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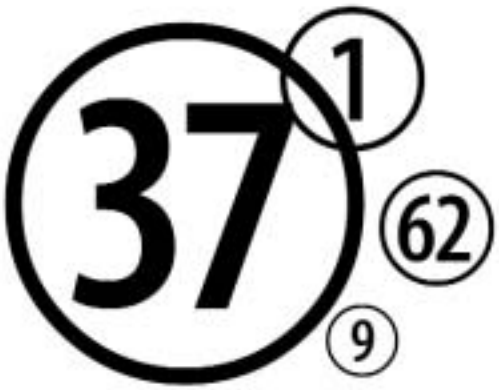

Cave Fonts

and the evolution
to in-cave electronic
sketching....

*Interview with
Stan Allison

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Exploring the “hard” side of Cave Digging, Cave Exploration and emerging techniques and equipment.

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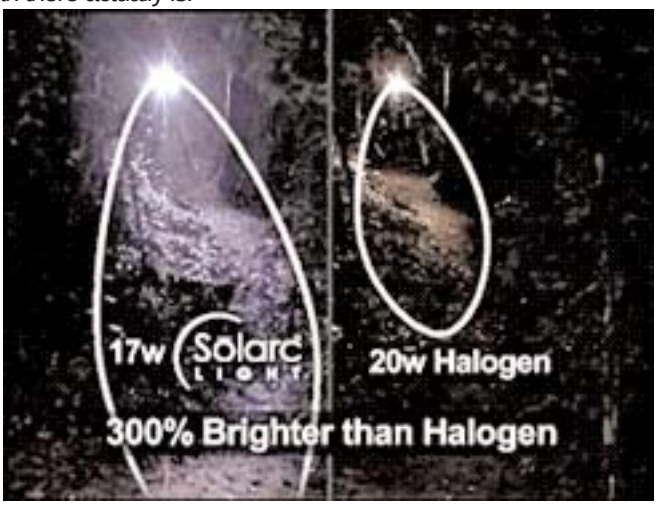
The H.I.D. Light---The Ultimate Exploration lamp.....

By Mark Passerby

H.I.D. is the acronym for High Intensity Discharge. It refers essentially to any arc (filamentless) lamp with high intensity. There are many types of H.I.D. lamps. Most highway and parking lot lamps could be described as H.I.D. as well as sports stadium and warehouse lighting.

H.I.D. lamps have an output of about 45~60 lumens for every watt of input power. Halogen lamps typically have an output of 15~20 lumens per watt. Thus, for the same wattage lamps, the H.I.D. will emit 3X the halogen lumens. Another factor in the measured brightness difference is the source size. H.I.D. lamps have a very small source size of only 1.2mm. This permits a much tighter projected beam and concentrates the emitted lumens into a smaller space. The H.I.D. lamp may appear much brighter again due to the daylight color temperature which tricks the eye into thinking there are even more lumens than there actually is.



Mount an H.I.D. on a cave helmet and you will be flat out amazed at the amount of light that is produced as well as duration.

Battery Pack--The battery pack relatively speaking is flat and amounts to 13 AA NIMh batteries encased in a soft plastic case. This fits perfectly in a pocket sewn in my suit on the left side(see photo below). The one slight drawback to the Nite RIder unit described and pictured here is the adjustable headpiece which doesn't do well if clogged with mud. This is why I carefully mounted my unit to rest perfectly on top of the DUO. This in my case is combined with a 10 LED and a 3 LED screw in bulb in the DUO to create a lightweight complete system. One set of batteries can easily give a total light system time of over 22 hours on one set of batteries and perhaps more if switching to the 3 LED more often. Special Cavers package is available at http://www.caves.com/hid

For cave videos, quick photography, and bottom spotting high leads and distant places the H.I.D. is the perfect light. It is super tough, super bright and a great addition to the explorers set of tools for locating new passage.

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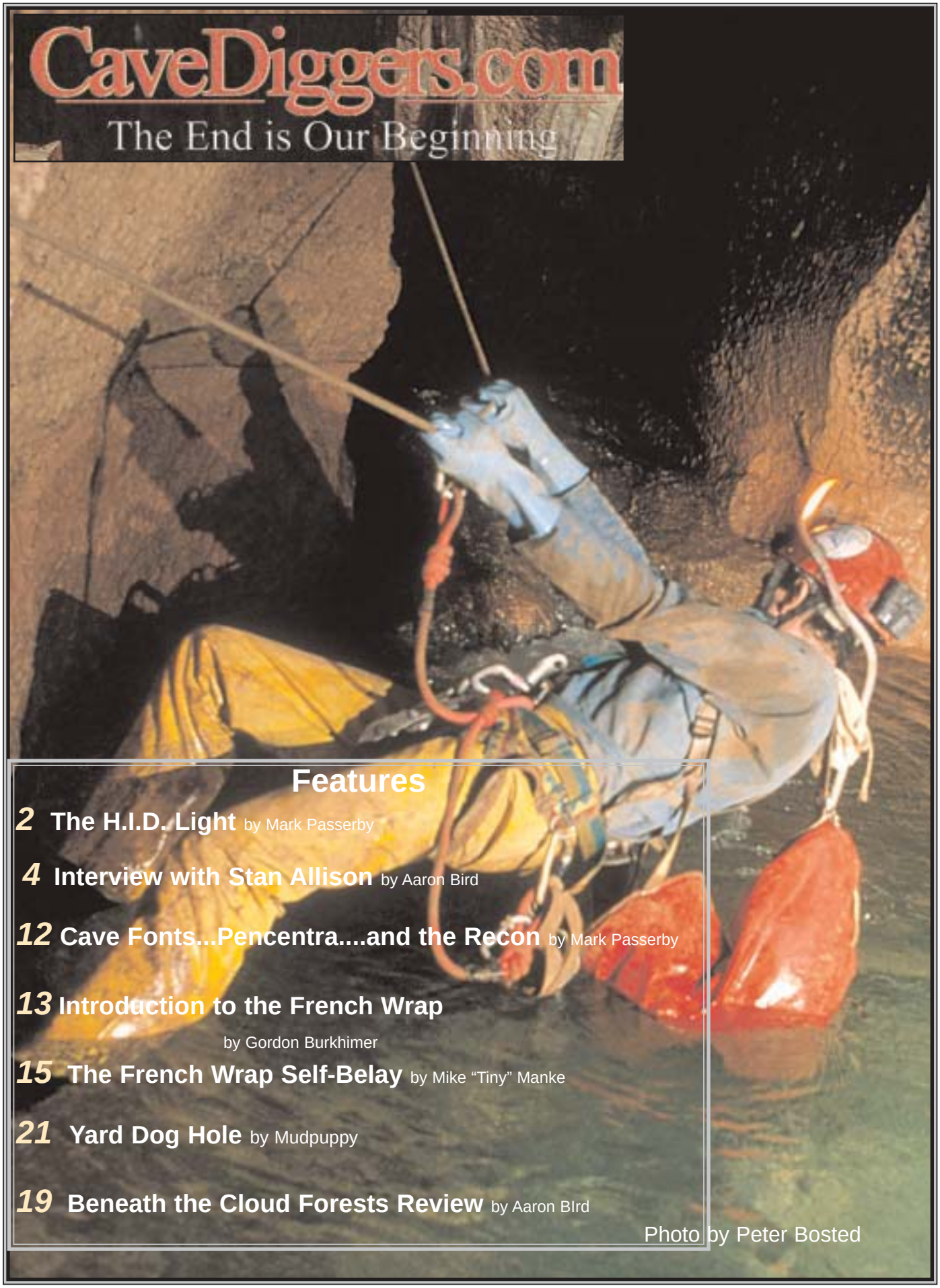
The End is Our Beginning



Features

Photo by Peter Bosted

Interview with Stan Allison, October 13, 2003

Interview by Aaron Bird and transcribed by Rachel Bosch.

Aaron Bird: Why don't we just go ahead and get started with the present? You work at Carlsbad Caverns National Park in the National Park Service as a Cave Resource Specialist, is that right? What does a cave resource specialist do?

Stan Allison: Well my real job description is called Cave Technician. Dale Pate is the Cave Specialist. There are four of us in the Cave Resource Office: Dale Pate, the cave specialist; Paul Burger, the Cave Hydrologist; then there's two cave technicians, Tom Bemis and myself. My responsibilities are managing most of the activities that take place in Lechuguilla Cave, including survey, research, and restoration, as well as rigging and management of trips that go into the cave. I also work with managing the survey data for Carlsbad Caverns. I also am involved with working with researchers in Carlsbad Caverns and other park caves. And I work with film crews. We get a lot of film crews at Carlsbad Caverns. It seems like a lot of people want to film in Carlsbad Caverns or Lechuguilla Cave, so I work with film crews a lot. And then I do "other duties as assigned," so there's a lot of other just miscellaneous job duties.

Aaron: How does one become a cave technician?

Stan: Well, the way I became a cave technician -everyone kind of takes a different path that's a cave manager now- but when I was in high school I came to the Guadalupes here on a caving trip on spring break and I met Ron Kerbo who was the cave specialist here at Carlsbad Caverns, and I remember thinking then when I was a high school senior that I wanted a job like his. When I went to college I found that they don't really offer cave management degrees, so I got a degree in park management and tries to get a job with the National Park Service and my senior year I got an internship up a Wind Cave National Park. I worked in interpretation for a summer as a seasonal and met the cave specialist at the time there, Jim Nepstad, and we got along great and I managed to get a cave management position created up at Wind Cave.

Aaron: So you went caving as far back as high school or before?

Stan Allison ascending a 100' deep, alpine pit in Alaska. Cave was explored and surveyed by Stan, Kevin Allred, and Stan's wife Gosia Allison-Kosior.
Photo by Gosia Allison-Kosior.

Stan: Yeah, I started caving in high school when I was a junior.

Aaron: And where was that?

Stan: I grew up in Colorado Springs, Colorado.

Aaron: Oh, O.K., so the Colorado Grotto?

Stan: In Colorado Springs it's actually the Southern Colorado Mountain Grotto. But I also did stuff with the Colorado Grotto out of Denver, and North Denver was the Front Range Grotto. So, I did things with all three of those grottos.

Aaron: I hear that they're pretty active grottos and pretty big, too.

Stan: Yeah, it's kind of strange that Colorado has some of the largest grottos in the U.S., but I think the Colorado Grotto has somewhere around 300 folks or so. It's a big grotto.

Aaron: So is Lechuguilla still being explored right now?

Stan: Yes, actually there's a group in the cave today. Exploration is still going on. It's been slowed down and a little bit more controlled than it was in the early days of exploration which I was also involved in, not as a park service employee, but just as a caver. But the exploration is still continuing. It's, you know, a big cave. It's going to be a long time before it ends. The exploration's at a stage where it's more of a mature kind of cave. It's not like the early days where you could just pick a lead and it went forever and went to big boreholes. Now folks have to work harder to find things. I still think there's a lot of neat stuff to be found, but they're having to plan more and be more organized and persevere a little bit more.

Aaron: What is the length of it now?

Stan: It's 110.7 miles.

Aaron: Wow. That's pretty big.

Stan: Yeah, it's a big cave.

Aaron: That puts it up there, raked what 4 or 5 in the country?

Stan: It's number 5 in the world and in the U.S. it's number 3.

Aaron: And it's deep, too, right?

Stan: Yeah, it's 489 meters deep, which is 1604 feet deep.

Aaron: I guess that that would put it as one of the deepest limestone caves in the United States?

Stan: Yeah, it's actually the deepest limestone cave in the U.S. But of course with all those lava tubes in Hawaii, it doesn't really stand a chance to compete with Kazamura at over 1km deep.

Aaron: So, Lechuguilla being so deep, does it have a lot of rope drops in it? Or is it a high-angle cave?

Stan: Yeah, it does have a lot of rope drops. I think it's actually a really fun cave for vertical in that there's a lot of drops, there's a lot of traverses, there's rebelays, but the neat thing about the cave is that it's not like the classic alpine cave or stream cave where you just go down and eventually hit a base level or something. You actually go down and then a lot of the exploration has been doing climbing leads to get to areas….for example, one of the major discoveries made in 1989 was the Aragonitemare and it's a 200 foot dome that was climbed from the bottom up and that led to the Far East

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section which is the current deep point and I would guesstimate there's probably 15 or more surveyed miles beyond that Aragonitemare Dome and probably more to be found. So, it's a fun cave in that you, when going to the deep point, which is 1604 feet deep, you actually go down to -1000' and then you climb back up to 750', and then you go all the way from 750' to 1604', which is kind of a see saw trip going out there.

Aaron: Wow, that's a lot of vertical. So, are the ropes left in the cave, or are they put there for each trip?

Stan: The cave is permanently rigged except for the entrance, and that just saves a lot of wear and tear on the cave and on the cavers. At this point, the Park Service owns and maintains all of the ropes.

Aaron: Do you have a replacement schedule for them?

Stan: I've worked at Carlsbad Caverns for the last five years, and one of the things I've been working on is a spreadsheet for all the ropes in the cave. With the help of folks who are exploring in the cave, I've been recording all the ropes lengths in the cave and the condition of all the ropes. A lot of them, we don't know exactly when they were first put in, so we're slowly replacing them and then keeping track of what condition they're in, what length they are, and what the rigging is like, and the schedule of replacement. I think last time I looked, there's over two miles of rope we documented that's rigged in the cave, but I wouldn't been surprised if there's another mile or so that we haven't gotten documented yet.

Aaron: Wow, that's a lot of rope right there. Now, Lech was - we call it Lech here in the east. What do you call it?

Stan: Lech

Aaron: So that's what everybody calls it. Well that makes sense. I've been to a few presentations that Pat Seiser has given. She's shown us lots of pictures of Lechuguilla, and I think maybe she called it that, too. Maybe that's where I picked it up.

Stan: Yeah, probably so.

Aaron: Lechuguilla was dug open. Were you involved in any of that initial work, or can you tell me something about it?

Stan: I can tell you about it. I wasn't involved in it. The dig started, I think it was in 1985. A group of Colorado cavers got together and started digging in there. The known cave was just about a 60 foot entrance pit and about 500 feet of cave before the digging breakthrough. But there was a tremendous amount of wind sifting around all this breakdown and sediment and it was Memorial Day of 1986 that they made the breakthrough, and so since May of 1986, we've had 110.7 miles of cave surveyed, so it's been pretty rapid exploration.

Aaron: What about digging in the cave now? Are leads pushed by digging?

Stan: In Carlsbad Caverns National Park, the cave management plan requires that if anyone wants to do a dig that they have to put a request in to the Cave Specialist. But at this point within the cave, there has been very little cave found by digging. I can think of one area called Southern Climbs that was found by Donald Davis moving a large rock, but as far as digging goes, I'm trying to think of any major discoveries that have been made my digging. One of the things for folks who haven't been to Lechuguilla is that there's really hardly any sediment or soil in the cave or cobbles. It's all just really pretty much bedrock or formations. So it's not like normal caves where you've got sediment plugs or cobbles plugging things up. In Lechuguilla what happens sometimes is you have formation chokes, and I guess someone could ask for permission to remove formations, but they're probably not going to get it in the National Park.

Aaron: Are there other caves being explored in Carlsbad Caverns National Park?

Stan: Carlsbad Caverns is being surveyed right now. The resurvey's up to like 22 miles, and the resurvey effort has been going on for about 10 years. Of source, you know as folks are doing resurvey, they're finding some new areas. However, nothing really significant has been found in the last 10 years, maybe half a mile of virgin cave here or there. The last big find in Carlsbad Caverns was in the early 1990's with Chocolate High being discovered, which was about a 300 foot climb from the bottom up to an area with about 2 miles of cave.

Aaron: How many caves are in the Park?

Stan: Right now there are 106 known caves in the Park, and at Carlsbad Caverns, the way we qualify a cave is that it has to be at least 50 feet long, and the entrance has to be not as wide as the cave is long. That eliminates some shelters that are in the park. For example, if there's something that's 70 feet long, but the entrance is 100 feet wide, that doesn't qualify as a cave. The park policy on caves is that we only discuss 12 caves in the park Carlsbad Caverns, Lechuguilla Cave, Slaughter Canyon Cave, and Spider Cave, which are all open to the general public on tours ranging from the paved trails to spelunking type tours, along with 8 permit caves which are open to recreational caving on a permit basis.. For the remainder of the caves in the park, we have a policy where we don't talk about their location or what's contained in them, mainly to protect the caves, because there have been some problems in the Park with people blasting in a blowhole without permission

Aaron: Hmm, which one was that? Or is that one of the one's that you don't talk about?

Stan: Yeah, yeah [laughter from both]. But I can say that there was some blasting going on, and the FBI got involved in the investigation, but I can't really go into a lot of details on it. That's just kind of an example of why we don't talk about a lot of caves in the backcountry, just to protect them from folks who might not follow the Park rules and not want to work with the Park and just do things that aren't legal.

Aaron: So, would that be classified as vandalism or destruction of property?

Stan: You could probably get it for quite a few things. It'd be entering a cave without a permit, which is illegal in the National Park. It would be damaging the resource, which is also illegal. I'm not a law enforcement person, so I don't know what else it could be.

Aaron: Have you guys had vandalism problems anywhere else in the National Park?

Stan: In Carlsbad Caverns, there's a lot of historical vandalism. Amazingly enough on

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the tour routes, there's still a lot of vandalism going on today from visitors on the self-guided tours. In the past there were some studies being done on how many formations were being broken in the main cave and I'm thinking it was about 2,000 formations a year.

Aaron: Oh my goodness. Have any of these vandals been caught and prosecuted?

Stan: Yup, some of them have been caught and fined. A couple of years ago we caught two guys off the trail in Carlsbad Caverns who had some soda straws in their pockets. I think the fine might have totaled $400 or $500, pretty big slap on the hand but still not a huge slap.

There have been some things in the park found by digging, but not a lot of digging goes on in Carlsbad Caverns, in the park, mainly because of the delicate nature of the caves. Just being in a National Park, there are stricter rules than in other places.

Aaron: Let's change gears. How about rescues? I know there's the famous one that Emily Mobley was involved in a few years ago.

Stan: One that I think is pretty impressive is when Peter Jones did a self rescue from Lechuguilla Cave. I can't remember what year it was, but he was out in the Western Borehole, probably about 2 miles from the entrance and was just standing near the Leaning Tower of Lechuguilla. He lost his balance and flipped and broke his ankle. It was kind of a weird fluke thing. He was able to splint it with the help of his teammates and he crawled out the two miles. He ascended all the ropes just using one leg. It was kind of funny because he so much wanted to avoid making a big fuss, that when he got to the entrance, he sent some of the other cavers to our office. I didn't work at the park at that time, and so I heard this second hand from Dale. Dale said that they came and they were asking Dale if he had any crutches, but they didn't want to say there was a rescue going on because they didn't want to get everyone all worked up. Dale said, "Well, we don't have any crutches, but why do you need crutches?" Peter had self rescued, and it was pretty neat. To be fair to Emily, she had a plateau fracture, which there's no way she could have self rescued. She had a real painful break. I'm sure it was painful for Peter, too, but he had a broken ankle, and he could splint that and still use the knee on his broken ankle leg.

Aaron: How about in other caves? Have there been any rescues?

Stan: Historically, I think it was 1918 or so, there was a guano miner that was leading trip into Ogle Cave on his day off. I think it was a Sunday and he was leading some tourists. Ogle has a 180 foot pit and the guano miners had ladders into the pit. A little over 100 feet down there's a ledge and he was below the ledge on that second set of ladders when some rocks got knocked down, and he ducked behind the ladder. He thought the rocks were clear and he looked back up and a rock hit him on the head and knocked him about 50 feet down to the floor. He lived part way through the night and then died. The next day Jim White, of Carlsbad Caverns exploration fame, helped with the body recovery. Other people have died in the caves in the park, but that's the only death that I consider a caving death in the park, because the other accidents were like a blasting accident when they were building the trails in Carlsbad Caverns, or tourists dying of heart attacks.

Aaron: Being in the National Park, I'm sure you guys have significant rescue training, in case something were to happen, right?

Stan: Yup, yup. In fact, every year we do a week long cave rescue training. We've got four people in our office that are cave rescue trained, but that's not really enough to do a big rescue. There's other staff in the park that are interested in caving, but right now we're kind of at a low point. There's not a lot of other staff that are involved in caving, so anything that would happen, like in Lechuguilla, we would definitely have to call out for outside resources.

Aaron: What is the number of trained rescuers in your part of the country?

Stan: There are some folks in Albuquerque. If I had to put a number on it, probably in New Mexico we might be able to come up with 40 or 50 folks, not all of whom could go very far, maybe not all the way to the end of Lechuguilla. So in reality if there was a rescue in Lechuguilla, we'd be calling folks from all over the U.S. It'd be a big deal, and we've been fortunate so far that we haven't had a big rescue recently.

Aaron: Maybe people are being more careful, and the training that they've had have had an impact on their caving practices?

Stan: Yeah, and I think some of it's probably just luck, but I first started going in the cave in January of 1988, and back in those days expeditions in Lechuguilla were as large as 70 people. Currently the maximum size for an expedition is twelve people. And as you can image with 70 people, there's going to be some folks that slip through the cracks that really shouldn't have been in the cave. There's even a story of a group that went into the cave, I wasn't involved in this, but they went in and didn't even have their climbing systems all tied up or anything. They had all the pieces, but they didn't have them assembled, and so someone had to help them assemble their climbing systems before they could get out of the cave. So, actually we're really fortunate there weren't more accidents in those early days.

Aaron: So, do you guys do an orientation or safety training or anything like that before people go on expeditions into Lechuguilla.

Stan: Yes, we usually do about an hour long orientation. Basically what we do is we go over the guideline training for Lechuguilla Cave where participants sign an agreement they will abide by those guidelines. The orientation is just a good way for us to communicate with cavers [about] what the park expects of them and also to get feedback from the cavers about what works, what's not working right and just to make sure we have good communication between the cavers and the Park.

Aaron: O.K., sounds good. Well, that's a lot about Carlsbad Caverns National Park, but you've caved elsewhere, right? I think you had mentioned Wind Cave?

Stan: I work here at Carlsbad Caverns and I was fortunate to participate in some really neat exploration in Lechuguilla Cave when I first started caving here in the late 80's, but to tell you the truth my favorite caving areas are elsewhere, which may sound crazy to people who are drooling to go into Lechuguilla Cave, but on my own time, I actually prefer to be in caves that are more robust and less delicate and more wet and

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vertical.

Aaron: Like Eastern caves for example.

Stan: Yup, I like a lot of the Eastern caves. I like going down to Mexico in those caves. And you just brought up Wind and Jewel. Wind and Jewel are still pretty weird compared to most caves, because they're dry maze caves, but they're not nearly so delicate as Lechuguilla Cave. You were asking about digging, and a lot more digging has gone on in Wind Cave and Jewel Cave. They both have significantly more sediment than Lechuguilla Cave. In fact, I think two of my favorite discoveries happened in the fall of 1991.

In Wind Cave, Paul Burger and some other folks and I had been spending the summer looking at the end of the cave which is about two miles from the entrance in an area called Silent Expressway trying to figure out where the air was going out there. When we started there in '91, folks really hadn't been doing that much work out there for the last five or six years, and we were real thorough about checking leads from the very end, trying to figure out where the air was going. We found a hole that was blowing, and I had to chip some small, cemented rocks out of the way of this blowing hole. That day we didn't find much more than 500 feet, but anyway eventually it led to a significant area called Southern Comfort where there's about 7 miles of cave now.

Aaron: Wow, that's a pretty significant find.

Stan: Yeah, and that's the most remote part of Wind Cave. There are still leads to be explored out there, and now that I'm down here there are other people that are doing the exploration out there now, but the area's still going.

Aaron: So you were digging in Wind Cave National Park?

Stan: Yeah, and it's the same at Wind - when we made that discovery, the digging policy at that point was to use good judgment. Now the policy is you need permission from the Park, but it's a lot easier to get permission there because the nature of the cave in a lot of areas isn't nearly so delicate as Lechuguilla Cave.

It was in September that we made the Wind Cave breakthrough, but in November, we were on a work trip in Jewel Cave, which was 85 miles long at the time. I usually love caving, but that week I had done about four trips for some hydrology studies we were doing, and I was actually getting kind of burned out. We went out to the far eastern end of Jewel Cave where there's a lot of air flow to get some manganese samples for the park. While we were out there we decided to go look at a lead that Mike Wiles had remembered.

It was Mike Wiles, Harry Burgess, and I. We looked at that lead that was blowing a lot of air and I started digging on it for a while and then Mike dug on it for a while and then I dug on it for a while and then suddenly I broke through. We went up a 40 foot climb and the next thing we knew, we were in like a 15-20 foot diameter passage that looked down a 30 foot drop into passage that was like 50-60 feet high and 20-30 feet wide, and we could feel the air in our face. So we climbed down that and ended up finding what at that time was the largest room in Jewel Cave. We scooped, I think, half a mile of cave that day. We found the biggest room in Jewel Cave at that time, Cloud Nine, which is like 500 feet long and probably 150 feet wide, and ended up getting lost on the way coming out, going down the wrong borehole, and ran out of water, so we had to pee in our carbide lamps. Anyway, it was quite a trip.

Jewel Cave is 129 miles now, and pretty much all the additional mileage has been found beyond that dig that we later named the stopper. That's almost 45 miles of cave out there, and it's still going really good out there. It's just that we're getting a long ways away from the entrance where we're exploring.

Aaron: Are camps required there?

Stan: Yeah, we started camping in 1997, and we're just doing four day camps out there. We're actually doing something that I don't know if it's being done anywhere else, where we're hauling everything out of the cave, including our urine and feces. Like I said Wind and Jewel aren't quite so delicate as Lechuguilla, but they're still, compared to most caves, delicate dry caves. So we're trying to minimize our impact on the cave. When we're in there for four days, we're usually hauling out like a gallon to a gallon and a half of pee on the way out, so that's one of the main reasons we limit to four day trips. It's about four miles to camp. We usually take anywhere from six to eight hours to get to camp on the first day. Then we usually survey something near camp, and the next two days we go out from camp and survey. Then on the fourth day we leave the cave. If we have one team, we usually come out with a mile, maybe a little less, and if we have two teams we usually come out with a couple of miles.

Aaron: Wow. That's pretty good rewards.

Stan: Yeah, that cave's amazing. It's actually probably one of my favorite places to be as far as exploration. Last January when we were there we surveyed about a mile at the end of the cave and still had really strong air in our faces. This is over six miles from the elevator entrance that we use, and if we'd come in the natural entrance, it would be closer to seven and a half miles. So, anyway, even from the elevator, it's a long ways out.

Aaron: So how much more potential is there? Is it miles and miles?

Stan: Yeah, it's pretty wild because Jewel is already big at 129 miles, but the air flow studies that Herb and Jan Conn did in the sixties showed that just a small percentage of the cave was known, so the cave could easily be over 1000 miles long. Whether or not we can go everywhere the air goes, who knows. But I think that's the cave that someday I'm going to be in a passage and the passage is still going and I'm going to be thinking, "This is the end. This is as far as I can go." I think it would be pretty neat to be in a cave and have that experience.

Aaron: Well, let's see. Those are Western caves. You have caved in the east, right?

Stan: Yeah, um, in fact for the last four years, I've been working with the group in the Omega System in Virginia. I started going out there in 2000. Mike Ficco and Ben Schwartz are the main leaders of that group, and I've been assisting them on week-long camps. Ben Schwartz's wife, Cori Schwartz used to work at Jewel Cave National Monument, and did a lot of exploration in Jewel Cave in that stuff beyond the stopper I was talking about. She was real active there and did a lot of exploration there, so when she moved out to Virginia to

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marry Ben, I managed to meet Ben, and that's kind of how we hooked up.

Aaron: That cave's a pretty big cave. Weren't you guys in there a couple months ago on a camp trip?

Stan: We were in there in July. I think it's about 18 ½ miles long now or something like that. It's a big cave, and I think it's the deepest in the east. I think it's 1270 feet deep, something like that. And it's pretty remote. It's a big cave in that you can get a long ways away from an entrance. I don't know the exact statistics on it, but we're doing cave camps in the cave, and we're staying in for about seven days, and on most trips we've been coming out with close to two miles on a week-long camp.

Aaron: What kind of passages do you see in there, in your surveyed sections?

Stan: It's funny because I haven't been in any other Virginia caves. So, to compare it to other Virginia caves, I really couldn't do that, but it doesn't have really huge diameter trunk passages, like I've read about in Friar's Hole. It has a long stream passage. I think one of the stream passages is close to five miles long or something like that. But they're not so big. In places, there are tall canyons, but they're not really boreholes, and it's a really complex cave because there's a lot of what we call meander mazes where the stream has meandered back and forth at different levels, and so there's these braided mazes. It's actually pretty complicated. There are streams in the cave. They're not really really large streams, but they are extremely long, and all in all the cave's pretty linear. It covers a long distance.

Another interesting aspect of the cave is that you have to be really careful with the rock. There are numerous places where slabs of the walls and or ceiling have fallen off at the slight touch of a caver. When I first started caving there, I thought that Mike and Ben were overcautious about the danger of the rock. That was before I saw a perfectly solid bedrock ledge that Mike was standing on drop out from under him 20 feet to the floor. Mike made an instinctive cat-like jump to the opposite ledge and avoided a near accident. Another place in the cave there is a large breakdown block that shifted and nearly squashed Tommy Shifflett called the Tommy Knocker.

It's a neat cave. I'm fortunate that those guys invited me to help with it. It's definitely been one of the highlights of my exploration in the last four years, helping those guys out with that project.

Aaron: Did you cave with Dick Graham there?

Stan: Yes, I did. I was there, not this summer, but the prior summer. I was on a camp trip and Dick and some others did a day trip in the cave. I was really disappointed to hear about his accident, just a few weeks ago. I didn't know Dick very well. We weren't actually on the same cave team, but we were in the cave at the same time. I talked to him and got to know him a little bit, and he seemed like a really nice guy. I was really bummed to hear about the accident he had.

Aaron: Yeah, the couple of times I met him, I found him to be a really pleasant and nice guy, too.

Stan: Anytime an accident like that happens, the main positive thing I think that can come out of it is to try to learn what happened, so other people can try to avoid having the same thing happen to them. So I'll be really curious to hear what they think might have caused it. They might not ever figure out what it was, but he seemed like a very competent caver to me. It's always more bothersome, I think, when competent cavers have serious accidents or fatalities because if it's an incompetent caver you can always say, "Oh, they didn't know what they were doing," but if it's someone with as much experience as Dick, and he was a good caver, it makes you kind of think about what you're doing, too.

Aaron: It definitely makes us all think about what we're doing. It was a very tragic accident….

Aaron: So, have you caved in other areas in the east?

Stan: I went out to an NCRC in West Virginia in 2000, and just went to some of the local caves there on that trip. I've done a little bit of sport caving in Tennessee. I guess my only significant exploration, caving out east has been in Omega.

Aaron: How about international?

Stan: On my first trip to Mexico I did a tourist trip to Purificación in 1989. In '92 and '93 I went down to Cheve. That was during the time period when the deep point had already been found, and the majority of the cave had already been found, but we were working on digging through the breakdown. So we were just camping down at the bottom of the cave and hammering against the breakdown for a week. But Cheve's an incredible cave, especially the section right before the sump. It's called Wet Dreams, and it's this beautiful white marble passage with all these waterfalls and plunge pools and short drops and just really gorgeous cave.

Then in '93, after the Cheve trip, I went to the Cerro Rabon area, which is a joint Swiss-American area where the main cave that is Kijahe Xontjoa That cave right now is about 31km long. It's 1223m deep, and that was my first opportunity to cave with the Swiss cavers. I really learned a lot from those folks, because most of their caves in Switzerland are deep and vertical and cold. They really have their act together as far as exploring vertical caves, especially since in Switzerland it's so cold, you can't mess around because you mess around and get cold, you get too cold and you die. So I really learned a lot from those folks about technique. That about the time I switched to the frog system. People laugh at me now because not a lot of U.S. cavers do this, but I wear the rubber boots.

Aaron: Yeah, I do too.

Stan: I think they're great.

Aaron: Yeah, I like them. It's easy to put them on and take them off.

Stan: And I get mine for like $12 at Home Depot.

Aaron: Sometimes you can find them with the steel toes in them and they're even tougher.

Stan: For some reason, I haven't been real crazy about the steel-toed ones because they add a little bit more weight, but I really like the way you can feel the rock through them. Leather boots when you're in a muddy cave, the laces get just all messed up. The boots get messed up and to get a good pair of leather boots you gotta pay 60-

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70 bucks or more.

Aaron: Yeah, that's true.

Stan: I'm kind of a missionary for rubber boots. Anyway I learned a lot from those folks about rigging, and they taught me how to rig rebelays and how to do redirects and how to rig European alpine style, and they just were a lot of fun. So I really enjoyed the caving I've done there. I went back to Cerro Rabon in '98 and then in 2000, and we haven't been back for awhile but we're talking about maybe going this coming spring.

There have been some problems with some of the locals. One of the families that we were working with there got crossed by some of the other Mazatec Indians in the area and one guy in his family got hacked up with a machete by some other Mazatec Indians. So, it's kind of tense there right now. We might go there this spring and maybe not even do any caving, just try and reestablish relationships and try to see if things are good for us to go back there again.

In 2000, we left a cave going - we were down 500m - and it had air and water and getting bigger all the time, so that was a good lead, and we also did a trip to the deep point of the main cave, Kijahe Xontjoa and there's a borehole down there called the Crocodile Gallery that ended in breakdown that blew air, and we got into a maze section just before that breakdown where we managed to get into some crawlways that had enough air that I had to be careful so it wouldn't blow out my ceiling burner - impressive airflow. It was our last day in camp. At the end of the day we got just about even with the end of the breakdown, probably a little bit past it, and things started opening up, but we had to head out, so that's a really good lead we haven't been back to.

The unfortunate thing is on the way out of that trip I fell 5m out near the end of the cave, which shook me up. I couldn't use my right arm very much for the rest of the trip, and it also made me very aware of my mortality, thinking of getting hurt that far back in that cave. And then, shortly after I took my fall, Karlin Myers had a carbide explosion hit his hand. And then when we were coming out of the cave, we got to 600m below the entrance and the cave started flooding. It was one of those trips that if it had gotten any more fun, I think it would have been our last trip. It was pretty intense. I've never been in a cave when it's been flooding like that before, and it's amazing how much force the water has. Fortunately we were able to get out, but it was pretty exciting.

Aaron: How long were you in the cave?

Stan: That trip I think was like a five or six day camp. We were at the farthest camp in the cave. There's one camp that's just about 1000m down, and we were in the far camp, which actually takes about twelve hours to get to from the entrance. You get down to 1000m and you actually travel horizontally for a long ways. That cave's really neat because it's so vertical. It's even more vertical than Cheve in the entrance area. You just drop down all these pits. In fact the third pit in the cave is a 200m free pit. So you can get down to 500m in just a few hours of rappelling, and then it goes straight down to 1000m. At 1000m it hits this base level, which is pretty horizontal, so then there are all these horizontal passages. You travel through those for a ways and then it drops down again to the 1200m level, which is where the second camp was.

When we got to the second camp, we found that in the intervening years, the camp had flooded. This was 2000 and the prior trip to that area was in 1995. There had been flooding and so the food that we had expected to be there, the sleeping bags that we had expected to be there, everything had flooded off, except for the thermarests had stuck to the ceiling there. So we had thermarests and no stove and no food. It was kind of a cold, miserable night.

The next day we went back to the first camp and got some food that was stashed there and sleeping bags and went back to the far camp, and did all this exploration, and then had all those problems I told you about. I think it was one of the toughest cave trips I've ever been on, between not having all the gear we thought we had and my taking the fall and Karlin having an explosion and then the cave flooding on the way out. The cave flooding started on the way into the cave.

The rope we were rappelling on was pretty old - it was from an expedition in the 1980's to Papua New Guinea, and I was the third person down the rope and the sheath split before I got down it. I guess the last person down, the sheath just like split on them. The core was exposed, so I tied a butterfly knot in it. And then below that there was a pit where there was already a bad spot so we'd put a butterfly in it.

Well, on the way out of the cave when the flooding hit us, Karlin was up changing, adding a new rope to the one that had the butterfly on it, the lower one, and there were two of us below the drop when it started flooding. There was a lot of water coming down the drop. There were two ropes hanging down and I knew one had a knot in it and one didn't, and I knew that if I got on the one with the knot that there would be enough water coming down that there would be no way I would be able to pass the knot, and I probably wouldn't be able to do a changeover either. So it was kinda one of those choices where it felt like a life or death choice, but fortunately I got the right rope. I went up first and then the next guy came up after me, and managed to get up through the waterfall.

Then on the next rope, which I had tied the butterfly in because the sheath split on the way in, there was a waterfall coming down that, and we couldn't get on that rope. Karlin led up a wall on the opposite side of the shaft - it was like a 100ft pit. He free-climbed and tailed a rope up behind him up one side of the shaft. Then we got up to a point where I could do a tension traverse over to the top of the pit, so we managed to just get out that way. It was exciting.

Aaron: Wow. I would say so. So, you guys were there in the dry season and there was just a freak storm or something, right?

Stan: Yeah, there was a freak storm. We were there in March, and there was also an earthquake on the surface. My wife, Gosia, was on the surface, and said she felt an earthquake. The flooding has actually happened before in March in that cave, where they've actually been trapped at the first camp at 1000m, and they're safe there. But the problem is the shaft that we were at, 600m to 1000m, it's kind of strange, this cave, we might be missing something because the shafts are actually smaller from 600 to 1000 than they are in the higher part of the cave. They also take a lot of water, so you're probably alright in that cave if you're above the 600m level when a flood hits, and

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you're alright if you're below it, but if you're in that 600 to 1000m section and a flood hits, then you probably wouldn't survive. So, you don't want to dilly dally in that section very much.

Aaron: I'd say not. Wow. Well, that's a pretty exciting expedition there.

Stan: Yeah, that was exciting. It was actually too exciting. It took awhile for my arm to heal. I didn't cave anymore on that trip because my arm was too banged up.

Aaron: Was it broken?

Stan: It wasn't broken or anything. I'm not sure what I did to it. I couldn't pull with it. I could use it to stabilize myself if I held it in one position, but I couldn't pull with it. That made coming out of the cave more interesting, too.

Aaron: Have you been on other international expeditions?

Stan: Yeah, in 1987, I went on one of the Borneo trips into Gunung Buda and spent five weeks out there and surveyed a bunch of cave. Borneo is incredible. And then, in 1999, my wife, Gosia and I, we weren't married at the time, but we went on a trip that Tom Miller led and Pete Shifflet co-led to Belize to the Chiquibul System to help make a diving connection between two of the main river segments and helped bring the cave over 40km, and we surveyed a bunch of new stuff from a deep camp in that cave, and also found a significant extension to another cave. I think we surveyed about 9km on that expedition. That was pretty neat because the British were helping us out with helicopters to fly the dive gear into that cave because it's about an 11km hike into that cave in a jungle area, and so the British helicopters were flying in dive gear.

Aaron: I've heard that the British like to use helicopters in their expeditions.

Stan: Yeah, it was pretty fun. I could see why they might like that. In this case, it was the British military, which I guess is still in Belize helping patrol the border and that's where they do some of their maneuvers - jungle training, even though Belize is no longer a British colony. That was pretty neat.

Aaron: So, did you help haul gear or are you also a cave diver?

Stan: Oh, no, I'm not a cave diver. I was helping haul gear and doing dry caving. Of course dry caving in that cave is very wet, but no diving. It's always intrigued me but I've always thought that if I was going to do that, it sounds like something you don't dabble in. It sounds like something you need to take very seriously. Living where I have lived in Colorado and South Dakota and New Mexico, it's not really good areas to get a lot of open water diving experience, never mind doing lots of cave diving. So, I've never taken that up. What about you?

Aaron: Um, no. I don't think that Rachel would let me at this point.

Stan: Yeah, I can't say Gosia would be really happy if I came home one day and said I've decided I'm going to be a cave diver.

Aaron: In our email correspondence, you mentioned you are a wildfire fighter also. Have you been involved in any interesting wildfires?

Stan: Yeah, I just got back from Montana. It was actually pretty fun because Jim Goodbar, who's the cave specialist for the BLM here in Carlsbad, also went on the fire engine that I was on, and we were working in an area west of Glacier National Park. We actually had limestone and springs and caves. We were having trouble keeping on task with the fire stuff. We kept on wanting to go check out the caves.

Aaron: So did you have to get the regular fire or wildfire training?

Stan: Yeah, I've taken - I can't remember that class - some basic wild land firefighting classes. I'm not like an incident commander on a fire or anything. I'm pretty much a grunt. But it's fun work. You get a chance to see some neat country. Of course, probably the biggest motivator is that it pays extremely well.

Aaron: Uh, O.K. That's good. Well, it is dangerous work, right?

Stan: Yeah, I mean, probably one of the bigger dangers is that anytime there's a wildfire around, there's a lot of trees falling after the fire moves through, and of course burning is always a problem. I think the fire agencies in the last twenty years have really made a big effort to try to improve their safety record. Like any caving we ever do in the Park, we say safety first, and it's the same with fire. Statistically it might not even be as dangerous as driving a car. Caving's definitely not as statistically dangerous as driving a car, either.

Aaron: But the kind of people who would fight fires limits that, I suppose. I don't think that just anyone off the street would go and fight a fire.

Stan: And then you have to have the proper equipment. All of the clothing we wear is fire resistant, and leather boots. We don't wear anything synthetic, because you know, synthetics don't respond well to fire.

Aaron: So what percentage of your job does that take up each year?

Stan: Not very much. For a few years, I wasn't doing very much. Last year, I did a couple of weeks. This year I did a couple weeks, which is about the right level for me - to do it for two weeks - because even though it's enjoyable, I really like what I do on my regular job. I get to draw maps and enter survey data and work with cavers and do cave trips. I like my job a lot.

Aaron: Yeah, that's cool. So what's your job going to entail tomorrow when you go to work?

Stan: Well, on Wednesday, I'll be setting up a spreadsheet for the leads in Lechuguilla Cave. We've had people filling out lead lists the last few years, but I'm going to start trying to put those leads into a spreadsheet that we can use to track them with and then also track which ones have been checked and hopefully we could be a little bit more organized about checking leads, because like I said Lechuguilla is in a mature stage of exploration where there's still lots to be found, but you have to have a plan and you have to know where leads are because you're not just going to stumble into something. So, that's what I'll be doing on Wednesday.

Aaron: Wow. That sounds pretty cool. So what's the future for Lechuguilla?

Stan: One thing that the park's been emphasizing more, even more than exploration recently, is research, because there's

a lot of research going on in the cave, biological research, and we're definitely wanted to encourage that research and learn as much about that aspect of the cave as we can.

I think exploration and survey is going to continue. In fact, there have been some pretty neat discoveries made in the last few years, probably an area a little over a mile long that has extended the cave boundary to the west a little bit, was found called the Zanzibar and Promised Land, and one of the things we were trying to do with that area is explore it a little bit more slowly and carefully than maybe things were explored in the past. Hopefully we'll be a little bit more careful and do a better job at keeping the cave in as pristine a state as possible. It's a lot of fun to explore in Lechuguilla Cave, but like I said one of the reasons why I prefer to explore in other caves is that it actually goes kind of slow when you're tiptoeing around aragonite bushes and things like that. It's not like in a stream cave where if you get into good going passage you just crank out the tape and keep going. Sometimes it goes extremely slow because of the delicate nature of the cave, and also sometimes the cave is fairly mazy, too, so it takes a little to figure out where things are going and such.

Aaron: And what's in the future of caving for you?

Stan: I really like working in the Cerro Rabon area. That's actually one of my favorite areas. I hope we can work with the locals, and hopefully things will cool down there so we can continue to work there because I think that area has potential.

In Kijahe Xontjoa] there's actually two deep routes, one goes to 1200m deep and the other goes to almost 1000 - it's like 980. It doesn't quite get to 1000m. But even though we found those two deep routes and probably four or five 200m+ pits in the area, I think we've just kind of scratched the surface. Mike Frazier's been doing some work on the other side and we found a nice cave, this spring that went down to 200 or 300m and had a large room. I think there's a lot more to be found in that area.

I also really want to stay active up at Jewel Cave. Even though I'm not up in the Black Hills anymore, I still try to get up there at least once a year and participate in the cave camps there, because like I said earlier, I think that cave's going to go longer than I can. I really enjoy participating in the Omega trips, too, so I'm hoping to continue that. When I get involved in something, I kind of like to stick with it. I like to get involved in projects that I can continue with. I guess everyone likes to get involved in caves that keep going. But, I like working on projects for long term.

I didn't mention yet - we went to India last December, my wife and I and some other folks to Meghalaya. It was the first American expedition to Meghalaya, and we saw some nice caves, met some really nice people. We decided we really like India a lot, so I definitely really want to go back to India, and my wife wants to go back, too. Maybe next year or the year after.

I started drafting cave maps digitally, recently, using Canvas and that's really been a lot of fun. It's made cave cartography a lot more fun for me. Before I used to always dread getting out the pen and ink, because any time you made a mistake it was a hassle to fix, or if you had to add a new section on, trying to erase was a pain. But with digital mapping, I'm like a big kid with an Etch-a-Sketch now. So, I want to continue doing that.

I really enjoy caving. Caving's my job, but it's also my passion on my own time and I've always said that I don't want to let the job take my passion away from me. I've seen some cave managers who've kind of got burned out on cave exploration or caving on their own time. That's probably one of my biggest goals is to maintain my enthusiasm and not get burnt out by some of the negative things I have to deal with in my job. My job is fun, but there are a lot of times when it's not fun.

Aaron: Well, everyone has some parts of their job that aren't fun. And we hope that we can enjoy most of the job.

Well, I think that's about all of the questions that I have. That fills up my whole sheet of notes that I had looked into. If there's anything else you wanted to add, you certainly should feel free.

Stan: Let me see. One of the things I think that's helped with my caving a lot is being in good physical shape. I'm a runner - not so competitive anymore, but when I was in high school I won the 2 mile state track meet in Colorado, and when I was in college I was a track and cross country athlete. Even though I don't race competitively anymore, I'm a big believer in training for caving. I think that helps out a lot, being in good physical shape. I still get tired and beat [on the long trips], but at least I'm not as tired as I would be if I was out of shape.

Aaron: So what do you do to train?

Stan: I mainly run now. For a few years, I raced mountain bikes. In fact it got to the point where I was trying to decide if I wanted to continue as a Park Service employee, or quit my job and move up to the next level, which would have been the pro ranks. But I don't mountain bike much anymore. I mainly just run. I'm kind of an old has been, and I don't compete like I used to. When I was in college, I was running like 80 miles a week, or something like that. Now I run maybe 20 miles a week.

Aaron: Do you find that that keeps you in good enough shape to do long trips?

Stan: I get a fair chance to do a lot of caving with my job and such. But, I think even if I wasn't doing that, just by maintaining running I think that would keep me fit for expeditions.

Aaron: I agree that training is really important for good caving.

Stan: I know that to cavers in general, training sounds Draconian, but I love to run anyway, so it's fun. It's good for my head and it's good for my body.

Aaron: If people train hard in their non-caving time, they have a pretty good chance of getting on expeditions to other places.

Stan: That's one of the things we really emphasize for folks going into Lechuguilla Cave is that we want people to be physically ready for the cave. If that means you need to do a training program, well then that's great. I guess the main reason I mention that here at the end is just that it's been a big part of my life- running and training.

Aaron: Well, great. I appreciate you talking with me about caving and firefighting and your job and all the stuff that you do. Thanks!
Stan: Thank you. Bye.

A C H K A

Cave Fonts....Pencentra & the Recon.....

J B G J L

by Mark Passerby

Fonts that are created specifically for cave map drawing symbols facilitate many processes throughout many applications in Windows. This extends even further by expanding into tablet applications running Windows CE or other Windows operating systems that rely on True Type fonts.

The font sets once complete will allow those entering into the arena of digital map drafting to simply download a few files and install them. Instantly the user will have access across all windows applications to this array of symbols. This effectively cuts out the mundane task of each user having to re-create symbols that are fairly constant across all maps leaving more time to work on the original artwork that will make each map unique.

Each application is different but basically in a drawing application the goal is to initially choose the fonts/symbols you will use most often in your current project and move that “font object” to your projects.... symbols library, brushes, and swatches. Here they can be used to quickly push out relevent vector based working maps, and put the project well on its way to the drafting of the final map. Moving this further and as working maps become vector based rather than raster images facilitates the exporting of tiny zoomable .swf(Flash) and SVG files for display on the web. SVG carries much of the data with it and is used in a unique process called roundtripping in the cave survey program “Walls”. I will have more on this in later issues but suffice it to say this feature in Walls really fast forwards the move to vectorization of the working map!! In addition changes in data of the survey simply remorph the now vector wall lines.

Vector Drawing in Cave

The fact still remains that in order to get to a vector based image one must first draw on paper in the cave then scan to a raster image. At some point and method then morph the rough sketches to a line/wall plot and draw or trace a vector based working map. Here is another place that in average to moderately difficult caves that fonts can quickly move things toward the final vectors we want in our working map and that will enable anyone to display massive and complex cave systems online with tiny zoomable files.

TABLET PC’s....fonts and the symbols library

Tablets are quickly evolving so early 1st and 2nd generation machines will be available for a fraction of their original selling price. Depending further on what you are willing to spend/risk on a tablet pc will largely determine the speed and ruggedness of the unit. In our case we have chosen the PenCentra 130 by Fujitsu. These units can be found on Ebay for just over $100 and run Windows CE 2.11. They are a bit slow and have only one vector drawing program available, but as a start they will suffice. You may still be able to get some new units from safestuff@safestuff.com for about $110!

The drawing program we use is called One Cat Doodler which will install on the Pencentra perfectly and most other CE machines http://www.onemanandacat.com . It is a vector drawing program that by itself will export bitmaps, however I did contact the author of this software and was able to get a beta version of the desktop version of One Cat Doodler. This allows you to save the in-cave sketches as One Cat files and transfer via Activesync to your desktop. The One Cat files can then be opened in the desktop version and cleaned up as needed before exporting as an .emf file that can be used in your main drawing program. The nice thing here is that all vector objects are saved for ease of editing in your regular drawing program!

Symbols/Fonts

Moving the fonts into the symbols library in One Cat Doodler on the Pencentra or other unit is fairly simple. Place the Cave Font .ttf files in the Windows directory of the Pencentra then in Cat Doodler create various libraries. Then type in a character and select it....then add to the selected library. When complete all of the fonts are now available as symbols in your drawing library to drop into your drawing as you sketch in-cave. I will be sharing my “libraries” for Cat Doodler as well at http://www.caves.com/fonts which can be downloaded and simply placed in your Pencentra or other unit running Cat Doodler in the Program Files/Doodler/Libs folder. Instantly the fully stocked libraries will show up and be ready to use!

Fonts clearly streamline the process across multiple applications for making the various cave symbols quickly available, but how it all ties together is where it truly becomes incredible. I will briefly go over a workflow, but remember this is only the very beginning and as more units become available at reasonable prices the evolution should be rapid for use in mapping easy to moderately difficult cave systems and passages.

Suggested Items to Get Started

1) Cave Fonts from
http://www.caves.com/fonts

2) Pencentra 130 i.e. Ebay.com

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An Introduction to the French Wrap

Editor's Note – The articles on the "French Wrap" appeared in the June 2003 Front Royal Grotto Column. The Photos were taken by Meridith Hall Johnson

By Gordon Birkhimer

Depending on who you talk to, the French Wrap has received mixed reviews and a bad rap (Get it? Wrap/rap - I slay myself.). In my opinion many of the currently-held beliefs regarding the dubious success of self-belay systems are based on prior flawed systems. Apparently, many of the unsuccessful early attempts of trying a belay while rappelling involved a high point of attachment as with the Chest Safety Prusik.

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Mechanical devices like the Gibbs ascender, Safety Rappel Cam, Petzel Shunt, and the Spelean Shunt have also been tried with less than rave reviews. Many of these early attempts of self-belay on rappel resulted in hopeless entanglements, injuries from improper use, and even death.

A common theme exists in the problems associated with the early self-belay systems. Many of the injuries occurred because of a phenomenon that came to be known as "negative action". In order for these systems to work, the rappeller must relax his/ her grip on the Prusik knot or mechanical device in order stop descending. As you might imagine, when accelerating out of control down the rope, victims were inclined to grasp tighter, thereby defeating the purpose of the self-belay, and falling unimpeded until impact. Essentially, it was not natural for the rappeller to release the self-belay device during stressful situations and allow it to do its job. Negative action rappel safety systems began to be associated with accidents and they lost their originally desired usefulness as a safety method. As a result, the general consensus was that self-belay systems for use on rappel were a questionable practice not to be encouraged or recommended.

Just the fact that people were trying to come up with a solution indicates there was a logical under-standing that it would be damn nice to have one last chance to live should things go terribly awry on rappel. It is generally understood that rappelling is the most dangerous thing you might engage in while on rope. The reason for the inherent danger is easy to understand. During a rappel, if you do not employ a self-belay, you have only one point of attachment to the rope. Climbing rope is not as dangerous. Most ascending systems provide two or more points of con-tact. Even in the most severe example of an ascender failure, the climber still has a second or third point of attachment from the remaining ascenders. Assuming climbers possess the skills to successfully extricate themselves from that situation, they may live to climb another day. In contrast, letting go of the rope while rappelling for any reason, and be-coming "out of control" is generally a fatal mistake.

There is a plethora of incidents which have occurred, resulting in death or injury, because of the one point of attachment fact. Most of these accidents can be traced to letting go of the rope. Experience dictates the following general rule: If you are more than 40 feet above the ground and you let go of the rope, gravity ensures the resulting impact will cause your demise. There is a documented fatality at 50 feet to support this statement. Any-thing above 40 feet is considered "the dead zone." But hey, you could get lucky...

I will submit that improperly loading the rappel device at the lip, operator error, lack of experience, exhaustion, being hit by falling objects, and equipment failure are some examples of malfunctions that can produce dire consequences. Unfortunately for those individuals involved, each of these potential dangers, although rare, has resulted in death and in-jury. Some of these examples are within the control of the person rappelling. Other examples are not. So I guess there's one thing you have to ask yourself, "Do you feel lucky...?" (That would be a great movie line.)

Humans, being persistent creatures, and notorious for conquering problems in the face of failure, will devise a solution eventually, once the requirement for such is acknowledged. Motherhood is the necessity of conception, or is it necessity is the mother of invention? Anyway, you know what I mean. The French Wrap is the culminating result of this persistence. (I'm now wondering if we should take this opportunity to officially change the name to the Freedom Wrap - Slay me again!) The "French Wrap Self-Belay" system is inexpensive, simple to learn how to use, and it operates flawlessly. Additionally, it does not interfere with the rappelling technique, but rather enhances the rappeller's capabilities.

(Photograph by Meredith Hall Johnson)

The innovation resulting in the successful performance of the French Wrap was accomplished by the attachment of a webbing loop sewn directly to the leg loop on a seat harness from which a carabiner is attached. A Prusik loop is employed from the carabiner to create the French Wrap, which is actually a hitch. The innovators had finally stumbled onto the truth. The insurmountable problems associated with higher attachments from the chest or seat harness were now solved. The French Wrap is operated from the brake hand relaxed at the user's side, near the leg loop, and should never come closer than 12 inches below the rappel device. The low point of attachment ensures that the French Wrap Hitch will not become entangled in the rappel device. The low attachment also puts to rest another fear. The hitch cannot touch the rappel device or it will not catch properly to stop the rappeller. If the hitch does come in contact, the rappel device will actually be contributing to the action of pushing, or "minding" the self-belay system down the rope. Because the French Wrap never comes in close proximity to the rappel device, two of the most important

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negative concerns have been resolved.

The final concern would be the issue of negative action. Is the French Wrap is a negative action self-belay rappel safety system? My experience with this self-belay system indicates that it is not. The French Wrap is operated by pushing or holding the hitch at your farthest reach down the rope to freely descend. If desired, you may approach out of control rappel speed without difficulty. Deceleration is accomplished by moving the hitch up the rope. If you let go of the hitch, say after being hit on the head with a rock, you will stop. If you push the hitch up the rope as high as possible, you will stop. So, the position of the hitch on the rope is what really does the work. The relationship of the position of the hitch to speed of operation is easily mastered. I would also point out that grasping the hitch with the strength of white-knuckle fear will slow the speed descent by the action of friction. But, the operation of the French Wrap is based most effectively on the position of the hitch on rope and not the pressure applied to the hitch. For these reasons I feel that the negative action as identified during the development of prior self-belay systems is inconsequential when compared to the French Wrap.

You're on that lip and you're going through the final process of getting on rope. Palms are sweating, heart rate is increasing, butterflies are fluttering. Psychologically, you may be wondering what the hell you are doing here. "I have a pretty good life, I love my children, I have some more things I want to do here on earth..." Oh come on now, you can admit to some of those last fleeting thoughts. The French Wrap can provide the benefit of calming your nerves psychologically. You've got another point of attachment.

Once you have applied your full weight and are entirely on rope, there's nothing like letting go of that rope hand and experiencing the beauty of this thing stopping you right there. For my own personal knowledge I have played with it at almost every speed, distance, and condition with great success. There's something wonderful and reassuring to find you can let go at anytime - and live! That's a real confidence builder.

For some individuals seeking that additional rush of adrenaline, the knowledge of being on rope by only one attachment provides that extra squirt of juice. How you do things on rope, and the systems you use, are personal and individual choices developed over years of experience. It's not my place to insist which systems people use or to cause arguments with anyone. I do believe discussion is good. I am sharing with you because you are cavers and, "I love you man".

The French Wrap - don't leave lip without it. (Slay.)

The French Wrap Self-Belay

by Mike "TinY" Manke

I first learned of the "French Wrap Rappel Safety" in an editorial of the last American Caving Accidents1. This report referenced two incidents where experienced rappellers fell to their deaths while on rope. This occurred after a probable injury from falling debris while rappelling or some other event that made them lose control.

The use of rappel safety hitches above the rack is discussed in issues #42 and #44 of the Nylon Highway, the publication of the NSS Vertical Section. The discussion in issue #42 by Dr. Gary Storrick makes a compelling case against the conventional use of a Prusik as a rappel safety. The discussion in #44 by Brady Robinson revisits this issue and gives information on attaching the safety below the rack. Ac-cording to Robinson, the correct name for the knot used to create the "French Wrap Self Belay" is an 'Autoblock'. This article gives a very good description of setting up this system; I am not the inventor of this.

In June of 2000, I posted a question about the "Euro Prusik below descender self-belay" to the NSS Discussion Board. Van Bergen of the Dayton Underground Grotto (DUG) answered this on June 12th. I coined the name "French Wrap Self-Belay" for this method after reading his reply describing the knot as "don't know its real name, only that is was French. It's not a Prusik, but four simple wraps starting at the top". Many of the more experienced vertical DUG members had been using this method for years; he highly recommended it. I met Van at the 2000 Convention and discussed it with him extensively.

From there I developed the setup that Gordon Birkhimer and I currently use and that I teach as part of the NSS Basic Vertical Course that I run at my house every Tuesday night. I believe I am the one who came up with the idea of actually sewing a webbing loop to the back of your seat harness leg loop for the 'biner to clip into after experimenting with this in my front yard. Having the 'biner simply clipped into the leg loop, it can rotate up from the back side of the leg loop to the top of the leg loop allowing the French Wrap to come dangerously close to getting into the rack.

We have been using this "French Wrap Self-Belay" since then with nothing but success. This included some long rappels at Whitesides (650'), Guaguas (700'), Bridge Day (800'), and Golondrinas (1200'). I even used this while

Continued on Page 16

doing tandem rappels with Gordon at Whitesides and Bridge Day last year.

Here are the mechanics of the setup:

1. Have a webbing loop sewn to the back of your leg loop to clip a 'biner into. Howie Cobb (of Howie's Hamesses) has done this for most of the people I have shown this to. The location of the loop should be dead center of the back of the leg loop or just inside of that towards the crotch. This allows proper placement of your rappel brake hand on the rope after the length of the 'biner and French Wrap are accounted for. It also prevents the French Wrap from being sucked up into the bottom of the rack when it is released or set.

2. Clip a 'biner to the webbing loop with an 8mm Prusik loop. With one end of the Prusik loop clipped to the 'biner, wrap the free end around the rope four times in a neat spiral and clip the end back into the 'biner. You may need to play with the length of this Prusik loop to get it right. I find a shorter Prusik loop that is just long enough to do this to be right for me. Also, a Prusik loop tied without any twists in the loop so it wraps straight and loose works best.

DO NOT USE A PRUSIK KNOT ON THE ROPE! Prusik knots, once set, require the weight to be removed from the knot before they can be released. The French Wrap, once set, can be easily released under load by simply pushing down on the top wrap with two fingers!

3. When rappelling, you must push down gently with your brake hand on the French Wrap to allow the rope to slide through it. In the event of an incident, one of two things will happen. If you freak and TIGHTLY GRAB the French Wrap... this is applying braking action to the rack and the rappel stops. If you freak and let go of the rope with your brake hand, or are injured, knocked out, or whatever, and LET GO of the French Wrap, it will set, putting tension on the rope and rack, stop-ping the rappel! Either way... you stop the rappel and do not fall to your death.

On long rappels, we also will let up on the French Wrap so it begins to set ever so slightly and apply friction to the rope as a control technique. This is great to take some of the work off of your brake hand and let your glove cool off a bit.

On longer rappels of 300 feet or more, here is another tip. The weight of the rope itself at 7 pounds per 100 feet can be used to pin the French Wrap in a released position below the hip with the tail of the rope going over your right hip. This allows you to use both hands to work the rack adjusting bars, or to add and subtract bars on the run without stopping the rappel on a hot rack. Usually I will use a foot control method by hooking the tail of the rope around my right boot when doing this. This worked very well on my rappels at Guaguas (700'), Bridge Day (800'), and Golondrinas (1200').

(Sewn leg loop, Photographs by Meredith Hall Johnson)

Another tip is for when the French Wrap is put on the rope after rigging and locking off your rack at the top of a drop. When you unlock your rack, the rope used to lock off the rack will form a big loose loop above the French Wrap at the top of the drop. No problem,,, just work your way over the lip like you normally do and as soon as you use up this bit of slack between the French Wrap and the bottom of the rack, it will perform as described. It is a pain to try to keep the rack set on the rope and feed this slack back down through the French Wrap, so don't even bother trying.

Another tip is for when you want to lock off your rack while on a rappel. You must pull slack up through the French Wrap to have enough to lock off your rack and this again is a pain since one hand is on the rack and you only have one hand to try to pull up the slack and push down the French Wrap to keep it released, sooooooo...don't bother. Just push up the bars on your rack and let the

Continued on Page 17

French Wrap set and put your 'quick-attach safety' (QAS) on above the rack. You are 100% safe like this with your safety on the rope above the rack and the French Wrap set without locking off the rack. To continue the rappel, remove the QAS and gently push down on the French Wrap with two fingers and rappel. (See photo in pre-vious article.)

So you can see that the French Wrap Self-Belay system works. While I did not invent it, I did improve upon it. Both vertically competent members of the BATS grotto and DUG have used this system with great success and on some very long drops where not using it could result in death if something were to go wrong. Feel free to contact me for more information, NBR33fans@aol.com.

1 American Caving Accidents, NSS News Volume 58, Number 4, Part 2, April 2000, page 2

3) One Cat Doodler CE version at
http://www.onemanandacat.com
and the desktop version at
www.cavediggers.com/pencentra/ocd303_companion.zip

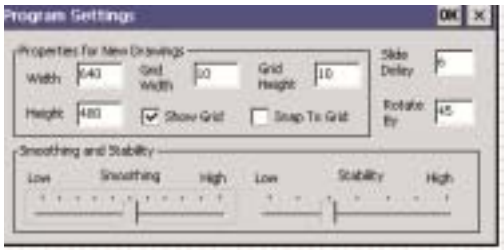
4) Microsoft Activesync from
http://www.microsoft.com

5) Female to Female Null Modem Cable for connecting Pencentra to your Desktop. Once connected activesync will pick right up and allow you to quickly transfer files back and forth from the desktop to the Tablet. Available from most cable suppliers online or contact me.

6) Drawing program i.e. Illustrator, Freehand etc. NOTE: Walls SVG roundtripping requires Adobe Illustrator 10.0.

WORKFLOW MODEL:

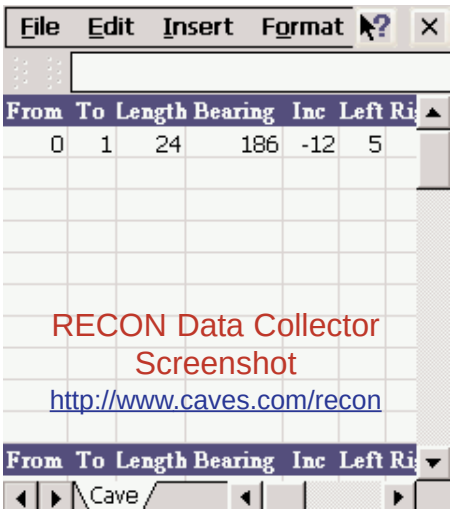
Once the Pencentra is up and running with all the symbols libraries ready to go in Cat Doodler.... the unit is ready to go underground. We use a Pelican 1200 box to transport the unit and a harsh environment case.



I have my Program Setting in Cat Doodler on the Pencentra set to a grid width and height of 10 and checked to “show grid” when drawing. You will want to tweak the Smoothing and Stability slider bars to fit your drawing strokes.

Now you are ready to draw! Firstly though, I would recommend keeping the lighted background as low as possible to conserve battery life and become familiar above ground with the processes of selecting symbols libraries, placing and resizing symbols, grouping and ungrouping symbols and objects as well as moving items quickly within the Doodler drawing environment.

1) Start as you normally would by collecting data i.e. compass/distance/clino and LRUD. In this case you may use a book, but we have began experimenting with using the RECON by TDSway www.tdsway.com/handhelds . This super tough ruggedized handheld can and does withstand full immersion in water, mud, dropping and extreme environments. It is entirely capable of handling even the toughest underground trips. The new RECON units are shipping with Pocket PC software, but our unit is running Windows CE with a small spreadsheet application laid out to simply



RECON Data Collector Screenshot
http://www.caves.com/recon

tap and type to collect data. This effectively avoids double entry of data and the numerous errors that occur in that process. More can be seen on the RECON at http://www.caves.com/recon

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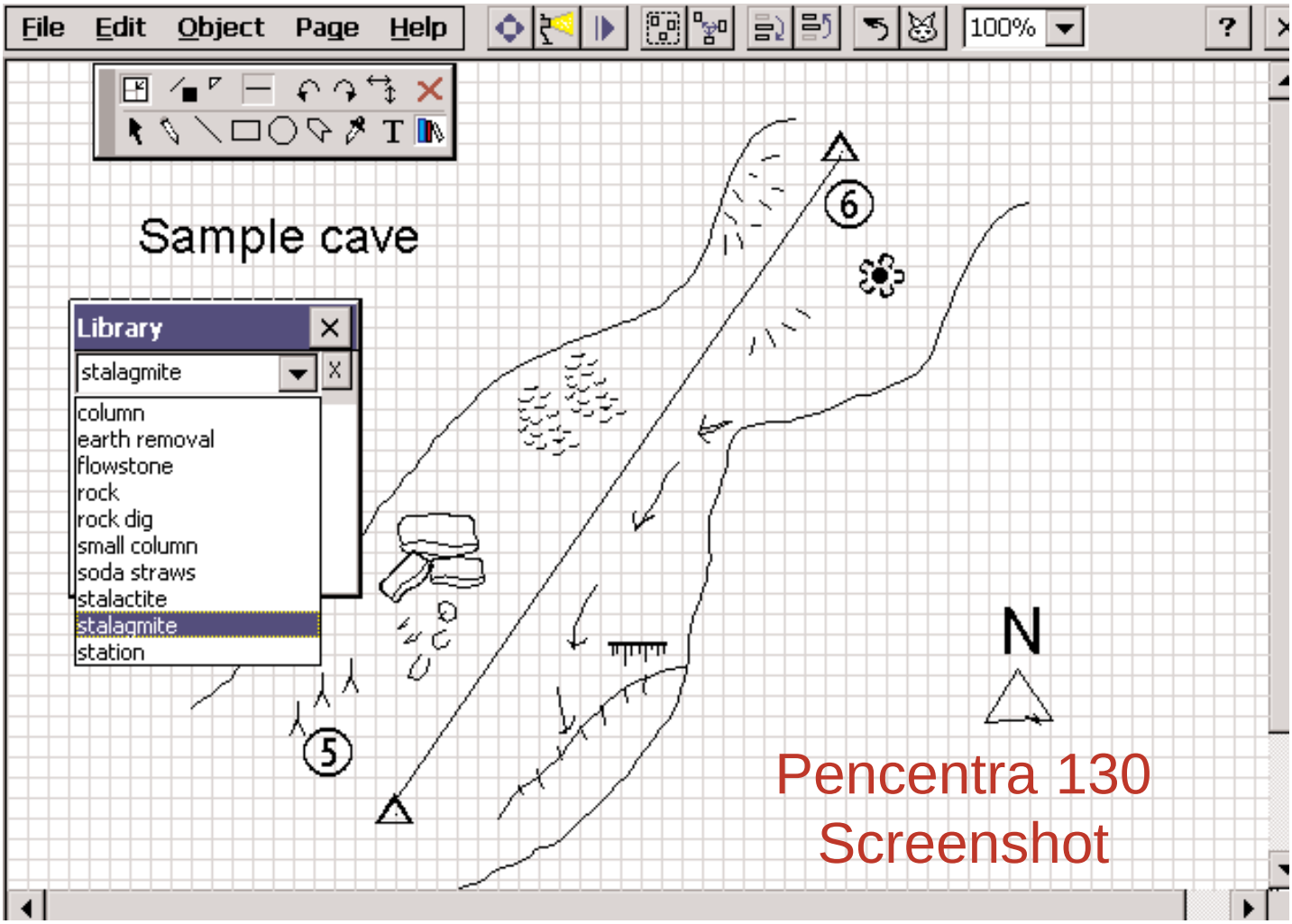


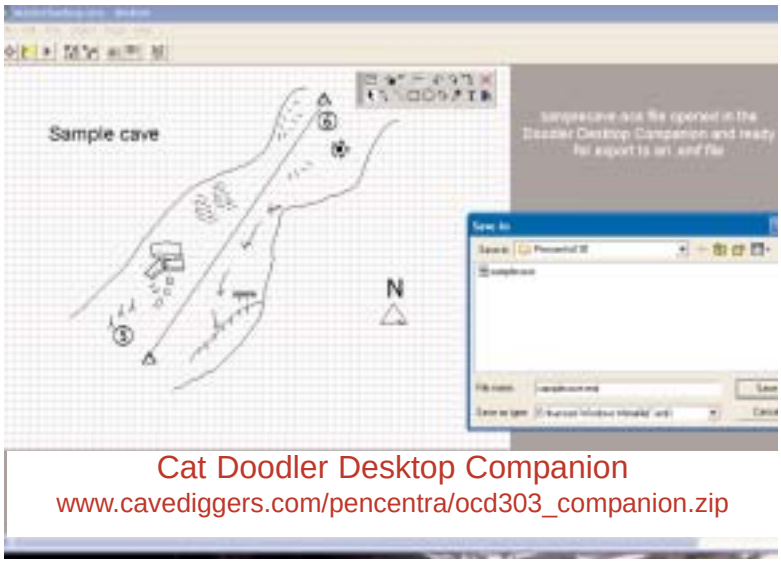
NOTE: RIch Finley is developing an application called Compass Injector that operates on Pocket PC's that combines a graphical user interface that allows for ease of entering data with a final export of a .dat file that will open in Compass. You can contact Rich at rich@caves.com

2) Begin drawing on the Tablet as you normally would in a book but use the symbols libraries to add vector quality detail(see example on next page). Things like a measurement bar, directional compass etc. can be added to each page as well to assist in the process as well as cross sections, added freehand drawing and notes to use later. As the survey goes simply add pages using the Page menu at top. These page images can later be neatly placed together in your drawing program....grouped, ungrouped, moved around and aligned to the surveys data plot.... all quite simply.

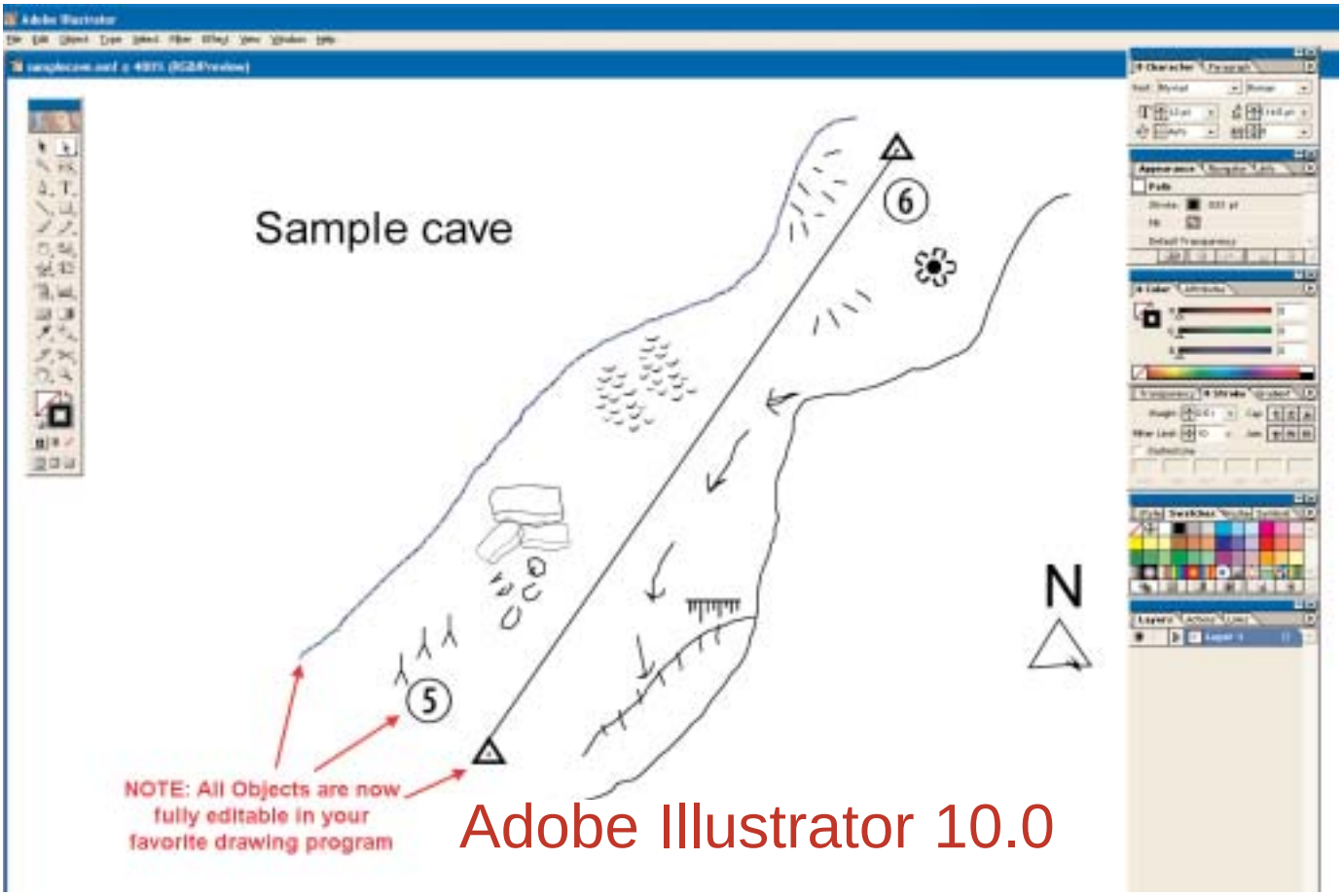
SAVING

I tend to "save" alot and occasionally save a backup just in case I do something unexpected that I can't back out of easily. As I indicated this is really first generation trial and error so saving and backing up is critical. However, if the need arises to change the battery have no fear....no data will be lost in these Pencentra units.

3) Upon exiting the cave simply connect the Null Modem cable to the Pencentra or Tablet and the Desktop to establish an activesync connection. Transfer the surveys .oce(One Cat Doodler) file to your desktop project folder and open in the Desktop Companion to One Cat Doodler. Here you can use your mouse to make some quick edits etc. and export an .emf file.



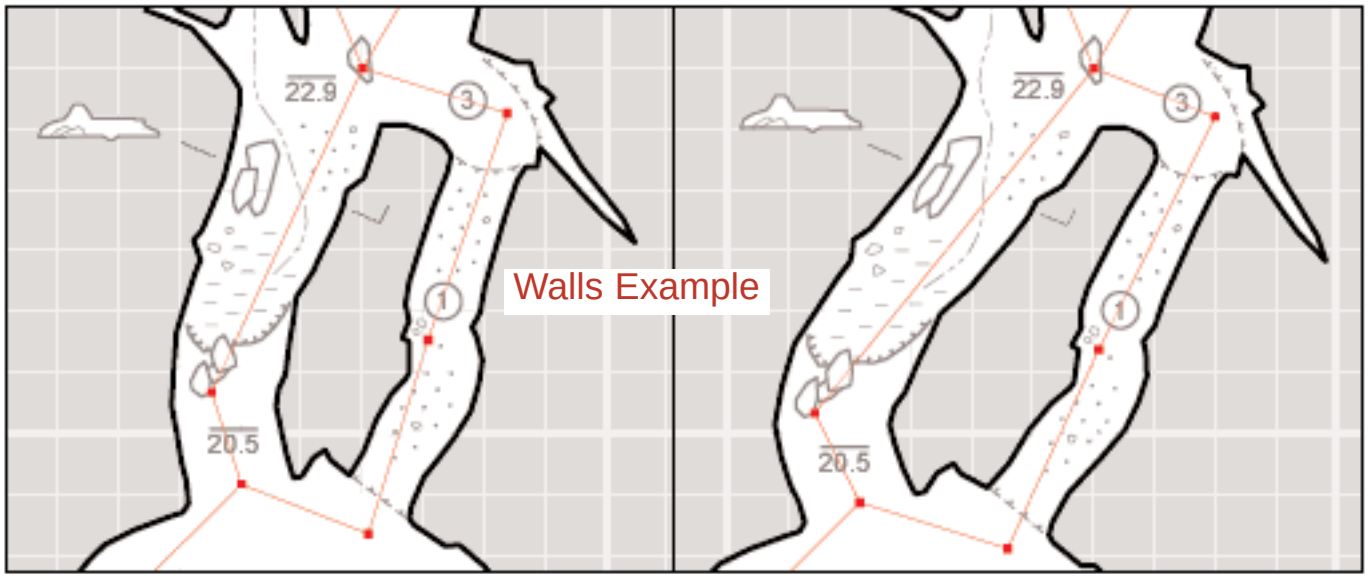
Cat Doodler Desktop Companion
www.cavediggers.com/pencentra/ocd303_companion.zip



4) By now all of the sketch pages from the Pencentra have been transferred to the desktop....opened in the Doodler Desktop Companion....touched up and edited a bit and exported to an individual .emf files that can now be opened in your favorite drawing program(see above). We have chosen to use Adobe Illustrator 10 because of its ability to import/export SVG files that facilitate roundtripping in the survey program Walls.

Roundtripping

Walls now features a set of functions called roundtripping which basically moves an SVG file in and out of Walls as it is edited in Adobe Illustrator 10. However, depending on which layers you place items on in Illustrator facilitates what will be morphed as data changes in the survey as the result of loop closures and data adjustments. The program accomodates the concept of building a working map with vector graphics rather than monstrous raster images. The image at the bottom of this page is from the Walls Help section and illustrates how a data change in the working map will shift and morph the walls but leave other objects undistorted and not reshaped. We have just now converted the data from Middle Earth to a Walls project so I will have more on this process and actual vector working maps displayed on the web in both SVG and SWF format. If you haven't downoaded Walls.....you should.



YARD DOG HOLE

By Mudpuppy

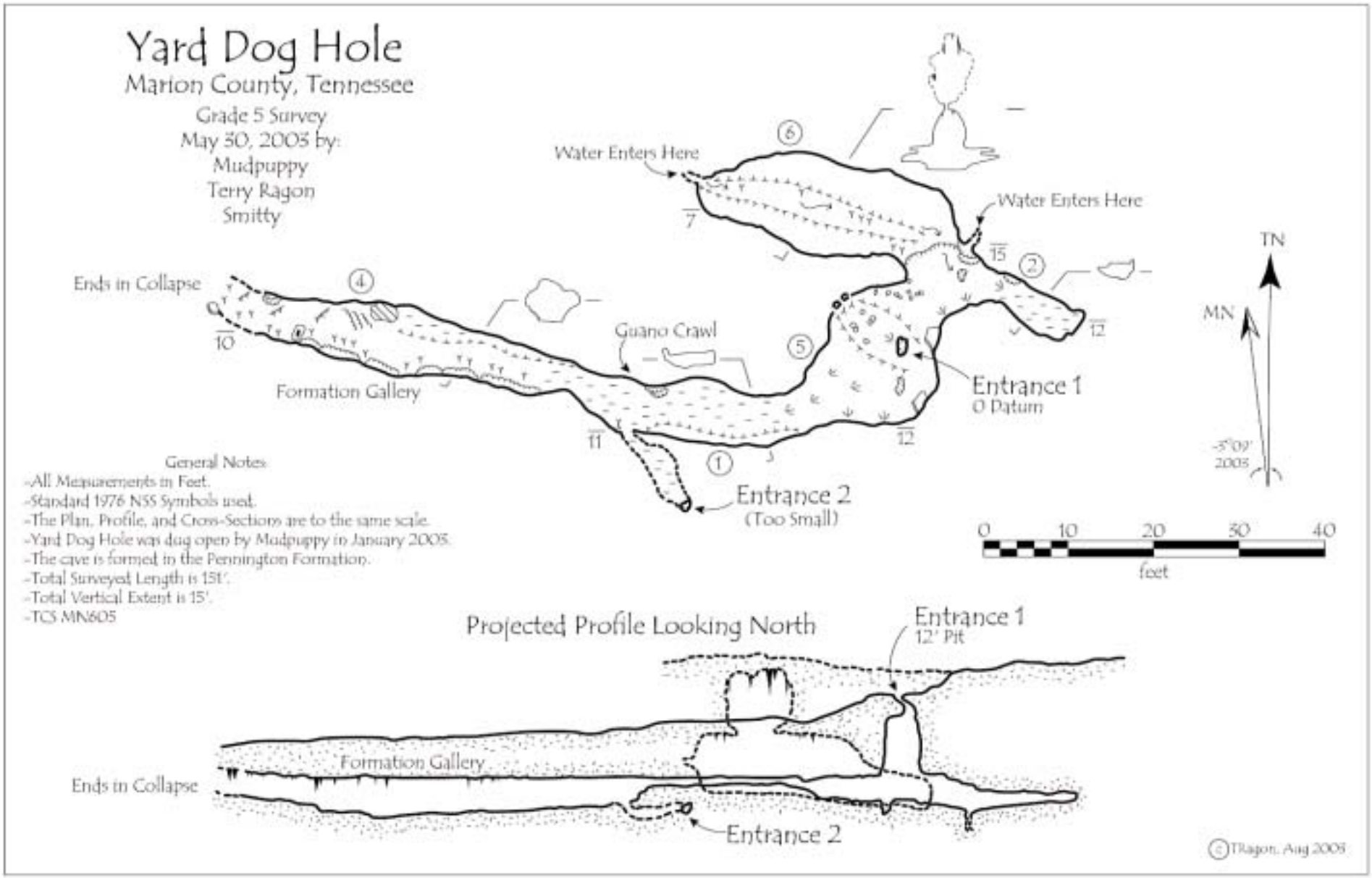
It was a cold and overcast January day as I made my way up the steep terrain above my friend Charlie's house in the Fiery Gizzard Cove, TN. My trusted companion, Yard Dog, led the way, occasionally looking back to see if I had stopped. Yard might have only three legs and a partial one, but she sure could climb the rugged karst with the best of dogs, including this one. The undergrowth made for some tough walking, surely nobody had ridge-walked this part of his land. I made my way up to the pennington formation and continued as level as possible to contour around the mountain. After a couple of hours, I found a small hole. Taking my pack and rope off, another hole about the size of a grapefruit with condensation blowing out of it caught my eye. Lowering my head to the source, water could be heard in the distance. Seemed like a good dig, so my rock hammer went to work. The digging was easy, mostly soil and a few rocks. Soon, a body-size hole revealed a pit entrance that looked pretty grim.

Yard Dog was looking at me with her quizzical look. No need to answer her, she knew I was going in that hole. After rigging, I forced myself in. I crammed myself onto a small ledge and saw the floor about eight feet down. The lip was undercut but looked OK for retreat when the time came. Down I went.

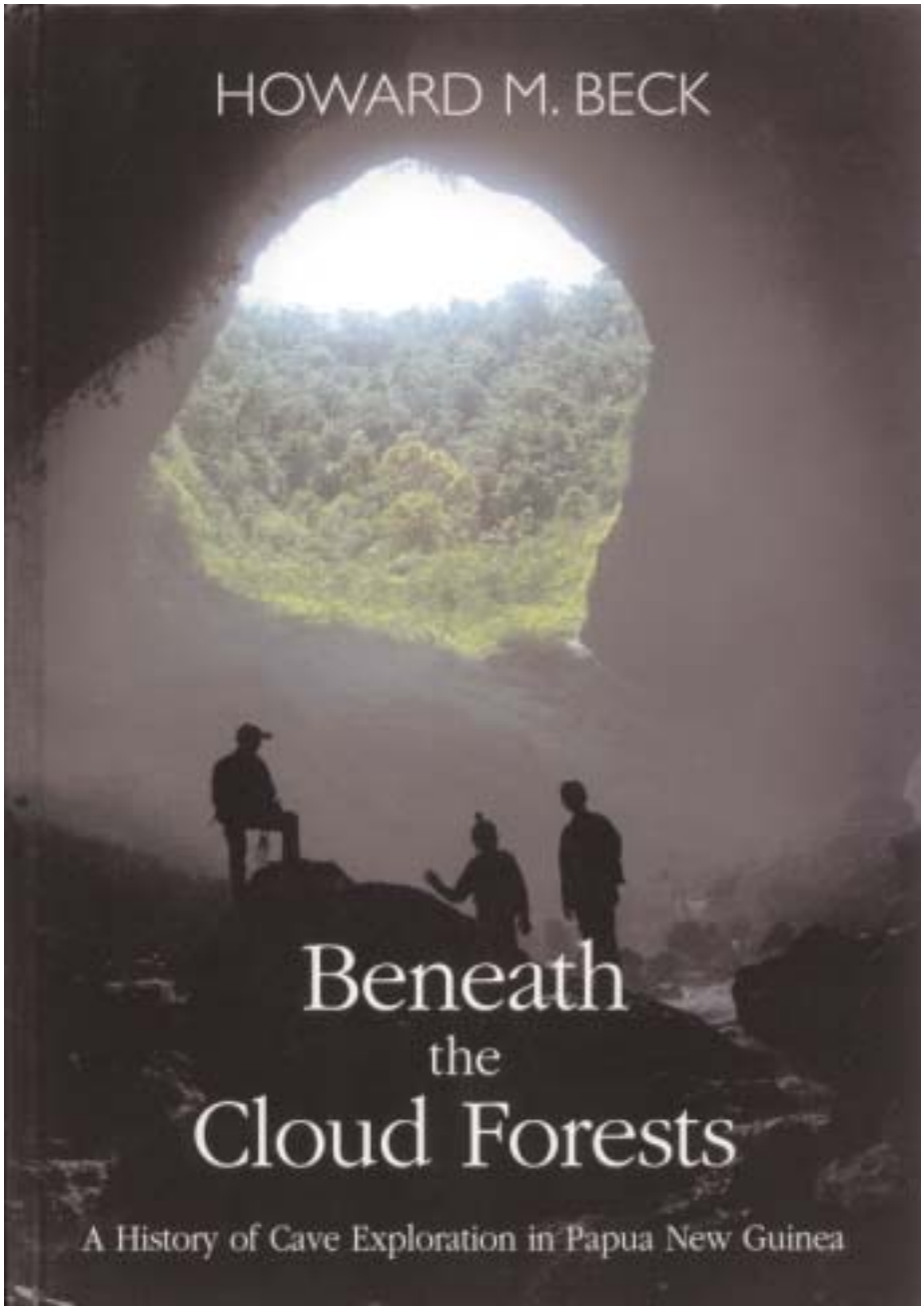
The cave was small but pretty. Water went down a future potential dig. Clipping on rope, I sure hoped I could get over the lip and force myself out of the small pit. As I emerged, the sun broke through the clouds. Yard Dog yawned. I could smell the beer back in my cooler a mile away, so I took off down the mountain led by my canine friend.

A month later, Chuck Constable (Mole) and Dirk Siron (Dirt) came with me to check the cave out again. We doubled its short length and found the prettiest passage in the cave. Yard dog accompanied us so I named the cave after her. On the way to it, Mole found a new entrance to a known cave that gave a nice descent into a huge room. It sure was a fun day on the mountain.

A couple months after this, I sucked my friend into surveying the cave, Terry "The Rigger" Ragon. I told him it was a quickie with not too much crawling. Even with a tight guano covered crawl, this was mostly true. The short hike was a bonus too, since we could 4-wheel close to the entrance. Another group was with us to do the "blocks of water" entrance Mole had found to Rachael Gardens Cave. I was even more amazed this third time at Yard Dog Hole at the number and quality of its formations. By the time we were finished surveying, they were waiting on us at the entrance. After looking at the "tightness", they all opted out of seeing the cave. Since this discovery, we have found several new caves in this area, including a new "classic" deep pit. The future looks bright for the determined explorer in this area.


Yard Dog Hole
Marion County, Tennessee
Grade 5 Survey
May 30, 2005 by:
Mudpuppy
Terry Ragon
Smitty
Water Enters Here
Water Enters Here
Ends in Collapse
Guano Crawl
Formation Gallery
Entrance 1
0 Datum
Entrance 2
(Too Small)
TN
MN
-5°09'
2005
0 10 20 30 40
feet
General Notes
-All Measurements in Feet.
-Standard 1978 NSS Symbols used.
-The Plan, Profile, and Cross-Sections are to the same scale.
-Yard Dog Hole was dug open by Mudpuppy in January 2005.
-The cave is formed in the Pennington Formation.
-Total Surveyed Length is 151'.
-Total Vertical Extent is 15'.
-TCS MN605
Projected Profile Looking North
Entrance 1
12' Pit
Formation Gallery
Ends in Collapse
Entrance 2
©TRagon, Aug 2005

Howard M. Beck. Beneath the Cloud Forests. Speleo Projects, Caving Publications International, Switzerland, First Edition, 2003. 352 pp. Maps, figures, photos, appendixes, bibliography, and index.
Review by Aaron Bird



In Beneath the Cloud Forests, Howard Beck recounts the spelean adventures of almost forty years of exploration in the caves of Papua New Guinea. Each time an author relates the events of cave exploration for the world to know, a gift has been given in which we all can share. Beck, however, goes far beyond just retelling the chronology of events. Rather he has described the account of each exploration with so much detail, the reader feels like they too are a part of the expedition.

Beck begins the detailed recounting - and sets the literary tone for the diligent reader- by describing the first-ever expedition to the region in 1965, when Australians, Britons, and French teamed up to reconnoiter the potential for caves. This first expedition met with little success, however the experience gained from working with the indigenous peoples and local expatriates lead to the great accomplishments of later expeditions.

Perhaps the single biggest attraction for expeditions to New Guinea were the great megadolines, which from the vantage point of a low-flying airplane take on the appearance of gargantuan sports arenas able to hold hundreds of thousands of spectators. The largest of these is 1 km long and almost that wide and has been declared the largest sinkhole on the Earth. Beneath the Cloud Forest contains a number of fantastic photos of these karst features to give the reader the perspective enjoyed by members of the second and later expeditions. A single glance at such a feature is enough to give any caver an adrenaline rush at the least and at the most to motivate one to go to New Guinea to see the caves for themselves. This is exactly what happened to many cavers from Britain, Australia, France, Japan, and the United States over the next four decades.

In total, Howard Beck describes no fewer than 25 major expeditions made to Papua New Guinea, including several to the nearby island of New Britain. Over the course of the exploration history, 21 caves were pushed to depths greater than 300 m and nearly 50 caves were surveyed to over 1 km in length. The longest cave, Mamo Kananda, was surveyed to 54.8 km, and the deepest in New Guinea -and all of the Southern Hemisphere- was simultaneously pushed from the top down and the bottom up until teams met in a lower streamway to confirm the depth of the system at 1,178 m. With deep vertical drops, many river crossings via highlines, and a diveable sump in the middle, Muruk Hul, is perhaps the world's most sporting through-trip cave.

Beneath the Cloud Forest is a complete study of the caving expeditions of New Guinea and as such, will require use of the included figures, maps, and tables in order to keep track of the detailed information. Particularly helpful are the appendices, which list the chronology of expeditions and the long and deep cave lists. A glossary, bibliography, and index are also included to help the reader navigate this historical treatise. The book is a worthwhile read in its entirety, but can also be flipped through for those more interested in photographs and cave maps.

Digging Photos

John Ackerman and Phil Gemuenden dig down and find a dirt filled bore-hole passage. They manage to lower Phil's tractor down into the sinkhole and are now removing the glacial deposits in hopes it will lead them into a major cave system.

Phil (on tractor) and John (standing) are the first in the Upper Midwest to tackle a project of this type. This cave has been named "Artifact Cave" due to the many antique crocks and bottles that were carefully unearthed before heavy excavation. Some of the crocks were from the 1860's-1870's and most certainly were brought here from out east by the original farm family that built a nearby home in 1903. The home still stands, and was occupied by the original family descendants until a few years ago.