tremendously well adapted to survival in that it can propagate faster than you can think erotic thoughts! Now that's fast! Anyway, we will want to have all the help we can muster for this project.

The biggest need is for scuba divers, although there is plenty to do for non-divers as well

Capt. Perras tells me that anyone that helps pull weeds is welcome to camp in the Park for free. THE DATE WILL BE IN EARLY JUNE AND WILL BE ANNOUNCED AT THE WORKSHOP.

HOW TO KILL A GROTTO or SECTION

Maybe you know members like those below.

Even the strongest organization can be undermined if its members are guilty of these "don'ts":

Don't participate beyond paying your dues--let "them" handle things. Then complain that members have no voice.

Decline all offices and committee appointments--you're too busy. Then offer vociferous advice on how "they" should do things.

If appointed to a committee, don't work--it's a courtesy appointment anyway. Then complain because the organization has stagnated.

If you do attend management meetings, don't initiate new ideas. Then you can play "Devil's Advocate" to those submitted by others.

Don't rush to pay your dues--they're too high anyway. Then complain about poor financial management.

Don't encourage others to become members -- that's "selling." Then complain that membership is not growing, AND NONE OF YOUR FRIENDS BELONG TO THE SECTION ANYWAY

Don't read the mail from headquarters -- it's not important, anyway. Then complain that you're not kept informed.

Don't volunteer your talents -- that's ego fulfillment. Then complain that you're never asked, never appreciated.

Don't talk to land owners when visiting their property. After all, they can't do anything about trespassers..... and besides, they don't know one cave diver from another. Then take it as a personal affront when no one is welcome at that site again.

Don't sit in on all the presentations at the Workshops and Seminars. After all, what could you possibly learn that will help you to live to be one of the old mossback cavers.

Never submit anything to the Newsletter. That is really not what the "cool" members do. It is much better to complain that you never see any news from your part of the country. After all, the Editor really doesn't dive where you do anyway.

And if by chance, the Section grows in spite of your contributions, grasp every opportunity to tell the youngsters how tough it was; how hard you worked in the old days to bring the Section to its present level of success.

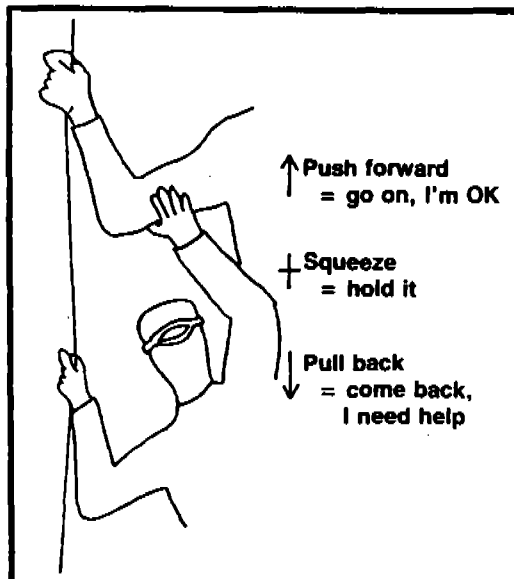


Figure 12-3: Rimbach System

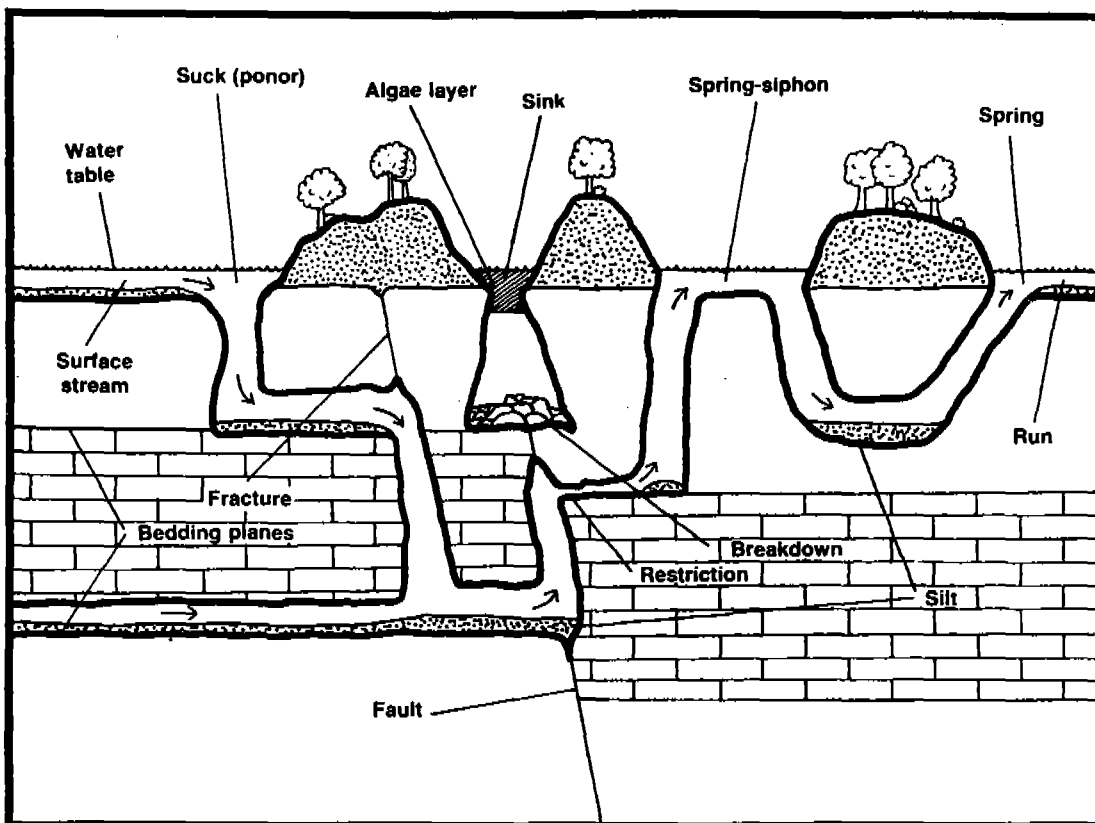


Figure 2-1: Typical Spring System

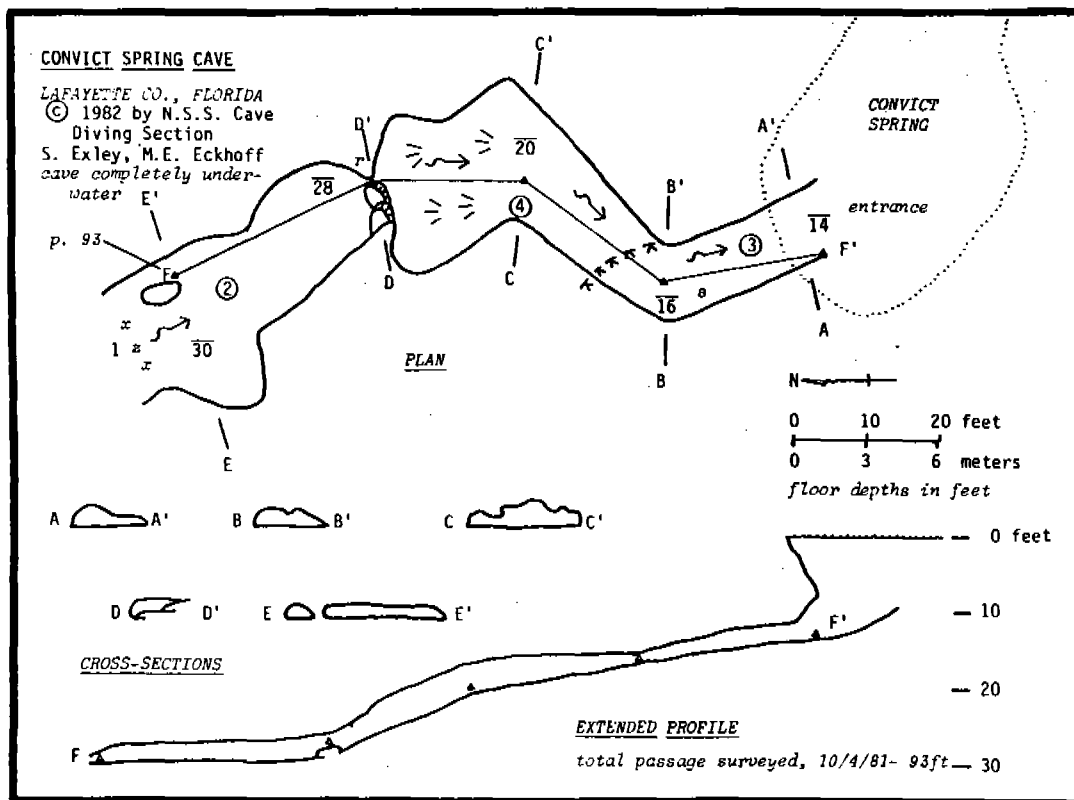


Figure 14-1: Types of Maps

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