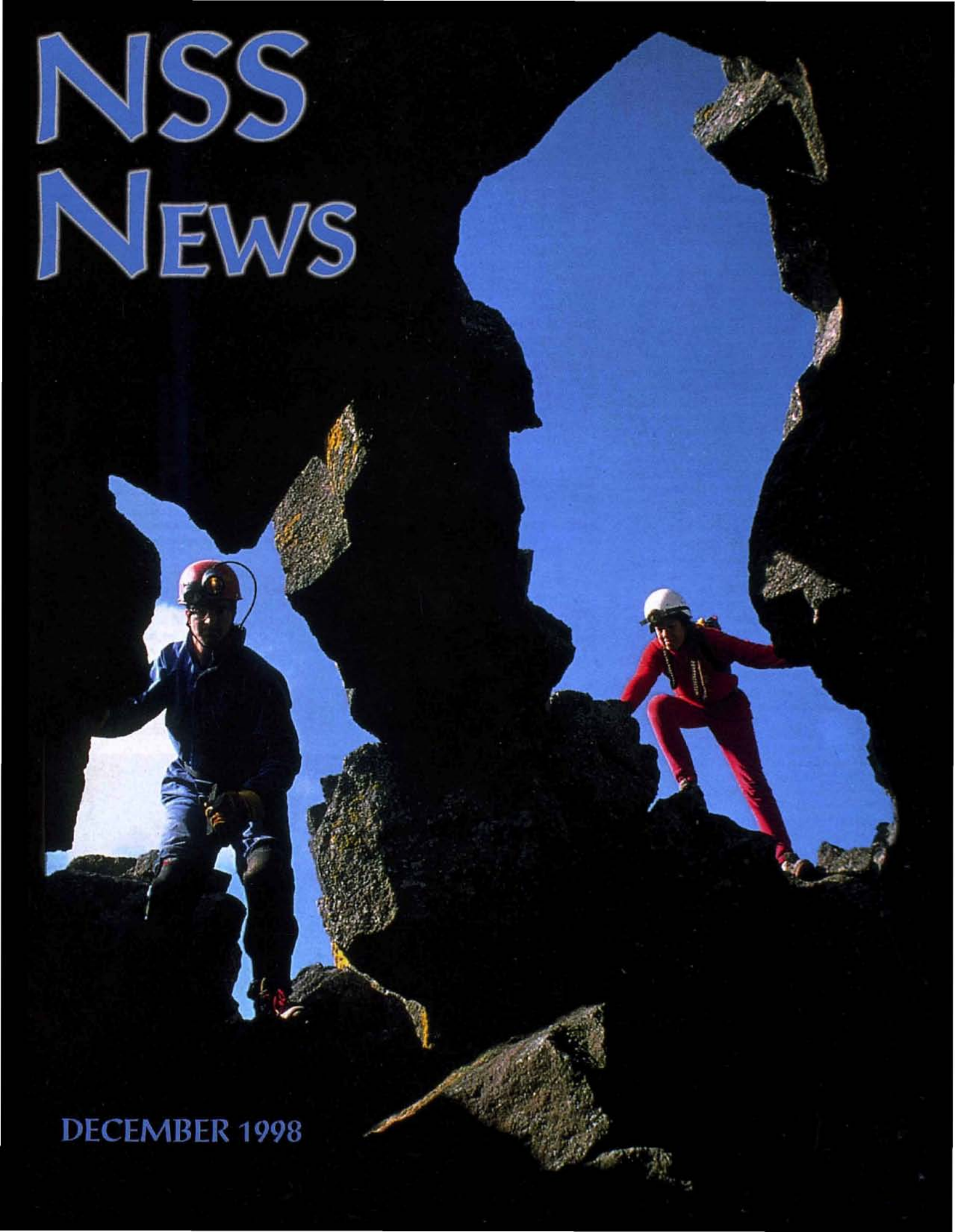
NSS News



DECEMBER 1998

CALENDAR

U.S.A.

January 23,24; April 24,25; August 8-15; October 2-3, 1999—Restoration Field Camps at Mammoth Cave. For information, contact Norm Rogers, 3122 N Isabell Ave, Peoria, IL 61604 309-682-1570 or, nrogers1@juno.com Visit the Restoration Field Camp web site at: http://oldsci.eiu.edu/physics/len/mammoth/mcrp0.html

Feb 20-21, 27-28, Mar 13-14, 1999—Central Region-NCRC will offer a level 1 modular training. Attendance at all three weekends is required, in Bloomington, IN. Cost: $150 if received by 1/15/99, $160 after that date. Please contact Anmar Mirza at 812-339-1506, amirza@indiana.edu or Allen Hutchison at 812-856-5057, hutchiso@indiana.edu for further information or to request registration forms.

February 24-27, 1999—Symposium on Karst Modeling: conceptual, geochemical, digital, and statistical models of karst development, and methods of acquiring karst field data, Charlottesville, Virginia, USA, sponsored by the Karst Waters Institute. Contact Arthur N. Palmer, Dept. of Earth Sciences, State University of New York, Oneonta, NY 13820-4015, USA; e-mail: palmeran@oneonta.edu; phone: (607) 436-3064; fax: 607-436-3547; Web site: www.uakron.edu/karstwaters/kwi.html.

March 13-14, 1999—National Cave Rescue Commission Weekend Orientation Course, in Bloomington, IN. Presented by the Central Region of the NCRC, in cooperation with the Indiana Karst Conservancy. For info or pre-registration contact: Amanda Clark, Central Region Coordinator 1201 1/2 N Fess Ave. Bloomington, IN 47408 (812)323-0103 amandacaves@msn.com.

March 27-28, 1999—National Cave Rescue Commission Weekend Orientation Course, at Illinois Caverns, IL. Presented by the Central Region of the NCRC in cooperation with the Illinois Department of Natural Resources. For info or pre-registration contact: Amanda Clark, Central Region Coordinator 1201 1/2 N Fess Ave. Bloomington, IN 47408 (812)323-0103 amandacaves@msn.com.

March 27, 1999—Spring 1999 BOG meeting in Indianapolis, hosted by the Central Indiana Grotto. The meeting will be held at the Greenwood Community Center in Greenwood, IN (southside Indy) starting at 9AM EST. For more info contact Keith Dunlap, 32 Troon Ct, Greenwood, IN 46143 - (317) 882-5420, kdunlap@atd.gmeds.com

April 10–14, 1999—Seventh Multidisciplinary Conference On Sinkholes & The Engineering And Environmental Impacts Of Karst™. With An Introductory Course On Applied Karst Hydrogeology, Harrisburg, Pennsylvania, USA, by The Federal Highway Administration, the Karst Waters Institute, the Virginia Water Resources Research Center and P.E. LaMoreaux & Assoc., Inc. Contact Ms. Gayle Herring, P.E. LaMoreaux and Assoc., Inc., 106 Administration Rd., Oak Ridge, TN 37830 USA e-mail: pelaor@usit.net Phone: (423)483-7483 Fax: (423)483-7639 Website: http://www.uakron.edu/geology/karstwaters/7th.html

April 24-25, 1998—National Cave Rescue Commission Weekend Orientation Course, at Eastern Kentucky University, Richmond, KY. Presented by the Central Region of the NCRC in cooperation with Eastern Kentucky University Department of Special Programs. For info or pre-registration contact Gale Moore, Director of Division of Special Programs, 202 Perkins Bldg. Eastern Kentucky University, Richmond, KY 40445 (606)622-1444.

April 30-May 1, 1999—Spring VAR, Natural Chimneys Campground, Mount Solon, VA. Hosted by Tri-state grotto. Contact Judy L. Fisher (304) 258-4974 (night) or (304) 258-1822 (day)

May 28-31,1999—Kentucky SPELEOFEST, Memorial Day Weekend, Hart County Kentucky Fairgrounds, between Munfordville and Horse Cave KY; in the heart of Mammoth Cave country; contact Alex Hicks, 502-499-0768 or e-mail indiancave@juno.com; Grotto website at www.caves.org/grotto/louisvillegrotto/

July 3–10, 1999—The National Cave Rescue Commission (NCRC) presents the 1999 Cave Rescue Operations and Management Seminar (levels 1-3) at the Tulelake Fairgrounds, Tulelake, California. For additional information, contact Marianne Russo at mrusso@csus.edu or (916) 663 - 2571; Roger Mortimer at mortimer@ucsfresno.edu or (209) 432 - 0503; or Lynn Fielding at lynn@wb6hqk.ampr.org or (310) 533 - 8627. You can also visit the web site at: http://www.altadena.net/ncrc-west/ncrc1999/

July 12–16, 1999—NSS Convention. Twin Falls County Fairgrounds, Filer, Idaho. Contact: David W. Kesner, PO Box 1334, Boise, ID 83701; (208) 939-0979; e-mail drdave@micron.net

July 30- Aug 1, 1999—Cincinnati Grotto will be having Karst-O-Rama at Great Saltpetre Preserve in Mt. Veron, Ky. For information contact Dennis Wortman at (513)851-2493 or e-mail at Denny1@prodigy.net

August 21–29, 1999—National Cave Rescue Commission - Eastern Region annual week long rescue seminar will be held at Camp Pioneer near Dailey W.Va. offering Level 1, 2, and 3 as well as Wilderness EMT. For more information contact John Massa 16409 Greenfarm Rd. Huntersville, NC 28078 or via e-mail at weeklong@milleorthoclinic.com

October 19–23, 1999—National Cave Management Symposium, Chattanooga, TN. For info contact: Mary Foster (770) 396-7483 or ncms99@scci.org

INTERNATIONAL

Sept. 12–18, 1999—9th International Symposium on Vulcanospeleology of the IUS, Catania, Italy. Contact: Giuseppe M. LICITRA, Centro Speleologico EtneoVia Cagliari, 15, 95127 CATANIA, Italy licitra@mail.asianet.it

Further International events can be found on the UIS Speleo Calendar at: rubens.its.unimelb.edu.au/~pgm/uis/events.html

Send information on coming events to the *NSS News*, 320 Brook Drive, Boulder Creek, CA 95006 or by e-mail to nssnews@caves.org

THE NEWS PHOTO GALLERY

Warren Jones negotiates a squeeze in Glick Cave, TN. Photo by Jennifer Otto of Jackson, TN.

Deadline: The NSS News is mailed the last week of the month preceding the date of publication. Ads, articles and announcements should be sent to the NSS News,320 Brook Drive, Boulder Creek, CA 95006 by the 20th of the previous month (e.g., July issue is mailed the last week in June; material should be submitted by May 20).

The *NSS News* (ISSN 0227-7010) is published monthly with the *Members Manual* and *American Caving Accidents* published as additional issues by the National Speleological Society, Inc, 2813 Cave Ave, Huntsville, AL 35810-4431. Periodicals postage paid at Huntsville, Al and additional mailing offices. Tel: (256)852-1300; FAX (256)851-9241, e-mail: nss@caves.org, World Wide Web: http://www.caves.org/

Regular membership in the NSS is $30 per year. Subscriptions to the NSS News are $18 per year; individual copies are $1.50 each. Contact the Huntsville office for membership applications, subscriptions, orders, or for replacement of issues missing or damaged in the mail.

POSTMASTER:
Send address changes to the National Speleological Society, 2813 Cave Ave., Huntsville, AL 35810-4431.

NSS News
AMERICA'S CAVING MAGAZINE

DECEMBER 1998 VOLUME 56 NUMBER 12

FEATURE ARTICLES

DEPARTMENTS

ABOUT THE COVER

Back, clockwise from top left: Jim Smith emerging from the Leaf Leach Crawl in Benchmark Spring Cave, AL (by Lesley Weldon); A Slovenian caver admires the formations in São Vicente Cave, Brazil (by Jean Krejca); Brad Long emerging from the second dig after the Nemesis of Steele, Benchmark Spring Cave, AL (by Jim Smith); Glacier cave, by Yvo Weidmann, from the 1999 Speleo-Projects Calendar (reprinted with permission).

Front: *Reality Check*, by Peter & Ann Bosted, won an Honorable Mention in the 1998 NSS Slide Salon

Statement of Ownership, Management, and Circulation

1. Publication Title	NSS NEWS
2. Publication No.	0 2 7 - 7 0 1 0
3. Filing Date	10/20/98
4. Issue Frequency	MONTHLY WITH 2 EXTRA ISSUES MAY & DECEMBER
5. No. of Issues Published Annually	14
6. Annual Subscription Price	18.00
7. Complete Mailing Address of Known Office of Publication	2813 CAVE AVE HUNTSVILLE AL 35810-4431
8. Complete Mailing Address of Headquarters or General Business Office of Publisher	2813 CAVE AVE HUNTSVILLE AL 35810-4431
9. Publisher	NATIONAL SPELEOLOGICAL SOCIETY INC 2813 CAVE AVE HUNTSVILLE AL 35810-4431
Editor	DAVE BUNNELL 320 BROOK DR BOULDER CREEK CA 95006
Managing Editor	N/A
10. Owner	NATIONAL SPELEOLOGICAL SOCIETY, INC — 2813 CAVE AVE HUNTSVILLE AL 35810-4431
11. Known Bondholders, Mortgagees, and Other Security Holders	None
12. For completion by nonprofit organizations	Has Not Changed During Preceding 12 Months

PS Form 3526, October 1994 (See instructions on Reverse)

13. Publication Name	NSS NEWS
14. Issue Date for Circulation Data Below	OCTOBER 1998

15. Extent and Nature of Circulation	Average No. Copies Each Issue During Preceding 12 Months	Actual No. Copies of Single Issue Published Nearest to Filing Date
a. Total No. Copies (Net Press Run)	10,000	12,000
b. Paid and/or Requested Circulation (1) Sales Through Dealers and Carriers, Street Vendors, and Counter Sales (Not Mailed)	9,400	9,600
(2) Paid or Requested Mail Subscriptions (Include Advertiser's Proof Copies/Exchange Copies)	98	98
c. Total Paid and/or Requested Circulation (Sum of 15b(1) and 15b(2))	9,498	9,698
d. Free Distribution by Mail (Samples, Complimentary, and Other Free)	17	17
e. Free Distribution Outside the Mail (Carriers or Other Means)	0	0
f. Total Free Distribution (Sum of 15d and 15e)	17	17
g. Total Distribution (Sum of 15c and 15f)	9,715	9,715
h. Copies Not Distributed (1) Office Use, Leftover, Spoiled	285	285
(2) Returns from News Agents	0	0
i. Total (Sum of 15g, 15h(1), and 15h(2))	10,000	10,000
Percent Paid and/or Requested Circulation (15c / 15g x 100)	98%	99%

16. This Statement of Ownership will be printed in the DECEMBER 1998 issue of this publication. ☐ Check box if not required to publish.

17. Signature and Title of Editor, Publisher, Business Manager, or Owner: Camille Mueller, Operations Manager — Date: 10/20/98

I certify that all information furnished on this form is true and complete. I understand that anyone who furnishes false or misleading information on this form or who omits material or information requested on the form may be subject to criminal sanctions (including fines and imprisonment) and/or civil sanctions (including multiple damages and civil penalties).

Instructions to Publishers

1. Complete and file one copy of this form with your postmaster on or before October 1 annually. Keep a copy of the completed form for your records.
2. Include in items 10 and 11, in cases where the stockholder or security holder is a trustee, the name of the person or corporation for whom the trustee is acting. Also include the names and addresses of individuals who are stockholders who own or hold 1 percent or more of the total amount of bonds, mortgages, or other securities of the publishing corporation. In item 11, if none, check box. Use blank sheets if more space is required.
3. Be sure to furnish all information called for in item 15, regarding circulation. Free circulation must be shown in items 15d, e, and f.
4. If the publication had second-class authorization as a general or requester publication, this Statement of Ownership, Management, and Circulation must be published; it must be printed in any issue in October or the first printed issue after October. If the publication is not published during October.
5. In item 16, indicate date of the issue in which this Statement of Ownership will be printed.
6. Item 17 must be signed.

Failure to file or publish a statement of ownership may lead to suspension of second-class authorization.

PS Form 3526, October 1994 (Reverse)

PRESIDENT'S MESSAGE

THE BOARD OF GOVERNORS

As I travel around the country meeting and talking with cavers, I am reminded how similar we all are, and also how different we are. Members say such interesting things. At the recent Nittany Grotto 50th Anniversary Celebration and Mid-Appalachian Region Fall Field Meet a young woman, an acquaintance of mine, said, "Fred, I understand you are President of something. What is it?" Little exchanges like that certainly keep one from getting a swelled head.

One night several years ago at a caver's gathering, after I had been Executive Vice President (EVP) of the NSS for about three years, a friend of mine said, "How did you get to be EVP? I don't remember voting for you." Well, when I became EVP I didn't know how the NSS worked either. I was always too busy caving to bother much about it. You may well be as ignorant of this as I was, or you may be an old hand and know more about it than I do. In any case, I explained it to my friend, and now I will attempt to explain it to you.

The NSS came into existence as a corporation registered in the District of Columbia on 01 January 1941. The NSS is recognized by the Internal Revenue Service as a non-profit corporation. At the level in the Society we are discussing here, THE NSS IS A BUSINESS, with assets on the order of 2 M$ and a yearly operating budget of about one quarter that. The corporation is governed by a seventeen-person Board of Governors (called the Board). The Board meets three times each year (one meeting consisting of two sessions is always held at the NSS National Convention) to do the business of the Society. Two sub-groups comprise the Board, the Directorate and the Officers.

The twelve Directors who make up the Directorate are elected by the Membership of the NSS. Each Spring elections are held for four Directors, and to fill other vacancies. This is the election in which you, as an NSS Member (of the appropriate membership class), can participate. But you generally do not. Last spring, for example, only 15% of the almost eleven thousand ballots were returned. I'll discuss that in a future President's Column.

As a body, the function of the Directorate is limited almost entirely to that of electing the five Officers. These elections are held in closed sessions of the Directorate, so neither the general Membership nor the Officers get to vote.

The President is elected at the Spring Board Meeting (held usually near the end of March) and takes office immediately after the Monday open session of the Board Meeting at the NSS National Convention. The Executive Vice President, the Administrative Vice President, and the Operations Vice President are elected after the Monday open session of the Board Meeting at the NSS National Convention, and take office immediately. The Secretary-Treasurer is elected at the Autumn Board Meeting (held usually in late October or early November) and takes office at the start of the NSS fiscal year which runs from 01 May of one year through 30 April of the next year.

While that is probably more information than you really wanted, the point is that the NSS Members elect the Directors and the Directors elect the Officers. So my friend was right, he did not vote for me to be either EVP or President.

Together the Officers and the Directors (i.e., the Board) sets the policies of the NSS. This is the main business transacted three times each year at the Board Meetings. These meetings are held at various places around the country and are a good opportunity for Members to meet the Board. For the two meetings not held at the NSS National Convention, there is a party Friday night, an all day business meeting Saturday, a banquet Saturday night, and often another party after the banquet. There are plenty of opportunities to meet the Board and discover that they are cavers just like you.

The amazing thing about all this is Board Members receive no compensation from the NSS for the work we perform. We pay our own ways to and from the meetings, and our own lodging and meal costs. We pay for the lunches served on Saturday during the closed sessions of the Board Meetings, and we register and pay for the Saturday night banquet, just like the cavers who kindly host these meetings. The Board is an all volunteer operation costing each Board Member on the order of a thousand dollars per year just to attend the meetings. I point this out not to brag, but rather to make you aware that we are volunteers. We bring to our jobs all the talents and skills, faults and foibles we possess, just like you do.

Finally, all this is described in excruciating detail in the National Speleological Society Board of Governors Manual which is available to you on-line at the NSS web-site. Next month I will discuss the exciting world of the NSS Executive Committee. I'll bet you can hardly wait.

Fred Wefer

LETTERS

DEAR BOB

It was gratifying to read your encouraging comments on the December 1997 issue of *The Northeastern Caver* in the September *NSS News*. We're fortunate to have a number of eager and active explorer-authors in the Northeast, and they provide plenty of good material. I was surprised that you didn't mention Thom Engel's "Valcour Island, a Preliminary Report" printed in that same issue. It contains new maps to nearly 1000 feet of cave and nicely combines modern exploration with early accounts.

I must take exception to your opinion on publishing cave locations, which you refer to as an "Eastern affliction" when discussing Tim Marlett's account of Zoar Valley Cave, NY in your review. Unlike most Western caves, many Eastern caves frequently flood to the ceiling. That and the fact that some of them have long since been stripped of formations means that there is little point in trying to keep some locations secret. Besides, publishing locations in a caving newsletter will have no effect on visits by locals who are already going there anyway. And, in many cases we DO keep the locations of Eastern caves secret - when they contain delicate formations or biota, when there are exploration hazards or landowner problems, etc. Such secrecy decisions are made both by the author, who is usually most knowledgeable about a particular cave, and the editor.

I enjoy reading "Rob's Review" and look forward to each installment. Keep up the good work but don't come down too hard on us for our quaint non-PC Eastern ways!

Chuck Porter
Editor, Northeastern Caver

ERRATUM-JUNE ISSUE

Please note that in the June, 1998 issue, Kurt R. Heidelberg should share credit as a second author on the photo esay on the Yalahau Cave Survey (Mayan archaeology)

Dominique Rissolo

(more Letters on page 369)

Exploration and Survey of the São Vicente System, Goiás, Brazil

by Steve Taylor, Leandro Dybal Bertoni, and Jean Krejca

In a remote part of central Brazil, about 350km northeast of Brasilia, a long narrow band of limestone bisects the otherwise less permeable rock of this region. During the rainy season a dense forest of vegetation bursts forth, rivers swell, roads become impassable, and caves grow. In stark contrast, the same area never receives rain during the dry season. The rivers ease back into their banks, and vegetation becomes dry and thorny, storing water via a variety of tricks of evolution. A common sight atop the limestone band is the "belly tree," with its massively swollen trunk and small crown of bare branches.

In the dry season, the caves are no longer sumped, and exploration is feasible. Several groups of Brazilian cavers (Opilioes Caving Club, Clube Alpino Paulista [CAP], União Paulista de Espeleologia [UPE], Centro Excusrionista Universitario, Bambui, and the caving club from the Geology School from Brasilia University), many of whom are now affiliated with the Brazilian national society (Sociedade Brasileira de Espeleologia [SBE]), have been exploring and mapping caves in this limestone band over the last 23 years. Recently, new logging roads have lead to a new era of exploration and mapping.

There are several cave systems crossing the band of limestone, their rivers generally flowing from east to west. From north to south, these systems are:

Angelica-Bezerra System—10km
São Vicente System—14km + 6km in 1995 = 20km
São Mateus-Imbira System—13km
Terra Ronca—4km
São Bernardo-Palmeiras—2km

These are the lengths as found in the Brazilian national cave survey database, last updated in 1989. There has been signicant new survey done in several of these systems since that time, particularly by the Bambuí caving club and União Paulista de Espeleologia. The 1995 expedition resurveyed 4.24km, and added 6.04 km of new survey to the São Vicente System.

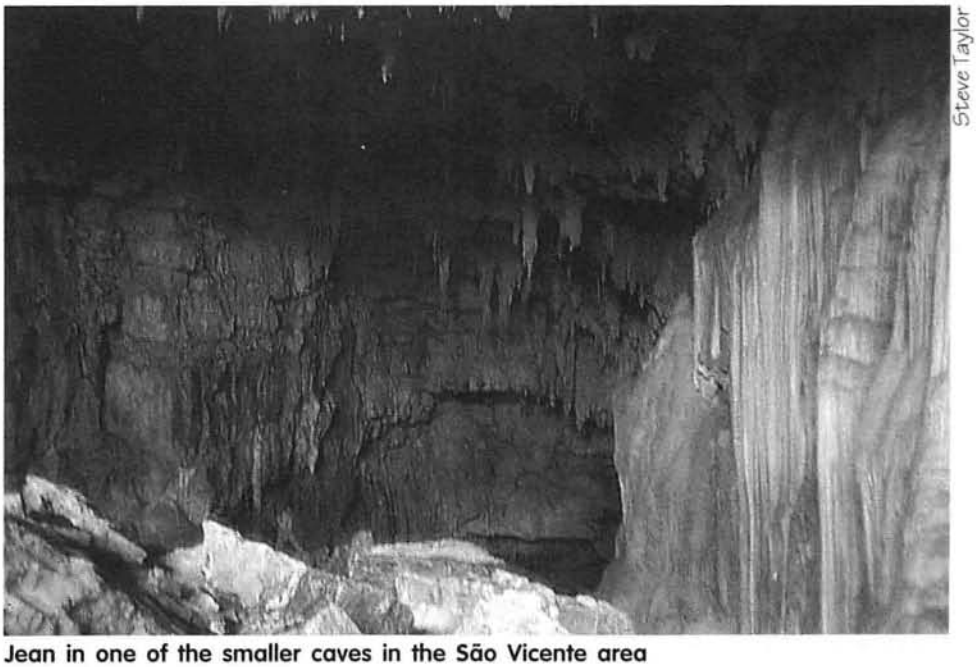
In the summer of 1995, the 11th Expedition to the caves of the São Vicente System was undertaken by 18 cavers from the club in São Paulo, Brazil, UPE [Ana Cristina Hochreiter (Nina), Danilo Allegrini, Ericson Cernawsky Igual, Fábio Kok Geribello (Coringa), Fábio Valentim von Tein, Gabriela de Britto Slavec, Leandro Dybal Bertoni, Luiz Bernardino, Márcia Barros Scaranello, Olavo Ruy Ferreria, Peter Slavec, Ricardo Barone, Ricardo Martinelli, Ricardo Terzian (Jerry), Roberto Brandi (Expedition Leader), Rodrigo Astiz, Urandi Correa, William de Paula Amado], along with five cavers from Ljubljana, Slovenia (Franci Gabrovsek, Marko Simic, Natasa Kavcic, Dorotea Versa and Branka Hlad) and four from the United States (Steve Taylor, Jean Krejca, Jeff Swayne and Hope Kartheiser).

Getting to the Cave

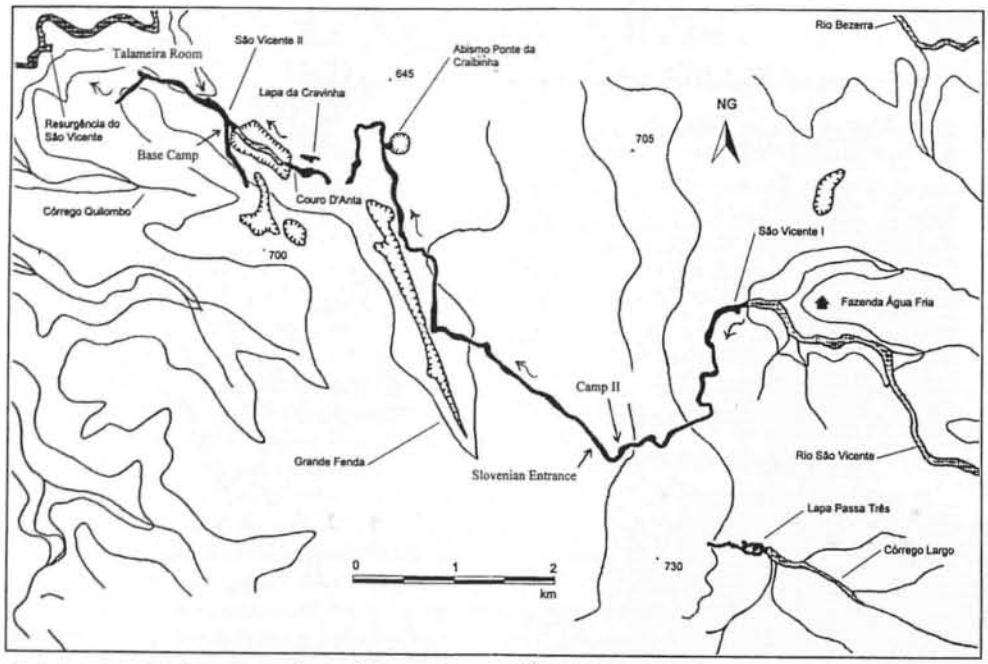
A group of cavers from North America and Slovenia were welcomed into São Paulo, Brazil, by Leandro (co-author and our host and cartography coordinator), Roberto Brandi (expedition leader) and Peter Slavec, with an evening of eggplant pizza and dark beer. During two days of preparations in the city, the biggest shock was the price of duct tape. We knew that the exchange rate was unfavorable for US dollars, but the $US39 roll of duct tape (worth $3 back in the United States) still came as a shock. Other supplies were much more reasonably priced, but still higher than US prices.

July 15th, 1995, at about four in the morning, some 14 cavers arose from the floor of Peter Slavec's home in São Paulo and headed north in a caravan of vehicles. Two days of driving, interspersed with the usual assortment of automotive difficulties, brought us to the northeastern corner of the state of Goiás. Here, we finally left the pavement. The dirt roads cost one vehicle its exhaust system, which was demoted to being tied on the roof, and our vehicle killed a parakeet which was flying across the road. Soon we dropped off of a high plateau into a remote arid valley. A small group of endangered Blue-and-Gold Macaws were sighted. After several dusty hours, on lesser and lesser roads, we came to the last outpost of civilization, the small village of São Domingos.

The other Brazilian cavers were already in town, and the total of 27 people met at a hotel for lunch where conversations in Portuguese, English, Slovenian, Italian, and Spanish could be heard intermingling. That afternoon, the 17th of July, we all headed towards the expedition base camp. The roads only got worse after leaving São Domingos. Only a Toyota 4x4 and a very large all-wheel drive dump truck (commissioned from the municipality of São Domingos) could continue on for the last few hours of driving. The final leg of the journey in the dump truck was quite memorable. Before us was an ox cart logging path (we even saw the oxen!) that never dreamed of accommodating a vehicle of this


Steve Taylor

Jean in one of the smaller caves in the São Vicente area



Sistema São Vicente, adapted from Desnível 1(1), May 1995

size. The ride in the bed of the dump truck, filled with its burden of packs, ropes, machetes, and two weeks of food for 30 people, was rather treacherous. Gear and high-spirited cavers were tossed about the bed as the truck lurched along on its uneven path. In front of the truck, large limbs and small trees were pushed ahead like a catapult prepared to launch, snapping backwards through the open bed of the truck as we all hit the deck, showered by an array of limbs, grasshoppers and biting ants.

Finally the second and last truckload of cavers and gear had arrived, just after nightfall. In the darkness, a line of lights could be seen hiking out into the night, and disappearing into a large karst window. At the rim of the karst window, one could hear the roar of the river some 100m (330ft) below. Lit by carbide and millions of stars, we climbed down to the mouth of São Vicente II, the downstream cave in the São Vicente System. The mouth of the cave invited us down, and we passed huge stalactites and trees well beyond the drip line. Friendly firelight flickered at the cave entrance where cavers were setting up base camp, a site of many a memorable evening of jokes, songs, wine and other traditional South American drinks. This entrance was decidedly the favorite of all the cavers there. In addition to watching parakeets, monkeys, and bat falcons go by, there is a side passage that carries geothermally warmed water. The mouth of this Hot Water Passage became the soaking place of choice after a long day of caving.

Steve Taylor

Jean Krejca executes a short downclimb before completing the sketch of a 30 meter pit discovered during the expedition.

Objectives

1) Explore the surface rift to find a new entrance into the middle parts of São Vicente I 2) Establish two remote camps in São Vicente I to survey far from the known entrances 3) Check leads in São Vicente II, where base camp is 4) Quickly resurvey parts of the system to establish permanent stations where old data has been lost 5) Look for other caves in the area

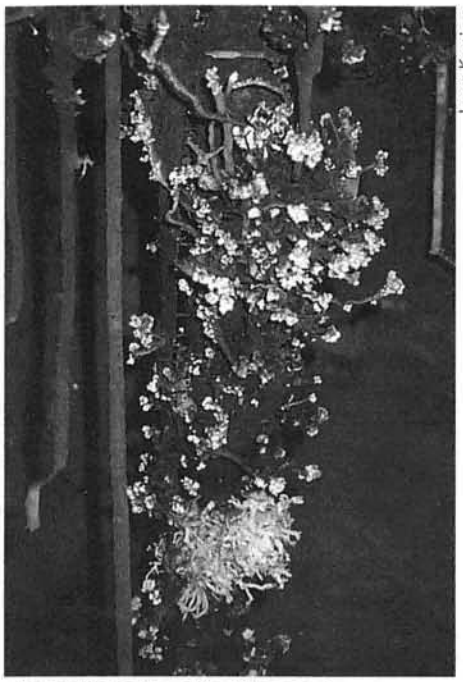
Exploration of the Rift

The morning after our arrival at base camp, a short meeting organized the cavers into various groups. This day most would hike on the surface to the big rift, in search of a new entrance into the system. A long hike brought the cavers to the rift, which was only partially explored due to the limitations set by the duration of the hike and the need to return to camp (the only source of water) by nightfall. While a new entrance to the system was not found, several new caves were discovered.

São Vicente I:-the Camp 2 Discoveries

The Camp 2 (most remote) team, comprised of the most hardcore cavers (one American, the five Slovenians, and four Brazilians), had hoisted packs filled with five days of supplies and headed into São Vicente I via the Ponte da Craibinha entrance. They pushed upstream at a brisk pace for about eight hours, traversing the river repeatedly, avoiding the river when possible, to establish Camp 2 deep within the cave. Caution was on the minds of most of the team, as a caver had died during the 1994 expedition (in Angelica Cave), falling from a high ledge down to the river while surveying. Here in the most remote part of the São Vicente System, mapping and discovering new galleries high above the river occupied the days. The air in the cave was warm and humid, and nostrils were filled with the odors of sandy clay and innumerable burnt insects attracted to the flames of carbide lamps.

The first day of mapping, the Camp 2 cavers split into two teams, one comprised of the Slovenians and the other of Brazilians and an American (Jean). After a hard day of surveying, all returned to camp to share dinner together. Afterward, while washing up, one of the Slovenians, Marko, nonchalantly handed Jean a bright green sprig of leaves. "What's this!!?" The Slovenians had discovered the much-sought-after middle entrance to the cave! The next day, part of the Camp 2 team went out the new entrance and bushwhacked back to the base camp at the entrance of São Vicente II so that the new entrance could be found on the surface. Others in the Camp 2 team spent the day in two survey teams mapping upstream from Camp 2. Upon returning from a full day of surveying, it was a welcome sight to see the first team had reached the karst window entrance and returned safely....and with BEER! That one can of warm Antarctica Beer (a common Brazilian brand), which had just been dragged through kilometers of rugged jungle and cave, tasted all the better after three days underground. The Camp 2 team spent the last part of their five days underground upstream from their camp, taking pictures in the cave and mapping up a side passage where survey was stopped by bad air. Return to Base Camp in São Vicente II was via the new "Entrance of the Slovenians"—a notably shorter trip than the arduous trip into the cave. For some, it was the first time



Jean Krejca

Formations in São Vicente I

Jean Krejca

Luiz Bernardino helps Dorotea Versa on an in-cave river crossing going to Camp 2 in São Vicente I

to see the sun in five days.

São Vicente II-Discovery of the Talameira Room

The team looking for leads downstream from base camp in São Vicente II discovered a tight high lead that eventually broke out into an upper level (Talameira Room) of enormous size. The passage was so large that survey had to be along each wall, with occasional tie-ins to the opposite wall. After two full days of surveying, it was thought that the big passage had come to an end. But one of the younger Brazilians pushed around in the mud and breakdown and found a crawlway that branched off the big trunk passage. Survey in this crawl just kept going and going—the end was never seen. Running out of time, as the expedition came to a close, the lead awaits a further expedition. It is thought that this passage may serve as an overflow route during heavy flooding. The passage has the potential to connect to the next major cave system to the northwest (Angelica-Bezerra System).

Here a Cave, There a Cave

While the Talameira Room was being surveyed by Leandro and other Brazilians, two of the Americans (Steve and Jean) went out in search of smaller caves on the surface. An hour hike from Base brought us to a rugged area of pinnacle plateau karst interspersed with dense jungle-like vegetation which was dry and thorny, awaiting the return of the rainy season. Here, four small pits were soon found. Two were free-climbed and mapped, but the others required rope. The following day, we returned with more equipment, and while part of the group was busy mapping this pit, the others discovered still more caves.

The landscape was rugged and treacherous, and each little shadow was a candidate for a pit, so progress was slow. Flocks of parakeets, other birds, and insects were abundant. We had been warned of the potential of encountering rattlesnakes as well. In the caves, we saw amblypigids, crickets, snails, and bats.

A third day in the area was used to finish mapping these small caves and obtain GPS locations. During two surface surveys that day, still more pits were found. We finally started just ignoring pits, because there was not time to map them. In all, some 14 small caves were found within an area the size of a football field (see Taylor 1995). We left the area feeling confident that there were literally thousands of small virgin caves and pits to be found. With a vertical potential of 100m (330ft), and the chance of breaking into some big cave, the area certainly bears further exploration.

Heading Homeward, Farewells

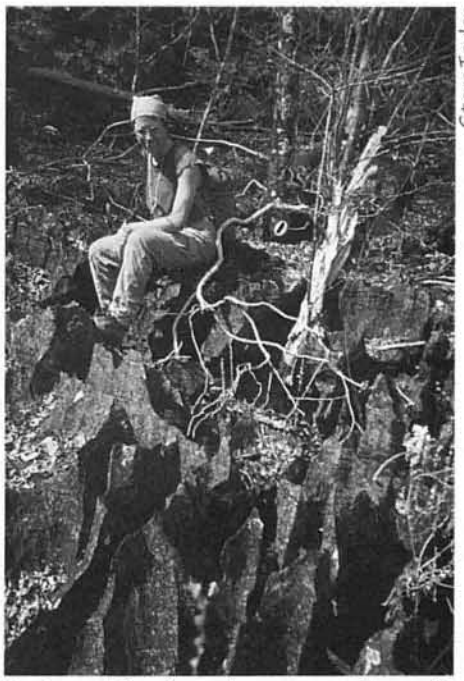
As the expedition drew to a close, several of us went to São Mateus III, the next cave system over from the São Vicente System, and Brazil's second longest cave to visit its large white formations, clear river and burbling sumps. From here groups went their own ways—back to work or to finish off their vacation at caves in the more well-known karst areas of Southern Brazil such as those in PETAR cave park.

Summary and Future Plans

The expedition was clearly very successful. A total of 11.5km (including 7.27km [4.5mi] of new survey, plus 4.24km [2.6mi] of resurvey) produced two major new discoveries (the new Entrance of the Slovenians and the Talameira Room) and 16 new caves were recorded. Details of each cave (length, name, etc.) and survey trip can be found in *Desnível*, the newsletter of UPE, or viewed on their website: http://www.upe.org.br. Quote of the expedition: Caves are different everywhere, but cavers are cavers both here and there!

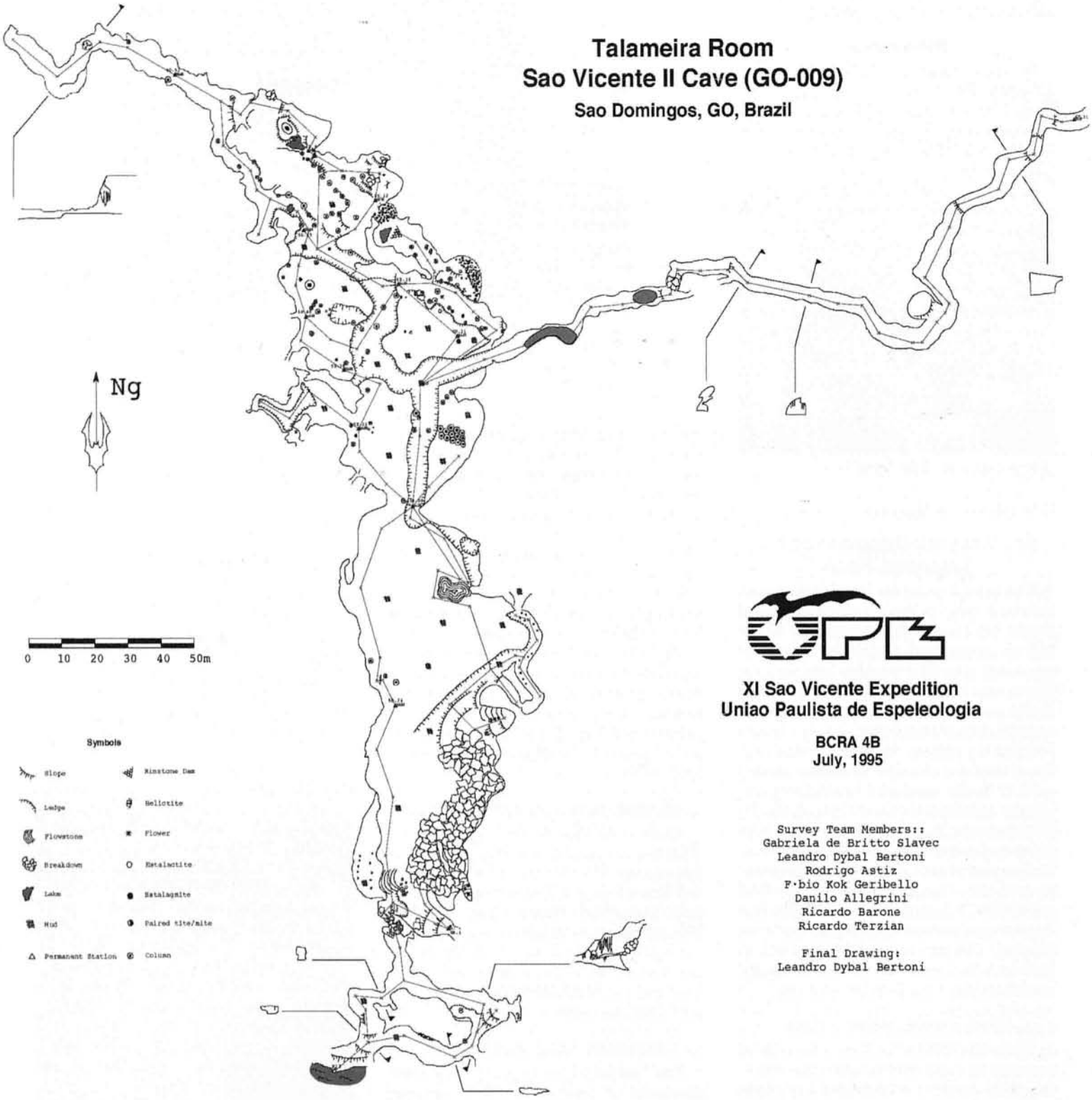
Acknowledgments

The success of and international participation in the expedition would not have been possible without the unwavering cooperation, commitment, hospitality, generosity and enthusiasm of the cavers of União Paulista de Espeleologia (UPE - São Paulo, Brazil) and the cooperation of the national caving society of Brazil (Sociedade Brasileira Espeleologia). Participants from Slovenia and Illinois helped to complete the expedition. Roberto Brandi worked very hard to make this expedition a success, we thank him for his diligence and commitment to the expedition. Two of us (Steve and Jean) would like to thank two UPE cavers in particular: Leandro Bertoni and Peter Slavec. Leandro and Peter, and their families, were the finest of hosts. They coordinated the visits of the Slovenian and the U.S. cavers, making every conceivable arrangement, and



Steve Taylor

An hour hike from base camp brought us to a rugged karst plateau where many small caves were found.


Talameira Room
Sao Vicente II Cave (GO-009)
Sao Domingos, GO, Brazil
Ng
0 10 20 30 40 50m
Symbols
Slope
Ledge
Flowstone
Breakdown
Lake
Mud
Permanent Station
Rimstone Dam
Helictite
Flower
Stalactite
Stalagmite
Paired Stalactite/mite
Column
XI Sao Vicente Expedition
Uniao Paulista de Espeleologia
BCRA 4B
July, 1995
Survey Team Members::
Gabriela de Britto Slavec
Leandro Dybal Bertoni
Rodrigo Astiz
Fabio Kok Geribello
Danilo Allegrini
Ricardo Barone
Ricardo Terzian
Final Drawing:
Leandro Dybal Bertoni

ensuring that every day in Brazil was filled with caving, fun, and adventure.

References

Bertoni, Leandro Dybal. 1995. XI Expedição São Vicente - 1995: Resultados Preliminares. *Desnível* 1(2) August 1995.

Bertoni, Leandro Dybal. Os Estrangeiros na XI Expedição São Vicente. *Desnível* 1(2) August 1995.

Bertoni, Leandro Dybal. XI Expedição São Vicente - 1995: Resumo Geral. *Desnível* 1(3) November 1995.

Bertoni, Leandro Dybal. Lapa de São Vicente II: Salão Talameira. *Desnível* 1(4) February 1996.

Taylor, S. J. 1995. Descriptions of fourteen caves near the São Vicente System in São Domingos, Goais, Brazil. *Crawlway Courier* 29(2-4): 52-55.

Jean Krejca

Roberto Brandi (front and center, expedition leader) and other members of the Camp 2 team at the newly discovered Slovenian Entrance to São Vicente I

History of the Exploration of the São Vicente and Adjacent Cave Systems in Brazil

by Leandro Dybal Bertoni and Steve Taylor

The karst of northeastern Goiás was first investigated by cavers in 1971. These cavers came from São Paulo, Brazil (though many were Europeans, especially French) in search of caves in the states of Goiás and Bahia. The São Vicente System was not discovered at this time, but the area showed considerable promise. With information gathered in 1971, a bigger expedition was organized in 1973, and systematic exploration of the major cave systems began. The Angelica-Bezerra System was surveyed by the Opilioes Caving Club, the São Vicente System by the Clube Alpino Paulista (CAP), and São Mateus-Imbira by Centro Excusrionista Universitario (CEU). This "division" of the karst area held for more than 13 years, until Opilioes and CEU "lost" their caves due to lack of interest (they didn't go there!) and other groups started exploring and resurveying their caves (Bambui working in Angelica-Bezerra and the caving club from the Geology School from Brasilia University, GREGEO, surveying in São Mateus-Imbira). The area proved fruitful, and current surveyed cave lengths from this karst area together total more than 80 kilometers.

It was in 1973 that the upstream entrance of São Vicente I was discovered and explored for about 1400m (4600ft). During this expedition, the Couro D'Anta and the entrance to São Vicente II were discovered but not explored. The following year, an expedition led by CAP cavers Peter Slavec and Max Haim went to the Couro D'Anta valley, and explored and surveyed 2500m (8200ft) in São Vicente II. Survey in São Vicente II would not commence again until the 1995 expedition. Also in 1974, Couro D'Anta Cave, a fossil upper with lots of breakdown, 600m (1970ft) was surveyed and Passa Tres Cave, a possible infeeder to the system, was surveyed to a length of 780m (2560ft). Returning in 1976, the CAP cavers, accompanied by a group of Polish cavers, surveyed another 1200m (3900ft) in São Vicente I, entering the from the upstream river entrance, ending survey at Iguacu Falls.

Peter Slavec, Max Haim, other CAP cavers, and some Argentine cavers returned to Iguacu Falls in 1978, but after conquering the waterfall, they found themselves ill prepared for the treacherous river passage beyond. Instead, they surveyed 770m (2500ft) in São Vicente II and 150m (490ft) in Couro D'Anta Cave.

Six years later, the CAP cavers invited Claude Chabert and other French cavers from the Speleo Club de Paris (SCP) on another expedition to the area. Several small caves and smaller additions to the main cave were surveyed. In 1986, CAP and SCP cavers surveyed 350m (1150ft) through breakdown in Couro D'Anta Cave and conducted surface prospecting with little success. The following year, 200m (650ft) of survey was gained in the difficult canyon passage after Iguacu Falls in São Vicente I, but survey by CAP and SCP was again held up by treacherous river passage downstream of yet another waterfall. During the same expedition, another 600m (1970ft) were surveyed in São Vicente II. It was during this expedition that the Ponte da Craibinha Pit entrance was found, opening the exploration of the downstream part of the São Vicente I beyond the difficult river passage that had slowed progress in recent years. Starting at the Craibinha Pit entrance to São Vicente II, the 1988 expedition mapped 1650m (5400ft) of big river passage. In this expedition, CAP was assisted by Michel Le Bret (a French caver, and founder of the SBE [Brazil's equivalent to the NSS]) and SCP cavers Jean Maurizot and Bruno Chaumeton. The next year, survey continued upstream from the 1988 EOS, with CAP cavers, assisted by Italians from Commissione Grotte Eugenio Boegan (CGEB), logging in 3800m (2.4mi) in the São Vicente I river passage and another 250 m in Couro D'Anta Cave. In 1991, CAP and CGEB successfully linked the river entrance survey to the Craibinha Pit survey with another 1200m (3900ft) of survey.

The ten expeditions briefly reviewed above were greatly limited by difficult access to the cave system. No more than 15 cavers participated in any given year on these earlier expeditions, and with most of those expeditions about one week in length, that's one-fourth the person-power of the 1995 expedition! The cavers from the earlier expeditions used what would be considered primitive survey techniques by modern standards (for example, clinometers were not used). In addition, side passages were not explored, but who can blame them, with all that big stream passage looming ahead. Tragically, the original survey data from these expeditions are lost, but the maps do exist.

ROB'S REVIEW

by Bob Springston

EXPLORATION AND MAPPING

Lawrence Welk Cave, named after the famous bandleader who once owned the land on which the talus cave is found, is the subject of a Tom Gilleland and Carol Vesely article appearing in the Summer '98 edition of the *California Caver*. Mapped by San Diego Grotto members over the course of 20 trips spanning 1994 through 1998, the San Diego County, California cave reportedly reaches depths of 100 feet. Although a through-trip has never been completed, segments of the cave have been voice connected to establish a length apparently in the neighborhood of 800 feet. Gilleland's plan map of the cave accompanies the article.

The July '98 issue of the *Bucks County Diviner*, published appropriately enough by the Bucks County Grotto, is solely dedicated to Berks County, Pennsylvania's **Merkle Cave**. Featuring articles covering topics from the cave's geological setting to the history surrounding it, the issue is jam-packed with coverage, photos, and two maps of the cave—the first being drawn in 1933 by none other than Charles Mohr. The documentation is particularly notable because, since its closure in 1940, Merkle has only been opened for two brief periods of exploration, and was again sealed up this past April.

The Missouri Speleological Survey's July–August '98 *MSS Liaison* notes that CRF survey crews made five 1997 trips to Missouri's **Powder Mill Creek Cave**. The trips netted 1,706 feet of new passage, pushing Powder Mill to 37,775 feet in length.

The Texas Speleological Association's July–August '98 issue of the *Texas Caver* begins with Marvin Miller's mid-year report on progress in the Government Canyon Karst Survey Project. Most notable of the Project's accomplishments were the discovery of two caves and the survey of **Aarons Talus Cave**, **Blind Luck Cave**, and **Dusty Cave**, three short Bexar County caves.

A map and description of Socorro County, New Mexico's **La Cueva de la Ladrones** graces the pages of the September–October *Southwestern Cavers* courtesy of John Ganter. The 245-foot-long, 65-foot-deep cave was surveyed during the September SWR Regional.

Central Oklahoma Grotto's Sept. '98 issue of *C.O.G.nizance* is chock full of reports of survey trips to **WD-041** and **Swimming Hole Caves**, but no footage figures were given in the articles. At least they're keeping busy and beating the summer sun in the western Oklahoma caves.

Detroit Urban Grotto's June–October '98 edition of *DUG Scoops* carries Peter Quick's recap of a 17-caver Memorial Day effort in Kentucky's **Fisher Ridge Cave System**. After spending Saturday backfilling dirt around the culvert in the Quick Exit (dug open last April), four groups descended into the cave on Sunday to survey and to check out leads. Drew Packman and John Jasper freeclimbed to an upper lead which was still going after about 500 feet. Another team placed 34 stations and surveyed 765 feet of passage. Quick's team checked out numerous leads before surveying 510 feet. Further exploration led to a sizable upper truck passage that was scooped for over 500 feet in both directions. The last team to enter the cave mapped about 100 feet and checked out leads. All in all, 1,425 feet of passage were surveyed and nearly 2,500 feet of virgin passage was scooped.

The above article is followed by a numer of other **Fisher Ridge** reports starting with Peter Quick's summary of work done in late June and early July when four survey trips, again using the Quick Exit, established 175 survey stations and racked up another 3,920 feet of survey. Brian Davis follows with his recollections of an early August trip in which he, Jonathan Schwer, and Peter Quick rigged a traverse around a pit in the cave's KN Kanyon to reach the upper passage's extension. They surveyed on, racking up 1,526 feet in 31 stations and leaving a few leads to lure people back to the new passage. Quick then ends the reports with a summary of nine survey trips taken from July through October, which placed a total of 384 stations and garnered 7,496 feet of new survey, pushing Fisher Ridge up to 87 miles of passage. With numbers like these, it's obvious that the effort put into the excavation of the Quick Exit is paying big dividends.

Greater Houston Grotto's October '98 edition of *Speleospace* contains a blurb from the Carlsbad Caverns Grotto Guadalupe Mountains Association Website about recent survey progress in **Lechuguilla**. The LEARN expedition which the site recaps garnered 1.1 miles of virgin cave, with most of the discoveries being made in the Western Borehole. Following the effort, Lechuguilla stood at 98.96 miles of mapped passage. (A November expedition added more footage but failed to reach the hallowed 100-mile mark. Stay tuned for a feature *News* article on the cave's second 50 miles.)

The cover of October '98's *West Virginia Caver* is graced by Doug Medville's plan-view map of Randolph County, West Virginia's **Two Lick Run Cave**. The 3,062-foot-long cave was surveyed over four trips — with the first occurring in 1976! An article by Medville recalling the trips to the Cheat Mountain cave is also found in the issue. That is followed by Devin Kout's description (reprinted from the June–July '98 *Potomac Caver*) of Pendleton County, West Virginia's **High Meadows Cave**. The article also includes the final survey statistics for the cave, which inked out at 1,797 feet in length and 83 feet in depth. Kout's plan-view map of the cave accompanies the description.

An article by John Koch in the Western Indiana Grotto's latest self-titled newsletter recalling the "discovery" of two Putnam County, Indiana caves. Although it turned out that one of the caves was known (**Deer Creek Cave**), the other was in fact new to cavers.

Volume 18, No. 13 of Willamette Valley Grotto's *Underground Express* features Cynthia Ream's coverage of a week-long July speleocamp in the Marble Mountains of northern California. Work noted by Ream was centered exclusively on **Bigfoot Cave**, where more than 1,950 feet of new passage was surveyed.

Another article by Ream recalling recent survey results in **Bigfoot** is featured on the pages of both the Mother Lode Grotto's Fall '98 *Valley Caver* and the September–October '98 *SAG Rag*, published by northern California's Shasta Area Grotto. Steered in the direction of a lead by Steve Knutson, Ream and others pushed into virgin passage over the course of three trips. They surveyed close to 2,000 feet of the passage they christened The Kneegrinder and, as the accompanying map shows, left scores of leads for further exploration.

Following the above article is another covering work being done in the Marble Mountains. In this account, Mark Fritzke recounts his and others' efforts during a six-day speleocamp this past October. Among the topics touched on are connection efforts in **Drystream Cave**, a 165-foot survey in **Upstream Cave**, a 300-foot survey in Bigfoot, another effort in the latter cave that lead to a 20-shot survey of unstated length, and Fritzke's hopes that a resurgence he has been trying to open will lead to the third Marble Mountain cave system to cross a surface drainage divide. Fritzke closes by noting that even after 23 years of caving in the Marbles, he is still amazed by the area's potential for virgin cave.

Capping off the above issue of the *SAG Rag* are Bighorn Broeckel's maps and brief descriptions of two California voids: Siskiyou County's 102-foot-long **Pecan Cave** and Shasta County's **Ebb & Flow Cave** and 783-foot-long **Jay Feather Cave**.

Mark Twain Grotto's November '98 issue of *Echoes* carries a recap by Mark Jones of his, John Lovass, and Larry Welch's part in a 12-caver mid-August assault on Iowa's **Coldwater Cave**. Surveying in the Holy Cow section of the cave, they scraped

together 137 feet of crawling survey and discovered a new sidepassage which they dubbed the Harry Carey Passage.

Also included in the above issue is Jones' account of a late-August survey trip again to recesses of **Coldwater Cave**. The trip saw Jones and Larry Welch map 340 feet beyond Frog Junction before they tied in to an established survey station.

Collin O'Neill reports in the November '98 *San Diego Grotto News* about the latest survey trip to **Midnight Creek**. Twelve cavers from three grottos descended on the cave, breaking into three groups which surveyed a total of 439 feet in the San Diego County, California cave.

Once again, Jerry Litaker and Jerry Bailey have maps and cave descriptions of Indiana caves featured on the pages of Central Indiana Grotto's *CIG Newsletter*. Found in the October '98 issue are Bailey's article about and plan-view map of Monroe County's 805-foot-long **Blasarus Blunder Cave** and Litaker's coverage of Orange County's 74-foot-long **Drippy Dome Cave** and Jennings County's 79-foot-long **Killus Cave**. In the November issue, Litaker also documents the latter county's 78-foot-long **Corner Store Cave**, 58-foot-long **Stream Cliff Farm Cave**, and 26-foot-long **High Low Hole**.

The Twilight Zone

The premier issue of *Illuminations*, the excellent publication of the new NSS Arts and Letters Section has hit the stands with a Spring '98 issue featuring a choice collection of cave-related creations ranging from the fine to the farcical arts. Loaded with fiction, poetry, and songs, it's not light on levity either, as editor Paul Stewart has included two cartoons by Andy Fluke and a handful of pieces in the speleo-humor vein. Also scattered throughout are pieces of eye-catching art, beginning with Lois Lyles' scratchboard drawing which graces the cover and ending with the back cover sketch by Andy Fluke. With contributions by 21 cavers, *Illuminations* is off to a great start.

Central Arizona Grotto's October '98 *Cave Crawler's Gazette* carries coverage of a New Zealand cave accident in which John Vale, 28, slipped and fell 30 feet. Vale impaled himself upon a stalagmite in the process, necessitating a rescue callout to remove him from both the killer formation (which had entered his body through his lower back) and the unnamed cave. Vale remained conscious throughout the ordeal, and after being treated at a local hospital, expressed the desire to go caving again as soon as possible.

The November *CIG Newsletter* features a reprinted article announcing the planned production of a 40-minute IMAX film tentatively titled *Journey Into Amazing Caves*. Initiated by and produced in association with The Cincinnati Museum Center, the film is slated to feature footage of two or three North American caves which have yet to be determined. (**Lechuguilla** is an obvious first choice but it appears that the National Park Service may veto the idea in light of the potential damage such a large-scale effort may incur upon the cave.)

Among the newsletters celebrating Grotto anniversaries is the November '98 *Explorer*, newsletter of the Southern California Grotto, which is celebrating its 50th year. Highlights in the grotto's history are laid out by Caroll Slemaker, Dell Quick, "Little" John Woods, Russell Harter, Bruce Davis, Margie Nelson, and Scott Schmitz. Copies of five of *The Explorer*'s ribbon-winning covers also grace the pages. The issue was the 112th put out by Gregg Oelker, who has served as editor longer than anyone.

Another group celebrating its 50th is Pennsylvania's Nittanny Grotto. Guest editor Keith Wheeland put together an impressive amount of material and constructed a comprehensive year-by-year chronology of the grotto's history. Articles by a number of former and current members recalling past events are also included as is a long list of all the many efforts expended by Nittanny Grotto members in the drive to save Hosterman's Pit, perhaps the classic Pennsylvania cave.

In a related vein, Mother Lode Grotto's Fall '98 edition of the *Valley Caver* carries the third and last part of Morley Hardaker's history of the 36-year-old grotto. As above, the author employs a chronology of events to log his grotto's accomplishments, in this case covering Mother Lode's last ten years.

Conservation

The Summer '98 *MCKC Digest*, put out by the Missouri Cave and Karst Conservancy, has a John Beard article recapping the process that went into the gating of Jasper County, Missouri's **Sarcoxie Cave**. The Ozark Regional Land Trust purchased the cave entrance and its surrounding grounds in 1997 with the help of the MCKC and Missouri Department of Conservation. With an eye towards protecting the cave from trespassers and easing entrance for those with a legitimate purposes for visiting the cave, Beard and others erected a stainless-steel gate at the cave's entrance. Beard singles out Richard Thompson, gate welder extraordinaire, for his help in constructing the gate.

The October issues of both *The West Virginia Caver* and D.C. Grotto's *D.C. Speleograph* carry George Dasher's in-depth warning of the impact that the proposed road improvement project being considered for U.S. Route 219 will have on West Virginia's **Organ** and **Foxhole Caves**. All of the four alternatives being considered would likely have disastrous effects on both caves. Foxhole, at 2.7 miles in length, and Organ, at 37.6 miles in length and 486 feet in depth, are classic Greenbriar County caves, with the latter being one of the most significant in United States. (In fact, it's a National Natural Landmark.) Dasher notes many of Organ's significant aspects, and urges cavers everywhere to voice their concerns about the possible project. (Ed. note: There was a meeting on October 22nd, between the caving community and the West Virginia Division of Highways. Dasher felt the Highway folks were receptive to protecting the caves, though no decisions have been made yet.)

A cleanup in West Virginia's **Bowden Cave** is noted by Bob Hoke on the pages of the October '98 *D.C. Speleograph*. Biting the bullet and ignoring the seductive call of the survey tape and potentially virgin cave, Steve Prentice, Pauline Appling, and Hoke remained committed to the scheduled cleanup trip. (Strong work.) Traveling beyond the more popular dry areas of the cave, they headed to the area called The Graffiti Ceiling, where they used a window cleaning squeegee and a driveway tarring brush to clean the ceiling, which had been completely covered by spray paint. Fortunately, the paint adorned a layer of mud which was easily removed before being transported out of the cave in a bucket. Hoke reports that a bit of touch-up work with the brush had the ceiling looking almost perfect.

The second part of Mark Jones' report on the gating of Illinois' **Twin Culvert Cave** appears in the November '98 issue of Mark Twain Grotto's *Echoes*. The report covers the August 22nd completion of the gate.

As noted in the pages of the November '98 *CIG Newsletter*, the Indiana Karst Conservancy (IKC) received a 1998 IPALCO Golden Eagle Environmental Grant of $7,000 to assist in the purchase of **Sullivan Cave**. The grants are given out by IPALCO Industries every year to support projects dedicated to preserving and protecting Indiana's environment.

Another article in the above issue provides an update on the status of the IKC acquisition of Sullivan. Only $11,000 remains to be raised, a figure that will hopefully be met all the sooner by the generous offer of Dick Blenz, who offered to match future donations dollar for dollar.

Also in the November *CIG Newsletter* is a reprint of a September 3rd U.S. Fish and Wildlife Service news release announcing the listing of the Illinois cave amphipod (*Gammarus acherondytes*) as a federally endangered species. Once known to populate six caves on the Illinois Sinkhole Plain (centered around Monroe County), the amphipod can now be found in only three. The listing will set in motion plans to restore the historical populations and to protect the critters from further habitat degradation. The latter is of particular concern in light of the current spreading of St. Louis suburbia.

Jackson County, Alabama

The Exploration and Survey of Benchmark Spring Cave, ACS 1743

by James H. Smith, NSS #14529F

[Ed. note: Jim's map of the cave can be seen in the center of this issue]

According to the diary of Marion O. Smith, the exploration of **Benchmark Spring Cave** (BMSC) began October 24, 1976. In our usual lead-checking mode, Marion O. Smith, Janice (JJ) Williams and I investigated a spring illustrated on the topographic map for its cave potential. Just 100 feet from the end of the paved road in the Big Coon Valley of Jackson County, Alabama, the spring itself was a disappointment and was impassable by a sump. The sump looked too small to dive. We decided to look around the spring entrance in case there was another way into the cave. Approximately 200 feet from and 35 feet above the spring we found a streambed emptying into a 35 foot-deep sinkhole with dimensions of 25x15 feet. Excited at the discovery, we descended a slope to a 10-foot climbdown which lead to a stream passage. It seemed reasonable that we were upstream of the spring. It was evident from the debris wedged in the ceiling of the entrance chamber that the cave completely sumps during heavy rains. The passage continued as a muddy water crawl upstream to a windy low air space of 6 inches. The wind was so strong that it created ripples on the surface of the water. Entertaining thoughts of a big scoop we crawled into the low air and sank into grey, foul-smelling mud releasing methane bubbles. After approximately 10 feet of low air space we emerged into a walking canyon lined with chert nodules that seem to reach out and grab at our cave clothes. The canyon intersected a 25-foot-tall dome and continued to a 6-foot upclimb through chert ledges and tubular chert arrayed across the passage. The tubular cherts are probably Mississippian age sea-worm burrows. Marion, JJ and I could hear a waterfall ahead. We crawled over massive chert below a canyon too narrow to walk through and emerged into a 25-foot-high waterfall room. We could see a walking passage at the top of the waterfall. The dome was free-climbable for 15 feet but the last 15 feet consisted of three overhanging chert ledges. To access the passage would require a direct aid bolt climb, a technology that I had not yet learned. Marion and I left the 500 foot-long cave only to forget about this lead for twenty years. In the mean time there was much easier booty to plunder as it was the Golden Age of exploration for multi-drop, deep caves explored from the top down.

Twenty years later, after the easy pickings seem to have been made, there was an ongoing quest to explore deep multi-drop caves from the bottom up. Notable deep caves explored from the bottom-up include **Tumbling Rock Cave, No Business Blowing Cave, Sherwood Spring Cave, Subsolomon Cave, Montague Cave,** and **Russell Cave**. Marion reminded me of Benchmark Spring Cave as a potential upclimb cave. So on August 15, 1997, I decided to revisit Benchmark Spring Cave. Having seen the lead I decided to recon in force with climbing equipment. I prepared myself to go into the cave with two ropes, gas powered drill, and full climbing rack. Unfortunately, I was solo caving and maneuvering the gear was burdensome. I noticed a rope through the low air space and wondered if I had been beaten to the climbing lead. So, after the low air space I abandoned the gear to inspect the climb to satisfy my curiosity. At the waterfall dome there was no rope so I was relieved. I freeclimbed up past the first chert overhang but found that the second overhanging chert ledge was a formidable obstacle for a solo climb. I was worried if I flipped upside down that my soloist belay device would not catch me before I hit the deck. Also, no one knew I was in the cave. So I prudently decided to recruit a belayer for negotiating the overhanging chert.

I wrote Bill Steele that I had sweet booty waiting for him in TAG. Bill Steele is a real pit bull when it comes to project caving. So I knew I could count on him more than any other caver in TAG to push this cave hard if the booty was to last the six days we had planned for caving over the Labor Day weekend.

On August 23, 1997, at 11:00 am, Bill and I hauled into BMSC a full technical aid climbing kit and two push ropes. At the dome we freeclimbed to the first chert ledge and prepared to climb. The first obstacle was to pass through an overhanging chert ledge that formed a roof which extended horizontally two feet from the wall. I set a single 3/8-inch bolt below the chert ledge seven feet above my stance. I had to remove loose chert slabs from the eight-inch-thick ledge and flip them into the pit. I also had to peel the fragile ledge back toward the wall until I thought it could support my weight. Standing as high as I could in my etriers I pulled myself through the overhang with one move to gain the ledge. Balancing on the ledge I set the next bolt above my head on the overhanging limestone wall. I was worried the thin ledge would give way without warning and I was going to fall to the lower ledge. My next obstacle was another three-foot chert ledge at chin level. I set my third and final bolt for the climb for protection and freeclimbed into a low crawl that popped up into walking passage festooned with soda straws. I exclaimed "Sweet Booty!" Bill remarked that we ought to call it the Sweet Booty Passage. I said make it so! After all of the gear was hauled up the climb, Bill cleaned the hangers from the wall.

David Dehart

Andy Porter (left) and David Cole surveying in the Sweet Booty Passage

I offered Bill the lead down the Sweet Booty Passage and off we went. Ahead we could see passage with a dimension of 12 feet wide and 5 feet high. The walking passage turned into stooping then to the inevitable TAG crawl. Occasionally we could stand into ceiling canyons that were well decorated with stalactites and soda straws.

In one ceiling canyon we found a white shield that was about a foot across. That is the fifth shield I know to exist in TAG. **Bucks Pocket Cave** has a four foot in diameter shield, **Mill Hole** has two shields, and **Tuckaleechee Caverns** has the largest shield in TAG, at least 8 feet in diameter.

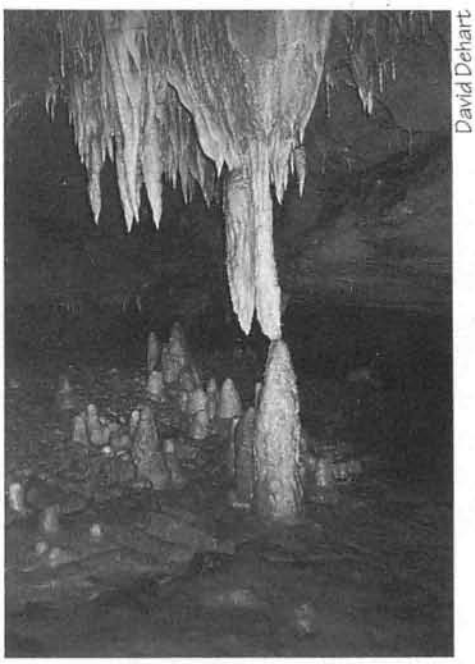
We soon found the first of three low airspaces in the Sweet Booty Passage. The passage initially just seemed to end at a flowstone canopy. However, the wind and the stream were flowing from a five-inch airspace. Bill slid under the ceiling into deep water and followed the low ceiling for 25 feet until he popped up into hands and knees crawling passage. We followed the stream passage through well-decorated sections. Another low ceiling water crawl emerged into a hands and knees crawl that was nearly choked with long soda straws so we had to crawl low to avoid any damage. The next low crawl we named the Leaf Leech Crawl from a thick organic mud mat covering the floor. The leaves stuck to the cave suits and when we shed our clothes, we discovered that they stuck to our skin like leeches. We could hear water falling ahead so we were optimistic that we would find another dome. Instead we discovered two upclimbs of 8 feet and 10 feet. Above the 10 foot climb we found the most spectacular formation area in the cave. In a tall ceiling canyon a 25 foot tall white flowstone drapery hung from the ceiling and coated both of the canyon walls to a point at which the walls undercut to form a ceiling. From that intersection, 1-foot long, beautiful white bacon rind and angel wings hang into the passage. The floor is decorated with many white stalagmites. Upstream we could see white stalagmites, columns, stalactites and soda straws in walking passage. What a treat! Another 150 feet further we encountered the next obstacle—a 150 foot tall dome pit. The dome is quite large measuring 60 feet long by 30 feet wide. We scanned the dome for a climbing route. There were two options, the waterfall and a parallel dry dome that was obviously the abandoned water route for the existing waterfall. I chose to try the dry route to avoid wetting the drill.

Bill and I returned to the first dome climb and climbed across the top of the pit and scooped 150 feet more of walking passage. We estimated that we scooped a conservative 1,000 feet of passage. We exited at 4 p.m. after 5 hours of Sweet Booty!

The next day, August 24, 1997, Bill and I talked up the discovery at the Liberty Restaurant and we were able to recruit Seamus Decker, Paul Aughe, and Andy Porter as equipment sherpas. We hauled the climbing equipment and push ropes to the dome. The equipment consisted of a 130 foot caving rope, 165 foot climbing rope, 28 bolts, 40 carabiners, two sets of etriers, daisy chains, a bolt hammer, two wrenches and a RYOBI gas-powered drill.

Seamus was to be my belayer while I lead climbed. The others would check out some high canyon leads. The wall climb was vertical to overhanging at 95 degrees. There was also an overhanging bulge 60 feet off the floor. The goal was to reach an alcove approximately 75 feet from the floor of the pit. It looked as if there was a ceiling canyon at the top. The first bolt was placed above an undercut wall. It was strenuous to haul oneself above the bolt. I was able to gain a 6 inch wide ledge above the bolt which extended my reach significantly. I set 22 bolts to reach the overhang. The wall changed from clean washed to muddy. The equipment became slimed and my feet were plastered with 5 pound clumps of mud. I reached the most strenuous obstacle, a 3.5 foot overhang. Drilling almost behind my head I leaned all my weight back, top-heavy with metal, and supporting a 12 pound drill. It was like doing 500 sit ups in 5 minutes. With the overhang surpassed the wall became vertical and offered some relief. I could see the alcove 10 feet above my head. In short order I reached the alcove and set two bolts to rig the drop. I set an offset bolt to redirect the PMI directly over the bolt ladder. The climbing route was not straight up and veered to follow the best rock and the least mud. It would make cleaning the route much easier.

Andy was the only person to bring in his ascenders so he cleaned the route of 23 hangers. From the back of the alcove the climb continued up 9 feet to a crack that looked to be 9 inches wide. I offered the climb to Andy and he barely fit. At the edge



David Dehart

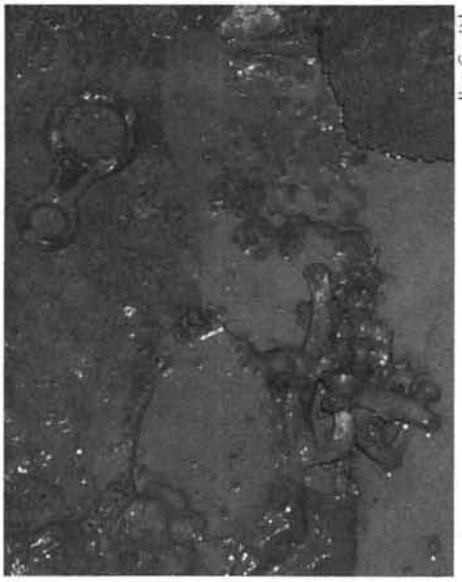
Ice Palace

of the crack he discovered a skeleton of an animal cemented into the flowstone. It may have been a Pleistocene badger. At the top of the crack another alcove ended at another bolt climb of 20 feet, with obvious passage at the top. I could not fit through the crack as I need more than 9 inches these days. Andy traversed out over the crack for 15 feet to the edge of the dome. He hauled up my drill and set two bolts to rig a 20-foot drop. Since we had placed all of the bolts that had been brought into the cave we rapelled down to the rest of the crew. By the time Andy and I had reached Bill, Seamus had left the cave. We exited the cave after 7 hours.

Monday morning August 25, 1997, Bill and I went into Scottsboro and bought 20 more 3/8 inch wedge anchors. We entered the cave at 10:45 a.m. and since all gear had been left in the cave we made it back to the top of Andy's rigging in two hours. I set a bolt to rig a traverse line across the narrow crack. It was a good thing, since the traverse is a slippery ramp. Bill joined me and we

Lesley Weldon

Brad Long emerging from the Ear Wash Crawl



Jim Smith

Pliestocene badger bones atop the Siege Dome

began the task of racking gear and setting up for the aid climb. It was an easy climb, taking almost as much time to prepare for the climb as to complete it. It took only five bolts to reach the lip and two more to rig the drop. I had climbed into a narrow passage that lead into a beautiful formation chamber with numerous white stalactites and columns. We had climbed into a chamber that lead to a 20-foot drop to regain the main stream. Our hunch had paid off. Bill and I had hauled in a push rope which was anchored to a formation for the rappel. I descended first and Bill followed. He went down stream to look out into the pit and discovered a large natural bridge 15 feet long and 5 feet thick. We headed upstream to a sloping 20-foot freeclimb that allowed us to reach the same level as the drop we had descended to the stream. We climbed up another short climb of 6 feet to a beautifully sculpted stream canyon. We agreed from the standpoint of sculpturing this is our favorite part of the cave. The stream passage continued for 300 feet through two segments of elliptical phreatic tubes. We ascended another freeclimb of 8 feet to hear a waterfall, the next dome! We had reached the Hartselle Formation which in this cave occurs as a 10-foot-thick grey shale. The ceiling was severely undercut to the shale by 8 feet. Bill and I climbed up 12 feet to the base of the shale and could see borehole 15 feet above our perch. We traversed around to the back side of the chamber to find a climbing route that would avoid the overhanging roof and shale. There appeared to be an upper level passage that might allow access to the top of the waterfall. We could actually reach the limestone layer above the shale and would have to only deal with a minor overhang. It was getting late on Monday and we had to head home so we left the climbing gear in the cave and hoped it would not get siphoned in due to rain during the week. We exited the cave at 4 p.m. with a 5 hour and 15 minute cave trip.

On August 30, 1997, Bill and I returned with a large crew consisting of Marion O. Smith, Gary Chambers, David Cole, Lane Purcer, and Andy Porter. We entered the cave at 11:00 am and hauled 3 push ropes to the Hartselle dome climb. Andy belayed while I set the first bolt. The ceiling was severely undercut and I was not able to gain purchase with my feet against a wall. To keep me in a vertical position David Cole supported my feet so that I could drill the next bolt. I was only able to gain 2 feet above the first bolt. I clipped and tested the second bolt and was able to place my knees against the wall taking away some of the strain. I drilled a third bolt 3 feet higher in a solid layer of limestone. The wall had only few good locations for bolting. The fourth bolt was set to the right with little vertical height gained. I was set to climb straight up but there was only a loose slab suctioned into the mud and sloped into the pit. I set the bolt into the loose slab and tested the placement with my weight. The slab did not move so I stepped up in the stirrup and freeclimbed onto a ledge. I was at the top and could see that the top of the waterfall was accessible. I set a bolt for protection and traversed on a ledge back to the loose slab. I set a bolt to keep the full weight of the climber off the slab. I returned to traverse across the top of the waterfall and set two anchors for rigging. Andy cleaned the hangers and exclaimed that he would have never set the bolt onto the loose slab! I told him that was the only option I could reach. All other placements would have been in shale/limestone. Sometimes you have to take a chance to achieve your goal. I thought the risk was minimal.

While Andy was cleaning I walked up the borehole for 150 feet to see that it was nearly sealed off by flowstone. A space 4 inches x 1 foot allowed a strong wind to pass. The wind beckons! With everyone at the top we set about looking for the way on. Andy and David Cole pushed a windy stream crawl for 15 feet until it was too tight to fit with a rock ceiling and floor. We all took turns chipping at the flowstone with minimal effect. So I used my rotary hammer to chip away at the flowstone like a jack hammer. It worked after 1 hour of chiseling. I fit and found 50 feet of passage and a small hole 5 inches in diameter. I turned the next hammering project over to Andy and he was able to fit. On the other side, Andy enlarged it big enough for everyone to pass through it. The other side of the dig are two large potholes with the stream 6 feet below our feet. We traversed across the top and followed about 250 feet of passage to a stream bifurcation. The two upstream routes were both small and narrow. We went up the right fork 50 feet to a massive flowstone plug. I climbed up 10 feet in the canyon and traversed across the top of the passage to the source of the wind: a 5 inch diameter hole. It was too formidable to hammer open.

At the stream junction no one had traversed up the left hand passage which is a narrow windy stream crawl so I checked it out. It lead to a seven foot climb up and 15 feet of passage to formidable flowstone plug. The water and air could pass between a 2 inch wide 3 foot high vertical space between the wall and the flowstone. I could not even see if there was a space big enough to fit into on the other side. This would be a mining project at best. With all leads exhausted we left the cave exiting at 6:30 p.m. after a 7.5 hour trip.

The next day August 31, 1997, Bill and I returned to work on the small hole in the right hand fork. We entered the cave at 12:15 p.m. Gentlemen never go caving before noon! At the wind hole, it was shocked three different times to soften the flowstone to where it could be dug by hand. I was able to dig enough rock to fit through on my back. On the other side, an arms length away, was another formidable constriction. We spent hours working on the excavation. In the end we would have to return tomorrow to be able to conquer the constriction. We left the cave at 7:45 p.m. after a 7.5 hour long trip.

After a horrible night's sleep on Scottsboro Mountain due to an all-night redneck party we returned to BMSC on September 1, 1997. We entered the cave at 9:30 a.m. and

(continued on page 372)

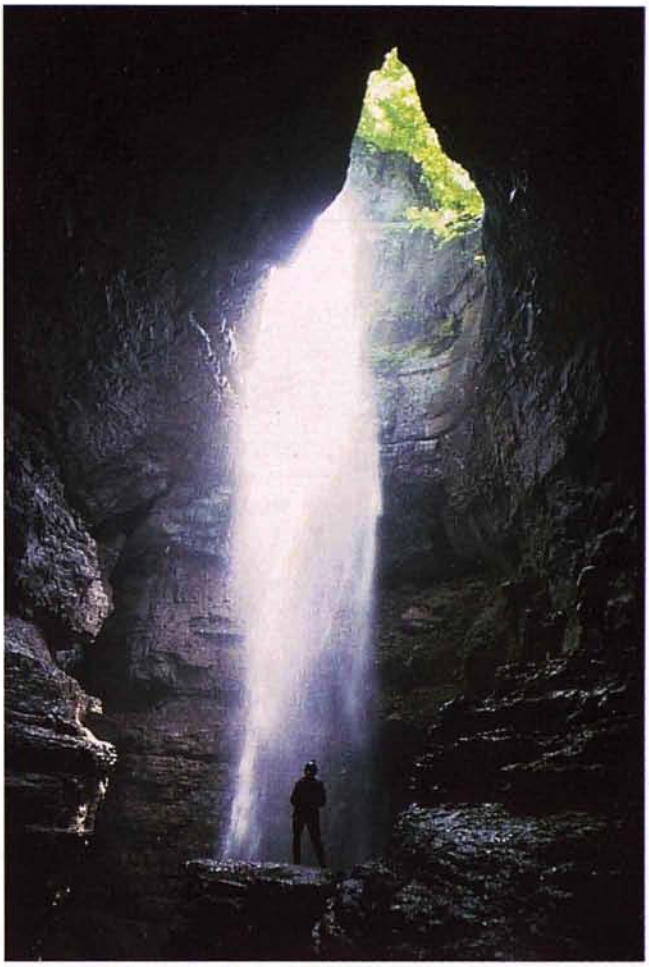
Lesley Weldon

Jim Smith emerging from Steele's Nemesis

SALON GALLERY

Merit Award winners from the 1998 slide salon

Trapped!, by Dave Bunnell



Splendor Falls, by Kenneth Storey

Aglow, by Dave Bunnell

DATES EXPLORED
10/24/77
8/23-24-25/97
8/30-31/97
9/1/97

DATE SURVEYED
10/4/97

SURVEYED BY:

DAVID COLE
DAVID DEHART
BRAD LONG
DON MILLER
ANDY PORTER
JAMES H. SMITH
BILL STEELE
LESLEY WELDON
TED WELDON

BENCHMARK SPRING (

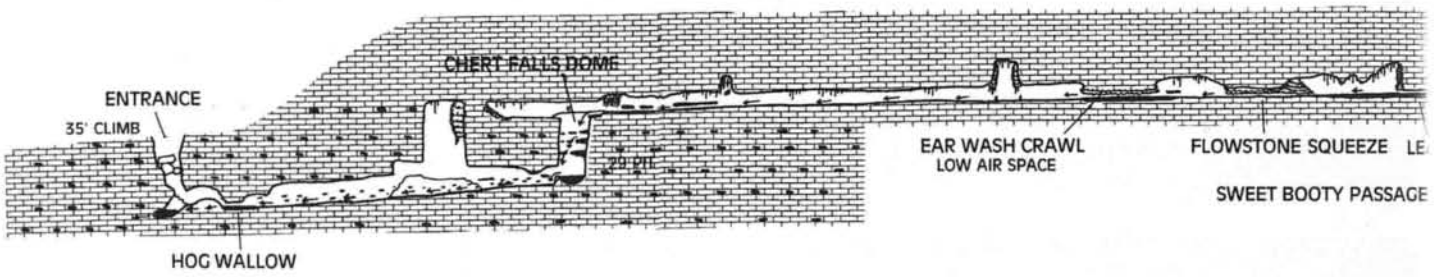
JACKSON COUNTY, ALABA

ACS 1743

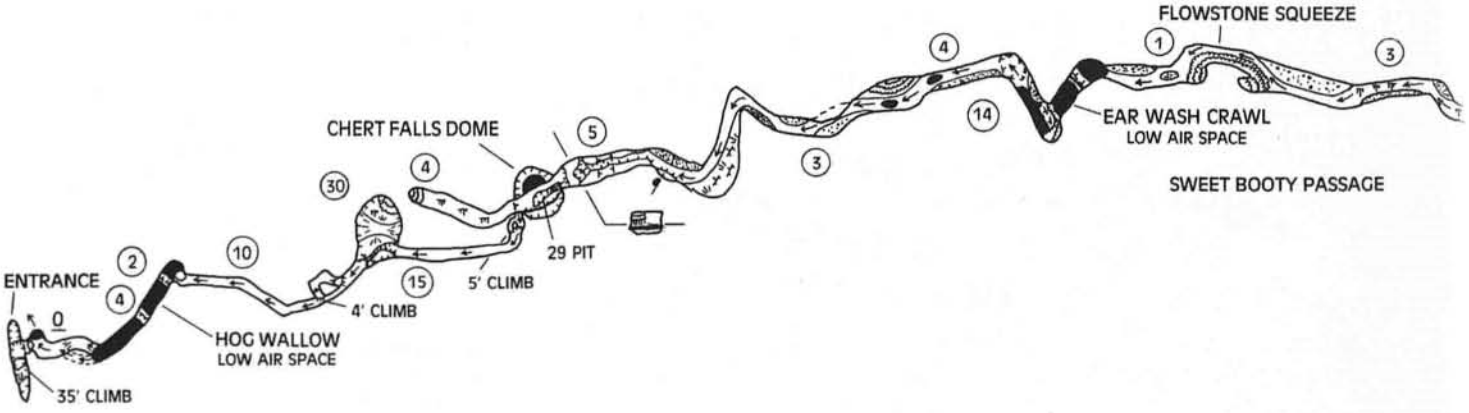
GRADE 5 SURVEY

LSD 2,707 FEET - DEPTH 350 FEE

PROFILE



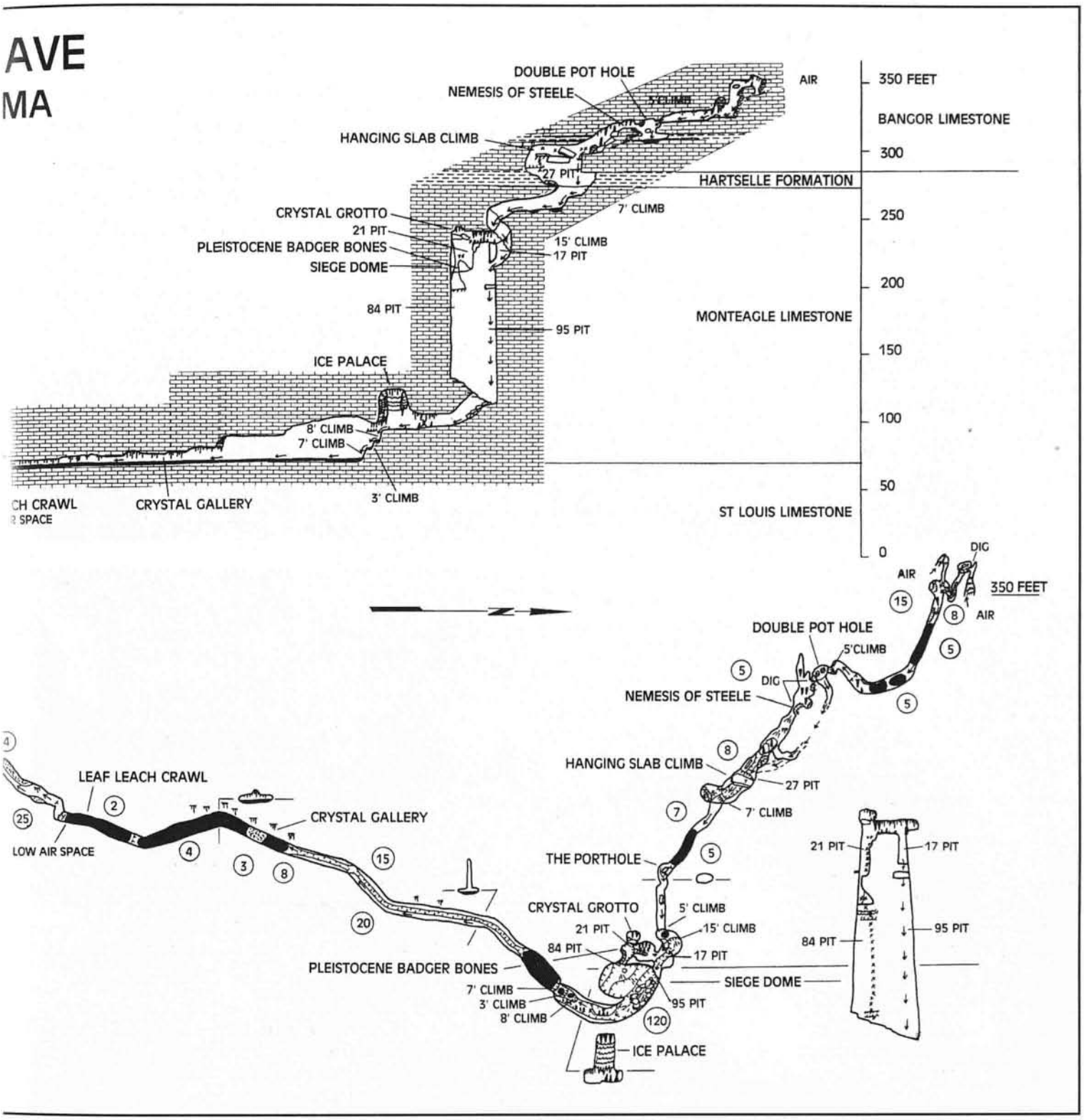
PLAN

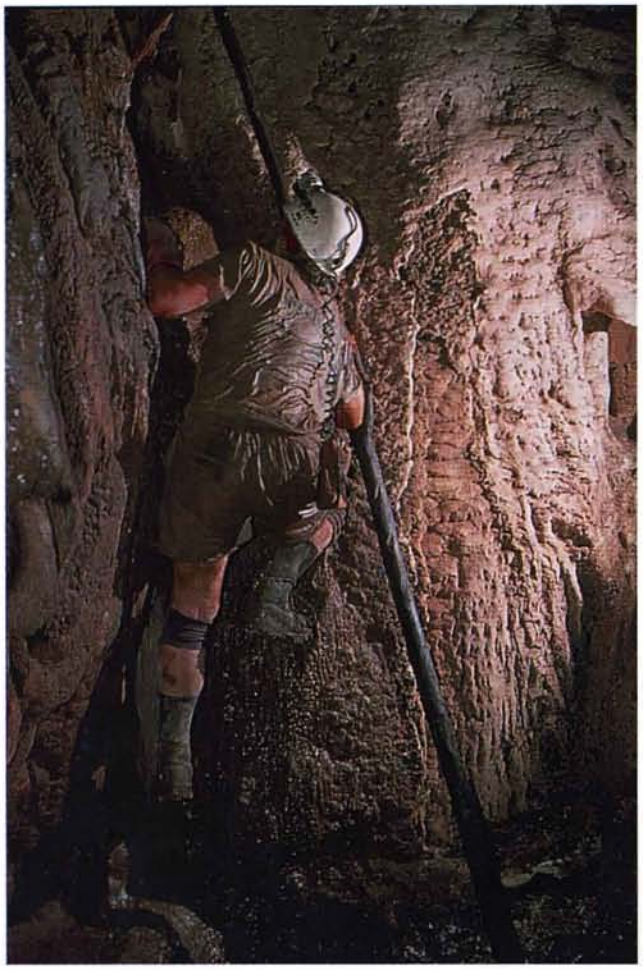


© JAMES H. SMITH JR.

SCALE 0 100 FEET

DRAFTED BY: JAMES H. SMITH JR.


AVE
MA
DOUBLE POT HOLE
NEMESIS OF STEELE
HANGING SLAB CLIMB
27 PIT
7' CLIMB
CRYSTAL GROTTO
21 PIT
PLEISTOCENE BADGER BONES
SIEGE DOME
15' CLIMB
17 PIT
84 PIT
95 PIT
ICE PALACE
8' CLIMB
7' CLIMB
3' CLIMB
CH CRAWL
SPACE
CRYSTAL GALLERY
AIR
350 FEET
BANGOR LIMESTONE
300
HARTSELLE FORMATION
250
200
MONTEAGLE LIMESTONE
150
100
50
ST LOUIS LIMESTONE
0
DIG
AIR
350 FEET
DOUBLE POT HOLE
5'CLIMB
NEMESIS OF STEELE
HANGING SLAB CLIMB
27 PIT
7' CLIMB
LEAF LEACH CRAWL
LOW AIR SPACE
CRYSTAL GALLERY
THE PORTHOLE
5' CLIMB
CRYSTAL GROTTO
21 PIT
15' CLIMB
84 PIT
17 PIT
PLEISTOCENE BADGER BONES
SIEGE DOME
7' CLIMB
3' CLIMB
8' CLIMB
95 PIT
ICE PALACE

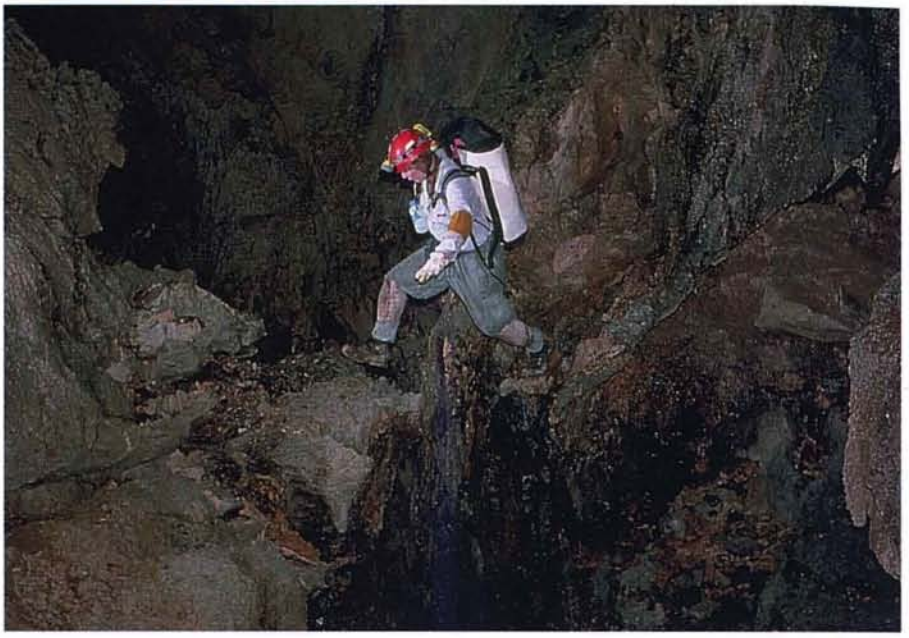


Portrait of Bill Frantz, by Bill Frantz and Roger Mortimer

SALON GALLERY

Honorable Mention award winners from the 1998 slide salon

The Bold Step, by Bill Frantz



Portrait of Peri Frantz, by Bill Frantz

Staunton Sinks

by Robert Hodges, Jr.

With a current population of just under 25,000 souls, the city of Staunton, Virginia boasts many claims to fame. Staunton is the birthplace of president Woodrow Wilson; the home of the country music group, the Statler Bothers; and also the birthplace of William Haines, a Hollywood movie star from the silent picture era. President Dwight Eisenhower's mother grew up on a farm outside of town and during the Civil War, Staunton's railroad junction made it strategically crucial. General Thomas Jonathan "Stonewall" Jackson utilized the city's rail line at one stage in his Shenandoah Valley campaign in which he baffled and then pulverized three independant federal armies. One of the town's most famous aspects, however, involved not its historic people but its karst. In 1910, four sinkholes opened up in the middle of town, destroying property and causing an immediate ripple of widespread media sensation.

Staunton lies near the center of the Shenandoah Valley, which in turn lies within the limestone belt of Virginia. The Valley is riddled with caves and Henry Douglas', *Caves of Virginia* lists 26 caves for the Staunton quadrangle alone. One even functioned as a commercial cavern for a few years, beginning in 1907. The heart of Staunton consists of a grid with Lewis Street, Central Avenue (formerly Water Street), and Augusta Street running north and south and Baldwin, Frederick and Beverley (formerly Main) streets running east and west.

The sinkholes, known as dolines in the scientific community, occurred along the informal border between the residential and business sectors directly downtown. There are two general types of dolines—solution and collapse—though some may also form through suffosion. Solution dolines may form in limestone pavement, for example, through several thousand years of karstic activity after a glacier has receded. Dolines can also have more descriptive terms indicating a steady progression in their overall formation process. Pipes can develop into karst funnels, which in turn may evolve into bowls including bowls with flat floors. A collapse doline, however, involves an actual break in the soil and rock above a subsurface cavity. A drop in the water table can cause a weak layer of formerly buoyant matter to break and fall. Often, a collapse doline will also involve years of constant weakening through solution or other processes although the actual break itself can be relatively sudden and dramatic as the people of Staunton discovered.

At around 10 a.m., on Thursday August 11, 1910 the first sinkhole broke open the streets of Staunton. The Fire Department sat on the corner of Baldwin and Central on the north side of Baldwin, which was a short two-block long street (today the street is half that long). The new public school building stood next to the fire station on the same side of Baldwin halfway between Lewis and Central Avenue. The John Landes fruit-packing house stood directly across the street from the fire station on the corner of Baldwin and Central on the south side of Baldwin. The people packing apples at Landes' were among the first to hear the crash and feel the buildings shake. The pavement broke and dropped four feet in front of Mr. Balsley's home, situated directly across the street from the primary school building. Balsley's family immediately evacuated their house, the firemen ran out to the street and within minutes, the chief of police showed up to take charge of the situation.

Baldwin St. facing east, 1910. The roof of the Balsey house is visible in the sink to the right and the sink to the left sits in front of the fire station. Photo provided courtesy of Richard Hamrick/David Schwartz collections.

City Manager, Charles Ashburner, arrived and helped the police chief cordon off both ends of Baldwin Street with ropes to hold back the crowds of people whose curiosity surpassed a sense of safety. Balsley's frantic landlord also rushed over at this time. C. L. Wilson, a grocer as well as a landlord, was known in town as "Professor Wilson" not because he taught college but because he could play the violin. Wilson not only owned the Balsley house but he also owned several outbuildings, another rental house and his own residence which would all soon come into jeopardy.

Within an hour the sinkhole had dropped to ten feet and now commanded a 30-foot radius. By noon, the sinkhole had swallowed a 25-foot tree and as the onlookers watched the top of the tree disappear from sight, they heard another loud crash as the second doline opened up. Dust wafted out of a four-foot square hole in front of the fire station. The firemen quickly pulled their equipment from the building and a worried Mr. Landes across the street from the fire department ordered wagons brought up to haul off the hundreds of barrels of apples in the packing house.

As the sinkholes took out more and more of the surface ground the steps of the school broke away and cracks eked across the walls of the building. Wilson's house, which stood at the corner of Lewis and Baldwin facing Lewis, also developed cracks. Around 4 p.m. the last measure of support holding up the Balsley residence finally gave out. The entire 25-by-35-foot two-story house fell with a boom and lay in pieces below the surface. Large sections of the sinkhole walls tore loose and fell with "heavy detonations", as the *Staunton Dispatch and News* reported. About an hour after the demise of the Balsley house the ground ruptured again as a third sinkhole took out Wilson's back yard leaving his kitchen hanging over the precipice. The cave-in took its first casualty that day when a setter, deaf to the shouts of his human neighbors, strolled over to the edge of one of the holes and promptly fell. The dog plunged as much as 50 or 60 feet and was never seen again.

The police stayed busy all night holding back the persistent onlookers as the sinkholes continued to expand. The town's animals were not as easy to restrain and three more dogs fell in, including Wilson's family dog, as one witness attested. The dog scrambled under the overhanging firehouse and yelped for a while before falling completely silent. An undisclosed number of chickens also fell into the sinkholes though a couple were rescued, no doubt to face an even worse fate later.

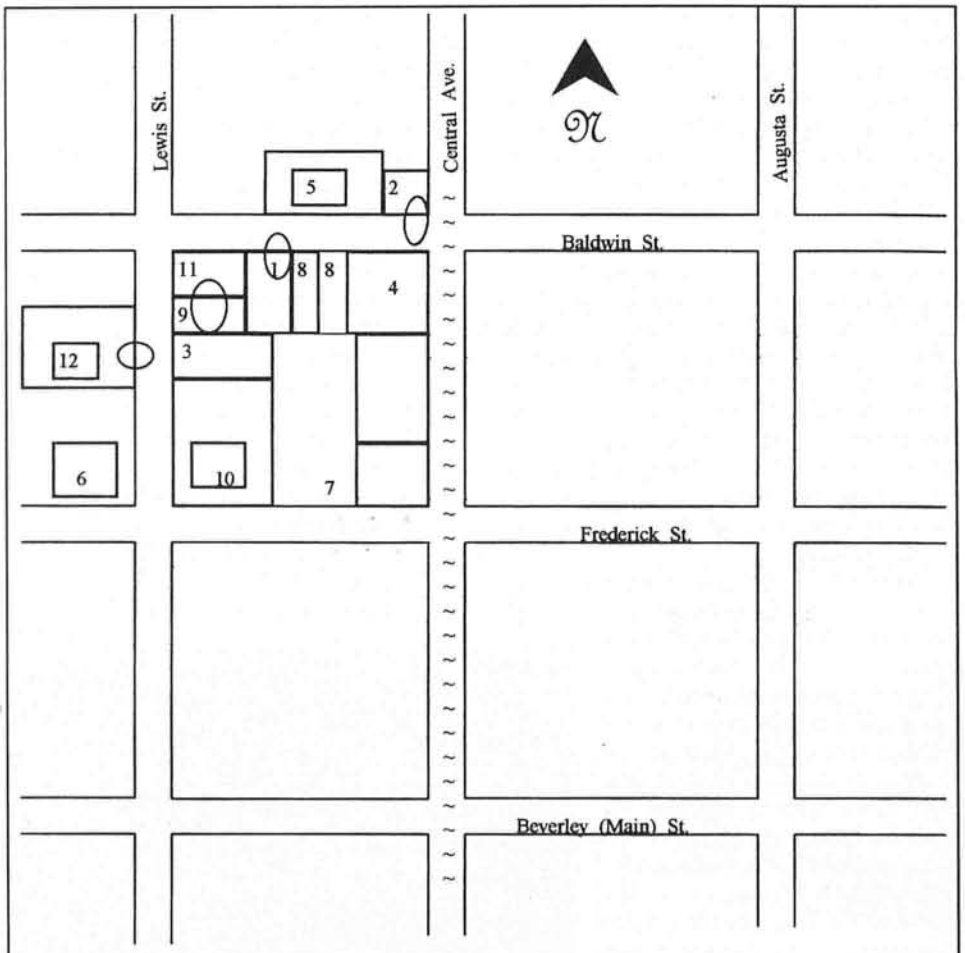
All three sinks were partially filled with water. The next day, August 12th, the sinkhole in Wilson's backyard tore into the yard next door. Wilson owned this house and lot, which he rented to James Todd. Wilson, Todd and the owner of the third house over, Mary Glenn, all vacated to a safer part of town. Around noon, more of the earth gave out in the Wilson sinkhole resulting in the quickest break and loudest

"detonation" so far, according to the local paper. The sinkhole pulled three trees under and ripped off a wall of the Todd house, nearly undermining the entire two-story structure. The mouth of a tunnel, about 25 feet tall and 8 feet wide appeared directly under the house. The police now blocked off Lewis Street and as an experiment, City Manager Ashburner ordered loads of rock thrown into the firehouse sink though the stones disappeared ineffectually into the water.

Hundreds of visitors came to Staunton to see the spectacle. Some out-of-towners were sent on official business including, F. B. Van Horn, a representative of the United States Geological Survey. Staunton also received a geologist from the University of Virginia, and later two more men from the U.S. Geological Survey, all ready to lend their advice and expertise. Mr. Heald, from the Supervising Architects Office, came from Washington D.C. for the express purpose of determining the saftey of the U.S. post office building on the northeast corner of Lewis and Frederick streets. Test holes were bored from Central to Lewis, north of the breaks and further south along Lewis. The post office was safe as was the Second Presbyterian Church on the northwest corner of Lewis and Frederick. Indeed, most of the city rested on limestone bedrock usually between 20 to 35 feet down.

Later that same night, Wilson's precarious kitchen finally broke off and crashed into the sink. On August 13th, more wagonloads of rock were dumped into the firehouse sink until the stones eventually reached the surface of the water. Large sections of the sinkhole walls continued to break and fall into the water under the Todd house. According to the local paper, the falling matter produced a "jug-o-rum" sound, indicative of deep water, as opposed to a simple splash. Though their efforts had failed, workers ignited two dynamite charges hoping to dislodge an overhanging ledge. The next couple of days were relativly quiet except for the occasional chunk of earthen wall falling and the chimney collapse at the Todd house. Without a sufficient foundation under the house the chimney ripped through the framework and dropped into the sinkhole. On a positive note for Wilson, his family dog turned up alive and well in a neighbor's basement—the one in the firehouse sink belonged to someone else.

All three dolines were, of course, a part of the same collapse and water that entered at the firehouse sink passed through the Balsley and then Todd sinks and re-entered the ground travelling under Lewis Street. The sinks extended 255 feet at the surface, including the two 30-foot-wide sections of ground still intact. The water level varied as the water moved in and out but usually remained between 40 to 47 feet below the surface. At the Todd house, the sinkhole dropped to 122 feet below the surface with three-fourths of the depth under water. City officials debated back and forth for more than a week over the firehouse problem. The pavement directly in front of the station was essentially nonexistent and the building itself hung dangerously over the hole.



Downtown Staunton, Virginia - summer of 1910

key:
1. Balsley House
2. Firehouse
3. Glenn lot
4. Landes packing house
5. Primary school
6. Second Presbyterian church
7. Smith Fuel and Ice Company
8. Storage buildings owned by Wilson
9. Todd house
10. United States post office
11. Wilson house
12. Yost house

~~ indicates Lewis Creek culvert

⬭ indicates sinkholes

(map not to exact scale)

{map based on primary source material and Eisenberg map}

Many debates also surrounded the cause of the dramatic cave-in. One theory blamed the Smith Fuel and Ice Company, which maintained an 800-foot deep well about a block south of the sinks. Though the company's pumps pulled up sludge at the time of the cave-ins, the contention was quickly overruled. Other ideas suggested an underground stream, seepage from the nearby high ground and run-off from Lewis Creek. The creek runs through the center of town and used to cause frequent flooding. In 1893, the city built an arched tunnel and diverted the stream under Central Avenue where the water flows to this day. Three years later, in 1896, a serious flood destroyed numerous buildings downtown and residents were naturally concerned because the summer of 1910 had also brought a high amount of rainfall. Some speculated that not all of the water was travelling through the culvert as intended, so Ashburner dumped 200 pounds of salt into the water to determine if Lewis and the sinks were connected. His findings proved indeterminate. Though Lewis Creek and heavy rains may have contributed to the collapse an understanding of the ground composition may offer the best insight. The affected section of town rests between two

hills. As early as the eighteenth-century, the Baldwin Street area was known as "Stuart's Frog Pond" because it literally was a pond. Though the Todd house lost its ell foundation and the unsupported chimney, the bulk of the structure failed to drop because its primary foundation rested on two limestone walls. These two walls extended throughout the sinks and created something of a canyon. Since before the days of the frog pond, the limestone "canyon", at least 122 feet deep as indicated at the Todd house, had filled with marl until it became level with the rest of the surface. With the frog pond no longer in existence people decided to develop the area and metaphorically speaking, built their houses on sand. Most of the town rests safely on limestone but in this case, water activity ate through enough of the marl to produce a significant cavity.

News of the sinkholes spread rapidly. The cave-in made instant celebrities of Staunton's Stonewall Brigade Band members while they were on tour in West Virginia. No one cared about their musical talents, they were from the sinking city. Though the musicians enjoyed the attention, much of the publicity left Staunton residents furious.

Many newspapers, including the *Washington Times* and The *Richmond News-Leader* printed absolutely ridiculous articles sometimes giving exaggerated facts and sometimes outright lies. The shameless reports included: bottomless water at 200 feet below the surface, caverns hundreds of feet deep which had swallowed three houses and threatened more, a bottomless pit beside the post office, seismic activity, and the deputizing of 50 men to hold back the crowds. The papers also stated that the sinkholes were connected to Luray Caverns (50 miles from Staunton) and inferred that the causes of the phenomenon lay beyond the reaches of human understanding. In actuality, the only hole at the post office was bored purposely by the official from Washington in order to determine the depth of the bedrock. The police chief enlisted about six men, not 50, to provide a second shift for Staunton's seven police officers.

Crowds of people did come to town inspired by the age-old human lust for destruction and as the local newspaper complained, the outrageous reports of the media. It seems strange that the outside media would exaggerate the facts nearly to the brink of supernaturalism despite the official statements of the geologists and despite the fact that those very same papers had their own reporters on the scene. The *Staunton Dispatch and News* published virtual diatribes against certain members of the press but could never hope to touch the scope of readership already misinformed by the big city papers.

Repair efforts began about as soon as the sinkholes stopped collapsing. The firehouse and most of the Balsley doline (which extended well into Baldwin Street) involved public property and became Ashburner's responsibility. The Wilson/Todd sink fell entirely on private land and would see the handiwork of one of the most colorful characters in the drama, B. L. Partlow—Staunton's ambitious contractor. Partlow felt so confident in his ability to save both houses that he agreed to work contingently. In other words, if all his efforts failed to salvage the buildings he would not get paid. The contractor had constructed numerous buildings in town and involved himself in some difficult projects, though this may have been his greatest challenge.

With pumps, rafts, and a derrick, workers began the repairs. The general plan was not simply to fill the holes but to drain the water, arch the sinks with reinforced concrete and then fill in and repave the streets. The city allotted $10,000 (1910 dollar value) for the project. The city officials also reached and executed a decision regarding the partially dismantled fire station - they burned it. With the firehouse now ironically in ashes, the city's decision makers, apparently not as confident as Partlow, rendered the repair job safer and easier. The city dropped baled hay weighted with scrap iron into the hole and then built a frame and later poured the concrete. Workers even ran new tracks off of the existent Lewis Street tracks up to the sinks on Baldwin in order to haul fill material with the city's electric trolleys.

Partlow's plans included double concrete arches between the limestone walls, a concrete floor and concrete pillars to support the two houses. Partlow's efforts met with a few setbacks. Pumping out the water became a problem, the upper arch collapsed and on August 27th the fourth and final doline opened across the street from the Todd house. The last doline destroyed part of Jacob Yost's front yard, situated next door to the Second Presbyterian Church. Partlow had to divert much of his attention to the Yost property though the city also sent a crew to help. A couple of days after the last collapse, Partlow decided to explore the opening under the Todd house. He and another man, armed with a raft and a Davis Acetylene reflector made the dangerous trip under the house. They discovered that at the very back the rock walls narrowed to a 3 1/2-foot wide section packed with clay.

Although Partlow's work was already highly publicized, he gained even more notoriety when he capitalized on Staunton's visitors. He built a bridge across the Todd chasm and while the crews were working, Partlow charged a dime admission to let sightseers pass over the bridge and view the sink. He even hired a crier who, according to the Dispatch and News , yelled out, "Oh yes, step quickly now and see the cavern. Only chance to view this wonderful freak of nature. Only ten cents, one dime. Step quickly. All who have viewed it will pass out to admit others. Hurry! Hurry! Hurry!"

The Todd house where Partlow went 'caving.' Note the beginnings of the foot bridge which Partlow charged dime admission for tourists to cross. Photo provided courtesy of Richard Hamrick/David Schwartz collections.

Much of the cave-in amusement dissipated in early November when tragedy struck. While working on the Yost sink, two men were changing shifts with two other men when a section of the earth wall broke loose. The first two frantically climbed out of the way but the earth hit the second two men in the shins. They both went down. The current pulled the 19-year-old Dennis Fortune under the concrete arch but he managed to swim to the surface and hold onto a rock until his foreman could get him out. His partner wasn't so lucky. Apparently knocked unconscious during the fall, the 63 year-old Stuart Sprouse drowned. The body was wedged deep underwater and workers equipped with grappling hooks and long poles took 27 hours to retrieve Sprouse's remains. Oddly, as the body surfaced one of the lifeless hands grabbed a line used by a worker.

By late November the city was ready to repave Baldwin Street. The city had used 280 yards of concrete and spent $7,000. The repairs also included a pipe in the firehouse sink to help divert water back into the Lewis Creek culvert. The city boasted that their arches would stand until "Judgement Day." Along similar lines, Partlow exclaimed that his arhces would hold till the "crack o' doom." For those who find the crack of doom a little difficult to factor into scientific terms, a second, more

mathematical, prediction stated that the arched areas could support seven times as much weight as before. Considering the bulk of the brick and block buildings over the sinks now, even that claim is not especially reassuring.

The Wilson, Todd and Mary Glenn houses are all gone today. A large garage covers the Wilson lot and part of the Todd lot. Parents were afraid to send their children to the cracked school building and like the Glenn house it is now a parking lot. Brick buildings now take up the Balsley and firehouse lots though the Yost house next to the Second Presbyterian Church still stands. The vistitor to Staunton should take special notice of the steps and walkway leading to the Yost front porch. Both are cracked and display a heavy sag to the right. More trouble ahead, perhaps?

Works Consulted

Primary Sources:

City of Staunton, VA. Circuit Court Clerk's Office. Deed Records: 1802 - 1951.

Eisenberg, William E. "The Cave-in, 1910". *Augusta Historical Bulletin* 20.1 (Spring 1984). [Eisenberg was a seven-year-old boy in 1910 and witnessed Staunton's cave-in first-hand]

Staunton Dispatch and News , August 12, 1910 - December 17,

Secondary Sources:

Beck, Barry F., ed. *Sinkholes: Their Geology, Engineering and Environmental Impact*. Rotterdam, Netherlands: A.A. Balkema, 1984.

Brice, Marshall Moore. *The Stonewall Brigade Band*. Verona, VA: McClure Printing Company, Inc., 1967.

Brown, David J., ed. *Staunton, Virginia: A Pictorial History*. Marceline, MO: Walsworth Press, Inc., 1985.

Douglas, Henry H., ed. *Caves of Virginia*. Falls Church, VA: Virginia Cave Survey, VA region of the National Speleological Society, 1964.

Ford, Derek, and Paul Williams. *Karst Geomorphology and Hydrology* . London: Unwin Hyman Ltd., 1989.

Ford, T. D., and C. H. D. Cullingford, eds. *The Science of Speleology*. London: Academic Press, 1976.

Jakucs, Laszlo. *Morphogenetics of Karst Regions* Translated by B. Balkay. New York: Halsted Press, 1977.

MacMaster, Richard K. *Augusta County History: 1865 - 1950*. Salem, WV: Don Mills, Inc., 1987.

McGill, William M. *Caverns of Virginia*. Charlottesville, VA: University of Virginia, 1933.

Sweeting, M. M., ed. *Karst Geomorphology*. Stroudsburg, Pennsylvania: Hutchinson Ross Publishing Company, 1981

INTERNATIONAL NEWS

Mexico Reconnaissance

The San Gabriel area, about two hours by dirt road south of Ciudad Maiz (San Luis Potosi) was checked during a March 1998 trip. Local people welcomed us and indicated that we were the first Anglos to visit the area. Cueva de los Ecos was pushed down 7 short drops, before ending in a deep sump 95m below. Cueva de San Gabriel was pushed through tight canyons and 8 drops to a small sump at -85m. Sotano de Tepozan was a pit ending in a chamber at -90m. Thirteen other caves were mapped, and about a dozen entrances were logged with GPS but not entered due to time constraints. The area is extensively karstified, but presently arid and it does not appear that any large caves are present or at least accessible. The trip was organized by Tommy Shifflett, with Peter Sprouse suggesting the area. Participants were Mike Ficco, John Ganter, Phil Lucas, Ben and Cori Schwartz. Peter and Colin Strickland, and Melonie Alspaugh also joined the group for part of the time.

John Ganter

Cuban Speleogical Expedition

The Che Guevera Speleological Group of the Cuban Speleological Society invites all interested cavers to participate in the *Don Pancho Speleological Expedition*, to be held from March 1-10, 1999 in Pinar del Rio, Cuba. The main objective of the expedition is to explore and map this great cave from March 3-7, 1999.

Cavers must bring their own equipment including caving gear, vertical gear and survey equipment. General camping gear, including sleeping bags and tents, are also required. Donations of caving gear such as rope, anchors for climbing, and survey equipment are greatly appreciated as the Cubans cannot purchase gear from the American vendors.

The fee is $100.00 for cavers and $60.00 for students, with a limit of 30 registrants. These fees include round trip transportation from the airport to the cave and breakfast/dinner. The registration deadline is January 30, 1999.Interested participants should contact:

Prof. Pedro Pablo Gonzalez Castro
Consultorio MF #8 Apto. 3
Calle 92 e-11C y 11D
Rpto. A. Guiteras. CP 12800
Habana del Este
Ciudad de la Habana 28
Cuba
Phone: 011 (537) 22-5025 or 011 (537) 97-3140
e-mail: jose@matcom.uh.cu

The US Department of Treasury, Foreign Assets Control requires all US citizens traveling abroad to Cuba to complete a research related visa with their office. This information can be obtained via fax service at (202) 622-0077, specify documents #1001,1201,1203.

submitted by Prof. Pedro Pablo Gonzalez Castro and Julie E. Schenck

Grants Available for International Speleological Participation

The National Speleological Society's International Support Fund offers limited grants to support International Speleological Participation. The selection criteria used by the NSS to award these grants include:

1. **Mutual benefit**—the degree to which the project would be beneficial to both the NSS and foreign speleology.
2. **Durable linkages**—the potential creation of continuing channels for the exchange of speleological information and technique between the NSS and speleology in the participant's country.
3. **Speleological merit**—the scientific benefit and value of the proposed project.

A report on the results of the International Participation must be published in an NSS or International Congress publication and copies deposited with the NSS Library.

Two examples of the type of projects to which grants were made are the 1997 joint China/USA Caves Project and the 1996 Russian speleologists' participation in the Tongass Alaska Cave Project. Grants typically are in the range of $500 to $1500 per project.

International Participation application forms can be obtained from jlmoses@amoco.com or John Moses, NSS International Secretary, 15807 River Roads, Houston, Texas 77079.

Phone: (281) 366-2118

SPELEAN SPOTLIGHT

by Paul Steward

Craig Douglas

NSS # 42279

On Saturday July 18, 1998, Craig Douglas of Dover, New Hampshire, entered Keyhole Cave in Schoharie County, New York with his sister Erica, and two friends Jennifer Russell and Buster Miller. They were a team of well-equipped, experienced cavers, all aware of the challenges this cave could hold for them. While negotiating a tight crawlway, one hundred feet below the surface and one-hour travel (plus rigging time) from the entrance, through a very tight vertical cave, Craig's right leg became entrapped in a narrow crevice in the floor. The group knew the importance of the situation and that it would take several hours for the first rescue group to assemble and descend into the cave to provide assistance. They quickly decided that since they could not readily free Craig's leg, a rescue should be initiated in case further attempts by the group failed. It was quick decisions like this that would play a major factor in the success of this rescue. While Jennifer returned to the surface to summon help, the remaining cavers worked to up-right Craig, stabilize his position, and continued attempts at freeing his leg to avert a rescue. Within hours word quickly spread throughout the caving community, and for the next two days over two hundred cavers and support personnel gathered for the largest cave rescue in Northeast history. What follows is an amazing story of hope, courage, and never-ending perseverance for all involved. Of those present, only the smallest of cavers could negotiate in the cave to reach Craig's leg. There they would work the drills and hammers until their arms became too weak and their bodies too tired from the cold and rising CO2 levels. Through it all, Craig's spirits remained high and in the end, it was Craig, himself, who chipped out the final pieces of rock to free his leg. After forty-three hours in the cave, Craig emerged to an applauding crowd of cavers, friends, and of course the news media.

When did you start caving?

"In the spring of 1993, while on spring break from the University of New Hampshire, I went with the New Hampshire Outing Club to Trout Cave in West Virginia, and fell in love with the sport. Then I joined the NSS. Although there were not any grottos close by, I did find people to cave with. Since then I have caved all over the Northeast and I've also been caving in Hungary and Central America."

Tell us about Keyhole Cave.

"The cave is a series of drops connected by short tight crawls. It's 112 feet deep and about 370 feet long. The final crawl is called 'Paul's Pipe' and is about 8 feet long. This leads to the last drop into 'Keese's Comfort' which was to be our goal for the day. It was in Paul's Pipe that I got stuck."

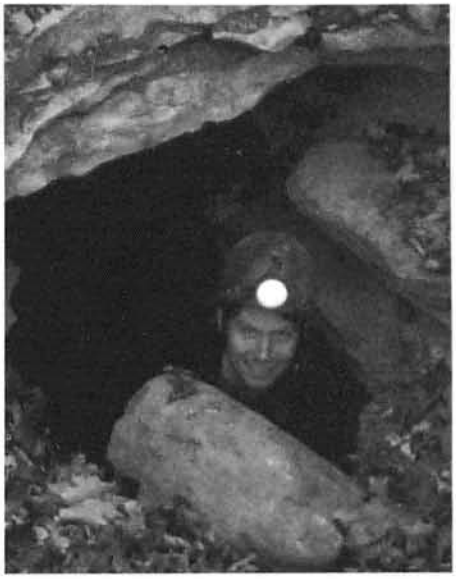
How did you become stuck?

"We rigged a rope and a rope ladder through the crawl and dropped them into the pit. It's said a rope ladder works best to get back out. I didn't feel comfortable with just a ladder because as you crawl out of the pipe, which is 12 inches high by 18 inches wide, you're hanging head-first 10 feet above the floor. Backing out into the room would also be extremely difficult. As my head entered the room I clipped onto the rope. I had a stop set on the rope to keep me from sliding down. Now you have to pull your torso out into the room, then with the weight now on your harness, pull your legs into the room into a rappel position. As I was pulling my legs through, my right knee slipped into a narrow crevice that runs in the bottom of the pipe for the last three feet. I was now hanging up-side down with my leg stuck. At first I thought I just wasn't finding the right position to get my leg out. I called Buster in to help but we still couldn't work my leg out, so Jennifer was sent to the surface to initiate a rescue. We re-positioned the ropes and I was able to spin my body so I was in a sitting position, supported by my stop. We tried again, and again, and again working the leg out, but looking back, without being in the original position there was little chance we were going to get my leg free without removing some rock."

For the next 29 hours Craig would work with the rescuers to free his leg. Phone, electric, and air lines were also run down to Craig. One by one cavers would take turns with power drills, rock hammers, and air chisels, never giving up hope. Tries of pulling Craig's leg out using a pulley system were only met with screams of pain from Craig. Still, Craig continued to be up-beat, alert, and at times joking with those nearby. On the surface the mood was somber. After 17 hours Craig was still as stuck as ever. Nothing was working and talk was turning to 'life or limb.'

How did you stay so calm through all of this?

"You must help yourself for others to help you. I knew that the early initiation of a rescue greatly increased the chances of success. I tried to maintain a positive attitude and remained focused on the situation. I came up with four focus points, which I now call my 'four points of light.' One was hydration, one was hypothermia, one was circulation, and the last was just getting out. I stayed fairly warm through it all and tried to keep



drinking fluids—though I still became very dehydrated. My biggest fear was the circulation in my leg. I was constantly trying to move and massage my leg, which really helped reduce damage to muscle tissue. My sister Erica spent many, many hours in that passage with me massaging and pulling on my leg. Having her close by helped a lot. The other calming factor through the early part of the entrapment was having a lot of resources with us. At the moment I got stuck we had an additional 50 feet of spare rope, many carabiners, a couple of frog systems, two full cave first aid kits, three space blankets, 4 spare wool hats, 2.5 liters of water, about 6 power bars and some candy. Also, over 12 sources of light in addition to candles, and knowledge of how to maximize these resources. It was these resources that allowed us to work on my situation. Without this preparation and commitment to hauling extra gear we would not have been able to keep me in as good condition as we did. Additionally, at the bottom of the first pit we had put a cache of spare polly-pro, pulleys, and webbing. We never thought we'd ever have to use it, but this kind of gear can only work for you if you have it with you. The knowledge that we had taken so many precautions helped me to remain calm."

It was Craig's own positive and focused attitude that would play a major part in getting him free. Putting aside fears of dropping tools into the pit, weak and tired, Craig surprised rescuers by asking for the chipping hammer and began chipping away rock from his side. Within twenty minutes the last pieces of rock that held him would fall from the wall. It would still be another 12 hours before he would see the light of day. Once

(continued on page 372)

SPELEMEDIA

FLOYD COLLINS—THE ORIGINAL CAST RECORDING

Media type: Compact disc
Music and Lyrics by Adam Guettel/Book by Tina Landau
Available on Nonesuch Records, 1997
Playing time: 68 minutes

This past winter I made a discovery of a caving gem in a most unlikely way. As I was scanning through a long article from the New York Times on the best CDs of 1997 I saw old, familiar names of musical artists who had notable accomplishment that year – Bob Dylan, Paul Simon, James Taylor, Floyd Collins...wait a minute, Floyd Collins ?! Sure enough right in front of me was a brief review of "Floyd Collins – The Original Cast Recording". The play, based on the tragedy at Sand Cave Kentucky, had a short run during the 1995-96 theatre season. The music has survived on CD on Nonesuch Records.

Just looking at the CD and liner notes is a joy in itself. The CD's box has a picture of a coal oil lantern giving off a dim and lonely light. There is a small copy of the front page from the Louisville Courier-Journal, February 5, 1925 with the dire headline "Little Chance for Collins, Reported". The CD package contains a booklet with all the lyrics and a few photos from the play, along with a synopsis.

I was impressed by the accurate depiction of the Floyd Collins story by the play's author, Adam Guettel and director, Tina Landau. "We got ahold of a copy of *Trapped* and fought over who would get to read it first," said Mr. Guettel when I contacted him. Adam and Tina were commissioned by The American Music theatre Festival in 1991 to do a new music theatre piece. Tina had come upon a paragraph about the tragedy in a compilation called "Life in the Twenties" by Reader's Digest books. Adam was immediately drawn to Floyd Collins, the man, recognizing the passion he had for another world. Adam felt that Floyd's lone discoveries underground would naturally lend themselves to musical expression.

Adam traveled to the Mammoth Cave region and was granted a mere 45 minutes in Crystal Cave with a park ranger. "The first several lines of the song, 'It Moves' are transcribed from the notes I took in the big room," the author revealed. Adam was able to meet Floyd's niece and the man who owned Crystal Cave before the National Park Service took it over. "There was a certain melancholy, a sense of something unresolved that hung in the air. It gave Floyd's story a soulful reality for me. I wanted to tell it well," Adam told me.

The CD begins with a story-setting, chorus introduction in which cold, gray, mid-winter Kentucky can be felt between the lines. Floyd sings to us of his dream of finding a glorious cave to bring in tourist money and take his family away from their hard-scrabble farming life. Moving rocks, building trails, adding stairs, and a curio shop and refreshment stand open seven days a week is work that to any caver sounds better than farming.

Each cave explorer has a personal "big room sounding call" and we hear Floyd's yodels echoing as he makes his discoveries of grand passages. His colloquial description of the virgin passage and the thrill of discovery are touching.

Though we don't experience Floyd's actual entrapment, his friends tell us of equally tight predicaments they've been in as they swap tales while they wait for word of Floyd. Homer tries to distract his brother from the cold, lonely hours with riddles and tales of their growing up together while the other family members comfort each other with the strength of their family ties. We are suddenly reminded of the circus surrounding the rescue efforts by the quick, staccato song by the newspapermen phoning in their reports based on snatches of conversation and hearsay. This was clearly an early version of a media feeding frenzy.

The most beautiful song on the entire CD is *Through the Mountain*, sung by Floyd's sister Nellie, who is frustrated by the fact that it's the men "always goin' round an' runnin' things." She sings to Floyd that she will walk him through the mountain on a bearskin rug, lay him down to sleep with the gypsum flowers and follow the diamonds to the outside. Hers is a beautifully simplistic rescue and hints of her recent mental illness and close affection for her brother.

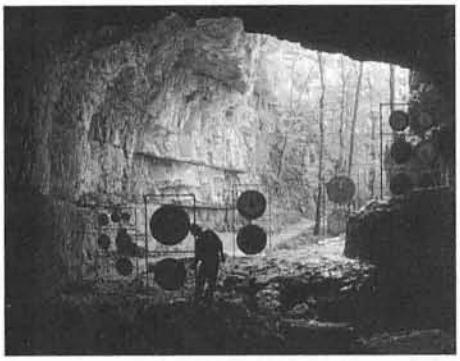
We suffer with Homer as he is forced to submit to the "outlander" engineer, Carmichael, who takes over the digging efforts. The anguish is heard in Homer's voice as these outsiders move in to do what the locals seem incapable of doing, but with still unfavorable results.

The Ballad of Floyd Collins (reprise) is the musical heart and soul of the piece. We join a local caver slithering down into the hole to check on Floyd and hear Floyd's prayer and vow that if he is rescued he "won't go diggin' round in the hollows and holes...Never put another foot inside a cave." The haunting and softly sung "And there he remains in a cold Kentucky hillside" lingers in one's mind for quite awhile like the afterglow of a coal oil lantern.

We are left alone underground with Floyd as he experiences a dream of being reunited with his sister and brother. The family has moved the rocks, and built the trails and opened the Great Sand Cave for the greatest caver ever known. But the dream ends abruptly when Floyd hears his father say that he is still trapped. Floyd makes a plea to Nellie to pull and hold on, even as she gently tells him to let go. Floyd's last song as he resigns himself to his fate is a question every soul asks at the end. "Is it warm? Is there light? Will I want, will I wish for all the things I should have done, longing to finish what I only jes' begun?"

This musical story is bittersweet for a caver to hear. We wish that Floyd could have been rescued, but we know that vow to never again go underground could never have been kept by the greatest caver ever known. *Floyd Collins – The Original Cast Recording* is certainly a must-have CD for any caver who has ever lain in tight, wet places and pondered the meaning of existence. It can be ordered at most music stores.

By Martha M.M. Clark



HÖHLENKONZERT

Media type: Compact disc
Music by Martin Bürck, 1998
Currently available from the artist only by sending DM 35 to Edition Hägen, Im Hägen 1, D-72574 Brad Urach
Playing time: 42 minutes 21 seconds

Martin performs on 19 gongs set up in Hohler Fels, one of the large caves of the Schwäbische Alb in southwest Germany. It's a place with wonderful acoustics and the scene of paleolithic excavations. The gongs are made of iron, brass, or bronze, affording a wide range of tones. Eleven musical pieces are presented, all but the first one strictly instrumental. In each, the acoustic qualities of the cave are quite evident, including the ever-present sound of dripping water echoing in the background. The musical qualities of the gongs are based on their long reverberations, which of course are amplified by the cave. The pieces have a moody, mystical, new-age kind of quality that is enjoyable if you're partial to that sort of music.

by Dave Bunnell

CAVING CALENDAR, 1999

16.5 x 11.75 inches
Produced by Speleo Projects, Therwilerstrasse 43, CH-4054 Basel, Switzerland. Cost: $12.95, available from Speleobooks, Bob & Bob, NSS.

The Swiss calendar maintains its high photographic and print standards for yet another year. It has the largest photos of any of the calenders (about 10x12 inches) and is printed with the finest line screen. While only a small amount of space is devoted to the calendar portion, it is on a beige background that permits writing. Moreover, because the calendar is printed on one side only, writing on the calendar with pen doesn't mar any of the photos on the flip side as it might with the other two calendars shown here.

This year there are photos from U.S.A., France, Great Britain, Mexico, Puerto Rico, Sultanate of Oman and Switzerland. More photographers are represented than in any other calendar, which has always been a part of the Speleo-Project philosophy.

by Dave Bunnell

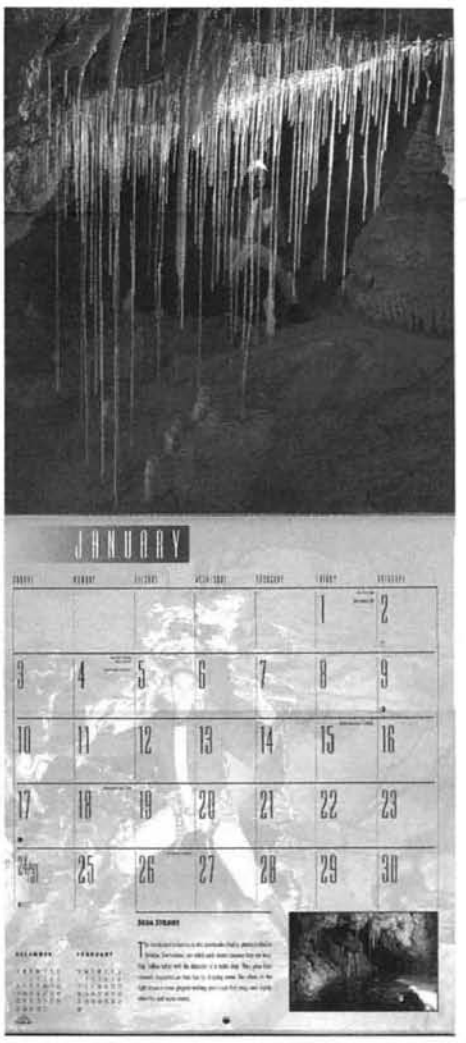
CAVERS CALENDAR, 1999

19 x 12.5 inches, opened
Produced by Speleo Press, P.O. Box 7037, Austin, TX 78713. Cost: $5.00 each,+ $2.00 to ship any quantity, directly from Speleo Press.

This is a new entry into the calendar field, from the printer of the *NSS News*. The theme is "no formations," with a focus on passage and action shots. Nine of the photos are by Terry Raines, two are by Dave Bunnell, and one from James Jasek (pictured). The latter is a beautifully detailed large format black and white (all the others are color), but was printed with color inks to give very rich blacks.

The photos are from Mexico, Texas, Hawaii, and Belize. Two of the months are from cave areas but are not cave photos; one of these shows human remains brought from a cave and would not be my choice for a calendar photo. But most of the photos are nice, and at five bucks this calendar is a relative bargain.

by Dave Bunnell

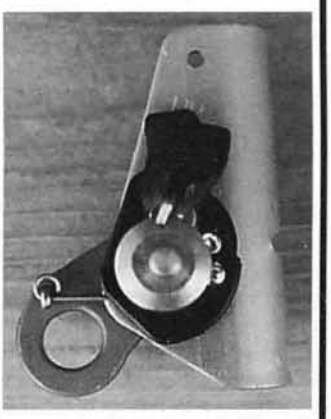


CAVES CALENDAR, 1999

26.5 x 12 inches, opened
Produced by Avalanche Publishing, P.O. Box 11028, Carson, CA 90749-1028. Cost: $11.99, available from Bob & Bob.

This is the fifth yearly photo calendar from California-based photographers Peter & Ann Bosted. Normally all the photos are by them, but this year several are provided by Alain Martaud. For each month there is a large photo, a smaller one, and a muted grayscale image behind the month grid. Each month has a theme tying the two photos together, and text explaining the pictures, geared largely for the non-caving public that likely accounts for the majority of this calendar's sales. The photo selection is a nice one, mostly from caves in Europe, California, and New Mexico, with a clear emphasis on formation shots. The printing is comparable to the Speleo-Press calendar but not the fine art quality seen in the Speleo-Projects calendar.

by Dave Bunnell



Change of address?
Missing issues?
Please contact the NSS office, not the *News* editor.

NEWS AND NOTES

1997 Karst and Cave Management Symposium

The 1997 Karst and Cave Management Symposium (13th National Cave Management Symposium) was held in October 1997 in Bellingham, Washington. About 115 participants enjoyed the northwest US hospitality, discussed karst and cave management in forest ecosystems, and visited karst areas in North Vancouver Island and the Chilliwack Karst on the BC mainland just north of the US border. Although the symposium was held in the US, this was really an international symposium. The organizing committee shared members from both the US and Canada, but much of the discussion and papers focused on caves and karst areas in Canada and even further north in Alaska, as well as around the world.

Several participants told the organizing committee that this was the best symposium they had attended. From the perspective of a year away, Canadian cavers believe that the impact of the Symposium upon karst management in British Columbia has been very positive, carrying out very well one of the purposes of the Cave Management Symposia, to promote cooperation among the various interests concerned about caves and karst.

Special presentations were made by Pete Huntoon, who presented an excellent program on Karst (mis)management in China, and Banquet speaker Derek Ford who shared with us his perspectives of karst from around the world.

The keynote speaker, unfortunately in absentia due to a cabinet meeting conflict, was Bronwen Beedle, Deputy Chief Forester for British Columbia. Her paper on Management for Karst Environments in BC was delivered by Gerry Still of the Ministry of Forests staff, opening a half day session on Karst and Caves in British Columbia and Alaska, including papers by Tom and Cathy Aley, Jim Baichtal, Jonathan Rollins, and Martin Davis and others.

A session on Cave Use Management and Restoration featured papers by Elery Hamilton-Smith from Australia, Rick Olson of Mammoth Cave, Jim Werker and Val Hildreth-Werker, Rane Curl, Larry King, Dale Pate, and Jim Nepstad.

Wednesday sessions included Bats and Endangered Species, Hydrology, and Cave Gating. Rane Curl presented a paper on the Karst Water Institute, a new member of the Symposium Steering Committee. Several excellent posters were submitted for the Wednesday afternoon poster session. A major focus was on Alaska karst areas, with several others presenting tools and methods for soft caving and cave conservation and management.

Wednesday evening featured Dr. Peter Huntoon's presentation on "The Great Leap Forward—Deforestation Ecological Disaster in the South China Karst Belt."

On Thursday, over 30 participants in the North Vancouver Island field trip boarded a bus at 6 am to go to the airport to fly to the north end of the island. The all-day trip included visits to several karst features and various stages of deforestation on the Island. The Chilliwack field trip featured van and 4x4 transportation to the karst area located just over the Canadian border. Several people stayed home and participated in Project Underground workshops presented by Margot Geisler.

On Friday the field trip survivors attended a morning session featuring more tools for management, focusing on cartography and advanced technology such as the Internet, as well as cave lighting systems and cave restoration. In the afternoon a panel discussion on forest practices on karst in temperate coastal rain forests pulled the week's discussions together. The final session late in the afternoon provided an opportunity for the open discussion of controversial topics such as fees for caving.

The symposium closed out with Dr. Derek Ford's presentation of "The Limestone Imperative."

The Proceedings of the Symposium are currently in preparation, planned for publication by the end of 1998. Copies will then be available in the NSS Bookstore.

The 1999 National Cave Management Symposium will be held in Chattanooga, Tennessee in October 19-22, 1999. The principle organizing group will be the Southeast Cave Conservancy. An article will be coming up in the near future in the *News*; in the meantime you can check out the Symposium Home Page on the Web at http://www.caves.org/ncms99/.

Rob Stitt

CAVE CONSERVANCY FELLOWSHIPS

The Cave Conservancy Foundation has two fellowships available. The Undergraduate Fellowship in Karst Studies has a deadline of Feb. 15, 1999 and the Graduate Fellowship in Karst Studies has a June 1, 1999 deadline. The Undergraduate award is open to any investigation of caves and karst in any field, including but not limited to archeology, biology, engineering, geography, geology, and social sciences, is for $5000.00 and can involve any cave or karst areas including those outside the USA. Applicants must be full-time students at a US college or university. Applicants must include a letter of intent, a research proposal, undergraduate transcripts, and two letters of recommendation, one being from the research adviser. Mail applications before 15 Feb. 1999 to Cave Conservancy Foundation, Attn: Undergraduate Fellowship Program, 13131 Overhill Lake Lane, Glen Allen, VA 23059. The award will be announced by 15 April 1999. For more info contact Dr. Horton H. Hobbs, III at Dept. of Biology, Wittenberg University, P. O. Box 720, Springfield, OH 45501-0720 or via e-mail at hhobbs@wittenberg.edu. The

second one is the Graduate Fellowship for $15,000.00 and is for any study of caves and karst in any field, including but not limited to archeology, biology, engineering, geology, and social sciences-research can involve any cave or karst areas, including those outside the US. Applicants must be full time graduate students, include a letter of intent, a thesis proposal, graduate transcripts, and two letters of recommendation, one being from the thesis advisor. Mail applications before 1 June 1999 to Cave Conservancy Foundation, 13131 Overhill Lake Lane, Glen Allen, VA 23059. Announcement of the award will be by July 15, 1999. For more info contact Dr. David Culver, Dept.Of Biology, American University, 4400 Massachusetts Ave. NW, Washington, DC 20016-8007 or via e-mail at dculver@american,edu.

Nevada Cave Gated

The Humboldt-Toiyabe National Forest Service, Ely Ranger District has installed a bat gate at the entrance of Old Man Cave in east-central Nevada for the protection of a *Corynorhynus townsendii* (Townsend's big eared bat) maternity colony. This project was partially funded by Bat Conservation International, Nature Conservancy of Nevada, and Mt. Hamilton Mining Company. A special thanks to volunteers Hal and Lu Smith and Dale Green from the Salt Lake Grotto. Access will be by permit between September 15th and April 1st of each year. These dates may change as monitoring information is collected in the future. For more information or to acquire a permit, please contact the Forest Service, Ely Ranger District, at (702) 289-3031 or PO Box 539, Ely, NV 89301.

Loretta Cartner

CRF Finds New Karst Connection in Mineral King Valley, CA

White Chief Basin drains via a newly discovered alpine karst system to Tufa Spring in Sequoia-Kings Canyon N.P. (SEKI)

Scientists of the Cave Research Foundation (CRF), with the cooperation of the National Park Service, recently conducted a groundwater trace in a tributary to Mineral King Valley using two tracing agents during late August and early September. Both tracers were detected at dilute concentrations at Tufa Spring, but dye did not appear at Eagle Creek. White Chief Creek enters closed depressions in lower White Chief valley, then apparently follows the trend of the marble bedrock northward beneath Tioga stage glacial deposits for a distance of 1.8 miles under the ridge that separates White Chief basin from Eagle Creek basin. The tracers emerged in about 3.5 days at Tufa Spring. The trace unifies and doubles the extent of the karst system located along the western flank of Mineral King valley. The results suggest geomorphic and hydrologic continuity of the marble bedrock. A fault mapped by others as offsetting the marble is thus questionable. Published maps of the geology of the western margin of Mineral King valley require minor revision to depict the new cave system correctly. A caver connection remains to be demonstrated.

This karst system was identified during the past two decades. In 1978, B.W. Rogers and J.C. Tinsley of the San Francisco Bay Chapter, NSS, used fluorescein dye to trace water from Eagle Creek Sink to Tufa Spring. This experiment established that the Eagle Valley drains via an unexplored karst system from south to north, and follows the marble bedrock along the western flank of Mineral King valley. In 1996, L. Schultz of CRF, wished to fulfill independent study requirements for W.B. White's ground water hydrology summer course at Westerm Kentucky University, and to complete a senior thesis at Sonoma State University. Tinsley and J. Despain, Cave Management Specialist at SEKI, suggested that studying the White Chief karst would be ideal. CRF had recently initiated a mapping and inventory project for Mineral King caves. Schultz, Tinsley and Despain successfully repeated the 1978 Eagle Valley-Tufa Spring trace, and Schultz established baseline hydrochemistry, linkage, and travel times for ground water within the karst of White Chief Valley proper. Tinsley had mapped a linear array of small sinkholes that extended from lower White Chief Valley across an intervening ridge nearly one mile northward to Eagle Creek and Eagle Sink. This train of sinkholes suggested that a much more extensive alpine karst system lay hidden under late Pleistocene morainal deposits. By this time, snow was imminent at the elevation of nearly 10,000 feet. A late-season, rather desperate dye trace from White Chief Basin to Tufa Spring failed, presumably owing to insufficient dye, adsorptive losses in the soil in White Chief Basin, relatively high volumes of storage in the karst aquifer, and dilution of the signal owing to the large flow from Eagle Creek.

In 1998, armed with 20/20 hindsight, Tinsley, B.F. Lyles, A. Wilson, Schultz, and S. Toprak used 8 pounds of fluorescein, charcoal, 10 pounds of sodium chloride, a Campbell 21-X data logger, an electrical conductivity probe, and a thermistor to repeat the 1996 experiment when the entire discharge of White Chief Creek was flowing into the input sink. Although diluted, the salt pulse raised the conductivity measurably in Tufa Spring; Nick Crawford's laboratory in Bowling Green, KY, confirmed fluorescein at 800 parts per trillion. The salt pulse's transit time was 3.5 days. Bugs from Eagle Creek placed below Eagle Sink were negative at the late summer levels of discharge.

submitted by John C. Tinsley

SOCIETY NEWS

IO Reports Due Soon

Feb. 15, 1999, is the deadline for Internal Organizations to have the annual reports required under NSS policy turned in. The correct mail and email addresses will be found under the Operations Vice-President's department in the front pages of the Members' Manual. Surveys report to Dave Taylor; Sections to Bill Bussey, and Grottos and Regions to Evelyn Bradshaw.

Closed Cave Database Committee Chair

A Chairperson for the Closed Caves Database Committee in the Department of the Administrative Vice President is sought. This person will obtain existing lists of closed and limited access caves that are published in Grotto and Regional newsletters and will merge these lists into a closed and limited access data base. The information in this data base will be used to analyze reasons for cave closures, the nature of the closures, and the status of the caves involved. Information obtained by this Committee will be used for statistical summaries only and will not be used to create or publish a National Closed Cave list or to publish cave locations. Rather, the Committee will try to answer questions such as: What percent of the caves in a state are closed? Is this percentage increasing over time? Of the caves that are closed, what are the reasons for this: unhappy landowner, liability concerns, bat hibernation or nursing, etc. What are the methods of cave closures: gates, sealing of entrances, signs only, etc.

The information obtained by this Committee will be used to identify trends in cave closures, caves that are candidates for purchase by Cave Conservancies, and those caves that may be candidates for relaxing entry restrictions. Potential candidates should be familiar with database software and should contact Doug Medville, NSS Administrative VP via e-mail at medville@patriot.net.

NSS Cave and Karst Acquisition Committee Chair

A Chairperson for the Cave and Karst Acquisition Committee in the AVP Department is needed. This Committee Chair will:

- o Help identify cave properties that are suitable for acquisition by the NSS
- o Work with local groups that would like the NSS to acquire such properties as NSS Cave Preserves
- o Evaluate Proposals and Management Plans prepared by proponents of a cave property acquisition and make recommendations to the NSS Executive Committee
- o Work with those Cave Conservancies that wish to purchase cave properties and seek financial support from the NSS in doing so.
- o Negotiate those acquisitions approved by the NSS BOG.

If you are interested in this position, please contact Doug Medville, Administrative VP via e-mail at medville@patriot.net.

Bat Quilters Needed

Interested in doing a quilt square for the bat quilt to be auctioned off at the NSS convention in West Virginia in the year 2000? If so, contact Judi Stack at (717) 469-0101, e-mail cavebth@aol.com, or write her at 1132 Piketown Rd., Harrisburg, PA 17112. If you prefer you can just make a 12x12 inch square and send it to Judi at the above address. Please include your name and address, your NSS number, and/or grotto. The theme for the quilt is bats, big bats, little bats, brown bats, black bats, bats of all kinds—use your imagination!

Call For Participants

SpeleoArt US Exhibit
1999 NSS Convention
July 12-16 Filer, Idaho

Sponsored by the NSS Arts & Letters Section, the second annual SpeleoArt Exhibit will be a non-juried show open to 2-dimensional and 3-dimensional artwork with a thematic emphasis on caves. This year's exhibit will be curated by Carolina Brook of SpeleoArt UK. In addition, workshops, demonstrations, and poetry readings will be held.

Deadline for Submissions: February 28, 1999

For an entry application, contact **Lois Lyles, SpeleoArt US Coordinator**
P.O. Box 23252
Albuquerque, NM 87192
505/286-4059
email: lois@rt66.com

SPELEOART

Position Available — Chairman of the NSS Outreach Committee

The Outreach Committee in the Department of the President is responsible for presenting NSS conservation, scientific, and exploration accomplishments to segments of the public interested in caves. The committee emphasizes the resource potential of the NSS and seeks to encourage philanthropic support. The committee strives to promote the goals and objectives of the Society without encouraging non-cavers to become cavers. Members interested in this position should contact the NSS President via e-mail at <fwefer@cfw.com>

Letters

(continued from page 346)

How NOT to Rescue a Caver

My old friend and caving buddy Don Shofstall sent me a copy of "Down Through the Decades" from the September '98 *NSS News* with a report on a cave rescue in Copperhead Cave, PA (September 1958). Since I was the object of the rescue and Don remembered that there had been some problems I mentioned to him, but not mentioned in the reports, he thought I should forward this info to you for possible edification of rescue teams. Mind you, at the time, I was so glad to get out of that cave that I thought but little about any possible errors the rescue team might have made. And all in all, the rescue was very professionally carried out under very difficult conditions. In any case, there were two things not mentioned: (1) although I was tied to a stretcher, had I been unconscious or even very weak, I would probably have slipped from the stretcher during the ascent through the waterfall at the entrance. I held on by brute force. Victims should be securely tied/strapped so even if they pass out they cannot fall off, especially when a fall off the stretcher could be fatal, as at Copperhead. (2) In transit in the back of a jeep, I endured excruciating pain and probably experienced substantial additional tissue damage because my broken leg was free to rotate with every bump in the old forest road we were on. By that time I was too weak and miserable to do anything about it myself. Broken limbs should be adequately restrained. Those are really the only two things I wanted to point out, and if this can in any way help future rescuers I will have been justified in writing you.

Richard Laval
Monteverde, Costa Rica

DOWN THROUGH THE DECADES

by Peri Frantz

Photography: According to the December 1948 N.S.S. News "Duane Featherstonhaugh, Chairman of the NSS Publicity Comm., needs some of your good cave photos to fill requests which are continually being made to the Society for cave pictures to illustrate articles, etc. This is really an opportunity for some of our camera artists to pick up some extra money for a charge is to be made for all photos supplied. Part of the fee charged will be retained by the NSS ... and the rest will be paid to the photographer ... Photos will not be sold outright. A right to use, only, will be sold ... The NSS already maintains a photo library, but this is maintained for the benefit of Society members only and is strictly for non-profit purposes."

Cavers most commonly take pictures to capture the beauty of the cave, but as this excerpt from the December 1958 NSS News shows, photography can serve cavers in other ways. "The Arbuckle Mountains are located in south-central Oklahoma. ... Aerial photographs of the area ... revealed clearly the strikes and faults amid the sparsely vegetated outcrops of rocks – as well as several sinkholes! In several places, small streams disappeared and then reappeared a few hundred feet away. The Arbuckle Mountain Grotto has used aerial photos extensively because of the tremendous detail they show ... (and has) put in many man-hours of locating, exploring, surveying, and photographing the world underground. Over twenty caves have been mapped by this relatively young and active chapter. Many a member has experienced the rare moment of entering virgin cave ... ."

In 1866, Charles Waldack was pioneering lighting for cave photography. His letter to the *Philadelphia Photographer* was reprinted in the December 1968 NSS News. "Ever since the introduction of the magnesium light as a photographic agent, it has been one of my pet projects to test its capabilities as such in the celebrated Mammoth Cave. ... the object was not so much to make pictures ... as to test the capabilities of the magnesium light and the quantity of the metal to be used ... The lenses used were a pair of T. Ross's No. 2 carte-de-visite lenses ... mounted on a French stereoscopic camera ... The American Magnesium Company had furnished half a pound of tapers ... composed of two ribbons and one wire around which had been twisted a double iron wire ... The first picture I attempted was of a stalactite about six feet in diameter at its widest part. I used eight tapers, which were found to be insufficient, and another trial was made with fifteen. ... A third trial being made with about twenty-five tapers ... I obtained a negative with which I was quite satisfied ... The difficulty of burning a large quantity of magnesium without being inconvenienced by the smoke, ... compelled me to use always large diaphragms." Waldack also provided formulas for the collodion, and for the various solutions required to produce the negatives and prints.

The cover of the December 1978 NSS News showed off Elaine Garifine's 1978 Salon winner, "A Caver Christmas". This montage consisted of five close-ups of Christmas tree ornaments, all made from familiar caving objects: carabiners, carbide lamps, a Gibbs ascender, and a velour bat.

International: In the December 1948 NSS News, John Hooper reported that "My wife and I had a fine caving holiday in France this year. We went out with a party from the Wessex Cave Club (England) to Valence, where we were ... looked after by NSS member Pierre Ageron. ... We found we were taking part in what was termed a 'Congrés International du Speleologie' comprising some 50 members, French, (and) Swiss ... We began by visiting caves in the Vercors, a 3000 ft. high plateau in the western foothills of the Dauphine Alps. We began by visiting the upper sections of the Grotte de la Loire ... Next day we went to the Grotte du Bournillon. This has a colossal entrance – the highest in Europe ... where a big river flows out of an archway 300 ft. high as (sic) the base of a 900 ft. cliff. On Thursday we set off in the opposite direction to see some of the caves west of the Rhone. Robert de Joly ... showed us around the wonderful Aven d'orgnac – a vast cave containing forests of tall, slender, stalagmite pillars, anything up to 50 ft. in height with curious foliated structure. ..."

The December 1958 NSS News reported that "Frenchman NORBERT CASTERET, perhaps the best known, most revered speleologist of the present day, is touring the United States, lecturing (on speleology, of course) ... Mr. Casteret is also visiting major U.S. caves, and numerous Grottoes and NSS members. A reception was held in his honor by NSS officials and Board members ... Short of stature, quick-witted and possessed of a magnetic personality, Mr. Casteret is all his books and reputation have made him seem."

According to *Notes and News* in the December 1968 NSS News "In September, members of the Southwest Texas Caving Club and the University of Texas Grotto explored and mapped a new deep pit near San Luis Potosi, Mexico ... Free drop of 620 feet measured, with a sloping floor down to mud fill; total depth 650 feet. A biological collection gathered two species of salamander ... cave crickets, beetles ... spiders, flys, a frog ... and a nematode. ... The cave features unusually large stalactites ... and a small lake. ... The name of this cave ... is 'Sotano Hondo de Sierra de los Arboles de Puerto de los Lobos.'"

The Non-Vertical Stalactites of Dan-yr-Ogaf, in the December 1978 NSS News presented John Sevenair's evidence refuting a controversial theory that had appeared in the June News. "Near the camp in Monk Hall in Dan-yr-Ogaf, there are literally thousands of soda straws, some of them over two meters long. Many of the straws in this long Welsh cave are not vertical. One hangs straight down for 70 cm., turns and descends 30 cm. At an angle of 4º of vertical, and turns further to hang for 35 cm at 10º. ... All of these are soda straws, about 5 mm in diameter throughout their length. ... 31 stalactites and columns were located which could be measured or observed without breaking other formations. From the results I was able to conclude that the spectacular Dan-yr-Ogaf non-vertical soda straws have grown with gravity pulling in its present direction with respect to the cave, and that these formations ... are not evidence for polar shifts or rapid continental drift."

Well, Hawaii isn't exactly international, but it is tropical, so I'll stretch things, and include Dave Bunnell's *The 1987 Na pali Coast Sea Caves Expedition* from the December, 1988 NSS News. "The lush volcanic island of Kauai is ... (the) oldest of the Hawaiian Islands ... Dramatic pinnacles rise above lush valleys and waterfalls cascade directly into the sea along a seven-mile stretch of coast accessible only by sea, or by hiking the Kalalau trail ... One of our first moves was ... a reconnaissance ... by air. ... As we lingered over our first look at the Na pali we noted ... a huge littoral collapse pit locally known as the Queen's Bath, numerous large cave entrances with waterfalls tumbling over the edge, (and) a huge arch..." Dave, Bill Liebman, Ed Moody, Bob Richards and Carol Vesely spent 5 days camped at Kalalau Beach, using an inflatable kayak, soon dubbed the 'Jellyfish Express', and an inflatable Ampac boat with an 8 hp engine to explore these caves. Both craft also served as survey platforms. They mapped and photographed a dozen caves with a combined length of almost 6500ft. The longest was Waiahuakua, or Sacred Water, Cave at 1155 ft.

Safety Briefs: An unattributed letter in the December 1948 NSS News complained "When I arrived at Ball's Cave I was appalled to find that some 10 or more people had made the 40-odd-foot decent without a safety rope! ... When Duane F. and Al and I got there we made a definite ruling for ... nobody to go down or come up without a rope."

Spelean Spotlight

(continued from page 365)

free, Craig turned around and crawled back into the passage. There he slept for several hours to gain some strength back for the 7 hour trip out.

What happened once you were out?

"I was taken to the hospital and my leg was diagnosed with 'compartment syndrome.' They performed a fasciotomy, which was two 12 inch cuts down each side of my lower right leg. The dead tissue and muscle were removed and after several days I had two more operations to close up the cuts. There is still some nerve damage that I am currently taking medication for."

Craig is recovering quite well and has just returned from caving in Mammoth Cave. This was a fantastic rescue effort and everyone there should be commended for a job well done. Also, thanks to the *Northeastern Caver* for added information.

(Note from Craig) "I would like to personally thank all those involved and inconvenienced by my rescue. All of the energy and support from cavers before and after the incident was overwhelming. I know that a great many people put a lot of their own time and energy into helping me both down in the cave and topside. It speaks to the strength of the caving community that we can organize in such a short time and pull together to make a rescue like this happen effectively. Best wishes to all and cave softly."

Benchmark Springs Cave

(continued from page 356)

it took approximately 2 hours to reach the dig. After drilling a 9 inch hole the rock was shocked and subsequently enlarged. It was still chest tight on me. After I fit, I had to crater the flowstone floor to get Bill through. To our dismay another major constriction was present 10 feet away. It was as formidable as the left hand stream passage. Yielding to defeat, Bill and I exited the cave carrying the drill and all of the climbing gear out of the cave. We exited the cave at 2:45 p.m. after 5 hours and 15 minutes of caving.

On October 4, 1997, two survey crews were assembled to attempt to complete the survey the cave and pull down all of the ropes. The survey crews were designated as Team 1 consisting of Andy Porter, David Dehart, and David Cole. Suzanne Duboise was to participate on the team but took ill and left the cave. Team 2, lead by myself, consisted of Ted Weldon, Lesley Weldon, Brad Long, Don Miller, and Tim Conway. Tim left with Suzanne since they rode together. Team 1 would survey from the climbups before the dome to the entrance and Team 2 would survey from the end of exploration to the tie-in of Team 1. In all, Team 1 surveyed 1,700 feet and team 2 surveyed 1,007 feet. A total of 2,707 feet were mapped and a vertical extent of 345 feet was established. The underground time for Team 1 was 7.5 hours while Team 2 spent 13 hours in the cave and hauled out 7 ropes, of which one was lost in a stream crawl.

Its unfortunate with the amount of energy that went into exploring and surveying this small cave that the ropes had to be pulled down. The only way anyone will ever see above the 1st dome will be to reclimb the cave or find a way into the cave from above the high point.

Brad Long

Lesley Weldon emerging through the enlarged airhole at the topmost point of the cave

CLASSIFIED ADS

WANTED: Old electric trains, toy trains. Any age, any condition. Will trade caving gear or cash. Bob Liebman, P.O. Box 441, Lewisburg, WV 24901 (304)772-5049. I

VERTICAL TRAINING PROGRAM for Grottos. Developed and endorsed by the Vertical Section. Complete package for instructors is $20.00. Includes 5 Instructor manuals and class forms. Student package (manual and forms) is $1.50. Shipping included with orders over $10. Call (904) 268-7638 or gbush@jaxnet.com for details.2/99

Special cacheted, stamped envelopes commemorating the NSS National Conventions, 1991 – 1998, 8 conventions with 37 different dates available. $1.00 each or $33 for all postpaid. RLN, 1835 She11brook, Huntsville, AL 35806. 12

THEY ARE ALMOST GONE! The 1996 & 1997 Speleo Digest inventory is dwindling at less than 200 each, get one of each now for only $19.00 plus $4.50 shipping before they are sold out! Contact NSS Office 256-852-1300 or check out the Speleo Digest Web Site: www.caves.org/pub/SpeleoDigest/

1999 CAVERS CALENDAR Caving Pictures NOT Formation Pictures at a Caver's price. $5.00 each/$2.00 shipping any quantity Speleo Press, P.O. Box 7037, Austin, Texas 78713

LAVENDER CAVERS—Our membership is growing!! Organization for gay, lesbian, and bisexual cavers and their friends. For more info, send a SASE to: Lavender Cavers, P.O. Box 126, Armbrust, PA 15626-0126

www.paul-n-paul.com Cave and NSS paper collectibles now available on our website. Great selection. Paul & Paul Collectibles, P.O. Box 302, Monroeville, PA 15146 (412) 372-6198 2/98

CAVE PASSAGE FOR SALE—Cemetery Pit, Rusty's Cave, Hurricane Cave, and seven other caves on the 332-Acre Fox Mountain Cave Preserve now belong to the Southeastern Cave Conservancy. These are some of the longest, deepest, and best caves in Georgia! You can help pay for them by "buying" 50 feet of cave passage or an acre of the Fox Mountain Cave Preserve. Your Tax Deductible $50 donation gets you honorary ownership of 50 feet of cave passage, including certificate and T-shirt. Extra T-shirts $10. Donations of $150, $250, or $500 qualify for named cave features on the map. A $270 donation gets you one acre of the preserve, including certificate and embroidered-logo polo shirt. Checks, money orders, and all major credit cards accepted. SCCI Fox Mountain Fund, PO Box 71857, Chattanooga TN 37407-0857. For more information call 770-822-0003, e-mail us at info@scci.org, or see our web site at www.scci.org.

ANSWER: A more recent replacement for ballistics cloth, for use in making protective gear, which is not only cut and puncture-resistant like Kevlar but has abrasion-resistance similar to or better than Cordura-requires a special tool for cutting, will not take dyes so the uncoated breatheable ripstop (1/8"pattern) combined with other strong, but dyed fibers will appear to be a pincheck woven in a ripstop pattern since the price of the fibers and the lack of colors prohibit marketing the solid fiber except for very specialized products-and which will soon be available for use in the construction of lightweight but very durable, breathable caving and rescue garments to B&C Wunderwear, 2368 Antioch Pike, Antioch, TN., 37013.(615) 315-9777.

QUESTION: What is Spectra?

RATES: 35 cents per word, with a 10% discount for ads running three months or longer. The following count as one word each: P.O. Box #, street address, city, state, phone #, zip code, email address, web address. Payment must accompany copy. Make checks payable to the National Speleological Society and send along with ad copy to: NSS NEWS, 320 Brook Drive, Boulder Creek, CA 95006.

(800) 262-2283
(304) 772-5049
(304) 772-3076 FAX

Christmas Specials

(Good until Jan. 10, 1999)
(Prices include shipping)

1. Rope Special: 300 feet PMI classic pit rope 7/16" 130.00
2. Survey Special: Silva compass, Clinometer, 5 survey notebooks 185.00
3. Calendar Special: Speleo-Projects, Caves, and Bats 32.00
4. Video Special: Lechuguilla, Caving in West Virginia, Anyplace Wild 56.00
5. Stocking Stuffer: White Photon Light, Jackstrap, Mini Mag with batteries, 2 Bats stickers, and 2 International Caver stickers 36.00
6. Petzl Mega Belt Light, Petzl Ecrin Roc Helmet, and 3 C-Cell batteries 110.00

1999 CALENDARS

Shipping 1 or more 4.00
1999 Speleo-Projects Calendar 12.95
1999 Caves Calendar (by the Bosteds) 11.99
1999 Bats Calender 11.99

TAG LIGHTS

Made by Hard Core Industries for cavers.
Tag Lite I w/sealed lead-gel battery. 119.00
Tag Lite II w/sealed lead-gel battery. 120.00
Tag Lite II w/head-mounted battery pack ... 75.00

NEW PHOTON LIGHTS

Fits on key chain—Very small and bright.
White, blue, green, or turquoise 17.00
Red or yellow 12.00

GREAT BOOKS

Lechuguilla 56.00
Cave Minerals of the World 65.00
Floyd Collins of Sand Cave by Halliday 5.95
Caverns Measureless to Man by Sheck Exley ..... sb 21.50 hb 32.50
Images Below by Chris Howes 40.00
Celebrated American Caves by Charles Mohr 12.95
Cavers, Caves, and Caving by Bruce Sloan 12.95
America's Neighborhood Bats by Merlin Tuttle 9.95
Cave Passages by Michael Taylor 21.00
Walkers Bats of the World 19.95
On Station by George Dasher 18.00
On Rope by Bruce Smith and Allen Padgett (Revised Edition) 30.00
Underground Worlds 15.00
Caving Basics, 3rd Edition 11.00
The Wildemess Underground—Caves of the Ozark Plateau 28.00
The Miner's Flame Light Book by Henry A. Pohs hb 85.00
Adventure of Caving by Dave McClurg 19.95

Cyalume Light Sticks
12-Hour green, red, blue ..... 1.50 ea

HELMETS

Cave Master Helmet

Cave Master Helmet: Heavy duty, 4-point suspension, air holes for circulation, adjustable chin strap, meets UIAA standards.
Comes w/bracket, M,L...61.95
Without bracket, M,L.....59.95

Petzl Rock Ecrin Helmet

$69.00

VIDEOS

Caverns of Sonora 24.95
Huautla: The Mexican Cave 20.00
Spirit of Exploration 19.95
Mysteries Underground 20.00
Anyplace Wild-Caving in NM & ARK 20.00
Caving in West Virginia 20.00

New Videos – Inquire *Add $3.50 Shipping*

Prices subject to change without notice.

VERTICAL EQUIPMENT

Petzl Croll 37.00
Petzl Jammer 38.00
Petzl Expedition (left or right) 45.00
Gibbs-Spring Loaded or Free Running 40.00
CMI large Ultra Ascenders ..... 105.00/pr.
SMC rack with 6 bars 53.00
BW rack with 6 bars 42.75
Presewn rope-walking systems by Karst Works (Contact us for more information)
Simmons Roller sewn into chest harness 95.00
Simmons Roller (only) 39.50
Double Rollers available
1" Tubular Webbing ..... 30/ft.
Bob & Bob Locking – D 8.00
SMC Locking – D ..... 11 .25
Triangular Screw Link 5.50
Jumars 105.75/pair

LIGHTING

Petzl Mega Belt Light 58.00
Petzl Zoom Light 34.90
Battery for Zoom Light 5.95
B&B Light Model – 4 AA 20.00
Petzl Duo 66.00
Mini-Mag 12.95
Super Sabrelite 32.40
Set Helmet Clips 2.75

Patches—Need grotto patches? Call for pricing.

GIFT CERTIFICATES AVAILABLE

Stocking Stuffers

Jackstrap 4.95
Chums Eye Glasses Retainer 3.95
Bite-a-Lite $4.00
Posters ..... Inquire
Speleo Projects Note Cards, 10 for 12.50
3 Candles 2.95
T-Shirts ..... Inquire
New Magnets: Cave Crayfish, Ozark Crayfish, Alabama Cave Shrimp ..... 2.50 each

GIFT IDEAS

Leatherman tool 45.00
Super Leatherman 60.00
Gerber tool 60.00
Carabiner key chain 4.95
Mini-mag 12.95
Bob & Bob thermometer 3.00
Leatherman micra 26.00

LOST CREEK PACKS

#1 TAG 51.00
#3 Caver's Special 48.50
Rope Bags ..... Inquire
Rope Pads – 5 ft 11.00

See Catalog for complete list of packs

KNEE PADS

Athletic Knee Pads 6.00/pair
Rockmaster Knee Pads 25.00/pair

GLOVES

Leather Palm & Canvas Back 2.95/pair
Men's & Women's sizes

SURVEY EQUIPMENT

Silva Compass 85.00
Silva Clinometer 95.00
Bob & Bob Survey Notebook – 24page ... 3.00/ea
Survey Tapes ..... Inquire

The Atlas & Gazetteer Series by DeLorme—each book is a set of topo maps for a state. New books include :West Virginia, Arkansas, Kentucky, South Dakota, Kansas, Alabama.
Most books..... 16.95

BOB & BOB, P. O. Box 441-N, Lewisburg, WV 24901, (304) 772 -5049, 772-3074 or FAX 772-3076

Inside: Caving in Brazil; Alabama's Benchmark Spring Cave