**U.S.A.**

**February 5-6, 19-20, March 11-12, 18-19, 2000**—Cave Rescue Level I Modular Training Program. Morgantown and Elkins, West Virginia. Five weekend, 100-hour course on all aspects of cave rescue. Includes horizontal, vertical, medical, and other types of training in relation to cave rescue. Qualifies for 3 course credits through West Virginia University for both in-state and out-of-state residents. $170.00 fee. $99.00 additional fee for WVU credit. Preregistration required, must attend all five weekends. Sponsored by the Eastern Region - NCRC. Info: Douglas Moore II (304) 592-2600. e-mail: douglas.moore@dttwv01.org or http://svs.org/erncrc/erncrc.htm

**February 6-6, 2000**—National Cave Rescue Commission Board of Regional Coordinators Meeting. Walker County (Georgia) 911 Center. 9:00 a.m. For more info contact John Punches, Interim National Coordinator, 541-957-5461, e-mail: john.punches@orst.edu.

**February 26, 2000**—SEERA Winter Business Meeting. Hosted by Middle Georgia Grotto in Macon, Georgia at the Museum of Arts and Science. Look for more details soon. For more information contact Tom Moltz (912) 956-1813 or moltzcaves@ mindspring.com

**March 18-19, 2000**—Orientation to Cave Rescue. Elkins, West Virginia. Two day, 16 hour course on all aspects of cave rescue. Qualifies for 6 hours of Continuing Education Credits for EMS personnel. $40.00 fee, preregistration required. Sponsored by the Eastern Region - NCRC. Info: Douglas Moore II (304) 592-2600. e-mail: douglas.moore@dttwv01.org or http://svs.org/erncrc/erncrc.htm

**May 8-12, 2000**—Black Hills Cave Restoration Camp, Wind Cave National Park and Jewel Cave National Monument! You are invited to be one of 20 volunteers who will be removing lint and trail debris and cleaning formations. No previous experience is required. Two days will be spent at each cave, with Wednesday reserved for off-trail caving or sightseeing. No registration fee is required, and housing will be provided. Contact Marc Ohms at 605-745-4600 or marc_ohms@nps.gov. Deadline for applying is Friday, March 10, 2000. See you there!

**May 13-14, 2000**—NCRC Orientation to Cave Rescue at Meramec State Park in Sullivan, MO. Two day course will address the complexities of cave rescue including management, managing external influences and planning with lecture and hands-on practical techniques. Hosted by the Kansas City City Grotto. Preregistration is required. Cost $45 if postmarked by May 10-14, $55 if postmarked by May 8-13, $65 by May 7-12. For info or a registration form, see our web page at http://members.tripod.com/~kcagrotto. Contact: Terry DeFraties (816) 763-4252, or mail to: T.DeFraties, Box 16942, K.C. MO 64133

**May 19-21, 2000**—SEERA Cave Carnival, hosted by East Tennessee Grotto at the Clyde York 4H Center in Crossville, TN. Further information, as it becomes available, will be located at www.caves.org/grotto/etg/

**May 27–29, 2000**—29th Annual Speleofest. Hosted by The Louisville Grotto at Camp Carlson, Meade Co. Kentucky. Will include new caves and cave trips never offered before, as well as some of the old classics. Contact either Glenn Driskill at (270) 862-4054 or e-mail: ddriskil@etown.k12.ky.us OR Aaron Reed at (502) 966-0256. Pre-register on-line at: http://www.caves.org/grotto/louisvillegrotto/speleofest/

**June 9-11, 2000**—Karst-O-Rama, Great Saltpile Preserve, Mt. Vernon, Kentucky. Contact John Boyer at (613) 232-9190 or e-mail: john-janet-boyer@worldnet.att.net

**June 26–30, 2000**—NSS Convention, Elkins, WV. For information contact Kelley L. Deem, 167 Blue Ridge Acres, Harpers Ferry, WV 25425 Home (304)725-9812 Fax (304)725-9813 e-mail: deem@mammoth-geo.com

**July 2-6, 2000**—Small Party Self Rescue Course. Greenbrier County, WV. Contact Carroll Bassett 304-497-3899. e-mail: c02107@mail.wvnet.edu> or Joe Ivy 512-292-1878, <joeivy@interserv.com>

**July 15-23, 2000**—NCRC Weeklong Cave Rescue Training Program. Camp Pioneer, Beverly, West Virginia. Levels I-III cave rescue, Wilderness EMT, and Instructor level classes. Approximately 100 hours of in-depth training over a nine day period in all aspects of cave rescue. Info: John Appleby at (215) 541-4994. e-mail: applebjb@apci.com or http://svs.org/erncrc/wl2000.htm

**September 8-10, 2000**—14th Annual Ozark Regional Cavers Gathering (ORC), Wright County, Missouri. Featuring Smittle Cave. For more info contact Nick & Gail Campagna, RT. 2, Box 2770, Seymour, MO 65746. Web site at www.geocities.com/orcdudes or e-mail campagna@goin.missouri.org

**INTERNATIONAL**

**April 23–28**—Speleophoto 2000, Trinidad. Cuba. 2nd International Symposium of photos and videos in caves organized by the Cuban Speleological Society. For further information contact us: Comite Organizador Speleophoto Cruz Perez # 1 e/ Independencia y Cespedes Sancti Spiritus. Cuba Codigo Postal: 60100 Mailto: funat@yayabo.info.cu

**September 17-21, 2000**—“Karst 2000” International Symposium and Field Seminar on Present State and Future Trends of Karst Studies. Marmaris, Turkey. Field seminar follows Sept. 22-26. (Conference will be in English) Organized by the International Research & Application Center for Karst Water Resources, Hacettepe University, Ankara. http://www.karst@hun.edu.tr Contact: karst@eti.cc.hun.edu.tr

Further International events can be found on the UIS Speleo Calendar at: rubens.its.unimelb.edu.au/~pgm/uis/events.html
The NSS News is published monthly with the material due to be submitted by May 20. No connection had been made with the tourist tunnel which is based on the proof and the final exposure was at 1/30 sec. and f8. We had the pleasure of dragging all the photo gear down the original passage which has all the wonderful tight slots and crawls that make caving with big photo gear such a joy. At the same time as camera gear down the original passage which has all the wonderful tight slots and crawls that make caving with big photo gear such a joy. At the same time as the pleasure of dragging all the electronic flash light off to the right blue Press25 with a Firefly, and electronic flash near light. I used Kodak film and proofed the back. The flashes based on the proof exposure was at 1/30 the pleasure of camera gear down the original passage which has all the wonderful tight slots and crawls that make caving with big photo gear such a joy. At the same time as were making the photos, a mining crew was working on the entrance tunnel for the tour route. No connection had been made with the tourist tunnel which would have made caving with the gear so much easier. This particular shot has been a very popular postcard shot at the retail center for Glenwood Caverns. A Hasselblad 503cx with a Zeiss 50mm FLE lens. Three flashes were used: one behind Bill, a main side, which was a flashbulb triggered there was an electronic flash near light. I used Kodak film and proofed the back. The flashes based on the proof exposure was at 1/30 the pleasure of camera gear down the original passage which has all the wonderful tight slots and crawls that make caving with big photo gear such a joy. At the same time as were making the photos, a mining crew was working on the entrance tunnel for the tour route. No connection had been made with the tourist tunnel which would have made caving with the gear so much easier. This particular shot has been a very popular postcard shot at the retail center for Glenwood Caverns. The cover shot by Dave Harris shows Bill Allen of Dillon, Colorado in King’s Row, Fairy Cave, CO. Dave says about the photo: “Bill was my assistant for the whole photo project at Glenwood Caverns. Bill is also a photographer. I used a Hasselblad 503cx with a Zeiss 50mm FLE lens. Three flashes were used: one behind Bill, a main side, which was a flashbulb triggered there was an electronic flash near light. I used Kodak film and proofed the back. The flashes based on the proof exposure was at 1/30 the pleasure of camera gear down the original passage which has all the wonderful tight slots and crawls that make caving with big photo gear such a joy. At the same time as were making the photos, a mining crew was working on the entrance tunnel for the tour route. No connection had been made with the tourist tunnel which would have made caving with the gear so much easier. This particular shot has been a very popular postcard shot at the retail center for Glenwood Caverns. The back cover photo was also taken by Dave Harris, in King’s Row.
My First Bout with Endurance Caving: Bottoming Two-Bit Pit Cave
by Aaron Atz

I can say that there has only been one cave I have feared to enter. I had looked forward to the trip into Two-Bit Pit Cave with extreme caution, and I suspected that I was not physically ready for such a trip. I can also say that there is only one cave I’ve been to that gives me the willies at night, while I lie in bed before I go to sleep. Sometimes I lie there and see myself stuck in the tight place called the Terminator. However, the trip was a confidence-builder for me, and I am glad that I convinced myself to go. I realize that there are probably much harder caves and that there have been many people who have experienced much harder trips. But this was my first “character-building” trip, my first true brush with the extreme. Since I had such a hard and entertaining trip, I’d like to share the story with you. I hope you enjoy it.

Two-Bit Pit Cave was described to me by Joe Oliphant as perhaps the hardest cave in Indiana and one of the hardest in the Midwest. I had heard stories from the original explorers about the grim horrors that lie inside, of thirty-hour trips, of people abandoning expensive wetsuits and never returning, of the tightness of the Canyon Passage. Danny Dibble, Jonathan Schwer, Greg McNamara, Tony Akers, Joe Oliphant, and others had told stories about the cave on various trips and camp-outs, and the guys in my caving circle soon began to inquire about the cave. I think the young guys in my group all wondered, “how bad could it be?”

We kept telling Joe that we were interested in a trip to the cave, and in October 1998 we planned a trip. We were so young and cocky. I think in a lot of ways it was more of a test than a trip, because all of the older and more experienced guys were very interested in who was actually going. They were probably taking bets on who would be the first to come unglued in the cave and suffer the rapture, a psychological crash that comes when you’re already totally exhausted and realize that you haven’t even started out of the cave. We knew we had something to prove to these older guys. To fail would be understandable, but to succeed would gain their respect. Perhaps the notion of proving yourself by such a test was silly, but we knew that doing so might result in our being invited to participate in some of the toughest caving projects. Once we paid our dues in Two-Bit, we would be recognized as stout and competent cavers.

Two-Bit Pit Cave is currently 3.5 miles long and approximately 250 feet deep. According to the original explorers, there should be several more miles of cave downstream of the terminal breakdown. The gap between the downstream end of Two-Bit and the resurgence in Stygian River Cave is probably 2 miles. There is undoubtedly more cave to be found in the downstream part of Two-Bit, but it would require a long and hard trip to find it. We decided to go there.

Marc Pedersen, Andrew DuBois, Bruce White, and I met up with Joe Oliphant at the Idlewild Post Restaurant in Harrison County on Saturday, November 7. Spirits were high. Joe had not been in the cave in about six years, and we believe that no one had done the classic initiation trip that we were about to embark upon since the 1992 NSS Convention, when Joe had led a group of TAG cavers. It was a cold, 40-degree morning, and changing at the parking spot woke us up.

I was the last person down the entrance drop, at about 10 A.M. The first drop is a 20-foot pit, and the second drops 30 feet from the floor of the first and is rigged with the same rope. To enter the second pit, you crawl backwards through a tight squeeze over the drop and negotiate an undercut lip, but the room you rappel into is comparatively spacious, 100 by 20 feet and 30 feet high. Then, after a 15-foot dome climb and a short crawl, one emerges above the third drop, a somewhat tight rift in the floor that drops about 30 feet into a small room. More crawling and some walking led us to the canyon, perhaps the hardest part of the cave.

The canyon is only 110 feet long, but it requires an average of two hours to negotiate. Large-chested caver Rusty Riley of Indianapolis holds the duration record of four hours. It averages about 6 feet tall and is often less than a foot wide. It is keyhole-shaped, and, naturally, packs tend to get stucked into the bottom. We had been in the cave less than two hours. Joe went into the canyon first, then Andrew, Bruce, Marc, and I. Being last was not enjoyable for many reasons. The canyon was hell. It’s as bad as its reputation. The canyon is tight the whole way, but the first really tight spot is the Terminator. The only way to get your right leg through is to lift it like a male dog urinating and then to pull it through.

The physical constrictions and overall tightness of the canyon were bad, but carrying a pack of at least twenty-five pounds stuffed full of vertical gear, a wetsuit, extra batteries, an extra polypro shirt, food for twenty-four hours, and three quarts of water made it worse. My pack always seemed to wedge itself into the bottom of the canyon, so that picking it up and throwing it ahead required much straining. As all my vertical gear would not fit into the pack and had been clipped together into a separate mass, I had to move it ahead as well.

The canyon just kept going. After an hour, it felt like we had gone over two hundred feet, twice the actual length of the canyon. Time went by very slowly. Marc was having the most trouble, as he has a broad upper body. His pack was not helping his situation. He was using a rope bag instead of a cave pack, and this limp noodle seemed to ooze into every hole and crack in the canyon, where it then stubbornly stayed. He was not enjoying the experience. You are always lying on your side, and there are seven bends that are hellishly tight and also prevent you from ever being able to throw your pack very far. My pack was so heavy that I could hardly throw it anyway, and it seemed to be stuck worse and worse every time I lifted it out of the crack below. Marc was getting really upset with his pack, and when I called ahead to ask his advice about negotiating squeezes, I got only short and irritated responses. His slowness was getting under my skin, as was hearing Bruce belching loudly and jovially up ahead. I though how delightful it would be to punch him. In the canyon, minor irritations that should not have bothered me were rapidly building. The cave was already taking its psychological toll, and we were only four hours in.

After two and a half hours in the canyon, I heard Marc asking for advice about getting through the worse and last obstacle, the Exterminator. The Exterminator is tight horizontally and vertically and makes a sharp bend to the right at the tightest spot. To the left and below is a pack-eating crack from which it is very difficult to extract your pack, should it fall into it. Marc made it through with much difficulty, and I followed. I had been lying waiting in quite a nasty spot, with my arms and legs contorted in various positions of extreme discomfort. Being stuck in this claustrophobic spot was one thing, but not even being able to get comfortable was very trying. I won the battle with panic, but it was close at times. When Marc popped out, I went ahead. When I got close enough to see it, my reaction was that I could not possibly get through that. Still, Marc had done it. I just had to put my arms ahead and push and wiggle through. I cannot really remember or explain just how it’s done.

After the trip, I found out that Joe had cracked a rib on his way through the Exterminator, but had not said anything because he did not want to alarm us. Joe has a way of thriving on pain.

After breathing a sigh of relief in the larger passage, I caught up with the guys as they were rigging the fourth drop. I needed to relax, and I sat down and tried to collect my thoughts. The fourth drop was a simple 12-foot nuisance drop. The fifth drop is the most
evil in-cave drop I have ever experienced. You rig about forty feet away from the drop and then crawl backwards into a small, bodiesize tube. There is a big rock at the end of the tube that you have to crawl over blindly, before backing over the extremely undercut lip. The rappel is about 25 or 30 feet.

We then kept going, in a passage with a ceiling height of about 30 feet and a width of about 15 feet. There were pretty areas close to the ceiling that we saw as we climbed and traversed over hills of breakdown and mud. Finally we made it to the Dressing Room, where you change into your wetsuit and take a break, just before the sixth drop. Many wetsuits have been abandoned here on the way out, because few people are willing to drag a mud-caked wetsuit back through the Canyon Passage. Some had been salvaged by Danny Dibble; finders keepers. One was still there. It had been left by Joe years ago. We ate and changed. We had been in the cave for seven hours. I drank as much as I could to reduce the weight of my pack. The mud in Two-Bit Pit Cave is sticky and adds weight to everything, including your body, making moving more difficult.

A short dug section through mud leads to the lip of the sixth pit, a steep and slick mud slope. A handline should be rigged here. The drop is one of the most fantastic I have seen in Indiana. The walls of the 50-foot drop bell out, and large flowstone draperies ring the top and hang down the walls. There is a waterfall.

Then comes the 2000-foot water-crawl that makes the wetsuits necessary. It is seldom more than crawling height and mostly belly crawl. After an hour of crawling, we broke through to the borehole. We walked to the left through passage that averaged 10 feet tall and 20 wide. It got much larger where there were rooms. There were several deep lakes to cross. Blind fish and blind crayfish were abundant. There was lots of breakdown everywhere, but walking was easy, especially compared to the other parts of the cave we had been through. We walked for about forty minutes and came to a large breakdown room with a ceiling 30 feet above the floor. Air flow was strong, but we could not find the way around the breakdown. Joe was confused about where we were. Neither he nor anyone else had been to the borehole since 1992.

We turned around and went back to the junction with the water crawl. We saw many unpushed leads along the way. I checked one upper-level lead, but it ended quickly. Unfortunately, our desires to discover new cave were being replaced by trying to figure out where we were. We were losing valuable time and energy. We finally figured out that we had been walking upstream, not downstream as we had intended. We went the other way, downstream, for a long ways. The route was a nice big passage with lots of water. Eventually, Andrew and Joe went on ahead to see if we were going the right direction. Bruce, Marc, and I turned off our lights and waited. Marc got impatient and went after them, but they were nowhere to be seen. We had been in the cave now for about fifteen hours, and I was getting cold waiting, even in my wetsuit.

We were getting worried, but Joe and Andrew finally returned after about fifty minutes. We all decided to head back to the junction, where we could leave or check some of the leads upstream. When we got to the junction, we had been in the cave for sixteen hours, and we decided it would be a good idea to head out. We routed.

I had to pace myself in the 2000-foot water-crawl on the way out. I had been tired throughout the trip and wanted to conserve as much energy as possible. Joe and I emerged from the crawl last and saw Bruce already halfway up the sixth drop. Marc and Andrew were already at the top, in the Dressing Room. Joe went up the drop, and I followed. At the top of the drop, I found myself alone. I derigged and coiled the rope. When I got into the Dressing Room, I ate all the food that I had not already consumed. I looked at Joe's old wetsuit and hoped that others would leave behind their wetsuits and polypros so I could do the same, but I bowed to peer pressure and put my wetsuit in my pack, where it barely fit after strenuous stuffing.

I climbed up the fifth drop and struggled over the lip. We went up the nuisance drop, and the Canyon Passage loomed ahead. The cave had been taking a psychological and physical toll on me. I had been able to think only about having to go back through the canyon on the way out, and this took much more freedom from the trip. Now, after looming ahead in my imagination, it seemed to be trying to stare me down. By the time I got to the entrance to the canyon, I could barely hold my pack off the ground for more than a few seconds. Even though all my food and water were gone, the pack was much heavier on the way out. I also had to carry a hundred-foot rope that was weighted down with mud. Since my wetsuit and polypro had been swollen with mud, there was no chance at all of squeezing my vertical gear into the pack, and I had to drag it along fastened to the rope.

I didn't want to be last and behind Marc again, and I had insisted several times during the trip on the middle position. Andrew and Bruce went in first, and I followed, with Marc and Joe behind me. I couldn't carry my pack, and I could barely pick up the rope and gear. I could only swing them forward and put them down two or three feet ahead. I was wondering how I was going to make it through the canyon in my condition. My mental ability was shrinking, perhaps more quickly than my physical ability, and I was scared.

As I entered the canyon, my pack popped open and my wetsuit fell out. I backed out and tried to repack it, to no avail. I turned to Joe for help. He recognized my condition and said, "Ah, you are experiencing ram," his word for a state of mental and physical exhaustion like that of rams that have been butting heads. He carefully repacked my pack, and I fumbled into the canyon and struggled to concentrate on the passage. I asked Bruce how to make it through the Exterminator, and he gave me directions that I could not follow. I struggled, and my pack slipped into the pack-eating crack. I caught it before it went all the way in. I got stuck in the sharp bend, and my chest was pressing against a rock projection in the floor. I asked Joe for help, and he tried to tell me how to do it. His advice did not help, because I did not understand it. I struggled and began to kick and flail. Finally, I relaxed and collected myself. I lifted my right shoulder blade up and popped it through the only way it would go. Getting stuck was perhaps the best thing that could have happened, as it woke me up from my ram, and now I was on an adrenaline rush. I started moving and left Marc and Joe behind.

My kneepads kept sliding off in the slime, and the third time they did I gave up and left them behind. Then my pack popped open again and my wetsuit and water bottle came out. Repacking in the tight passage was impossible, so I abandoned the bottle and now carried three things, the pack, the wetsuit, and the rope with vertical gear attached. It was slow, but I proceeded steadily and deliberately. After two or three hours, I finally emerged from the canyon. After carrying my wetsuit through most of the canyon, I accidentally dropped it into a tight spot that was out of reach almost at the end of the canyon. I really didn't care.

Andrew and Bruce were waiting shivering in a room just outside the canyon. I happily joined them. Joe and Marc were about twenty-five minutes behind me. Marc's noodle pack had dropped into the pack-eater. After it was retrieved, he had had so much more trouble with it that Joe had mercifully traded packs with him. Marc later told me that when he got home he found that his wetsuit and many other items had fallen out. Joe and Marc had crawled right over them in the canyon without noticing.

The first three of us went ahead out. I was third to emerge, at about 8 A.M., twenty-two hours after I entered the cave. Bruce took pictures of my slimed gear and clothing. We changed into clean clothes and started to warm up. Within an hour, Joe and Marc were out of the cave with the last of the ropes. We celebrated with tortilla chips and a jar of homemade salsa from Joe's garden. It (concluded on page 61)
This is not a story of ground-breaking underwater cave exploration. It is a story of a cave unintentionally left undone. The dry portion of Malheur Cave in eastern Oregon has been explored and mapped for many years. The underwater portion was explored, but never mapped. This story is about finishing a long overdue survey.

Malheur Cave is located in Harney County in southeastern Oregon. No one really knows when this cave was first discovered. Evidence of use by local Indians, early settlers and many others is present everywhere. Obsidian chippings, campfire soot stains on the walls, and other indications of the passing of man are abundant.

In more recent times, the Masons have used this cave extensively for ceremonies and other functions. The curious come on a year-round basis, the kids for fun, the scientists for answers to long-time questions, and the cavers, just to meet or visit an old friend. The Masons now own the cave, but have left it open to whoever wishes to cool off on a hot summer day, explore its many wonders, and paddle its waters, just as it was done decades ago.

As in the case of many others, we first went to the cave to follow a lead, a rumor that one could go cave diving in the high Oregon desert. Though we never spoke with anyone who had ever dove this cave or even knew if it could be, the rumors persisted, and so did we.

Our initial trip proved many things to us. Our standard cave diving gear would need modification for this environment. It would require packing it through packed dirt, slick mud, and breakdown piles for approximately 1000 to 1500 feet of dry cave. The snorkeling portion was very long (2000 to 2500 feet), tedious, and would require exposure protection. Any additional equipment needed for the completion of our goals must be handled in a manner that did not impede the divers’ safety, but still allowed easy access to equipment in a cave-diving environment.

On the six-hour drive home, each obstacle, problem and inconvenience was analyzed, a solution presented, and discussed thoroughly. Over the weeks to follow, the plan was fine-tuned, evaluated and reevaluated. Our primary concern was something that some dry cavers take for granted, a limited air supply. Diving in an unknown environment, all problems and conditions, foreseeable or not, must be planned out in detail. How do you plan for the unknown?

The next trip to Malheur took place on October 31st. It seemed fitting to spend Halloween in a cave. Kelly Rockwood and I made the long trek from Twin Falls, Idaho to Oregon. Both Kelly and I are (full) cave-diving certified, having dove the Florida caves and Yucatan Peninsula of Mexico, but Kelly had never been in a dry cave, much less a water-filled lava tube. Yes, both of us were nervous.

Upon our arrival, the butterflies gradually left, as the tasks at hand took over our thoughts. Tank pressures were checked, redundant first and second stages tested, Transpac BCDs inflated and deflated, line reels stowed, primary and all backup lights double-checked. We assembled our diving gear the same way we had many times before. We had tried the single tank H-Valve configuration in the pool (as all new arrangements should be) and at an open-water site. Classic doubles were far too heavy and cumbersome for this site.

Nothing would be unfamiliar but the dive site.

The black lava walls soon swallowed the afternoon light as we slogged to the back of the cave. Malheur is a typical lava tube. The tube-shaped walls are smooth and black. Breakdown piles, varied in size from small baseballs to desk-sized boulders, form sharp obstacles to negotiate. The air was heavy and hard to breathe; drips of water fell upon the floor and a mist hung in the air. The lights reflected a dense fog. We picked our path carefully in the slippery mud. The only sounds were our labored breathing, echoes from the ceiling rain, and the occasional, colorful words from my stubbed toe. Kelly just laughed; I just limped. After all, as I was reminded, this was my idea.

Kelly was shocked at the sight of two rows of bleachers on either side of the huge cave, enough seating for 200 or more. Between and at the head of the bleachers stood a ceremonial stage. How many times had the Masons used these? Did they still? She had walked in the tire ruts on the way in, but had not realized they had used vehicles to transport building materials into this enormous room. We sat silently in the fog, our 80 pounds of weight off our backs, if only for a little time.

With only one more stop, we finally reached the water’s edge. I just like the last time I had been here, the water was crystal-clear and 60 degrees Fahrenheit. It would feel good now, but in just a few short
hours would be bone-chilling. A last equipment check was performed, air turned on, and masks defogged. We waded and slipped through the silt for what seemed like a very long time. Eventually the water grew deeper, and the long snorkel began.

The visibility was 30 feet or more and it felt good to have the heavy load lifted from us by our BCDs. At a depth of twelve feet we came upon the first, and least preserved, of three boats. A little further on, we came across the last of the three boats. It was in very good condition, looking as it must have years before. The Hines Lumber Company had donated it, in an effort to advance exploration of this cave. Since these boats were noted on our map, we knew they had been underwater for at least 30 years! Early cavers, paddling in the darkness with only lanterns and flashlights, had sought the end of Malheur, just as we now were doing. It was in very good condition, looking as it must have years before. The Hines Lumber Company had donated it, in an effort to advance exploration of this cave. Since these boats were noted on our map, we knew they had been underwater for at least 30 years! Early cavers, paddling in the darkness with only lanterns and flashlights, had sought the end of Malheur, just as we now were doing. From these boats, surveys were done, measurements taken, and records compiled. Debris from family outings, beer parties and curious people was everywhere: bottles, cans, batteries, and other items.

Graffiti on the walls and ceiling spoke to us about the abuse of youth, and the cave cried of injustices. Although we knew we were not in uncharted waters, it would have been nice if it were not so obvious. Remnants of a rope ladder hung from the ceiling, disappearing into a small black opening. It appeared to go nowhere, but in full scuba gear, ascending was out of the question. As we snorkeled further, the walls and ceiling closed in to greet us. What once had been a cave of immense proportions was now only twenty feet across, and from waters surface to the ceiling, only three feet high.

We entered what our hard-found map called "The Last Cavern." At this point the walls and ceiling meet the water. Names and slogans proudly announced others had also been to this point. There are few places safe from the reaches of the spray can. Hopefully, we were about to descend into one. Kelly questioned me on the quality of air we were breathing, since she was not feeling well. I had no way of knowing. We slipped into the darkness below, leaving the signs and symptoms of humanity behind, which we gladly traded for the reassuring sounds of bubbles. The pure sweet air in our tanks instantly revived Kelly’s enthusiasm for adventure.

According to our game plan, I tied off the primary reel to a medium-sized rock and again to another—always two tie-offs, always. I would lead and Kelly would follow. Before Kelly and I were done on that Halloween night, we would reel out approximately 550 feet of line. In the first 100 feet, we saw fin marks on the bottom from earlier, untrained divers. The marks in the bottom laid testament to the problems that ensued. We knew a total silt-out would take place with just the mindless sculling of a hand, much less an entire fin or diver, too near this soft bottom. Did they have guidelines? Or did they grope the walls hoping they had not been turned around in that awful zero visibility that ensued? Underwater caves are not
the place for open-water sport divers. As we continued on, we saw less and less presence of other divers. Inverted cone shapes along portions of the walls marked clear fresh water springs flowing into the cave. The floor was still covered in very soft silt, rising in the middle and falling to the sides in a moon-shaped crescent. Another pressure ridge came to mind, similar to the one we had hiked by in the dry portion. Debris dislodged by our bubbles fell freely from the ceiling. A silent eerie world lay before us. The dark walls seemed very foreboding as we swam slowly on.

Malheur gradually restricted to a point where the clearance between the ceiling and the floor was no longer passable. It was still more than wide enough for a diver, just not enough height. The floor here was flat and not in the crescent shape previously mentioned. The soft silt formed troughs like frozen ocean waves, two or three feet high at the peak, and falling steeply to the floor. These troughs ran perpendicular to the cave walls. In the years long past, had Malheur had a stronger flow? How had the troughs been formed, we wondered?

Kelly stayed behind as I managed to wriggle myself past the first silt trough. I could see beyond to the next, and the end of the cave. Side-mounts? Sure, I reasoned, I could gain about another twenty feet. I had just enough room to turn around to the mess I had created for myself. In squeezing through the trough, I knew what was to come. I had silted my exit out. Bringing my 35-watt cave diving light to my face, I could just make out the bulb at a distance of three inches! Slowly and methodically I wound my line reel in, being very careful not to get tangled in my line. My tank banged against the ceiling, just as I felt my chest hit the silt again. As I squeezed through the muck, my thoughts turned to the early divers; at least I had a line and a cave diving instructor named Lamar Hires going for me. Lamar had drilled and drilled us on lights-out exits, lost-line protocol, silt-outs, and many other emergency procedures.

I exchanged “OK” signs with Kelly and we started out. Staying true to cave-diving procedures, Kelly led and I followed, reeling the line in as I went. The water was reassuringly clear, a sure sign of good technique by both. Retrieving the line at the primary tie-off points, we surfaced in “The Last Cavern.” After a brief discussion, we decided to swim underwater on the way out, rather than to snorkel. Both of us picked up what debris we could, but without a goody bag, we left a lot for future dives. We found traces of previous cavers: survey tapes and markers, as well as boat paddles, cans, and bottles, but mostly a lot of garbage. I found several flashlights, presumably dropped from the boats that had once floated above. I wondered if they had been smart enough to bring backup lights. Or did they paddle back thousands of feet in the dark?

The stars were shining brilliantly when we stepped from the mouth of Malheur, shivering from the cold. In great disbelief we looked at the time. We had been in the cave for more than six hours, walking, snorkeling and diving. There was little doubt that this Halloween, we had experienced a new kind of trick or treat. Little did we know, this was only to be the first of many dives for us at this cave. It would draw us back, again and again, this simple lava tube. What could possibly be so interesting? Tight passages, black walls, soft silt, and water with no air space to breathe from. The average person would think it was their worst nightmare. The average cave diver would think this is heaven on earth.

In the months and dives to come at Malheur, I teamed together with Kelly, cave divers Mike Gann and Tom Miller, to place survey stations, take azimuth readings, lay measured line, and survey the walls and ceilings. We discovered previously unknown springs in the cave floor. We analyzed water samples from these springs, the main cave, and the nearby reservoir in an effort to gain more knowledge about the
long known cave. From the data collected, we were able to map and draw the last 548 feet of Malheur Cave.

The original map I’d secured from the NSS of Malheur Cave was dated November 24, 1973. It was a product of the Oregon Grotto. Being a Grade 3 and Grade 4 map, it is quite obvious that a considerable amount of time and effort was spent to create it. We have not attempted to improve on it, as it is quite clearly a very good representation of Malheur Cave. We have instead, and very humbly I might add, contributed the last little bit of cave to this existing map. Our map is not and does not pretend to be anything more than that. It is the first map any of us have produced. Notably some errors may exist. Every effort was made to ensure accuracy.

Due to the wall and floor configurations and compositions in the underwater portion of Malheur, we felt tape measurements were out of the question. A pressure ridge (our best guess) appears to lay underneath the silt, creating a peak in the floor and slopes to the sides (note the cross section), making wall measuring points difficult to say the least. Instead, we used hand-held sonar for distances from the floor to the ceiling and from the center of the guideline to the walls. These measurements were taken several times, then averaged. Since the handheld sonar’s readout is in tenths of an inch, we feel this to be accurate enough. A measured guideline was used (every ten feet) for gross distance measurements. Since station tie-offs are necessary in cave diving, distances between stations should be accurate within five inches or so.

Mike Gann, Brad Gilmore, and Dr. Tom Miller reviewed water analysis data. Mike is the head of trouble-shooting for a company called J. R. Simplot, and specializes in water quality problems. Brad is the lead engineer for the City Of Twin Falls, in charge of water quality issues and Dr. Tom Miller worked for the Department of Environmental Quality, with a PhD in water quality analysis. It was their conclusion that the water in Malheur Cave is essentially the same water as in the reservoir and the springs. It should be noted, however, that the spring water is much clearer and two to four degrees Fahrenheit warmer than the main body of water in the cave. Small isopods were seen on two dives. Attempts to collect samples only proved the little critters were much faster than the divers pursuing them. Isopods four, divers zero. Smug as they appeared to be, divers reported the isopods seemed to be dismayed upon hearing mumbling from the divers about coming back for them.

We have not been back to Malheur since March 1999. We know the cave still has many fascinating wonders in store for us, even though our survey has been completed. Kelly, Mike, Tom, and I will return to it again and again, just as all cavers do, to check on our children. Recently, Kelly and I have had calls and talked to quite a few divers and cavers that are interested in diving Malheur. All of these divers and cavers, without exception, have only been certified in recreational diving procedures. They seem dismayed when we withhold information. Underwater caves, even if they are only “simple lava tubes,” are not places for the untrained. Please be careful. No cave is worth the loss of human life.

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I stood alone on the slopes of rugged Iron Mountain high above Glenwood Springs. To the south, nearly 1400 feet below my feet, the Roaring Fork Valley stretched beyond Glenwood's neat, tree-lined residential streets to Carbondale, Mount Sopris and Aspen. To the west, beyond the shopping malls, fast food restaurants, motels and gas stations of the West Glenwood strip, the Grand Hogback and Storm King Mountain framed the setting afternoon sun. To the east, the precipitous depth of Glenwood Canyon was a jagged deep scar in the flat, snow-shrouded tablelands of the White River Plateau, an impassable barrier that forbids easy passage.

Wandering between the cacti and small grasses on the nearly barren limestone surface near the mountain’s summit, I searched for any indication of the labyrinth of natural passageways that existed not far below. It is an old habit of mine to closely examine areas near significant known caves in hope of learning something about why the cave was found. With such knowledge, I can begin to recognize common characteristics between the lands that hold caves, particularly in a specific geographic locality.

Despite the warm sunshine bathing both the mountainside and me in a rich lemon light, the crystalline snow lingering in the shade of the pinions and junipers revealed this was not yet spring but still late winter. Though the sun had melted away much of the snow that had fallen earlier in the week, a brisk northerly breeze encouraged me to zip my coveralls tight to my neck. Once the sun dropped below the peaks and mesas to the west, I suspected the temperature would plummet well below freezing.

Except for the limestone gravels and eroded bluish gray limestone pavement where grass did not grow, I saw surprisingly little indication of the cave inside this 7,200-foot-high mountain. Yet I knew that Glenwood Canyon with its many caves just to the east provided good reason why the ground below my feet should be hollow.

Over a century before, in the summer of 1895, the original discoverer of Glenwood Caverns—or the Cave of the Fairies as it was first called—no doubt realized the same. Though his or her identity is now lost to the veil of time, the knowledge of the then commercially-operated Cave of the Clouds above No Name Creek provided an opportunity for the curious or the adventurous to fully explore any crack or crevice they might discover. Just to the north of the Fairy Caves, the Transfer Trail wagon road zigzagged its way down from the fading mining settlement of Carbonate on the high plateau. Possibly, a traveler taking a shortcut down the mountain to the city might have stumbled upon an obscure blowing hole hinting of adventure within. Alternatively, a prospector in search of fortune might have chanced upon the hole and opened it with pick and shovel expecting untold riches. Or, the cave might owe its discovery to a group of adventurous youth who came upon it on a day of bold exploration away from their parents and families.

Whatever its story, the cave’s 700 feet of corridors and chambers were quickly cleared and opened as a public attraction by the Fairy Cave Company, a local corporation under the direction of Glenwood attorney Charles W. Darrow. By July of 1896, a new wagon road to the cave’s entrance provided easier visitor access than the original pack and trail leading up from Glenwood’s popular Hotel Colorado. Hoping to gain visits from the growing number of tourists who visited the famous hot springs at the foot of Iron Mountain, the cave was widely advertised in regional publications around the turn of the century as the “Eighth Wonder of the World.” This boastful claim placed the new attraction as an equal of such ancient curiosities as the Pyramids of Egypt, the Hanging Gardens of Babylon and the Colossus of Rhodes.

With the installation of electric lights in 1897—making Fairy one of the first caves in the United States to be electrically lit—visitors enjoyed enchanting natural features in red, green, and purple-colored lights. Though the electric lights freed guests from the tedious task of carrying easily broken hand lanterns, the colored displays were an unfortunate habit many other American commercial caves would fall into as they in turn replaced kerosene lanterns and candles over the next 30 years.

HELCITITES GAVE CAVE ITS NAME

According to local legend, the Fairy Caves were named for the delicate wing-like helictite calcite formations that once graced its walls. The Caves also boasted a winding, man-made tunnel leading from deep within the cave to a magnificent cliffside viewpoint of Glenwood Canyon. Called “Exclamation Point,” this popular cliffside balcony provided visitors a dizzying view of the Colorado River and the Denver and Rio Grande Railroad meandering far below.

For 20 years, tourists visiting Glenwood Springs found the Fairy Caves to be a satisfying attraction worthy of their time and money. Yet, the coming of the World War in Europe dropped visitation significantly, not unlike the fate of many other western attractions both natural and manmade. By 1916 or 1917, public tours of the Fairy Caves apparently ceased. It would be 82 years before another paying visitor would examine the passageways and chambers once frequented by Victorian-era guests.

Deciding to leave behind the chilly mountainside, I followed the muddy access road to the cave’s lower entrance portal. The new Glenwood Caverns commercial operation provides guided tours not only through the celebrated 1890s tour route, but also into the pristine lower section of the cave. This extensive section, discovered in 1960 by members of Denver’s Colorado Grotto, features passages and dripstone decorations so wondrous that three club members put together their savings in 1961 to purchase the property. This acquisition was done not only to protect the cave from unauthorized visitors and possible encroachment from nearby limestone quarries, but also with the intent to someday open the breathtaking lower chambers for public visitation. While hopes were initially high for...
opening the cave, other than modifying the entrance portal to the historic upper level and the stringing of electric lights, no additional improvements were made to the cave over the next 35 years.

The cave’s current commercial management, Steve and Jeannie Beckley and Phil Kriz, were also affiliated with the Colorado Grotto prior to their business involvement with Fairy. Steve and Phil participated on several digging and exploration expeditions in both the Cave of the Winds and Huccacove Cave near Manitou Springs during the mid- to late-1980s. They were quite familiar with the mystique that surrounded the privately owned cave. It was only through a determined effort over several years that Steve was able to gain access to Fairy and then acquire a lease to purchase in the spring of 1998.

During the 1950s and early 1960s Fairy was a favorite destination of Colorado cavers. Trips to the cave in both summer and winter succeeded in extending the known passageways leading from the historic route. Numerous chambers and rooms were found through digging, probing and hammering seemingly dead-end passages, including a series of squeezes and pits ultimately leading to a lower level. During a 15-year period, cavers successfully extended Fairy from about 700 feet of known passage to over 7,000 feet by the late 1960s.

Despite the excitement of discovery at the cave, an unfortunate falling out between the cave’s remaining owner Pete Prebble and the Colorado Grotto in 1973 left only two approved trip leaders. One of the two trip leaders dropped out of active caving in 1975. The other leader, Donald G. Davis, found the interest in Fairy Cave trips to be overwhelming. Rather than publicly announce trips at the monthly meetings, over the next two decades he ran only an occasional trip inviting only those who happened to hear of the intended journey.

It was on one of these rare trips in the mid-1980s that I had my first opportunity to see Fairy. After a planned digging trip to Tongue River Cave in northern Wyoming fell through, Pete was willing to accommodate our group. We spent over 12 hours in Fairy that Saturday, squeezing and climbing, sightseeing, taking photographs and enjoying the most exclusive of Colorado caves.

One of the trip highlights was emerging into the Barn, a towering chamber filled with large broken blocks of limestone and a variety of dripstone decorations. The Barn is decorated with stalactites, stalagmites, columns, flowstone and even cave bacon. Captivated by the beauty around us, our group paused at the summit of the chamber’s rubble mountain for lunch. From our lofty perch, our acetylene and electric lights barely probed its far reaches. The room seemed vast and puzzling, beckoning each of us to
fully explore its many pockets. Following lunch, Donald led us down one steeply inclined passageway to the Black Grotto, a wonderful chamber with large black draperies located beneath the Barn. For our entertainment, he led us back to the Barn by another route that helped us to understand the complexity of the lower cave.

**Barn Targeted for Entrance Tunnel**

Considered to be one of the five largest known natural underground chambers in Colorado, the Barn was targeted by Steve Beckley and Phil Kriz as the start of their lower level tour. Through careful surveying and a pilot drill hole, skilled miners blasted a 135-foot tunnel from the surface in December of 1998. Passages that once took considerable time and effort to reach now lay within minutes of the outside world.

Two wooden airlock doors positioned at both ends of the tunnel protect the cave's lower level today (plans are to replace these with permanent airlock doors in early 2000). Strolling through the tunnel with ease unimagined during my earlier visit, I took care to carefully close these heavy wooden doors. In addition to protecting Fairy from casual visitors, the doors also seal the inner rooms from a direct air connection to the outside world. Other commercial caves have discovered that direct air connections can dry out chambers and raise the cave's air temperature. Some caves even experience wind as air blows from one entrance to another, like a chimney on a house.

Thanks to the installation of these doors, Fairy's lower level feels warm and moist. These chambers have a constant air temperature of 52 degrees, the average yearly temperature for the south-facing hillside in which the cave is developed. The humidity is also a uniform 100 percent, with water dripping from a number of the stalactites.

At the inner tunnel portal, I emerged into a noisy construction zone. Here, at the same location where a decade before I had enjoyed my meager lunch, a large team of cavers worked together with a jack hammer, shovels, picks and buckets to break apart the large limestone boulders that littered the Barn's precipitous slopes. Using the deafening hammer, the boulders were chiseled and battered until they broke apart. The team then scattered the fragments underneath the beginnings of a platform that would mark the first viewpoint of the spacious lower cave on the new commercial trail.

Like many visitors to commercially operated caves, I previously had little knowledge of the time, expense and hard manual labor it takes to prepare a natural cavern for public visitation. Opening a cave requires considerable effort and funding, particularly one with significant elevation differences between the upper and lower levels. On the day of my February visit, volunteer caver crews were working both in the historic upper level and in the Barn. The upper level crew spent their day excavating a shallow trench underneath the visitor trail in which electricians would later lay the electrical cable for the commercial lights. Below, the larger team spent their day breaking rock, clearing away blast debris and preparing for the arrival of the carpenters who would build the stairs and platforms that lead sharply downward to King's Row.

At a break in the activities, I climbed on top of one of the larger rocks overlooking the chamber. I remembered that during my earlier trip, while our group enjoyed lunch and a welcome rest break on the same mountain, Donald told us the story of the cave's exploration. Our trip had reached the Barn through the same route the original discoverers had followed. From the historic upper-level tour trail, we crawled through a variety of small rooms and passages. Eventually, we reached the Jam Crack, a tight nasty pitch that for some time had marked the end of the known cave. Following this crack down, the original explorers pushed their luck.

**NEGOTIATING THE JAM CRACK**

Fairy's Jam Crack is admired and even feared by those who have experienced it. One of Colorado's more technical chimneys, the Crack can be intimidating to even the most experienced underground explorer. Here, you make do without the usual handholds and footholds and instead rely completely on body pressure and friction to keep from slipping deep into the crevice.

Entering the Jam Crack traveling into the cave, the going is relatively easy. The route enters from the top of the fissure at one end of the Crack, with the passage to Purgatory continuing from the bottom of the opposite end. Gravity is on your side, helping you slide down to the lower level at the proper point. There is no big sign that you are entering the famous Jam Crack, only a perceptible narrowing of the passageway. It is possible to even pass through the entire Crack without knowing you are doing so;
on my trip, I had to be specifically told by my companions that I was entering the Crack.

Leaving the lower cave at the end of the day through the Jam Crack is another story. Quite commonly, cavers discover the 20 feet up and out are a challenge for both the mind and the body. Although the passage is the same nine to 12 inches in width both on the way into the cave and on the way out, fighting gravity on the outward journey makes the Crack seem considerably smaller.

More than once during the three decades the passage was the sole route to the lower cave, trip participants found the going to be tougher than expected. Fortunately, no injuries occurred in the Crack. Yet, self-rescues on a few trips over the years helped build a reputation for toughness.

On one memorable late 1980s trip, a respected, yet deeply panicked, Denver caver himself confessed unable to climb more than a few feet off the floor of the Crack or even to rationally believe she would ever see the sun again. In a state of complete hopelessness, was finally assisted inch by inch through the Crack by strategically placed team members, who helped her to crawl and squeeze her way to not only larger passage above, but the remaining distance to the surface. On another trip, a caver with many years of experience underground struggled mightily to force himself back up the Crack. Finally, after many minutes of anxiety and nervousness, he reached Howard’s Column, a speleothem at the top of the Crack marking the beginning of easier passage. At this point, the release of tension brought up that afternoon’s lunch.

I myself worried greatly throughout my trip in the lower passageways about my climb up and out of the Jam Crack. While many of the chambers in the lower realms are breathtaking in their beauty, the Crack was never far out of mind. Fortunately, by careful positioning on the journey back to the entrance, I found myself behind Donald Davis, who made the climb up look simple. Providing a cheerful exterior to mask my worry, I was second up the Crack. Only at the very last did I falter, when a single car key in my right pants pocket snagged on a rock projection in a tight spot known appropriately as the Keyhole. This particular obstacle is a triangular-shaped hole that must be negotiated sideways, constricted by a large rock jammed in the Crack. Though not overwhelmingly small, it is awkward, particularly due to the tightness of the Jam Crack on either side. An inappropriate slip into the lower Crack could be potentially life threatening, especially if one was so unlucky to fall headfirst.

Worried a sudden move to free my key might cause me to lurch forward without being confident of my hand or footholds, I nervously called upon Donald to provide me with a hand of support. He agreed without hesitation and, in a moment, freed my key and scampered past him up to the spacious passages beyond. To my relief, I did not unduly delay the other members of our team. I drifted to sleep content at Howard’s Column awaiting my colleagues’ arrivals more than an hour later.

NEW SURVEY BEGINS

With the commercial preparations underway in Fairy in the summer of 1998, the management invited cavers to conduct a new survey of the cave’s meandering passageways to replace the incomplete 1967 effort. Dr. Hazel Barton, a microbiologist at the University of Colorado in Boulder, was encouraged to head this new project. A native of Great Britain, Hazel has coordinated mapping projects of many Colorado caves, including Hubbard’s, Porcupine and Cave Creek Cavern. Her underground experience and abilities led her to caves throughout the American West, including Wind Cave in South Dakota’s Black Hills. In 1998, she was selected as one of two society cavers featured in the MacGillivray-Freeman large-format commercial film Journey Through Amazing Caves, to be released in March 2001.

Fairy Caves Project Coordinates Caver Activities

The discovery and exploration of Colorado’s Groaning Cave in August 1968 by John Pollack and Paul Westbrook helped hasten a conclusion to the first era of Colorado Grotto activities at Fairy Cave. With word spreading of a large new cavern on the rim of Deep Creek Canyon northeast of Glenwood Springs, Colorado caver Mark Maslyn remembers interest quickly dropped for Fairy Cave. Certainly, leads remained in Fairy, even though Colorado Grotto members had spent over 15 years exploring the cave’s complex multi-level passages. However, owing to the difficulties in travel through the Jam Crack to the cave’s lower level, and owner Pete Preble’s restrictions on grotto trips, cavers largely abandoned their efforts in 1970. Although trips continued to visit the cave on occasion over the next four years, by 1974 caver participation in ongoing exploration and survey had dropped to only a handful each year. Those few trips that did go to Fairy over the next quarter century were mostly recreation and photography oriented.

The 1998 purchase of the cave and subsequent commercial development by cavers Steve and Jeanne Beckley and Phil Kriz changed matters considerably. In the last quarter century, Groaning has largely been explored, with surveying continuing to fill in passageways within the cave’s known framework. A new generation has come to Colorado caving for whom Fairy has not been a realistic option. Mindful of the extreme interest of Colorado cavers in a reopened Fairy, the owners carefully planned a new project for the cave with selected leaders experienced in volunteer projects at Colorado’s Cave of the Winds, Wind Cave in South Dakota and in New Mexico’s Carlsbad Caverns National Park. The Fairy Caves Project, a cooperative effort between NSS grottos in Colorado and the Glenwood Caverns management, was established in the fall of 1998 to manage caver visits as well as explore, survey, and study the cave. Building upon the foundation of the successful society project at the Cave of the Winds, the new directors of the project helped determine direction in the newly commercialized cave as well as coordinate activities.

Early on, the project determined a new survey of Fairy was essential to successfully finding new passageways. Dr. Hazel Barton of the University of Colorado at Boulder was selected as the coordinator of this effort. Seeking local representation and fair access to the cave for all Colorado cavers, the project then held elections in area grottos for the initial board of directors.

Working with the management of Glenwood Caverns, the board then determined an expedition schedule of the first and third weekend of every month during the attraction’s November through April off-season. At least during the cave’s initial seasons, cavers would be asked to provide assistance for commercial development efforts on Saturdays, while Sundays would be open for exploration, sightseeing, photography and scientific study.

Through the fall of 1999, the project has welcomed many cavers. Phil Kriz, the cave’s manager, reports that the efforts of the cavers were critical to Glenwood Caverns’ success.

Cavers interested in participating in the Fairy Caves Project are encouraged to contact the project coordinator for additional information or reservations. There are no fees associated with the project. NSS membership is recommended for all participants.

Contact: Tom Dotter, 13495 W. 7th Avenue, Golden, Colorado 80401 (303-238-5138, cavertom@aol.com).

Richard Rhinehart
Stubbornly cheerful, Hazel was a superb choice to head the surveying and cartography project. Her previous Colorado cave maps had won cartography medals and ribbons at the society’s annual convention. Also helpful is her ability to encourage others to continue surveying without dissent or mutiny. This may be surprising for those who have never participated in survey teams. While it may seem that surveys can proceed through passages as soon as compass readings are complete, the best surveys also include detailed sketches. In most caves, surveys proceed at the speed of the individual sketching, even if this artistic sketching takes considerable time. To better understand the Fairy Cave system with its multiple levels, a top-notch survey and sketch, including floor detail, is exceptionally helpful.

Given the opportunity to fully explore and survey the cave, Colorado cavers eagerly took full advantage of this newfound accessibility. By the time the surveyors began their efforts in September 1998, a new chamber called Beginner’s Luck had been discovered not far from the Black Grotto in a level below the Barn. On a sightseeing trip into the cave, new owner Steve Beckley removed a single rock from a tight, descending crevice, and with encouragement from his colleagues, squeezed down into a beautifully-adorned chamber filled with numerous deep lakes. Profusely decorated, Beginner’s Luck convinced cavers that the 1960s exploration of the cave was far from thorough.

In another region of the cave, off a rarely visited passage known as the Canyon, cavers moved aside rocks and discovered squeezes leading to another series of corridors and chambers. These new rooms are wonderfully decorated, like most of Fairy Cave. A tight squeeze limits access to only the thinnest visitors, but the Discovery Glen shows that even the older portions of the cave, known for 40 years or longer, can still hold secrets.

Less than 100 feet from the upper commercial trail route, open to thousands of visitors for over a century, cavers made their most surprising discovery. Just off the Pendant Room, a tight tube leading east and down with a steady breeze aroused the curiosity of the survey team. Survey plots indicated there was no known cave to the northeast, nor was the lower level found to extend this far.

Excitedly, the surveyors dug, momentarily forgetting their duties with the compass and book. Over the next few weeks, returning cavers followed the wind through a series of tight fissures, awkward squeezes, pits and crawlyways to lower level chambers east and below the historic level commercial tour trail. One chamber was named The Great White after a large boulder hanging from the ceiling reminded explorers of the muzzle of a shark. Another room, reached through the Shattered Crawl, was named the Polar Bar owing to the white snow-like gypsum crystals covering the chamber’s ceiling.

One of the greatest joys in caving and discovering passages previously unknown to man is having the opportunity to provide names for the features. Often, a whimsical theme for a cave or a region is selected, varying from pop culture to regional surface features to mythology to even plays on words. In Fairy, for the new corridors and chambers beyond the Polar Bar and The Great White, cavers selected a 1970s disco theme for their discoveries. Hazel explains this peculiar choice came about during a late night dinner at a Glenwood Springs fast food restaurant. Arguing over possible names for their discoveries, no one could agree until the restaurant played “The Hustle.” Owing to this chance circumstance, The Copacabana and the Paragon Disco now join such long-known Fairy Cave rooms as the Mae West Room, Paradise and King’s Row.

Perhaps the most important discovery in this new era of exploration was in July 1999. Following weeks of digging in the cave’s lower-level Gypsum Halls, cavers pushed beyond the tight and twisting passageways and into a large new chamber nearly the size of the Barn. Tentatively exploring this new region, they found many other leads worthy of close inspection. However, since the cave has a strict “survey-as-you-go” philosophy, they reluctantly turned around after only a few hundred feet of scooping. Hopefully, the surveyors would soon be charting these unknown lands.

**scientific studies underway**

As members of the Fairy Caves Project continue their exploration and survey of the cave, scientific studies are also underway. One speleologist who has found the new access to Fairy to be critical in understanding its geology is Dr. Fred Luiszer of the University of Colorado at Boulder. A research associate at the university’s geology department, Fred believes Fairy’s geology is similar to that of the Cave of the Winds on Colorado’s eastern slope.

Fred suggests there are geologic indications that Fairy may also have significantly more depth than is currently known—it may even be Colorado’s deepest cave. Potentially, Fairy may extend through descending levels stacked on top of each other all the way to Glenwood Springs and Springs, though it will probably be a few thousand millennia before cavers can explore their full extent.

As the Colorado River eroded a deeper gorge into the uplifted White River Plateau, the water table dropped. Springs that once emerged along the river at the elevation of Fairy Cave’s entrance migrated over centuries to lower levels. In doing so, the passages drained of water, allowing the slow process of the deposition of calcite to begin. Speleologists argue over the rate of deposition, believing it depends on a variety of factors. A stalactite that might take five to 15 thousand years to grow in one cave might take 50 thousand in another or even a few hundred years in another, owing to local circumstances and the solubility of the surrounding limestone. Since Fairy is exceptionally well decorated with dripstone and flowstone, it is likely the deposition dates back hundreds of thousands of years, back to glacial eras when great icecap glaciers covered the high plateau to the north and annual precipitation was much greater than today’s semi-arid climate.

While Fred and other speleologists are fairly certain about the geology of Fairy Cave, there are many unanswered questions. For instance, no one knows the full magnitude of Fairy’s labyrinth of passageways. With over two miles of survey, it already is one of the three longest caves currently known in Colorado. Certainly, the triangular-shaped piece of Mississippian-aged Leadville Limestone in which it is developed can hold many additional miles of cave.

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As the Colorado River eroded a deeper gorge into the uplifted White River Plateau, the water table dropped. Springs that once emerged along the river at the elevation of Fairy Cave’s entrance migrated over centuries to lower levels. In doing so, the passages drained of water, allowing the slow process of the deposition of calcite to begin. Speleologists argue over the rate of deposition, believing it depends on a variety of factors. A stalactite that might take five to 15 thousand years to grow in one cave might take 50 thousand in another or even a few hundred years in another, owing to local circumstances and the solubility of the surrounding limestone. Since Fairy is exceptionally well decorated with dripstone and flowstone, it is likely the deposition dates back hundreds of thousands of years, back to glacial eras when great icecap glaciers covered the high plateau to the north and annual precipitation was much greater than today’s semi-arid climate.

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the Colorado River. It is also geologically possible the cave’s as-yet-undiscovered lowest levels may contain hot mineral water. If this possibility is proven to be true, cavers will be satisfied. For many years, Colorado cavers have dreamed of finding a natural underground hot tub in which to soothe their weary muscles!

Owner Steve Beckley is a believer in Fred’s theory regarding lower levels underneath the currently known cave. Tantalizing wind flow from unexplored leads in the lower level suggests there is much more to be found. One passage recently found has river gravel, quite possibly deposited when the Colorado River flowed at a level 1,200 feet higher than present. With this in mind, and with an eye toward future expansion of the current commercial trail, Steve is encouraging project members to explore and survey following the limestone down Iron Mountain toward Glenwood Springs.

Geologists and mineralogists are also studying some unusual mineralogical features found within Fairy. While most visitors are content to enjoy the beautiful yet common stalactites and stalagmites, an odd feature Fred calls “iron foam” has gained the attention of the scientists. Clearly formed by bacteria, this bright orange and red-colored oddity is found throughout Fairy, most notably within the Barn. Another unusual feature is the rare “pool fingers” found in Fairy. Noted only in a few caves worldwide, these odd stubby deposits are formed below the water level in calcite-rich cave pools. Why underwater fingers should form in only some pools is a question as yet unanswered.

TOURISTS ENJOY CAVERN

While geologists and cavers study and enjoy Fairy Cave for its unique geology and potential for more discoveries, visitors to the commercial attraction come simply to experience the wonder of the underground. During the cave’s first five-month season, over 30,000 visitors made the trip up Iron Mountain from Glenwood Springs. Following my February visit where I watched cavers break rock to build the trails, I returned to the cave the following summer to see the completed tour route and experience the cave through the eyes of paying visitors.

Standing at the temporary viewpoint overlooking spectacular King’s Row, a descending corridor yet to open to the public, two Denver area visitors disagreed with my suggestion that the public has lost interest in natural features. To them, the beauty of Colorado’s underground worlds is equal to the mountain peaks, valleys, mesas and forests found outside. Although King’s Row had been known for nearly 40 years to those who could manage the physical challenge of the Jam Crack, the opening of the cave to public tours allows a far greater audience to experience and treasure one of the state’s unique features. By observing these delicate, fragile dripstone decorations, visitors realize that deliberate vandalism or even carelessness brings about irreparable destruction. Such destruction is painfully visible in the cave’s upper historic level, where the closed 1890s commercial operation was open to all comers for half the 20th century. The stubs of many stalactiles and stalagmites give visitors an idea of how superbly beautiful this tour route was when it was first opened, before ignorant and uncaring individuals chose to desecrate the corridor. Most likely, these formations will never grow back, at least within our lifetime.

As our commercial tour reached the surface, I found myself blinking my eyes in the bright summer sunshine. Lingering behind, I realized the statements of my King’s Row companions were true. While I had the unique opportunity to see the beauty and charm of the cave more than a decade prior to public showing, my knowledge did nothing to further protect it or other less protected caves throughout Colorado and the West. By opening to the public both the upper historic level, and the pristine lower level, today’s commercial tour operation brings the beauty of the underground and the clear potential of selfish destruction to our consciousness.

It is because of past devastation to beloved places like Fairy that those who venture underground are reluctant to speak about or publicly acknowledge their finds. Perhaps owing to this secrecy, caves such as Fairy do not enjoy the widespread public adoration that the famous Maroon Bells, the wilderness of the Elk Range and even the ski slopes of Snowmass Mountain enjoy. These treasured lands stretched out before me as far as I could see. Yet, behind me, hidden from sight inside Iron Mountain, was a jewel among Colorado caves.

Whoever first came upon this cave may be forgotten today. Yet, their seemingly modest discovery more than a century ago will continue to bring fascination to all who visit, whether on a commercial tour or pushing tight passageways to the next big find.

Glenwood Cavern’s First Season Successful

Last Memorial Day weekend’s opening of Glenwood Cavern marked the first new commercial cave to be opened in Colorado since 1911’s Manitou Cave. Though commercial tours in Manitou Cave lasted less than four seasons before closing, eager and appreciative visitors to Glenwood Cavern suggest the new attraction should be around for many years.

Opening amidst a flurry of publicity both locally and regionally, Glenwood Caverns found their tours completely sold out for most of the summer season. Owing to access restrictions by the Bureau of Land Management, who control travel on the Transfer Tunnel road leading north of Glenwood Springs, the cave only operates from May through October. Even with the late start in 1999, over 30,000 visitors took the hour-long trip.

All tours begin at the cave’s visitor center and gift shop next to the famous Hotel Colorado in Glenwood Springs. Tour buses take visitors up the winding Transfer Tunnel to the cave’s entrance, located at 7,000 feet elevation near the summit of Iron Mountain. Tours first visit the historic upper level, originally exhibited from 1896-1916, leading to a spectacular cliffside entrance and balcony known as Exclamation Point. Here, visitors thrill to a marvelous view of Glenwood Canyon with the Colorado River, Interstate 70 and Amtrak’s California Zephyr railroad route snaking nearly 1400 feet below.

Returning to the entrance of the historic cave, visitors then descend a winding trail to the new tunnel entrance, leading direct into the cave’s magnificent lower levels. A series of walkways and stairs lead the visitor down through the spacious Barn to King’s Row, a fabulous chamber reminiscent of the great caves of New Mexico’s Guadalupe Mountains. At this point, visitors retrace steps to the tunnel entrance and their waiting bus.

Much of the tour route was constructed with the volunteer assistance of Colorado cavers. Evan Anderson coordinated the development of the cave’s innovative lighting system, which emphasizes the mystery of caves.

Owners Steve and Jeanne Beckley and Phil Kriz report additional improvements will be implemented to the cave and the operation in future years. The tour route may be lengthened beyond King’s Row and additional passages may be exhibited in the upper level. Facilities at the cave’s mountainside entrance will be improved as time and money allow. Eventually, a tramway may be installed to bring visitors directly from the visitor center in the city to the cave’s entrance.

Despite a few opening year difficulties common to any new attraction, the owners of Glenwood Cavern are confident of the cave’s future. In recent months, Steve Beckley has purchased additional land below the cave property. Continued exploration of Fairy by enthusiastic cavers might very well bring future expansion of the commercial tour route or at least appealing new areas for cavers to explore.

Richard Rhinehart
Images of Glenwood Caverns
by Dave Harris

Hazel Barton with stalagmites

King’s Row

The Barn

Drapery in the Black Grotto
What Waits Below, by Elizabeth Bunnell, won a green ribbon in the 1999 Slide Salon.

Can You Climb, by Bernie Szukalski, won a green ribbon in the Print Salon. His wife Sandy Stephens is the caver.

Back & White Tube, by Hazel and Doug Medville, won a green ribbon in the Slide Salon.
Caving Couples

Once again for the February issue we tip our hats in recognition to all the fun-loving caving couples out there who think that crawling through the cold mud is their idea of the perfect date. For these couples “tying the knot” really is a matter of life and death, and the expression “getting down and dirty” takes on a whole new meaning. I know there are more of you out there. I’ll find you next year. May you all stay in the dark for years to come. Stay dirty and Happy Valentines Day!

Jim Currens, NSS# 13110FL
Teresa Bottorff

Teresa and Jim first met at a Contra (folk) dance in June of 1993 in Louisville, Ky. Jim had noticed her and spoken to her at prior dances, but they hadn’t really connected. At the dance they were involved in a conversation with a third person. The other person asked Teresa about places she had never been but would like to go. Jim’s interest really perked up when Teresa said Mammoth Cave, Ky. Jim quickly took advantage of the opening and told her about his caving interests and that he would be delighted to take her to see Mammoth Cave. They exchanged phone numbers and a few days later Jim called Teresa to plan the date.

On July 10, Teresa drove down from her home in Jeffersonville, Ind. and Jim drove from Lexington, KY to rendezvous at Jerry’s Restaurant in Cave City, KY for the Mammoth date. Jim had the whole day planned. First they took the half-day tour, had lunch, then rode on the Miss Green River riverboat, and finally took the Frozen Niagara tour. Teresa was impressed by Jim because he was more knowledgeable about the cave than the guide. Jim was quickly won over by Teresa’s cheery personality.

They kept seeing each other and Teresa’s interest in caves and caving continued to grow. Jim took her on her first wild caving trip on Labor Day weekend of 1993. She was more than a little intimidated at first, and had the usual jitters about fitting through tight passages, but soon relaxed and had a great weekend. Since then they have been on many caving trips together and Teresa has learned vertical techniques. Most of their trips have been in Kentucky and in the TAG area. They have been to two NSS Conventions together. Recently they went to Roppel Cave, the initial discovery of which Jim was heavily involved in.

Teresa and Jim’s relationship has grown despite the 85 miles between their homes and some rough times. Although they both have other interests, caving has remained the focus of their recreational and social activities. Both use their caving experiences in their work. Teresa is an elementary school teacher and uses cave-related examples for biology and earth sciences in her classroom. Jim is a karst hydrogeologist at the Kentucky Geological Survey, at the University of Kentucky. They are active with the James Cave Cavers and the Blue Grass Grotto, among other groups. They became engaged on Valentines Day, 1998 and plan to get married in the summer of 2000.

Gail Wilbanks, NSS# 33671FR
Jim Wilbanks, NSS# 8967FE

We both met at a very strange caver party in 1967. Jim took Gail to his first vertical cave for her first. It is Cemetery Pit, which is our favorite next to Neversink. After some tall convincing, Gail agreed to marry Jim. Our daughter, Betsy, is also a caver.

We live in the heart of TAG, in northwest Georgia, near the town of Rising Fawn. Often our home is the scene of caver parties and the meeting place for caving trips. We are active in our local grottos. We were heavily active in the 1998 Sewanee Convention. We are particularly involved in the Southeastern Cave Conservancy. Jim is a property manager for the conservancy’s Fox Mountain Cave Preserve. Gail was a mainstay in the recent survey of the property. Caving and cavers have filled our lives. We work to promote conservation and fellowship in appreciation for all caving has given us.

Scott Fee, NSS# 19797LF, FE
Jaime Fee, NSS# 33978FR

I met Jaime on a blind date in a Bowling Alley. I had asked my coworkers to “set me up” since I had not had a date in awhile. (I was caving every weekend, which didn’t allow for much social time). Before long, she was assimilated into the world of caving.

Her first cave trip was to Lott. She was a great trip, but the cave entrance almost refused to let her leave. After safely returning home, I was trying to repair my dining room table while she was visiting, so I innocently asked for the “big red thing with a cord.” Her reply? “You mean your Wheat lamp?” I felt like a schmuck . . . she was a smart one!

At this time it was 1991 and I was hard at work as the 1992 NSS Convention Chairman. Jaime was drafted almost immediately upon getting involved with me to do the Convention pre-registration.

Wanting as much stress as possible, we were married two Saturdays following the NSS Convention in Indiana—August 22, 1992 to be precise. We lived in Indianapolis, Indiana. In 1994 we relocated to Birmingham, Alabama. Jaime is my proofreader, my common sense, my memory, and my friend.

I am now the Director of Financial Aid at ITT Technical Institute in Birmingham.

I started caving at 18 with the Florida Speleological Society (FSS) in Gainesville, Florida (Yes, there are dry caves in Florida!). My Naval career of six years got me underground in Iceland, Okinawa, California, Nevada, Utah, and then finally Indiana where my NSS involvement started. Jaime is a “behind the scenes” type of person . . . stuffing registration packets, helping assemble the Central Indiana Grotto and Indiana Karst Conservancy newsletter, and is currently the proofreader for the
Kevin Allred, NSS# 16730RE, LB, FE
Carlene Allred, NSS# 16389RFR, FE

It was a secret cave, very beautiful and delicate. It was located within a mile of a heavily populated area. Kevin and another guy had kept its entrance buried for two years now and had told no one the location. One day a couple of university students found the covered entrance and dug through. They broadcast their discovery and its location at the next BYU Alpine Club meeting. Carlene was at that meeting and asked them to take her to the new cave. A trip was planned for Saturday. Meanwhile, Kevin and his buddy got wind of their cave being breached. They showed up Saturday to defend their cave against the BYU “vandals.” Kevin and Carlene met that day inside the cave near a calcified root formation they later named “Carlene’s Hair.” (Later the local grotto put a gate on the cave but it was broken into. Kevin and Carlene don’t want to know what the cave is like today.)

Kevin and Carlene were married on March 25, 1978, and they have since become the parents of five children. Over the years they have been involved with various western grottos and are presently active in the Glacier (Alaskan) and Hawaii Grottos. They sometimes take their children caving.

Kevin built their semi-remote home on the shore of a fiord in Southeast Alaska, where they have lived for the past 16 years. Even though they live “off the grid” they power their computer with a wind generator.

Kevin says, “I sometimes wonder what we might have accomplished (or not accomplished) had we not come to Alaska. We probably would not have followed the chain of events, and resulting acquaintances, that led to various caving discoveries, for example. Who knows what would have been done that is still awaiting someone else?”

Carlene says, “It is very difficult being a caving mom. I sometimes wish that I had the caving opportunities back when I was young and childless, that I have now.” Their photo shows them at the conclusion of a 25-mile long, two-day caving trip.

Cyndie Walck, NSS# 24176RE
Scott Walck, NSS# 20949RE

Cyndie started caving in Missouri in 1974, earning the name “Mung Devil” and became involved in mapping shortly thereafter. Scott started out caving in New Mexico. They met at a southwestern regional involving a steamy sauna.

Part of our early “courtship” was on a caving trip to the Xilitla area in Mexico, mapping caves near Tlamaya. We went to Golondrinas for New Years 1986, and the whole town had come out for the event. After getting off rope we kissed and the crowd started shouting “Beso! Beso! Beso!” (kiss).

We were married a couple of years later in Gourd Creek Cave in Missouri and had to warn our moms not to wear high heels which would get stuck in the mud! We have now been married for 12 years and live in the Lake Tahoe area, far from cave country or even limestone.

We try to satisfy ourselves with rock climbing and kayaking most of the year with a mere 6 weeks to go on caving expeditions in Hawaii and Mexico. We have been very involved the Projecto Espeleologico Purificacion in Mexico, where we spend a few weeks every year mapping more kilometers of cave.

Chris Hudson, NSS# 33702RL
Julie Hudson, NSS# 40316FR

Julie and I met in 1994 at the 17th Annual TAG Fall Cave-In (you know, the one with the exploding bonfire!). We were both camping with the same group, the Subterranean Social Club, whom I had started caving with in late 1990 or early 1991, and whom she had started caving with a few months before. It was a busy TAG. I spent most of the weekend caving and ridgwalking with a group of friends and little time at the event. In fact, the day I met Julie was the day that Alan Cressler, myself, and a few others were led by Mr. Larson to the crack in the earth that would become Larson’s Well.

Anyway, I was in camp Saturday afternoon and overheard Julie saying that she liked dark beers. I pulled a Guinness Pub Draft from my cooler and presented it to her. She pronounced me her new best friend. A week later, we were at a mutual friend’s house for dinner and ended up talking in her car until midnight. That weekend, we had our first date, and since then, we’ve done just about every cave trip together. Three years after that first date, we were married.

While we’re not into a lot of project caving, we have done a bit. I was newsletter editor for the Fern Cave Project and went on a number of survey trips. I’ve been to Mexico on Gerald Moni expeditions four or five times, while Julie’s made it south of the border once. We’ve done a trip or two into Mammoth with the CRF, and last winter spent three weeks in Hawaii as part of a group locating and surveying caves for Hawaii Volcanoes National Park. I’ve also made two trips into Letchuguilla, once under the auspices of LEARN, and once on a private trip.

Currently, Julie is working on her electrical engineering degree at the University of Alabama, Huntsville, while I am still working at Intergraph, less as a technical writer and more as a web-training developer. We both love being in the outdoors or underground, and if we’re not caving (and studying, on Julie’s part), we prefer to be out hiking.
canoeing, or mountain biking—something to get us out of doors. I’ve served as Huntsville Grotto newsletter editor in the past, and I am currently a property manager for the Southeastern Cave Conservancy, Inc. I’m also involved with the Huntsville Cave Rescue Unit. Blanchard Springs Caverns.

Currently, Walt, a chemist-turned-carpenter by trade, keeps busy upgrading and managing the 20-unit apartment complex we’ve purchased. I’m a journalist at UT. We’re members of UT Grotto, both serving on the new member training committee. Additionally, I help edit Death Coral Caver, official publication of the Proyecto Espeleológico Purificación and occasionally contribute to other cave-related publications.

Walt’s favorite cave—so far—is Lechuguilla, where he’s been involved in both exploration and conservation activities. Mine is Carlsbad. But we look forward to spending more time in Mexico. After so many years of caving singly, we’re eager to see what the next 20 years, partnered, will bring.

Walt Olenick, NSS# 9782RL, FE Rae Nadler-Olenick, NSS# 31092FR

Wayne: Janet and I had lived together for about 5 years before we started caving. Now, 15 years later, three fourths of our time together has been as cavers. When I think back about all the cave trips we have been on (which we estimate to be well over 1,000 in 14 states, if we count all the little, crawl gypsum caves we’ve seen in Kansas), the thing that strikes me most is the fact that I have had someone to share all those caves and all that caving with. Not all cavers have the opportunity to have a caving partner who is perceptive to your style of caving, your size limits, your fears. But Janet and I, we have always caved as a team. Janet’s caution and intuition perfectly balances my urges to look just around the corner or to make that risky climb.

We know each other’s limits too. So when that decision is made to turn around and exit the cave, neither has any doubts as to the reason for the other’s decision to leave. We can tell by looking at each other when the limits have been reached.

Probably the best part has been that I have had someone to share with the awe, beauty, adventure, and inspiration of the underground. So, as part of caving couple, I am looking forward to many more years of learning with Janet, her belaying me, her screams at the rattlesnakes, and the secrets that we still share.

By the way, we have been NSS members since 1985, so besides all of our shared caving adventures, we also have an enormous stack of NSS News to look back at when we get too old to go caving.

Janet Williams, NSS# 26005FR Wayne White, NSS# 26004RE

Jen: After a trip to Alabaster Caverns in Oklahoma, we wondered why there weren’t any caves in Kansas since the rock looked the same. That was in 1984 and guess what? There are caves in Kansas. After writing the NSS for information about caves and caving, we contacted the Kansas grotto and met Arlin Pound. He introduced us to the world of caving and we followed him around for three years seeing every cave he would show us. That’s how it started for us and we have been caving together ever since. It works great to have a partner that has the same passion. Most of the time spent below ground has been the best time of our lives. Many caves later, we have learned that our differences and strengths make or break the cave trip.

Wayne: I met Jennifer my senior year of high school at a drama club meeting. It was a chance meeting, of sorts. The previous year I had attended another high school and was, essentially, kicked out. If that never had happened, we more than likely never would have met. I knew from the moment that I laid eyes upon her that she was “the beauty of my dreams.” We dated for about 5 years and in May of 1995, we were married in Louisville, Kentucky. In 1997, we decided to move to Lexington, Kentucky to further pursue our educational interests and that’s where we are today.

In the fall of '97, soon after we had moved, I was eager to find something to pass my time with when I wasn’t tied down with school. I went online and found that there was a local caving organization and I decided to contact them. I spoke to Jim Currens and was invited to attend a meeting of the Blue Grass Grotto. By the following weekend, I was underground and loving every minute of it. The caving bug bit me, so to speak.

Caving was such a wonderful experience, I decided that Jennifer had to come and experience it for herself. Our first cave trip together was to Crooked Creek Ice Cave in

Michael C Harper, NSS# 45172RE Jennifer H Harper, NSS# 45175FR

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Caving was such a wonderful experience, I decided that Jennifer had to come and experience it for herself. Our first cave trip together was to Crooked Creek Ice Cave in
Rockcastle County, Kentucky. From that point on, we have pretty much gone on every caving trip together.

In 1999, we were elected by our grotto’s membership to be on the executive committee. Jennifer was elected as the grotto secretary and I as the grotto vice president. We both enjoy being a part of this committee and have both put a lot of time and effort into helping the Blue Grass Grotto be a more successful organization. The caving world has transformed our lives and it is something we will continue to be a part of into old age.

Ken Storey, NSS# 23320RE
Lisa Storey, NSS# 36900FA

I had a head start on Lisa when it came to caving. My father introduced me to my first cave at the age of nine. I wouldn’t meet Lisa until 1985 while I was in graduate school. We happened to be taking the same early morning photography course. She enjoys the outdoors as much as I do and it wasn’t long before we were hiking and white water rafting together. So it only figured that caving would come next.

We married in September 1987 and drove out to New Mexico for our honeymoon. Of course our first stop was Carlsbad Caverns. We also managed to find an ice cave at Bandera Volcano west of Albuquerque. Thus started our joint ventures into caving. Lisa’s first wild caving trip was the Cumberland Caverns historic route during the Cumberland Caverns Christmas party in 1988. Despite of, or most likely because of the mud and tight squeezes, Lisa fell in love with caving. After that we started going mainly to the big events such as the regionals (SERA, TAG, Speleofest, OTR) and the annual NSS Convention. Our first was the 1992 Salem, Indiana Convention. Lisa and I have been going to Conventions ever since, missing only one. We joined our first grotto in 1993. Through our good friend, John Taylor, we became members of the Pine Mountain Grotto, KY. We’ve helped survey caves, host a regional (VAR), and walked in virgin passage (our caving high point) with our grotto. The highlight of our caving experience, organizational-wise, would have to be this past summer when we took part in the Idaho Convention. As part of the Convention staff we learned just how much work goes into setting up a national Convention.

I would not have guessed that caving would figure so prominently in our life. Now I am currently co-editor and layout designer for the Pine Mountain Fault, our grotto’s newsletter, while Lisa serves as proofreader. I have also combined my enjoyment of caving with that of my art and have been creating speleo-art for the past five years. I am currently a member of SpeleoArt and the Arts and Letters Section. Our shared love of caving and our caving friends has definitely added a wonderful dimension to our marriage. I couldn’t imagine it any other way.

David McClurg, NSS# 4608RL, OS
Janet McClurg, NSS# 9301FR, FE

David began caving in the late 1950s on a Caribbean island honeycombed with caves. Janet joined him underground in the 1960s when we settled in California. Since then, we’ve caved in karst areas all over the country. For a time, we were even considered borderline hard-core cavers. It shouldn’t be a surprise that most of our friends are cavers.

All long-weekends, vacations, and travel opportunities involved caving and cave photography. We’ve always been active in Grotto training too. In 1983 at the Bend Convention, David conducted the first vertical workshop. We ran that workshop with volunteer instructors for thirteen years. As part of our training effort, David wrote three how-to-cave-good books, the most recent being Adventure of Caving. Janet never got immersed in speleo-politics; but David made up for that in spades—NSS Board Member, Administrative Vice President, chair and co-chair of two conventions, chair of Program and Activities and Public Relations Committees, and coordinator of several regional educational seminars. Currently, as Special Publications chair, he designs and produces NSS books like On Rope, Caving in America, and Cave Minerals of the World. Janet has composed many cave ballads for the Cave Ballad Contest and performed with the Hodag Band.

In 1985, we moved to Carlsbad, New Mexico (premier caving country) where we caved the limestone, gypsum, and tectonic caves of the Guadalupes. Along the way we caved in Mexico, Germany, Switzerland, Spain and even some underground limestone quarries under Paris.

Our three children were introduced to caves at age four, so we became a caving family. Perhaps the most excitingly active time as a caving family was during the discovery and exploration of the Gaping Holes Lava Tube System in the Medicine Lake Highlands of Northern California. Both of us have now passed the big seven-oh.

It’s been a great life, mainly because, as Janet’s song says, “...caving together is still the best way.”
Caving skills improved. The adventures that the pictures. These pictures show adventures but the children have explored as many family of cavers they think of only easy trips adventures. Often when people first see a extraordinary people and had some great not involve any conflict with landowners. In parts of the country (west is just about the little known, out-of-the-way caves that do vacation). Most of the caves that we do are only direction from Maine for a long years card will be from Missouri’s Big Hamilton Cave. My daughter Melissa is now a senior in high school and has decided to use a caving picture as her graduation picture, which will give you some idea of her interest level in caving. She has done a number of virgin passages and caves, taking great pride in her skills as a caver. She is slow to explore but leaves no passage unexplored, finding fascination in bats to the point that her friends at school sometimes jokingly call her “cave girl.”

My son Kyle never really liked caving until after a trip he started looking at old NSS News and decided that it might be nice to do a little caving in Missouri. When we went for the first time we stopped at a park asking for a key. He took great pride showing the ranger all the gear and how to use it before we could get our permit.

While we are not high-profile cavers, we do manage to go caving between 30 to 40 times each year. We are both schoolteachers so it gives us our summers to head west with our family to do a little caving in various parts of the country (west is just about the only direction from Maine for a long vacation). Most of the caves that we do are little known, out-of-the-way caves that do not involve any conflict with landowners. In our adventures we have met some very extraordinary people and had some great adventures. Often when people first see a family of cavers they think of only easy trips but the children have explored as many caves as most adult cavers. The nice thing about caving as a family is looking back at the pictures. These pictures show adventures as the children have grown older and their caving skills improved. The adventures that we have had as a family will be something the children remember forever.

Eric Hendrickson, NSS# 43633RE
Elaine Hendrickson, NSS# 43634FA

My wife, Elaine and I started caving in 1971 while we were in college. The caves that we did were small but they started a love for the underground that has carried on and increased, as our family has become more involved. We have continued to explore ever since then. Now each year as we explore we try to take a picture to be used as a Christmas Card of the family. Our summer adventures Christmas pictures have been taken in New Foundland, New Brunswick, Quebec, Montana, South Dakota, Indiana, New York, Maine, and this years card will be from Missouri’s Big Hamilton Cave.

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Jo Schaper, NSS# 27624FL, FE
Eugene Vale, NSS# 19197RL, FE

An old saw common in the military, says, “Don’t ever volunteer; you never know what sort of a mess you’ll get yourself into.” Well, I can second that, since it was a volunteer opportunity at a local park which catalyzed one more caver marriage.

In 1992, after having been a member of Meramec Valley Grotto for six years, and a “pizza buddy” with Eugene Vale, a fellow caver of 15 years standing (with St. Louis University, Middle Mississippi Valley and Meramec Valley Grottos in St. Louis over that time), we began our interesting adventure.

In January, 1992, Eugene, (who has worked for Onondaga Cave State Park Missouri as the naturalist since 1984) made a call for caver volunteers to assist at a park sponsored open house in February, including tours of the cave. Since it was the off season, no staff were available for tours. The plan entailed being at the park on Saturday for an orientation, followed by the open house on Sunday. I volunteered.

Suffice to say Eugene and I hit it off that weekend, though both of us denied it like the very plague itself for some time after that. After a courtship of six months, including a trip to the 1992 Convention in Indiana, we decided that driving 80 miles one way for a weekend simply wouldn’t do anymore.

We decided to be traditional and have a Catholic wedding. Trouble was, it would have to be a caver wedding, too. The difficulty was that his parish, being a rural one, had no resident priest. What to do?

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Well, one of the reasons we became fast convinced that this marriage escapade was preordained was this: while we were making plans, Eugene received a letter from Paul Wightman, NSS 835FE. Paul is well known through the caving community for his work in radio location at Wind and Jewel Caves in South Dakota; he is also a Midwestern caver and thoroughly nice guy. In the letter Paul indicated he was moving into Missouri, and inquiring whether Eugene had any need for radio locations at Onondaga. Imagine his surprise when Eugene called him back and said, yes, there was a location which needed doing, and by the way, what would he think about officiating at a wedding for two cavers? In his other life (nearly all cavers have other lives, you know) Paul is better known as Fr. Paul Wightman, OMI, a Catholic order priest.

So now, we had a priest, and a church. But we still needed to do this up caver style. What would my mom think about her daughter getting married in a cathedral? Well, even that was arranged, as half of the ceremony was scheduled in one—Cathedral Cave. This was somewhat unusual, as the invitations exhorted everyone, caver and non-caver alike, to bring a covered dish, and a source of light! We were married first in a church, in street clothes, and then, we had our own ceremony, in matching white coveralls, in the cave. (Ok, quit snickering.)

With such an auspicious beginning, it is no wonder that we are still going strong, almost seven years later. Caves are as much a part of our lives as television is to most people, inextricably bound up with nearly all we do. We hope we are giving back as much as we are getting from sharing a life and an obsession, never knowing what new karst adventure lies for us around the next hillside.

J ean (Creature) Krejca, NSS# 33083AS, J M
Vivian Loftin, NSS# 34681RE

Surveying in the latest terminal constriction in the bottom of Cuchilla Cave in the high mountains of Mexico was our first caving trip together. The trip to the end-of-survey was a beautiful series of flowstone-adorned pitches, but the leads were muddy tubes beyond tight bellcrawls. What we both appreciate about caving, though, is not so much the nature of the cave, but the nature of the cavers. Cave entrances seem to have a way of stripping away societal norms and allowing the more important fundamental qualities of a person to show through. Life-entrusting situations and the shared lure of the unknown lead to strong friendships formed quickly, and suddenly it doesn’t matter that the next caver’s religion, occupation or lifestyle is different from yours.

Creature: I began caving in 1990 in Little Egypt Grotto, IL, where I started surveying and biology projects in the Shawnee Hills and Ozark Plateau. Now my exploration has expanded to virgin sumps and long camp trips in Central and South America and Southeast Asia, but focuses on cave biology closer to home in Texas and Mexico.

Vivian: I fund my passion for caving as a landscape architect. Slow winters and a willingness to quit my job if necessary have enabled me to feed the craving for virgin cave in New Zealand, England, Mexico, and Borneo, as well as my favorite, Letchuguilla
Cave. I found organized caving in the crawlways of California’s Mother Lode region in 1991 and immediately thought I’d found my calling. Then I found Creature at the NSS Convention in Sullivan, Missouri and knew I had.

Jennifer Otto Zedalis, NSS #38692RE
Tim Zedalis, NSS #43589FR

Tim and Jennifer have been caving seven years, almost as long as they’ve been together. In fact, Tim introduced Jennifer to her first ‘wild’ cave in a Florida quarry when they were both novices. She took the ‘you should check this out’ to extreme and found the smallest tightest lead to see where it would go. Although it was cold and wet, she never forgot hopping out into a big chamber full of bats, having kept voice contact with Tim. Tim managed to squeeze through a larger alternate route and both of them were hooked. They even gave up that evening’s lecture by the Dahli Lama. (Thus, began many years of ferreting out the tiniest of leads.)

Soon Jennifer found her way into the fascinating world of cave diving and they found both the FSS (Florida Speleological Society) and NSS. They both became active in the FSS doing cave cleanups, leading novice trips, cultivating landowner relationships, and the joys of exploration and mapping.

Then they began to branch out, discovering the plethora of caves in the TAG area and began the first of two epic camping and caving trips across the US from Florida to British Columbia. Along the way they explored caves in GA, TN, AL, KY, MO, SD, WY, MT, ID, CO, NM, TX and enjoyed the warm hospitality of cavers across the country.

Tim and Jennifer have now relocated to western TN and enjoy the comradship of cavers from the Ozarks to the Smokies.

Steve Langendorf, NSS # 46230FR
Sammi Langendorf, NSS # 46229RE

Sammi and I have known each other all of our lives—literally! Sammi’s dad was my parents’ best man in their wedding. I used to throw rocks at Sammi to keep her from following her older brother and me on our trapping and hunting adventures. Little good that did, huh. She finally got me pinned down (or vice versa) twelve years ago. We love adventure and challenge.

A few years ago I took one of my classes (I’m a middle school teacher) to Wind Cave for an ecological day. I am terribly claustrophobic, but once the elevator doors opened, it seemed comforting and exciting to be in a cave. About 3 months later, while turkey hunting, I came upon a “wild” cave called &G Cave. I later took my wife and some relatives up there on a picnic and we eventually ventured in the 30 inch opening armed only with a few cheap flashlights.

Anyone who is a caver knows how we felt. It was awesome. We looked tirelessly for new caves and finally heard about the Paha Sapa Grotto. We went to a meeting and actually got to take a short (4 hour) tour in Jewl Cave. Fortunately for us we learned a ton about safety and caving etiquette on that first “real” trip.

Other than hunting, caving has completely taken over our lives . . . Isn’t that strange? Living in Custer and being cavers, it didn’t take long for us to become friends with Herb and John Conn. It wasn’t long before Jennifer had written a song about Sammi (5’3”, 150 lbs) and I (6’6”, 236 lbs) called “Never Go Caving With Anyone Smaller Than You.” They always tease me about having to sit and wait, while Sammi checks out a lead that is too small for my long old body. Needless to say, I have learned how to really push my limits in terms of getting through the tight stuff. When I finally made it through the “Miseries” in Jewl Cave, I could safely say that I was the biggest caver to make Metracal Cavern.

Our Grotto has been awesome, to say the least. They made every effort to make Sammi and I feel comfortable and knowledgeable about caving. Myk Coughlin, Mark Ohms, Mike Hanson, Steve Baldwin, Mike Wiles, Rene Rogers, and the entire Paha Sapa Grotto have made this new passion a life-long love affair with caving as far as Sammi and I are concerned.

Kim Metzgar, NSS# 32145RE, PH
Tom Metzgar, NSS# 24673RL, PH

When news of our elopement spread five years ago, the daughter of caver Bob Eppley said that Bob should have been our “maid of honor.” We met at a caving presentation Bob gave back in 1989 and did our first cave trip together with him to a newly-discovered western Pennsylvania cave (it was only the third trip ever into the cave). We discovered that we had each been collecting items and had each separately planned a history book on Bear Cave, which has been in Kim’s family since the early 1970s. That book was delayed due to other projects, like Caves of Westmoreland County, Pennsylvania (MAR Bulletin 20), which documents 22 percent of the state’s known caves; and the 1997 Speleodigest, which Kim edited. We jointly received the Peter M. Hauer Spelean History Award in 1997 for MAR Bulletin 20. We both took a turn at editing the Loyahanna Trogloyte, newsletter of Loyahanna Grotto, for about four years each (at separate times), and have recently “retired” from active grotto duty to devote more time to cave conservation and our Mid-Atlantic Karst Conservancy.

For us, caving isn’t just an activity or hobby—it’s a lifestyle. We pursue caving projects passionately: conservation, surveying, history, ridgwalking, digging and collecting cave-related information. We plan our vacations around the NSS Convention and OTR, and have caved in over half the US states and visited nearly all of them, as well as Mexico and the Bahamas. We enrich our lives by traveling to alluring places far from the beaten path. Likewise, we meet fascinating people and develop warm friendships with cavers from all over. We sometimes return from caving trips so excited that we suffer from self-induced insomnia caused by staying awake talking and thinking about our discoveries and projects. Our German shepherd Nate, now 14, has been in more caves than most grotto members. Kim’s late sister Jackie also married a caver, Jack Reed. They met when we prosecuted a cave vandalism case at Bear Cave, and were married for seven years until her untimely death last year.

We hear people offer excuses that they “don’t have time” for a lot of caving, yet they recite all sorts of TV characters and detailed information about current pop culture figures. We don’t have time to watch TV, and in fact, we don’t even own one! We’d probably fail at a “mixed marriage” between caver and non-caver because a non-caver spouse couldn’t understand our speleophilic obsessions.
Cave Diving

Diving in the constricted entrance of Florida’s Devil’s Ear, where the passage suddenly constricts and water powerfully charges to the surface of the Santa Fe River, is described as “like crouching in the aorta of the world” in the March 1999 National Geographic. The state’s 320 springs are part of a huge limestone aquifer. The largest 97 springs daily release 7.7 billion gallons of water, more water than is consumed by humans in the state. The average length of time that the water has spent underground is 20 years. The amazing water quality of these springs, “gin-clear water,” has encouraged growth of a recreational industry. People pay to tube, canoe, swim, and SCUBA dive in the springs and their outlet streams, and mermaids still perform at Weeki Wachee Spring.

The water quality of the springs serves as an indicator of the quality of the surrounding environment. Efforts of cave divers have expanded knowledge and understanding of how the springs work. And probably just in time, according to a US Geological Survey geochemist. Dye tracing and diving has linked the beautiful resurgent springs to polluted, trash-filled water sources. Cave diving continues to be a successful key. For example, the well-known Woodville Karst Plain Project has pushed the surveyed length of cave passage to 300,000 feet.

Photography during cave dives is challenging to task-loaded divers. Most opt to merely attempt snapshots. Serious photography requires intense pre-dive planning and teamwork. A reconnaissance trip without cameras is often required. The non-photographer typically works gap reeds as well as keeps an eye on the photographer’s depth. Too much concentration on composition can cause an unplanned dive profile. Diving in Devil’s Eye, FL, offers the opportunity to photograph fossils. (Immersed, Spring 1999.)

Exploration

The 1994 Huautla expedition serves as a useful model for projects which place participants in stressed environments. This effort certainly placed cavers in a highly stressful environment. They had to employ vertical caving and cave diving skills in a hostile environment that included cold, noise (a 100 db waterfall), dampness, cold (64°F), and of course, darkness, which deprived participants of circadian clues for up to 44 days. Fatigue from the length of the expedition, two-and-a-half months, coupled with the stressors of worry about injury and death, caused the team to break up over time. The original 15 divers was reduced to three at the end of the field work period. There was one death. A diver drowned apparently due to complications from diabetes. A second diabetic caver, a support team member, experienced a hypoglycemic event requiring resuscitation by the team physician. “The issue of honoring personal decisions to put oneself at risk without assessing mission impact is one of the unresolved legacies of this expedition.”

The death places the expedition into two clear phases. Prior to the death two divers departed for the surface for a rest period against the wishes of the expedition leader. This may have exacerbated discord in the group. While complete psychological information is not available, some participants exhibited personality characteristics suggesting good group dynamics, while others did not. This broad spectrum in individual behaviors may have contributed to the discord before the death. The expedition log contains largely negative observations with respect to human interaction. The number of participants greatly decreased after the death, and animosity lingers. The two remaining divers did push the final sump and added a great deal of passage to Sistema Huautla. The 1994 expedition leaves several issues open for debate. How should one’s personal desire to accept risk be subordinated to increase the probability of mission accomplishment? How does a person’s definition of a level of acceptable risk become modified when in a stressful environment? How is success measured: length of passage explored or avoidance of catastrophic losses? These questions have relevance whenever man pushes into challenging environments. (Human Performance in Extreme Environments, September 1998.)

A May 27, 1999 Denver Post article discusses the state of exploration. Besides remote jungles and mountains, underwater caves are listed as one of the few remaining major unexplored regions. Nohoch Nah Chich, Yucatan, Mexico, has been pushed to 32 miles, but more passage waits explorers. The Wakulla Springs, Florida, project is cited as one of the National Geographic projects mentioned. A list of major discoveries of the century includes Lascaux Cave, France, in 1940, Qumran Cave, Israel in 1947 (location of the Dead Sea Scrolls), and Chauvet Cave, France.

Cave Surveying

The National Park Service is interested in having a high precision map of Oregon Caves National Monument for conservation work. A survey company scanned a room in the cave, the J oaiquín Miller Chapel, as a promotional test of the Cyrrax autoscanning laser system. This system is designed to record complex structures employing both a laser scanner and a video camera. The laser shoots 800 points per second then uses software to place a polygon mesh over complex surfaces. Only 18 Cyrrax scanners have been manufactured. (POB, July 1999.)

Commercial Caves

Colorado dwellers have two commercial cave operations to visit in their state. Fairy Cave reopened to visitors in May. The cave had been a commercial operation by 1886. Electric lights were installed in 1887, making it the first cave so lit. Commercial tours ended during World War I. Gated since then, the cave was occasionally visited. Steve Beckley surveyed the cave. Pushing beyond the originally known section he mapped 2.5 miles of passage, then leased the cave and started the current operation. He developed the adjacent Glenwood Caverns and for $10 for adults tourists see both caves. One highlight is where the Fairy Cave passage emerges in a cliff face 1,200 feet above the Colorado River. Young boys opened Cave of the Winds in 1880. It became a tourist operation in 1881. For $12 adults may take a 50 minute tour. They also offer a lantern tour and an “Explorers Trip.” (Denver Post, April 17 and May 30, 1999.)

The price of visiting Kartchner Caverns, Arizona, isn’t cheap. Adults will fork over $12 and pay $4 for children four to fourteen. Parking will add $10 per car, with an additional dollar for each adult above four inside. Park officials point out that the price is comparable to the cost to see a movie and propose that its fair for a tour of one of the top ten caves in the world. The development of the cave has cost $26.4

www.speleoprojects.com
million, $9 million more than planned. The cave is expected to take in $2.1 million a year with operating costs of $1.5 million. The opening of the cave may add $17 million into the local economy. Only half of the planned tour routes will be opened this November. The balance of the developed cave passages will be on a separate tour and won’t be open to the public for several years. On the tour will be what is billed as the world’s longest soda straw. It is 21 feet long. During development one worker snapped off a soda straw, resulting in being charged under the state’s cave protection law. If convicted he could be fined $750 and receive a four-month jail sentence. (The Arizona Republic, January 22, 1999 and April 16, 1999, and the Anchorage Daily News, July 12, 1999.)

Jeanie Place and Blaze Cunningham were husband and wife geologists working in the oil industry when lack of job security rekindled a pipe dream of Place’s of owning a cave. Place had worked her way through college and graduate school at Crystal Cave, Spring Valley, Wisconsin. Taking the plunge, they purchased the cave from the elderly couple who had operated the cave since 1942. The previous owners hadn’t kept the operation modern—their parting advice was to consider advertising on FM radio since many new cars have that kind of receiver. The work was demanding, and the pair took part time jobs in the off season to keep afloat. Now they host 35,000 visitors per year. When school is in session they have between three and five student groups visit daily, testimony to their success in turning their operation into an educational resource. The tour shows 1,300 feet of the 4,000-foot cave. (AAPG Explorer, April 1999.)

The 165-foot free rappel into the entrance of Moaning Cave, California, is the highlight of the cave tour described in the January/February 1999 National Geographic Traveler. But the most uniquely named passage, Godzilla’s nostril, is left to the reader’s imagination. The cave was named by Indians who heard the sighs created when dripping water forced air through small openings inside the cave.

The entrance easiest to negotiate into Sunny Jim Cave, La Jolla, California, is an 80-foot hand dug shaft. The cave itself is a sea cave. At the turn of the century the original owner, an eccentric geology professor, hired two Chinese laborers to dig the entrance tunnel from the bluff above. He wanted to create a tourist attraction. It opened for business in 1902 and is the oldest continually operating business in town. The cave is named for the character depicted on the Force Wheat Flakes box, the British equivalent of America Wheatsies ninety years ago. (Record Searchlight, May 1, 1999.)

Mulu National Park, Malaysia, is opening three more caves to the public: Stonehorse Cave, Racer Cave, and Lagang Cave. These caves are actually entrances to the same system, along with Clear Water Cave and Wind Cave. The park, which opened in 1985, includes Deer Cave with its famous huge passages. (International Travel News, June 1999.)

**SPELEOLOGY**

NSS Fellow Professor John Mylroie provides the ‘’1998 Geoscience Highlights’’ for caves and karst in the July 1999 Geotimes. The key event for the year was the Friends of Karst meeting in Bowling Green, Kentucky, in September. Researchers from 16 countries examined the role of karst in the global carbon cycle. Karst plays a role in the balance of carbon locked up in rocks and carbon in the atmosphere as CO₂. Dissolution and precipitation of carbonates sequesters and liberates CO₂. Organically derived CO₂ also increases carbonate dissolution. Sulfate-based carbonate dissolution may release CO₂ by sulfate ion replacement of a carbonate ion. These mechanisms may have a significant impact on global carbon balances. Other topics at this conference were use of speleothems as paleoclimatic indicators, carbonate dissolution and precipitation models, and models of CO₂ migration in karst systems. Cave and karst subjects were also presented at the Geological Society of America and other conferences.

The NASA Ames Research Center has been conducting research in Lechuguilla Cave and Spider Cave, New Mexico, and Moville Cave, Romania. They consider the caves potential models for life on Mars. The red planet is surface dry but may have subsurface water. Microbes may exist. Moville Cave’s chemosynthetic bacteria are certainly potentially interesting. The researchers noted Lechuguilla’s U-loop stalactites: soda straws linked by a U-shaped connection. Noting similarity to some of Moville’s biological features, they suspect that the speleothems are artifacts of microbial activity. ([Harrisonburg, Virginia] Daily News-Record, January 30, 1999, and “Mission Underground,” The Learning Channel, February 14, 1999.)

Merlo Well is a cenote-like feature in central Italy. The cave is a vertical shaft with water surface 180 feet below the lip. The shaft is about 100 feet across and has been pushed to a depth of 230 feet, with the 60-degree water continuing. Study of the cave’s hydrology, ecology, and geology is underway by the University of Rome. (Immersed, Summer 1999.)

**ANTHROPOLOGY/ARCHAEOLOGY**

Footprints of a young boy were discovered by archaeologists in Chauvet Cave (Grotte Chauvet), France. The four footprints, pressed into clay, are loosely estimated to be at least 25,000 years old, making them the oldest known Cro-Magnon prints. Jean-Marie Chauvet discovered the cave in 1994. The art is magnificent, and the first examination of the works suggested that they must be recent because of their sophistication. The use of shading and perspective were thought not to have been developed until much later. Carbon dating of torch marks, campfires, and paintings has indicated the works are between 23,000 and 32,000 years ago. These dates were startling to archaeologists.

Study was delayed by legal action over ownership of the cave, but has begun to move forward. The French government has budgeted $1.2 million for logistical support and $175 thousand for scientific investigations over four years. Until walkways are installed workers are limited to the 50-centimeter-wide plastic path placed by Chauvet. Visititation is restricted to prevent altering the cave’s environment.

The paintings are amazingly well preserved and look like they were recently executed. Results so far suggest that the paintings were executed over a brief interval. The works that are more poorly executed seem to have been created by less skilled artisans, rather than showing evolution of artistic ability over time. Analysis of paint
blotches made by blowing pigment between the thumb and forefinger indicates that one set was made by a woman or a child, and another by a tall male. (Science, February 12, 1999, Anchorage Daily News; J June 10, 1999, and Marietta Daily Journal; J June 11, 1999.)

A letter to the editor in the May 7, 1999 Science argues that similarity in style between simplistic cave art from France and Africa suggests that man had developed “the capacities of synthesis and abstraction” 25,000 years ago.

**PALEONTOLOGY**

The February 1999 National Geographic warns that the increasing rate of extinction of species may lead to a sixth episode of massive loss of taxa. The first five are the Ordovician when 25 percent of families were lost, the Devonian when 19 percent of families expired, the Permian experienced a 54 percent family loss, the Triassic’s 23 percent of families, and the Cretaceous with a 17 percent loss of families. The antiquity of families expired, the Permian experienced a massive loss of taxa. The first five are the sensitive species, and the southeastern myotis bat, considered a species of concern. ((State College, Pennsylvania) Centre Daily Times, J June 24, 1999, and Marietta Daily Journal, J June 30, 1999.)

**BATS**

Researchers Bruce Miller and Michael O’Farrell continue to survey Belize’s Toledo District jungle for bats. Belize, roughly the size of Massachusetts, has fewer than 250,000 residents and is part of the Selva Maya, “the largest block of contiguous tropical jungle north of the Amazon.” Low human population and its strategic geography mean that this area is rich in species either unknown completely or not known to range here. Miller and O’Farrell use the Anabat II to collect bat calls. This commercially sold device converts the ultrasonic bat calls into audible tones as well as a digital signal that can be graphed and recorded by PCs. Use of bats calls for identification is the subject of some debate among chiropterologists. Some argue that the Anabat II collects only the major harmonics of the calls, preventing accurately discerning between species within a genus. Miller counters that experience allows accurate identifications. He participated in a blind study and successfully named up to 84 percent of species correctly. Graduate students using statistical techniques never achieved over 68 percent accuracy. Interestingly, bats of the same species, when hunting near each other, vary the frequency of their calls so they can distinguish their echolocation returns form those of other bats.

The pair of researchers also uses harp traps. These four-meter high traps have monofilament line running vertically in two parallel planes. The bats detect the first plane and fly in between the lines, striking the second, undetected plane of line. They fall unharmed into a bag, awaiting retrieval and identification. They even fish for bats. Using an ultraviolet light to attract moths, the largest are caught and hooked on a fishhook and a fly rod is used to move the bat overhead. The goal is to snag a bat wing as the animal tries to shovel the moth into its mouth. Hooking a bat causes small tears no worse than those the bats get flying through vegetation and allows capture of bats that fly higher than harp traps or mist nets.

The pair has assembled a large library of bat vocalizations over the last five years. While under some criticism for not releasing their recordings, they intend to do so eventually through a public access database under construction at the University of New Mexico. They have concerns though that those who have not mastered interpretation through intense fieldwork may misapply the bat call data. (Scientific American, J June 1999.)

Bats are extremely successful and wonderfully adapted to various environments. But how they got that way isn't well known. Bats don't preserve well. Their hallmark physical attributes, their wings and echolocating equipment, are fragile. Even their bones are delicate. They have rarely been preserved as fossils. Bats were beautifully preserved when they fell into lakes near Messel, Germany, and along the Green River in Wyoming. These fossils are 50 million years old. Younger fossils have not been found, and neither have any older fossils with protobats been recovered.

How did bats arise? One hypothesis developed by zoologist Brock Fenton is that echolocation developed before flight. Some tree shrews use ultrasonic calls to communicate. Perhaps an arboreal, echolocating species noticed reflections of their calls from passing insects. Reaching for them may have favored those with long arms and webbed fingers. Over many generations they began to glide to hunt and eventually developed powered flight.

Zoologist John Speakman criticized this concept of development of echolocation before flight. Studying perchcd bats, he found that echolocating required the bat’s metabolism to increase by a factor of nine, a huge cost. Then he found that echolocating while in flight had no additional significant energy demands. The bat’s wing flap naturally forced the rib cage to contract, providing a free rush of air for echolocating. This seems to indicate that flight developed first or flight and echolocation developed together.

In 1986 John Pettigrew proposed that megachiroptera, the larger of the two major bats taxa, were in fact flying primates, not...
The devotion to bats by Dr. Merlin Tuttle is highlighted in the September-October 1999 Modern Maturity. Readers of this column are likely well aware that Tuttle is the founder of Bat Conservation International (BCI). As a youth in Knoxville, Tennessee, bats living in a nearby cave attracted his attention—and have held it ever since. He founded BCI in 1982 to counter the decline in bat populations. One of the most public BCI successes was when the group convinced the city of Austin, Texas, to eliminate the bat colony living under Congress Avenue Bridge. The colony is now a large tourist attraction.

CONSERVATION

Study of the Devil’s Hole, Ash Meadows, Nevada, pupfish (Cyprinodon diabolis) continues with a focus on protecting the species. Most readers probably know the turbulent recent history surrounding conservation of the species. Developers pumping groundwater lowered the surface level in Devil’s Hole in the late 1970s. Unchecked, this would have exposed the top of a limestone block where the fish mainly fed and bred. Conservationists lobbied and the resulting legal battles pitted developers against activists, state rights against federal jurisdiction, and forced interpretation of protection of species as protection of necessary habitat. Nearby pumping was stopped, and the level rose again, but never to its original height.

Confounding understanding of the cave’s hydrology is that the water is fossil water, which fell about 8,000 years ago. Even distant pumping may still be affecting the spring. The water levels have been dropping again since 1989. Fish counts have been declining too, but interpreting the data is difficult since no one knows what the population was before pumping began.

The pupfish population is a remnant of the fish that once lived in the prehistoric lake above Devil’s Hole. When surface rivers disappeared, the fish retreated along with the water supply. So in a sense, there isn’t a healthy population level. The pupfish have adapted to the hot, salty, low-oxygen-content water that the lake water formed in the cave. The fish, which have struggled to survive for the last 10,000 years, may not survive our influence of a few decades.

The fish count is comprised of a surface count of fish on the shelf and an in-cave count by divers. Cave-certified divers accompany diving biologists for safety. The cave is no longer open to recreational diving, but when it was, two divers drowned and their bodies were never found. The cave has been pushed to a depth of 400 feet. (Discover, July 1999.)

A Bureau of Land Management (BLM) proposed land swap has aroused complaints from locals. The proposal is to swap state lands for federal lands to increase protection of caves at Carlsbad Caverns National Park, New Mexico. The BLM wants to obtain control of 8,198 acres of land adjacent to the park. Objections center on loss of land that is mineral-rich, resulting in less money injected into the local economy. (Carlsbad Current-Argus, May 4, 1999.)

The May 1999 Nature Conservancy reports that the Tulsa Regional Oklahoma Grotto gated two caves at the Eucha Preserve. The caves are in an Ozark parcel that is protected by the Nature Conservancy because it is habitat for the Ozark cavefish, gray bat, and Ozark big-eared bat.

The Nature Conservancy has agreed to produce a cooperative plan on fire management for Mammoth Cave National Park, Kentucky. The organization also conducted a bat count at their new hibernaculum near Kingston, New York. The count produced an estimate of 97,000 bats, of which 9,600 were endangered Indiana bats, a three-fold increase over the last count. They will also examine conservation and study measures of bats at Cornwall Cave, West Virginia. This cave is on property owned by Allegheny Power and is also an Indiana roost. The Indiana bat ranges from the Ozark Plateau, Oklahoma, to New England, but 75 percent of the bats hibernate in less than a dozen caves. The species’ population has
declined to a fraction of its historical high. (Nature Conservancy, September/October 1999.)

Cave Rescue

Thomas Nazzaro, a participant in National Outdoors Leadership School, was swept into a moulin, the glacial equivalent of a sinkhole, on Matanuska Glacier, Alaska, on July 11, 1999. The 17-year-old was on a month-long trip and was apparently gathering water from a meltwater stream when he slipped. The current carried him 15 feet along the surface and into the moulin. An Air Guard pararescue specialist was lowered 100 feet into the cave but did not see any evidence of his passage. He later described the cave as being like a luge run. State troopers used fiber optic cable to observe the first 225 feet of the cave but saw no sign of the youth. They suspended the search after three days, since there seemed to be no hope Nazzaro had survived that long. The cave’s passages were complex, and many side passages were examined. At the limit of the optical cable, the searchers pointed the camera upwards, revealing the view Nazzaro had if he was conscious. All they could see was light, “pure light.” (Anchorage Daily News, July 13, 14, 15, and August 8, 1999.)

Two 17-year-olds spent 10 hours in Nutty Putty Cave, Utah, when they became stuck in the “Birth Canal,” a tight passage. The pair was apparently rescued by the local sheriff’s department, which stated that the pair had been well-prepared. They suffered abrasions but were otherwise unhurt. The cave is popular but this was the first rescue required. (Anchorage Daily News, July 30, 1999.)

Miscellaneous

The August 19, 1999 New York Times announces the passing of Dr. Nathaniel Kleitman, the pioneer in the field of sleep studies. He discovered R.E.M. sleep, in which the eyes move rapidly in parallel with dreams. In 1938 he conducted an experiment in Mammoth Cave, Kentucky, to see if lack of daily environmental clues, like sunlight, would alter bodily cycles. One result of the research was the identification of the daily temperature cycle of the human body.

What may be a new category of speleogenesis is described in the March 21, 1999 We Alaskans. Ice flows tossed about at the water’s edge in Cook Inlet form large jumbles of blocks, some the size of houses. These form the marine ice equivalent of talus caves, which feed the imaginations of the author’s young children as they explore the caves.

A mummy stolen from a Filipino burial cave in 1918 was returned for re-interment. The remains were of a priest of the Kankanaey Tribe, who still live in a remote area. The group conducted funeral rites before laying the mummy to rest. It had been in the collection of the Manila National Museum. (The Arizona Republic, May 22, 1999.)

With no explanation, the January/February 1999 National Geographic Traveler contains a map of Tobago with the annotation “Crusoe’s Cave” ... Flooding in Romania destroyed “salt caves” at Slanic-Prahova Mountain, according to the June 24, 1999, Anchorage Daily News. They were a major tourist attraction, but no clarification is provided whether these were true caves or human excavations ... A July 12, 1999 Anchorage Daily News story about the conflict on the Indian-Pakistani border includes a photograph of an Indian soldier praying in a cave.

This month’s contributors: Larry O. Blair, Mike Cullinan, Kim Fleischmann, Bill Halliday, Immersed, George W. Moore, Jay Rockwell, Joel M. Sneed, Gary K. Soule, Jack Stellmack, Red Watson, James and Liz Wolff.

Reading

Alexicon of Cave and Karst Terminology, with Special Reference to Environmental Karst Hydrology


This is an extensive glossary of terms, compiled, somewhat haphazardly, from nearly two dozen previous publications. As promised by the title, the list is most thorough in English-language karst hydrology, but there are some foreign words, some pseudokarst terms, some caving terms, and a very few biology terms. The names of caves minerals come mostly from an old edition of Moore and Nicholas, and many are of little speleological interest. Some entries are peculiar, such as aisle, a mistranslation from the French, for a canyon passage, and words like knot or entropy or distortion that don’t have any special meanings in the field. The Government Printing Office managed to lose the last page, so half the references are missing. Still, the price is right.

A limited number of copies are available free from the Environmental Protection Agency’s National Service Center for Environmental Publications, PO Box 42419, Cincinnati, Ohio 45242, (800) 490-9198, ncepi.mail@epamail.epa.gov, or www.epa.gov/ncepihom/. After those are gone, they’ll be available for a fee from the National Technical Information Service, 5285 Port Royal Road, Springfield, Virginia 22161, (800) 553-6847, order@ntis.fedworld.gov, or www.ntis.gov/. Specify title and the publication number at the end of the first paragraph above.

Bill Mixon


Edited by Robert R. Stitt. National Cave Management Symposium Steering Committee; 1999. 8.5 by 11 inches, 250 pp, softbound. $10 plus $3 for shipping from NSS Bookstore; also available from other cave-book vendors.

I suppose the twenty-six-word title says most of what you need to know. Included are about thirty papers and nearly the same number of abstracts, plus guides to field trips in British Columbia. The most popular topic is forestry management in the karsts of British Columbia and the Alexander Archipelago of southeast Alaska. It is interesting to read an optimistic report by the U. S. Forest Service on its karst preservation guidelines and a disappointing report by the Tongass Cave Project on their actual implementation. One paper in this area is an excellent illustration of why the widespread availability of statistics software is not necessarily a good thing. Otherwise, there is the usual diversity of topics, including this time several papers from Australia, one of which describes the use of a remote-control infrared video camera in a bat roost as an educational and entertaining exhibit at a show cave.

Bill Mixon
International: In addition to providing information about bus and plane transportation to the upcoming International Speleological Congress in Monterrey, Mexico, the February 1950 N.S.S. News offered a novel service to members. “Efforts are being made to charter a reclining chair (train) coach exclusively for NSS members making the trip ... “

Meanwhile, from the other side of the globe, Bob Wrisley reported that “he visited five of the nine Jenolan Caves, New South Wales (Australia). ... he contacted the newly organized Sydney University Speleological Society ... (and) he made a second cave expedition to Yarrangobilly Caves near the Victoria border.”

“A Note From New Zealand,” in the February 1960 NSS News reported that “Miss Judith Kershaw, a 19 year-old Nelson bank clerk, yesterday was lowered 650 feet to the bottom of the main shaft of Harwood Hole, the deepest chasm in New Zealand. ... She is the first woman of the 20-strong New Zealand Speleological Society expedition to make the descent this year. ... A wonderful array of stalactites, stalagmites, and mud lily formations is to be found in the caves ... One group has been making an exploration of Gorge Creek. It came upon another deep chasm adjacent to Harwood Hole.”

“Going to Britain?” asked Bill Halliday in the February 1970 NSS News. “As for Scotland, there are limestone caves scattered fairly widely ... if you want to really see Scotland, spend a summer tracing the caves used by Bonnie Prince Charlie. ... we reached Yorkshire while the Craven Pothole Club had its winch in operation at Gaping Ghyl - a 340 foot vertical pitch with several miles of cave below ... southward is the Peak District. ... Peak Cavern ... is now commercial ... you next reach the caves of Wales and the Marches. Besides Dan yr Ogof ... south Wales had at least two great caves: Ogof Ffynnon Ddu and Agen Allwed.”

“Several discoveries in Mexico took place on the Thanksgiving and Christmas holidays of 1979,” according to Dale Pate in the February 1980 NSS News. “... a push was made on Sotano de las Calenturas ... to the south of Sistema Purificacion ... (the cave) was mapped for 3,438 meters in a five-day caving spree. ... a large group went to the Joya de Salas area where they did a traverse across the top of the Sima Grande to find a series of parallel shafts ... Slightly over one kilometer was added to Sistema Purificacion, bringing it to a total of 29,057 meters. Rumor has it that a large storm dumped lots of rain ... and caused water to flow out the entrance of Cueva de Infiernillo.”

“The skull sat upright, hollow, rooted to flowstone. Our lights shifted shadows in empty sockets. ... I was abruptly confronted by a complete skeleton. It lay sprawled on its back, in the dry bed of a pool that had encrusted every bone with crystalline calcite.” In Tunuchil Muknal, the stone sepulchre, a calcite river 20 meters wide “meandered from alcove to alcove, each alcove a site for other skulls or burials ...”. In addition to being a Mayan burial site, this cave, discovered in 1986 by Tom Miller, Marg Saul, Sheri Engler and Don Coons, upvalley from Xaateel Ahau, proved to be a significant component of the drainage system for the Mayan Mountain in Belize. In the February 1990 NSS News, Tom bemoaned the damage the cave had suffered subsequent to its discovery. When he returned in 1989, he found that “the nearly invisible route the three of us had set ... had been replaced with a wide smear of mud, centered on the white calcite river. The crystal skeleton now huddled in the one corner of its room that was not covered with muddy footprints.”

Who were these people anyway? Past issues of the News can shed some light on caving’s historic figures. The February 1950 NSS News reported that the West Virginia Geological Survey had recently published Caverns of West Virginia. “The material for this volume was assembled and written up by Wm. E. Davies, Chairman of the NSS Mapping Committee.” “Davies is a professional geologist ... who has also completed a similar study of the caves of Maryland ... Mr. Davies is the first person known to us to be listed as a Speleologist in occupation. ... The bulk of the volume contains a description of the physical features of about 400 caves, nearly all of which were visited by Davies ...”

“Russell T. Neville, of Kewanee, Illinois, was one of the early cave explorers. Before 1927 he was busy ... making motion pictures and taking superb still photographs in many of the notable caves in this country. By 1933 ... he had traveled over 2000 miles underground in over 175 caves ... One thing that makes his motion pictures particularly interesting was the fact that no portable electric lights were available. ... Consequently, he had to use powder flares. ... The flares were made especially for him ... were 72,000 candlepower and burned for approximately 30 seconds.” In the February 1960 NSS News, William Youden was raising funds for the proper preservation of Russell’s archive.

Ellis M. Jones provided “A Note about Stephen Bishop” in the February 1970 NSS News. “Frank Goring and Stephen Bishop ... crossed the Bottomless Pit ... (and discovered the main cave) making Mammoth Cave famous all over the world. Stephen Bishop also ... guided geologists, naturalists, and historians through the cave. ... a damn Yankee visited the cave in 1881 and saw a limestone marker at Bishop’s grave. He knew of a warehouse full of U.S. Government Yankee Surplus marble markers, one of which he had inscribed and donated as Bishop’s Grave marker. In my opinion, it is improper ... since he was never a legal or free man, (and) never in the Armed Service ...”

In the February 1980 News, Janet McCormick and John Meenehan reported that “… the National Speleological Society has received 17 impressive and historically valuable drawings of Schoolhouse Cave, West Virginia, for archival preservation. The creator of these drawings was Tom S. Culverwell (1901-1977), an early member, and later a fellow of the NSS. ... Cave exploration fascinated Tom. In addition to being a truly talented artist with a photographic eye, he was an accomplished technical rock climber and caver. ... The drawings ... represent a picture history of Schoolhouse exploration impossible to duplicate through photography ... (and) illustrate the climbing and caving techniques and equipment used 40 years ago ...”

Two-Bit Pit Cave
(continued from page 37)

seemed like some of the best food I’d ever tasted.

When we emerged from the cave, I was still riding on the second wind I’d gained after being stuck in the canyon. I felt pretty good, like I’d been on only an eight-hour trip. That changed when we got on the road. On the way to a celebratory breakfast, I kept falling asleep and hallucinating in-between. A tree trunk had fallen next to the road and been cut into several large logs. As I approached, the logs morphed into several German Shepherds looking at me. Then as I got closer, they changed back into logs. Bruce and Andrew, who were driving behind me, were very alarmed by my driving, but fortunately the restaurant was not far.

Afterwards, we realized that none of us had really suffered from the capture of the remote, although some of us suffered some capture of the tight in the canyon. The following day, I was sore, but I walked across the Indiana University campus feeling larger than life. I had accomplished the physically hardest task so far in my life, which built confidence. I am very glad I agreed to go.
CENTIMETERS IN DIAMETER. I AM NOT AWARE OF CREATIONIST ASSERTIONS ON SPELEOGENESIS, BUT THE BIBLICAL CALENDAR IS INCONSISTENT WITH THESE CONVENTIONALLY ACCEPTED RATES OF DEPOSITION.

EVIDENCE FOR EVOLUTION IS SEEN IN THE SIMILARITY OF DIFFERENT ORGANISMS. WE SEE CREATURES IN CAVES THAT ARE CLOSELY RELATED TO SURFACE FORMS, BUT HAVE ADAPTED TO THE CAVE ENVIRONMENT BY LOSING STRUCTURES, SUCH AS EYES AND PIGMENT, THAT ARE USELESS UNDERGROUND.

THE FOSSIL RECORD SHOWS THAT ORGANISMS INCREASE IN COMPLEXITY FROM THE LOWEST (OLDEST) FOSSIL-BEARING STRATA TO MORE RECENT, UPPERMOST STRATA. THIS DEMONSTRATES THAT LIFE HAS CHANGED OVER GEOLOGIC TIME FROM SIMPLE FORMS TO INCLUDE SOMETHING THAT IS HIGHLY COMPLEX. MACROEVOLUTION HAS OCCURRED. BY COMPARING FOSSILS WE CAN MAP THE GENERAL LINES OF DESCENT FROM ONE-CELLED ORGANISMS TO HUMAN BEINGS, CONTRARY TO THE ARGUMENTS OF CREATIONISTS.

THE SIMILARITY OF GENES IN DIFFERENT ORGANISMS ATTEST POWERFULLY TO THE UNITY OF ALL LIFE. HUMAN GENES CAN BE PLACED IN LIVESTOCK AND BACTERIA TO MAKE HORMONES FOR TREATING HUMAN ILLNESS. A HUMAN GENE CAN MAKE ITS PROTEIN MOLECULE IN A BACTERIUM BECAUSE THE MECHANISMS OF GENETIC EXPRESSION IN THE TWO ORGANISMS ARE SIMILAR, DUE TO COMMON ANCESTRY. THE DIVERSITY OF EYES HAS BEEN USED AS AN ARGUMENT IN FAVOR OF CREATION SCIENCE. IN FACT, THE FORMATION OF EYES IN ALL MULTICELLULAR ORGANISMS IS INITIATED BY THE ACTIVATION OF THE SAME GENE, EVIDENCE THAT ALL EYES, AND THE CREATURES THAT POSSESS THEM, ARE RELATED. THE MANY FORMS OF EYE THAT NOW EXIST HAVE EVOLVED OVER TIME.

COMPARISON OF DNA SEQUENCES CAN BE USED TO ESTIMATE THE TIME AT WHICH TWO SPECIES DIVERGED FROM A COMMON ANCESTOR. HUMAN DNA DIFFERS FROM THAT OF CHIMPANZEEs BY ONLY TWO PER CENT, GOOD EVIDENCE THAT WE ARE CLOSELY RELATED. OUR DNA AND THE FOSSIL RECORD INDICATE THAT WE AND CHIMPANZEEs SEPARATED FROM A COMMON ANCESTOR ABOUT FIVE MILLION YEARS AGO. BEHAVIORAL STUDIES SHOW THAT CHIMPANZEEs DISPLAY MANY TRAITS OFTEN CONSIDERED UNIQUELY HUMAN, SUCH AS TOOL USE, TRANSMISSION OF LEARNED BEHAVIOR, ORGANIZATION OF HUNTING PARTIES, AND CONCERN FOR KIN.

BELIEVING IN EVOLUTION DOES NOT MEAN DOUBTING RELIGION. MORE THAN 50% OF SCIENTISTS BELIEVE IN GOD, WHILE A SUBSTANTIAL MINORITY DO NOT. THE RATIO OF BELIEVERS TO NON-BELIEVERS IS SIMILAR IN THE GENERAL POPULATION. THE GREAT MAJORITY OF BELIEVING SCIENTISTS ALSO ACCEPT EVOLUTION AS THE ORIGIN OF LIFE. THE DECISION TO BAN TESTING EVOLUTION IN THE KANSAS PUBLIC SCHOOLS IS NOT JUST A THEORY. IT IS SUPPORTED BY SCIENTIFIC EVIDENCE, AND THERE IS NO SCIENTIFIC EVIDENCE WHICH INVALIDATES ITS GENERAL OUTLINES.

Davie J. McAdoo
NSS #16974

WE’VE HAD SPECIFIC REQUESTS FROM CHRISTIAN SCHOOLS WHO HAVE VISITED OUR CAVERN (CRYSTAL CAVERNS, VA) THAT WE “MODIFY” OUR TOUR TO EXCLUDE ANY MENTION OF GREAT EARTH AGE, OR EVOLUTION. SO I GRIT MY TEETH, AND WE DWELL ONLY ON THE RECENT HISTORY.

Bob Denton