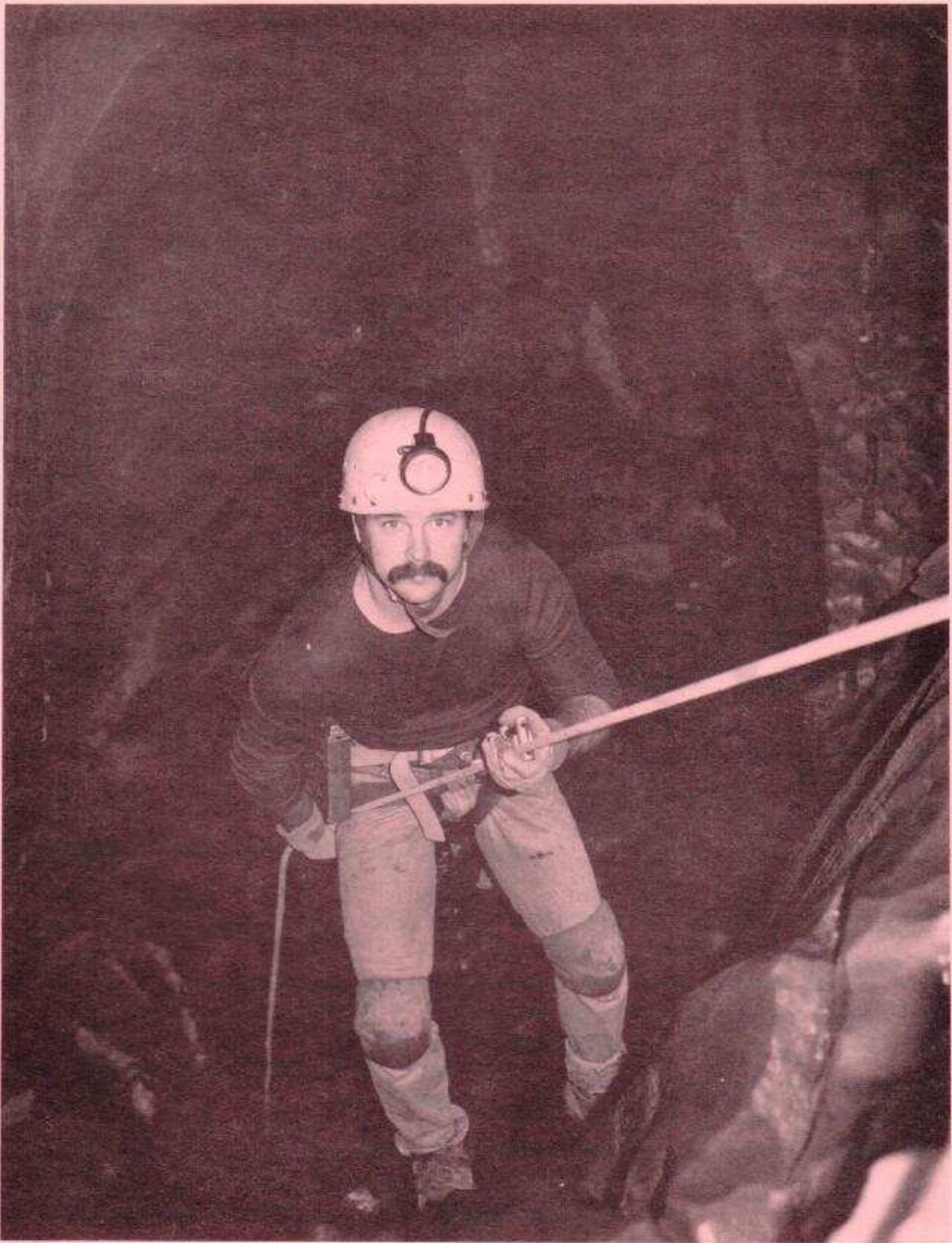


NYLON HIGHWAY

NO. 26



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NO. 26

MAY 1988

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COVER "Back in the saddle again" Photo by Mike Williams.

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THE CASE AGAINST USING BOLTS

By Robert Thrun

The letter columns of the NSS News had a debate about the use of bolts in caves. The NSS News editor has decided to cut off further debate on bolts and relegate the topic to the Nylon Highway. I had a letter to the News that got caught by the cutoff. This article is an expansion of the letter that got returned. The News editor's decision reduces the exposure given to the topic in more detail as in this article.

I have seen a great many unnecessary and poorly placed bolts. Some of the poor bolt placements were just plain stupid. The worst placement I have seen was a bolt driven into the top of a five-foot diameter boulder. Why not just tie the rope around the boulder? Other unnecessary bolts were the result of not looking around. I know of a bolt, now removed, that was placed a few feet from a two-foot diameter bedrock pillar. In one cave I visit, a 20-foot long breakdown block goes unnoticed because it is big and the near-end is covered with clay. It gets mistaken for an uneven floor. If you look around near the top of a drop, in side pockets and a distance back from the drop, there is a good chance you can find a natural tie-off point.

The debate in the NSS News started with an article about the use of bolts in the European style of caving. The European techniques seem to have originated in France and perhaps should be called French techniques. Read Mike Meredith's book, Vertical Caving, to see the philosophy of bolt placement that is taught in France. Mike Meredith was a professional caving instructor in both England and France. The book came in two editions, both of which give the same philosophy. The overriding concern is that the rope must not rub against rock. Every place the rope touches

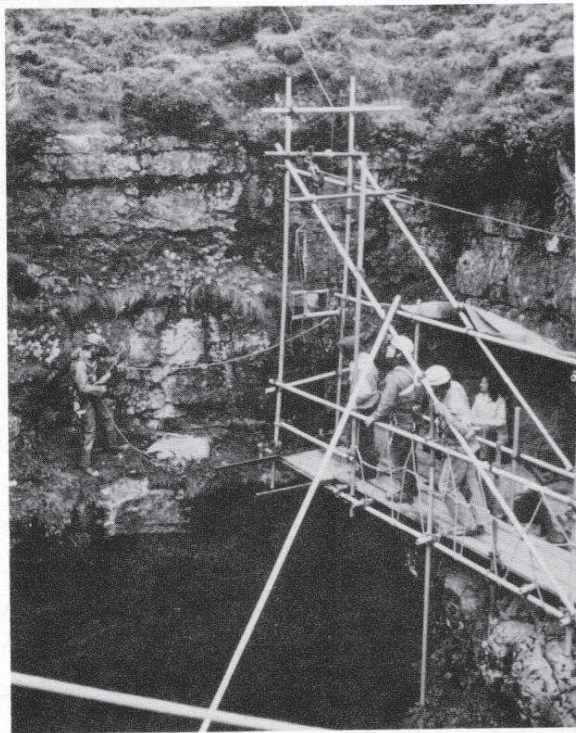
rock, a bolt is driven. If you went into a cave with the intent of placing bolts whenever possible, you would not put in more bolts than the French do with their fear of rope abrasion. It may be that European limestone is more abrasive than American limestone, or that European rope is much less abrasion-resistant than American rope, or that European rope is much more expensive than American rope. I am not an expert about European conditions, but I cannot believe that things are that much different there. Our caving rope manufacturers make a superior rope, but it is not that much better, and we have successfully used many off-brand ropes here.

The only factor used in selecting a place to drive a bolt by the French is the avoidance of rope rubbing against the rock. All other factors of safety and convenience are ignored. The bolt must be over the drop where the rope will hang free. A good natural anchor a short distance back from the drop will not be used. Places over the drop will be used, even if gymnastics are required to get on the rope. I have seen a bolt at floor level on the far side of a narrow pit. When climbing the pit, it was necessary to chimney the last few feet. There was a rock flack less than ten feet back from the pit. I have also seen a bolt placed in a four-inch thick ledge above a pit.

When I went to the International Congress of Speleology in Britain in 1977, I was on a trip led by Mike Meredith. It was to Gaping Gill, Britain's deepest shaft at 360 feet. Gaping Gill is the site of frequent winch meets. For these winching meets, a bridge made of steel scaffolding tubing is built across the pit. There is a sliding trapdoor in the bridge to lower a person in a bosun's chair down the drop. If a rope were rigged from the crossbar

Case Against Bolts

above the trapdoor, it would be deflected 10 or 15 feet from the vertical by a ledge 190 feet down. To do the drop, Mike Meredith went across the bridge, over the trapdoor, and climbed over the guardrail. He traversed out on a narrow ledge to drive a bolt. He rappelled a few feet and placed another bolt in the ledge on which he had been standing. When I descended, I got off rope at the 190 foot ledge. I then found that the next bolt was one foot below the breakover. I must admit that the rope did not rub against the breakover. It was interesting getting back onto rappel. I had to pull up as much slack as possible, lay on the edge, and then pendulum off. In retrospect, I should have kept on rappelling to the third bolt, but I got off on the ledge because there was someone else standing there. Alternatively, I should have climbed back up the rope until I was off the ground, swung over, downclimbed to the bolt, and then switched to rappel. Finally, just before the wall belled away from the rope, at the last place a person could touch the wall, there was another bolt to cross over.

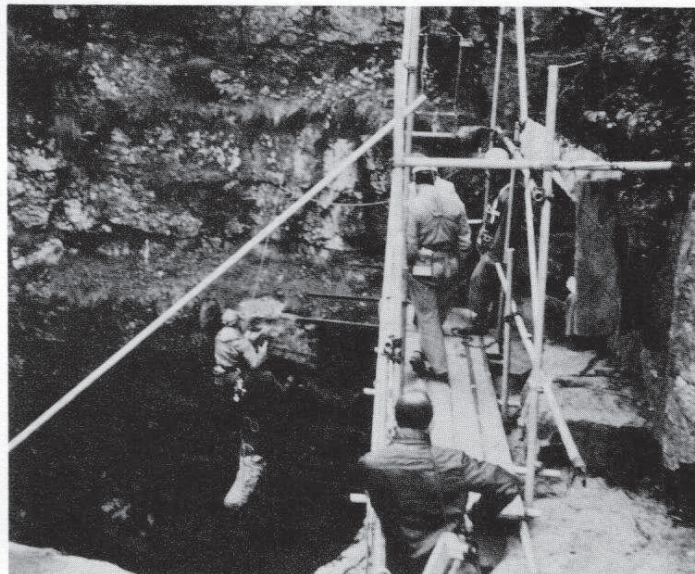


Mike Meredith rigging to his first bolt at Gaping Gill. Note trapdoor in bridge. Photo by R. Thrun.

At the beginning of the Gaping Gill trip I thought there was some practical reason to use bolts. I was not familiar with the drop. Afterward, I thought the bolts were driven just to demonstrate the use of bolts. I later asked Mike Meredith about the bolts and he said that he considered his use of bolts to be the proper way to do the cave.

The use of bolts is overdone by the French style of caving. No judgement is made as to whether bolts are necessary, no alternate rigging points are looked for, and no judgement is made about rope abrasion being mild or severe. The bolts are simply placed.

There is more to selecting safe rigging points than whether or not the rope rubs against rock. Large sawing motions of the rope against rock should be avoided, but some contact is not dangerous. The worst friction points can be padded. If the length of rope that will stretch is small, or the angle deflection of the rope is small, or the edge is well-rounded, there is usually no problem. I prefer a solid anchor a short distance back from the drop to a dubious anchor point directly above the drop. I do not even start to think about bolts until the



Mike Meredith placing his second bolt at Gaping Gill. Photo by R. Thrun.

Case Against Bolts

length of rope from the anchor to the drop is about 50 feet. I also believe in getting up over the edge of the drop and to a good solid place to unrig from the rope. I do not like the practice of wrapping the rope over a log at the top of a pit. I want to go over the log and onto solid ground before unclipping without going thru a crossover maneuver while over the drop. Do not worry about the log rubbing thru the rope.

The claim is made that the use of bolts for rebelayes can speed the party going up the drop, because several people can be going up different sections for the same drop at the same time. I will just mention the possibility of loose rocks and dropped packs and let you judge the safety.

The French use the Frog System of climbing a rope. They seem to be very conformist, all using the same kind of descenders, ascenders, and bolts. All the equipment is rigged the same way. American cavers use many different kinds of equipment and techniques. The Frog System, compared to common American systems, is slower and more tiring on the arms. The one advantage of the Frog System is that it is easy to cross over bolts. And, of course, French cavers have a great many bolts to cross over. Crossing a bolt or knot is possible with any climbing system, but if an American were to go caving in Europe, he would have to adopt a climbing system that allowed for easy crossing of bolts.

As Terry Raines pointed out, aesthetics and the conservation ethic are one reason for not using bolts. As I explained above it is sometimes less safe to use bolts. I find that cavers often rig to any bolts they see, thinking that there is some reason for the bolts being there. Unless I am leading the party and do the rigging, I have to use the poor rigging of others.

After a few months, a bolt will acquire a coating of rust and mud. It is impossible to look at a rusty bolt and tell how badly weakened it is. Even if the person placing the bolt leaves a note with the date, how long does a bolt last? The obvious course of action for a bolt user is to put in a new bolt. After twenty years, some of our popular pits can acquire a lot of bolts. What of the future? The British have used removable bolts. These bolts are placed into a hole and then a wrench is used to tighten the bolt assembly and expand a shield against the walls of the hole. The bolt can be removed on the way out, leaving only a hole in the rock. This type of bolt has the advantage that there is no worry about corroded bolts. However, it requires a larger hole than other types of bolts.

I have seen places where bolts were necessary, but they were far less than the number of poorly placed bolts I have encountered. □

► TELETOONS — By Phil Frank



A SAFER BOWLINE FOR CLIMBERS AND CAVERS

By Heinz Prohaska

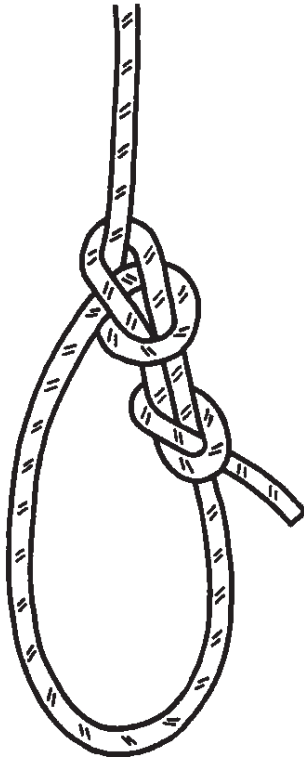


Fig. #1 Regular bowline, secured with a stopper knot.

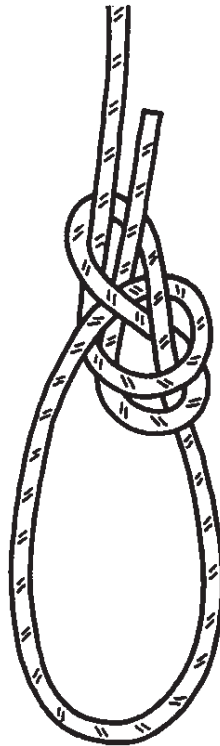


Fig. #2 Yosemite tie-off.

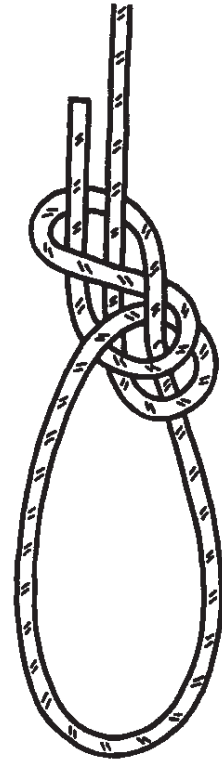


Fig. #3 Wrong version of a Yosemite tie-off

The bowline (figure #1) ranks certainly with the best knots ever found. But what is good and safe at sea and for hemp needs not to be the same for modern nylon ropes and climbing. Indeed two deadly falls and some other events within a few years were published. Dangerous use in instruction books was showing the knot can be a problem even for specialists. For preventing accidents in future the knot is substituted now in climbing instruction programs in some European countries by overhand knots and something like that. But on the other hand it is a fact that the main advantages of the bowline easy tying and untying, easy to adjust--can often be useful and sometimes necessary.

Essential for the prevention of accidents is, that knots should be able to function under each direction of pull without a stopper knot. By reason of this, the idea of involving the stopper knot into the bowline is a logical way. In this article two systems of realization are discussed.

A knot finish, like a figure eight knot, named the Yosemite tie-off, is said to be used by mountaineers (figure #2). This idea looks really good, but has a serious and unexpected disadvantage. The parallel parts of the rope in the knot can change their places before it is tightened (figure #3), and if this happens, the finished knot can work loose and/or turn into a noose--much

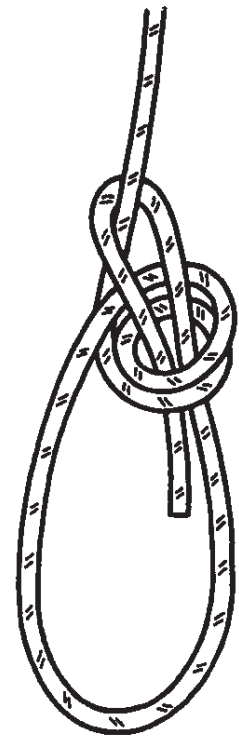
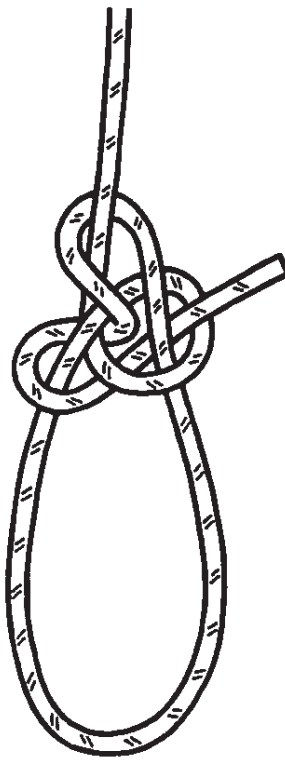
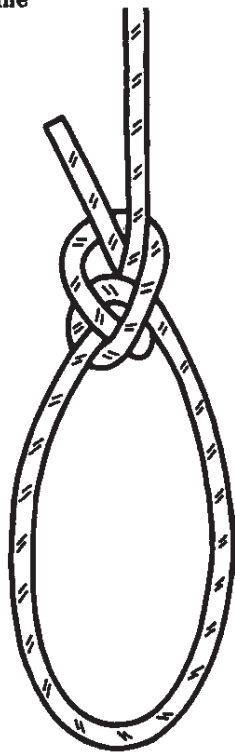


Fig. #4 Wrong version, turned into a noose. Fig. #5 Double bight bowline Fig. #6 Double loop bowline

easier than a regular bowline (figure #4). That is not just theory. A manual on rope techniques (*On Rope*) published last year shows a drawing of the right version of the knot and a photograph of the wrong one. As photographed, this knot will not function and malfunction as described.

Another way of involving the stopper knot into the bowline and fortunately a better one, is found in the Double Bight Bowline as shown in figure #5. There are no problems of stability, no perceptible tendency to capsize or work loose. The knot is very simple and clear, allows for easy inspection, and remains strong. That it is safer than the double loop bowline (figure #6), too, is no question. Some test results are shown in table 1 and table 2.

	4 mm	6 mm	8 mm
Regular bowline	259	765	1089
Yosemite tie-off	279	754	1003
Double loop bowline	276	712	1170
Double bight bowline	284	779	1244

Table 1 Knot strength. All testing data in KG.

Regular bowline + overhand knot	46
Yosemite tie-off	39
Double loop bowline + overhand knot	57
Double bight bowline	41

Table 2 Relative rope requirement l/d (rope length/rope diameter).

Heinz Prohaska has been engaged in safety research for almost 20 years. He is a German and felt compelled to write this quick critique about an

obvious problem with the Yosemite tie-off photograph as published in the book *ON ROPE*. □

LET'S STANDARDIZE THE VERTICAL CAVERS'S VOCABULARY

By George Dasher

How often, while caving, have you been confused by cavers who use non-obvious language while vertical caving. It is far past time to standardize the commands and vocabulary used while vertical caving.

RAPPELLING

First, let's discuss rappelling. You come to the drop in the cave, which you rig and descend. You shout, "Off Rope!" The second person proceeds to the lip and rigs in and yells, "Rappelling!" When on bottom, they shout "Off Rope!" and so on until the entire caving party is at the bottom of the pitch.

On the way out, you ascend and shout, "Off Rope!". The second person--when ready to climb--yells, "On Rope!" or "Climbing!". You, on the top, wait... and wait... and nothing happens. The other caver remains at the bottom, on rope but not ascending. You wait some more. Finally, in desperation, you shout down. "What's wrong?" The other caver may or may not answer. After another lifetime of waiting, you ask them again what's wrong. Although the other caver replies, he or she still does not ascend the rope. You wait some more and then--this separates the cavers from the spelunkers--you resort to the non-standardize expert caving terms, which, since this is a family-style magazine, I can not repeat here. But essentially, you bellow, "You G%@ D#@\$ A%% H*#&, GET YOUR G%@ D#@\$ A%% UP HERE! AND BE G%@ D#@\$ QUICK ABOUT IT, I AM GETTING COLD!" If this doesn't work, you utilize other, more advanced techniques, such as throwing rocks.

Now, this is where we need to standarize the vertical caver's vocabulary. If a person knows that

rock-throwing always follows the colorful metaphors, they are going to get their little ass in gear and up the rope. I mean, wouldn't you? I certainly would. Thus, anytime Caver "X" resorts to colorful metaphors, people will get their backsides in gear, or they will get hit by rocks. And this would not only work when rappelling or ascending, but also when crawling through nasty low spots, or swimming through the inevitable wet duck-under. "GET YOU G%@ D#@\$ A%% OVER HERE! AND BE G%@ D#@\$ QICK ABOUT IT, I AM GETTING COLD!" Just thinking about it makes me want to hurry, I don't want someone freezing to death on my account. Particularly if they are going to kill me afterwards.

We could apply this technique to many situations outside the cave. Like when your sister takes too long to get out of bed in the morning. Or when other cavers take too long to get ready to go underground. Or when people don't allow you the needed hours to ready you gear before the caving trip. Or the little old ladies who hold up the food line at McDonald's. Or those people who drive intolerably slow or at the speed limit. It would work. Trust me.

ROCK

Then we have those cavers who knock down a boulder the size of a small beer truck and shouts, "Rock!" Anybody can do that. What is important is what the guy at the bottom yells after the rock hits. There are two options here. One is if the rock hits the caver. Not much is shouted then. But, if it is a near miss, that is when the Real Cavers (Important term there, Folks!) come into their own. AYou have sereral types of real misses. You have the 'Large Rock Landing Next to the

Caver' Near Miss. That calls for only colorful language, particularly directed against the ancestry of the individual who callously knocked that sucker off the wall. The you have the 'Small Rock Smacking Caver on Helmet' Near Miss. That too requires adult language.

But the Near Misses I like the most that occur on a slope rather than on a vertical pitch. Here Caver 'A' kicks off a rock and it bounds down the slope toward Caver 'C', 'B', 'D', 'F' and Caver 'A's sister. Now there are two possibilities, both which seem identical at first. The boulder casually saunters on by, hurting no one. That's Case # One. Other than a mild top-of-your-lungs cussing, no one says too much. But Case # Two: Just as the rock in question reaches a point upslope of the first caver, it strikes another boulder, changing the direction of the moving rock and possibly even adding a second rolling stone to the excitement. Now, that's when you see the cavers and the metaphors go flying. Let me tell you, there is some very un-standard language used in these instances. If this situation develops on a slope outside the cave, while enroute to the entrance, you will be amazed, surprized, and even amused to discover how many six foot tall, 200 pound cavers can hide behind a two inch sappling. And it works! I have hidden behind many a two inch sappling! The rocks have never touched me!

CABLE LADDERS

Cable ladders. Now, let's be honest. I have never used a cable ladder in a cave, but I have seen a couple of pictures somewhere. That makes me an expert. And I know we don't use cable ladders much in this country, but--nevertheless--I think I should say a few hundred words about them. First, you always belay--or lifeline--on a cable ladder. You usually have a couple of husky lads (when describing European techniques, it is best to use

European terminology) hang onto the upper end of the line. Now, if the person on the bottom end of the rope--who may or may not be on the ladder--yells something, you haul him up. It doesn't matter what he shouted, you haul him up anyway. Quite possibly he could be drowning or freezing to death and chances are real good he wants to be hauled up. If he didn't want to be hauled up, he will tell you once you get him up, quite probably in that adult, colorful language I cannot use in a family-style article for a family-style magazine.

LONG DROPS

There are two problems with long drops. The first is that the people at the bottom can't hear the people at the top. The second problem is the people at the top can't hear the people at the bottom. Therefore it is very important to thrust the words out of your lungs, bellowing them at the top of your voice, shouting them s-l-o-w-l-y, one syllable at a time. keep your message short and simple. And it doesn't matter what you yell, because the person at the bottom isn't going to be able to understand you anyway. He or she will yell back, "What?". You will shout, "Huh?!". Then someone will bellow, "What! Did! You! Say?!" and that will be the start of it. The next person will shout, "What did you say?"; and the third person will yell, "Whatdidyousay?", possibly at a high-pitched squeal; and pretty soon everybody is shouting something at once and nobody can hear anything. It is kind of like a bunch of cavers at a rescue when someone hands them a radio or telephone. Suddenly, everyone has something to say and none of it is relative to anything.

AVOIDING HAZARDS

Two canoeists in the same canoe have the same problem. If the canoeist in the front bellows, "Rock! Left!", the guy in the back will think the rock is on the left, unless of course the rock is

really on the left. If the rock is really on the left, then the rear canoeist will think his companion wanted him to turn left. It really doesn't matter what they do--either way they steer their canoe, they will smack that rock. And it's always the other guy's fault. Therefore, it is real important for canoeists to split all their monetary costs before the trip because afterwards no one will be speaking to anyone else. Vertical cavers have that problem too. It is not that the caving trip is so bad, or the mud, or the crawlways, or the water, or the vertical stuff. It is the communication problems. "I was going to ascend, but you rappelled!", "I was going to rappel, but you ascended!", Why did you ascend while I rappelled?", "Why did you pull up the rope before I ascended?" It goes on and on. Many a vertical caver has discovered it is a long walk home from the cave.

FALLING

I fall all the time. Sometimes even in the cave. People have long since given up bellowing those fancy metaphors. They don't even raise their voices anymore. Let's say I slip or fall on a steep mud slop and slide forty or fifty feet down the slippery bank--arms flailing madly in the air, one foot high above my head, my posterior turning in six directions at once--and splash, with great abandonment, into a deep pool of c-o-l-d water. Do people shout? Do people get excited? Nope. (Do people giggle? I am not going to answer.) Someone says, in a dry, calm voice, "There goes Dasher... Falling again." The second person--while watching me sink out of sight--says, in the same so-what mattter-of-fact manner, "Yep... Sure was..."

This doesn't have squat to do with shit, but once I went out to a vertical practice with a couple of other cavers. Like a lot of vertical practices, it was outside. Well, after we were done, one

caver--whose name I will not mention, but who is known nationally at the Grand Poo Bah--went around inspecting all the rock climbers' rigging. They were all top-belaying and there was some g-o-o-o-o-d riggings. All their knots were clean, all the edges were padded, many were using pullies instead of carabiners, and some even had the top of their rope covered--I guess they didn't want any dirt to fall on their knots. Anyoldhow, the Grand Poo Bah inspected everybody's rigging. He even unwrapped the padding. None of the rock climbers got upset, as a matter of fact, they seemed kind of honored to have the Grand Poo Bah look at their rigging. I have often wondered about that. After they went home, what did they say?, "Well, we went out to Coopers and climbed one 5.4, three 5.5s, two 5.7s, and one 5.9 (Did you get that? I can repeat if you like). But--Good News, Mom!--the Grand Poo Bah gave us an AOK on our rigging system!" And ;you thought God lived in heaven.

CUSSING

Now another thing, about this cussing. Americans are not very good at cussing. They only know one cuss word. It has four letters and starts with an "F". Take your average ski lift that is broken for more than an hour...with skiers on it. Those skiers only know one word. And listening to a hundred skiers bellow that same word over and over again at the top of their lungs is very boring. It does not even take the edge off freezing to death. You would think someone, just once, could throw in a "Damn Yankee!" or a "Son of a Bitch!" No, never! It is kind of embarrassing. And these are the same people that publish twenty-five page automobile owner's manuals that only describe how to change the tape in the tape deck. Anybody that wordy ought to know more than one cuss word.

GEAR MARKING

Now, about marking your equipment (Yep, he is

wandering about again!). (First, let me define the word "people". According to Murphy's Law of Redundant Rhetoric, people are persons who go caving; non-humans are, by definition, non-cavers.) I think it is very important that people mark their equipment. Within the last two weeks or so, some people have begun to argue that ropes should be marked according to how long each rope is. There is, of course, no standardized system. How you mark each rope by length, depends on your most recent geographic location, the letters that follow your NSS number, and your religious affiliation. I disagree, ropes should be marked as to who owns them, not as to how long they are. I figure if someone is too stupid to know the difference between a 50 foot rope and a 200 foot rope, they deserve the educational experience of rappelling off the end. When you see a rope marked "Blue-Blue", that means it is mine. No, not mine, MINE! To understand this word correctly, place two children--ages two and four--in one room and give them one toy. You will quickly discover the true essence of the word MINE! And you will learn the correct method of uttering this single, meaningful word.

There are two ways to shout MINE! The first is at a high pitch wail that turns every adult's brain to jelly within a two mile radius. Don't worry about using this method--it is impossible for any adult over the age of three to use. I realize many older, more experienced cavers are still less than that age, but they are so out of it that they are beyond hope. Therefore, you have to use Method Two. To do this, force the single syllable out from the bottom of your gut--through clenched teeth--pushing it away from you like a great rush. The result is a very low-key explosion, with great emphasis on the "M". The volume should be loud enough to break the window of every caver's vehicle marked "Cave Rescue" in a five mile area.

Have your niece or nephew teach you how--just try to take their toy. There is nothing more impressive than seeing two six foot tall, 200 pound cavers involved in a tug-of-war over a seven foot long, dirty, worn-out piece of webbing, and--at the same time--bellowing, "MINE!" Knocks the socks off half the Emergency Squad people. At least those who aren't cavers. Emergency Squad people have their own brand of sick humor, most of which can get you arrested in public buildings.

LEADERSHIP

Now, we have Leadership. People always complain about my leadership. Mostly they began to complain when they encounter the first low muddy crawl. I don't know why they complain. I never defend myself. I mean, why should I?, they always start to bellyache 50 feet before the foot-high, half-water crawlway. After they slither through that far worse place, they don't complain anymore. They are speechless. Of course, for the remainder of the caving trip, it is real important for me to stay five or six steps in front of them, so they can't innocently drop a two ton boulder on my fragile little head. But they don't complain anymore.

BEER

But, there is one caving term that is already standardized. That is of course, the single word that all cavers have come to know and respect, "BEER!". All cavers have a short pull-cord hanging out of their brain. When that pull-cord is pulled--some cavers pull their own pull-cord; first one person, then everyone else bellows "BEER"! There is a general rush for the entrance. People fall over each other, crawlways are enlarged, breakdown is shifted, ropes are strained. Outside the cave, the cavers lock arms and rush about, this way and that, chanting the simple syllable, knocking over outhouses, trampling gardens, tearing

down fences. Hens don't lay for a week, cows don't give milk for a month. You can follow a wide swath through the countryside, into forests, up mountains, and across rivers. In town, gas pumps are uprooted, electric poles knocked down, police cars overturned. And that's just the beginning. Gawd help the community if the beer place is closed. I, personally, cannot understand this phenomenon. Even those people who have never drank beer, will never drink beer, and--at present--are not drinking beer, join in the rampage. Maybe it is the cave air, or all the nudity outside the cave, or all the Bit-of-Honey and spent carbide mixed together. I don't know.

It is a little known fact--known only to me and the people reading this article--that the book First Blood was set in small Kentucky town. Medal of Honor Vietnam Green Beret fought Silver Star Korean Marine. Everybody was sort of good and everybody was sort of bad. The movie, of course, was Good Guy Verses Bad Guy. Well, they planned to make the movie in Kentucky. But unfortunately, they were filming a nocturnal "Let's blow up the Town" sequence after the beer joints were closed. And it was cave country. Stalone was at his muscular best; 50 caliber machine gun in hand; wide, massive bandoleers of bullets hanging from his half-naked body. The sheriffs were surrounding him. The Head Sheriff was ready, rifle in hand. A dozen Green Berets were lurking in the background. What happened? Four cavers came through town, arms locked together, shouting, "BEER!", "BEER!", "BEER!" They knocked poor old Sylvester over--he ended up expending all his ammunition (That's stuff is expensive too!) in the air, while laying on his back--and carried off three extras, four stuntmen, and the director's white dog. Last seen, the cavers were heading east, still chanting, "BEER!",

"BEER!", "BEER!" No one knows what happened to them. No one cares. They might have gone on to film Halloween XIV. Well, in the end, First Blood, the movie, was filmed in Oregon--and during the rainy season at that (April to April), when all the self-respecting cavers had gone to California.

PIZZA

Now there is a moral to this story (Took, me long enough to get to it, didn't it?). All vertical cavers should have a standardized vocabulary. This is because, one night, after the caving trip, a bunch of us went down to the local pizza place and ordered pizza and beer, not necessarily in that order. Well, as luck would or would not have it, two of us decided to split a l-a-r-g-e pizza. The person I split this pizza with shall remain anonymous. This is because he likes anchovies and personally I think that anybody who likes anchovies should remain anonymous. I certainly would want to remain anonymous if I liked anchovies.

Anyhoot, we ordered a half anchovie and a half pepperoni pizza. Here is where got into trouble with non-standard vocabularies. What we wanted was a pizza with anchovies on one side and pepperoni on the other side. What we got was anchovies and pepperoni on the same side. The other half was as naked as some of those pictures you see in dirty magazines. There was three things I learned from this incident. One, Never share a pizza with Bruce Bannerman. Two, No matter how hard you try, you can not scrape those damn little fish bodies off the pizza and have a result that is palatable to eat. Three, Naked pizza is Yeech City!

Therefore, I redundantly and irrefutably say, "Vertical cavers need a standardized vocabulary." Nobody should have to eat anchovies or naked pizza. (Editor: Say What?!)

RANDOM SYNAPSE FIRINGS

By Gary D. Storrick

At last year's convention, I promised to write an article for the *Nylon Highway* if Bruce Smith was elected editor. That ruined his campaign, so he won. Its my turn to keep my part of the deal --besides, Bruce has resorted to begging!

This is a collection of random, unrelated thoughts I had originally hoped to put into a talk on vertospeleomythology, but never got around to doing. I'm hoping it will stimulate some thought, and perhaps reply, debate, and separation into heated discussion between opposing, highly polarized groups yelling and screaming at each other through the pages of this newsletter. So, the points I want to consider are:

1. BARS - WHY?

I have a fair collection of various models of figure 8 descenders (nearly 30), many of which have these weird prongs sticking out their sides. I'm told that they are there to prevent the 8 from accidentally locking off with a Lark's Head (see Ashley p. 11 and #1673, 1699, & 1859) knot. I've tried to get one to lock off "accidentally" many times, and have concluded that for a properly rigged 8 (as one stands, the 8 lying in a vertical plane with the trailing rope down) it is virtually impossible to get a figure 8 to lock off accidentally. In fact, its rather hard to do it intentionally. (I don't accept the argument that you can lock off an improperly rigged 8 easily, since that should not ever occur). Interestingly, in 1968 Keith Likin redesigned the 8 so it could be locked off more easily (see 1968 *Speleo Digest* 3-41).

I find the ears have disadvantages. They protrude at a near optimum angle for snagging on things,

both in the pack and on rope. They also significantly increase the size of the device. For example, my eared Russ Anderson 8 is 61% wider than its deaf cousin.

Nevertheless, some people like the ears, perhaps since they are afraid of the accidental lockoff. I find that in a nonparamilitaristic environment a lockoff is no big deal, provided one has the standard seat Jumar handy. (If you can not easily get yourself out of a locked-off 8 situation, I can not recommend vertical caving until you can). If one insists on ears, we could make an eared 8 without the extra width and attendant problems by moving the ears closer to the attachment eye. Let the ears protrude down rather than out, as on the Famau model depose of the DMM. Perhaps one of the commercial manufacturers will issue a modified 8 someday--the design modification for a machined plate 8 would be easily implemented, and I could suspect that there may be a decrease in the machining loss as well due to the more rectangular outline if the finished product.

2. THREE POINTS OF CONTACT

This has been a longstanding myth which Bruce Smith finally addressed very nicely at the 1987 NSS Convention and in *Nylon Highway* #25. All I can add is that he is absolutely correct. Besides, none of us follow this rule for descending--in fact, we don't even come close!

3. WELDED EYE RACKS

There is no question that a proper weld will strengthen the eye of a rappel rack. There is no question that an improper weld may weaken it. Statistically it is possible that welding rack eyes

may substantially increase the average strength of a set of racks, but also increase the probability of low-load failure of a randomly selected rack. In particular, welding might introduce a bimodal strength distribution, with a very small fraction of the racks weakened by welding.

I could speculate with numerical examples, but the simple truth is, I know (deep in my heart) that nobody has performed adequate testing to determine if this is actually the case. It would simply be too expensive. For example, even if quality control was so bad that only 99.9% of the racks would be defect free, it would take perhaps 20,000 breakage tests to "adequately" define the statistics of the defective 0.1% (i.e., 20 defective racks). Add another 20,000 unwelded racks as an equal size control sample, and we have 40,000 racks to break. That is nearly 4 years of 40 hour weeks, breaking 6 per hour! So the decision is one of faith: do you use a rack which was almost certainly improved, or one that definitely did not run the slim risk of being weakened?

After^o discussing this with a grotto member a few years ago, he quit rappelling until he could take his racks in to work and metallurgically x-ray them, DP test them, and so forth. Perhaps we should do that to all our equipment?

All I am doing is identifying a theoretical possibility, which I have no evidence to support, nor any particular reason to believe or disbelieve--except in homemade racks where quality control is more suspect. I don't know if this possibility actually occurs, and I really don't worry about it. Personally, I use an unwelded Speleoshoppe rack since I like the bars, which are patterned after Ed Seaman's design (Nylon Highway #9).

4. BREAKING STRENGTH

While we're on the subject, there is no such thing. There is no absolute predictable threshold value that a specific individual piece of equipment will break at. First of all, there are manufacturing variations--things like machine tolerances, crystal alignment in metals, surface and body defects, etc. Second, breaking point is a function of load history. Third, who rappels with a strain gauge on their rope? I've seen climbers take 30' falls on a 13 fall rope, the remark that "that has been 8, 5 to go." Maybe, maybe not.

Don't put too much faith in strength figures without asking some questions. What were the test conditions? How many samples were tested? Finally, when you find out that only 5 samples were tested per lot realize that there is not a whole lot of statistical significance there compared to your life. Rappel on faith alone, the data probably doesn't exist to support everybody's ad campaigns. There probably isn't a reason to be paranoid though, there really are very few failures in real life, and almost all of them are due to damaged equipment.

5. 10000 LB STRENGTH

As a result of governmentish bureaucrats, the rescue market has some magic number strength requirements. Since there are more rescue squads than cavers, I completely understand manufacturers targeting that market rather than ours. I just hope they remember us--we may not make them rich by our purchases, but we do invent some neat gear that they can copy and sell. I just don't want to carry one pound carabiners around caving, because bigger is not always better.

6. NEW RAPPELLING DEVICES

I love them. I have collected over 100 different models, not counting homemades, and whenever

Random Firings

feasible I display them (and 35+ pairs of ascenders at conventions. (Alas, due to transportation limits, 1988 will probably not see them). I wish I could collect them all, but this gets quite expensive. (I will gratefully accept donations).

I also wish that the manufacturers seeking the rescue squad dollars would do their homework before reinventing devices abandoned in the 1960's. Sometimes that info is hard to find, but it is available. This type of literature search could provide information worth \$\$\$\$--for example, by abandoning disproven design ideas or by stimulating new ideas leading to product improvement.

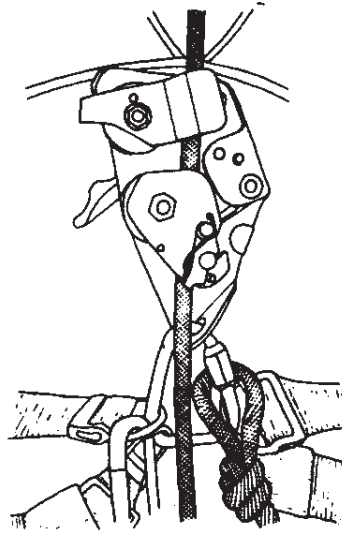
I don't like to think about someone using an inferior device, particularly someone who only knows how to use it because it is a job requirement. I'm terrified by the thought that some random professional rescue type might actually try to rescue me using a "Chrome Cadadulator". I would much rather wait for someone like Gene Harrison to be flown in with the "right stuff" (even if it isn't rated at 10,000 pounds).

For you manufacturers--I am willing to comment on any designs you may be considering.

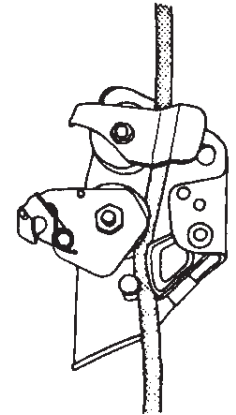
7. RAPPEL SAFETIES

First there was the Prusik safety. Then Larry Penberthy moved it to the other hand (*Off Belay* #16, August, 1974). The 60's and early 70's were filled with gadgets to do the same thing. Don Davison introduced the safety rappel cam (NSS *News*, August, 1976) and actually tested the device. In 1977, the Spelean Shunt was discussed in Neil Montgomery's book "Single Rope Techniques". In 1982 I brought a Tracson back from Italy, it is a sort of bobbin/Jumar/safety combination. (It bent beyond true repair on my first 10' test rappel). I also have about 7 models of "Stop" type bobbins in

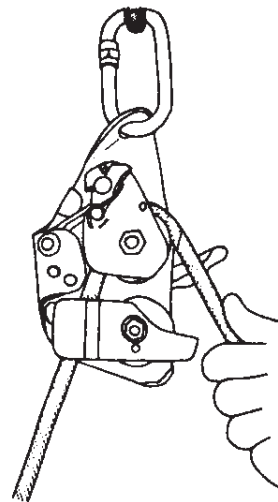
RIGGING AND USES OF TRACSON



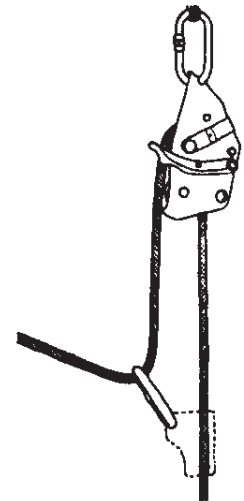
**FOR CLIMBING (WITH
FOOT CAM/ASCENDER)**



**ANTI-SLIP POSITION
FOR EXCEPTIONALLY
MUDDY ROPE**



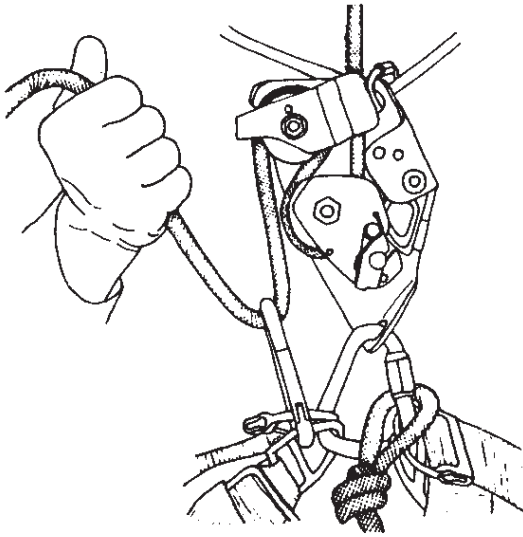
**AS A FULLEY
WITH LOCKING CAM**



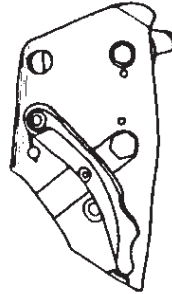
**AS A HAULING SYSTEM
WITH 2:1 ADVANTAGE**

my collection. Some of them (e.g., Petzl's) work for me, others I actually rappel on while they are in the locked position!

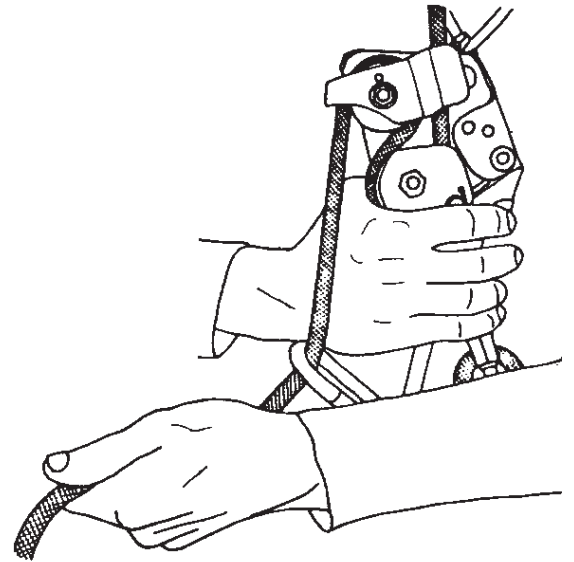
Despite the obvious desirability of a rappel safety, almost nobody uses any of these (except the stop



FOR RAPPELLING WITHOUT SAFETY



**LEVER LOCKED IN
CAM-OPEN POSITION**



**FOR RAPPELLING WITH SAFETY
(R. HAND HOLDS RELEASE HANDLE)**

bobbins) with regularity. My personal opinion is that the others are all more of a pain than an asset to safety. I think the rappel safety device design problem has yet to be solved. Certainly we do not have any rappel safety method which has the general acknowledged status of, say, a rack, Gibbs, or Jumar. I suspect that if an adequate solution is to be found, it will be a new device and not a bastardized Gibbs. The Gibbs is excellent for what it was designed for, but it was not designed as a rappel safety.

The problem is not easy. I challenge you to come up with a better method. Until then, I will

probably do most of my rappels without psychological reliance on a substandard rappel safety device, but with the appropriate amount of attention to what I am doing. You, of course, should rappel as you see fit, and not listen to me blindly.

Of course you should always do that--think everything out carefully and do as you conclude, which may not be as I recommend. It's your life.

Illustrations provided by Inner Mountain Outfitters, 102 Travis Circle, Seaford, VA 23696.



THE SUPER PIT

By Bill Holmes

If you're a hard core vertical caver, here's a question you've probably asked yourself; which is the world's deepest pit?

Well, it's not El Sotano de las Golondrinas in Mexico, at 1046 feet, nor is it the Gouffre de Pierre St. Martin in the French Pyrenees at 1155 feet.

According to *The World of Caves* by Anton Lubke, (Eng. ed. London, 1958) p. 162, the deepest caves in the world are in Ceylon. They are fissure caves formed in the great earthquake that hit Ceylon (or Sri Lanka) in 1645 A.D. The earthquake, or quakes, lasted for eleven days. When it was over, a region in northern Ceylon near the city of

Super Pit Continued on Page 27

THE FISK DESCENDER

By Bruce Smith

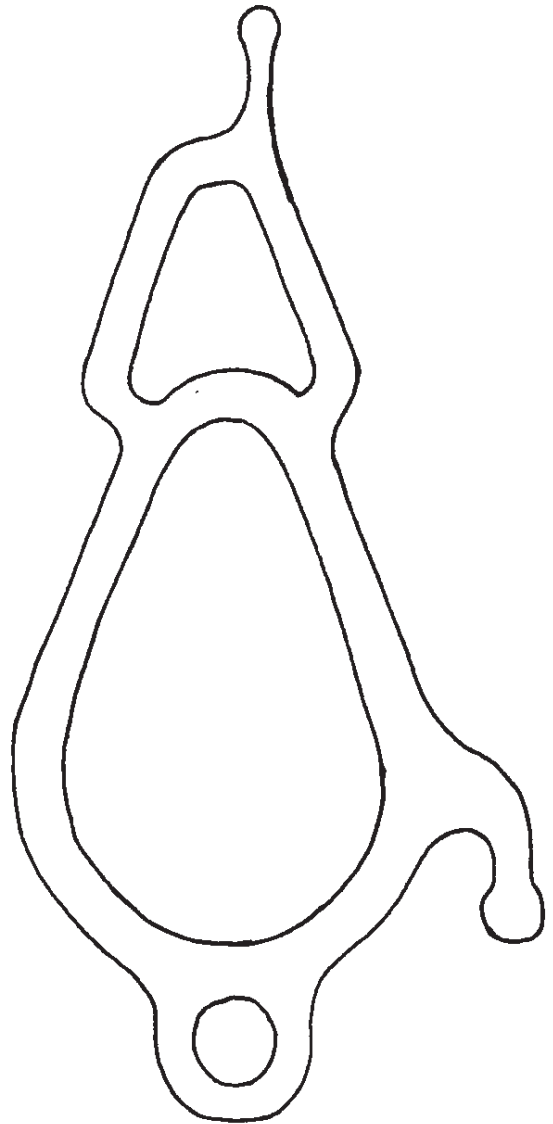
Window cleaners should not be taken too lightly. They may use elevators more than the average caver but the time they spend rappelling and the resultant data from their "on rope" testing I feel is valuable to vertical cavers and may clean a window or two that might allow us to see the vertical world around us.

John L. Fisk is a Window Cleaner first, and an inventor second, and has spent the last 2+ years testing his descender. Unlike cavers, John tests his equipment by using it continuous on the job, taking breaks only to ascend the elevator while grabbing a quick sandwich before his next long rappel. John claims his personal descender has over 4000 hours of rappel use. I personally examined his device and noticed it shiny showing minimal wear.

The Fisk descender is forged from stainless steel and weighs 2 lbs. It is designed for the serious rappeller. It has a multitude of friction arrangements for all types of drops which I've attempted to show. This device could literally pass the C1-30 test (Item dropped from the cargo doors of a C1-30 transport from 30,000 feet with no apparent damage to the item dropped). God help whatever it hits.

The device rappels very much like a figure 8 only more smoothly. It works best with soft supple ropes, however can accomodate the stiffer dirtier ropes because of its size and stainless steel construction.

Fisk writes, "Two of the major beneficial features in the device are its anti-spin element, and its one piece design. Anti-spin helps to reduce rope damage



The Fisk Descender

due to torsional twist under load--a major factor in rope destruction. Because of the anti-spin properties of the device, line twist is eliminated and untold minutes are saved by not having to shake out twists every time you complete a set. (Ed. a set refers to a vertical row of windows) The one piece construction simplifies the problems associated with handling multiple pieces while setting up. Thus eradicating awkwardness and

wasted time. Production efficiency and profit are thereby substantially increased. These two points alone allow the system to pay for itself faster than any other system on the market.

Y. F. Howell, a Professional Window Cleaner, reviewed the Fisk Descender in the May-June 1987 issue of *American Window Cleaners Newsletter*. I have chosen to reproduce it here for your interest.

Would you like to swing on a star? Veteran window cleaner of 14 years, Bob Duckworth, answered in the affirmative to the question, and can be seen squeegeeing at the summits of some of Portland's most elite buildings.

The "star" from which he suspends is the Fisk Descender, the newest descent device on the market, and one of several new products introduced to consumers with the idea of safety in mind.

"I love it!" shouts Duckworth of the descender. He says that he likes its one-piece design and ease of set-up. "You can rappel like crazy! It's a zippity-pip rappeller: you can go very fast or slow with it."

Duckworth is all for the new designs coming out that are currently being marketed by Ascendor Corporation. "The fewer moving parts you've got in something, the better off you are," he says. "I don't trust anything with too many parts--there are too many things that could break or go wrong."

Brian K. Fisk, inventor of the descent device and owner of Verified Maintenance, a leading window cleaning agency in the Northwest, determined his goal to be "safety in the industry". He wants to rid the industry of the "crazy-man" image and instill a sense of pride and competency in the workers.

To promote this cause, Fisk teams up with other inventors and manufacturers to compile a line of equipment that meets or beats all ANSI codes, and also eradicates common complaints and fears expressed about current equipment.

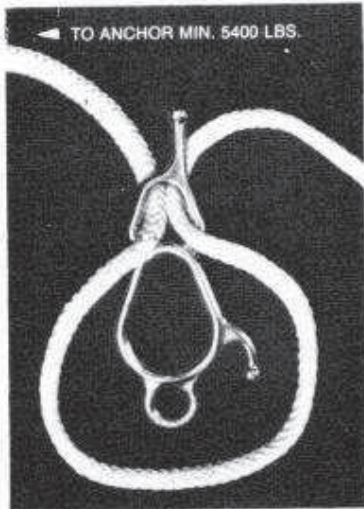
Expansion of the line includes new items, such as a portable stretcher designed by Bud Calkins of Portland, that can transport an unconscious person or one with a broken back from a bosun's chair. Other items range from an entire descent system with back supports to a simple device to keep a worker from dropping his squeegee.

Fisk is concerned about the lack of training in the industry, and works actively to promote the idea of training among his peers nationwide and in Canada. "What we need is to bring about a new awareness in the industry," says Fisk. "Bosuns and bosun's mates of the past have always been skilled laborers. A good, trained, skilled person out there is invaluable."

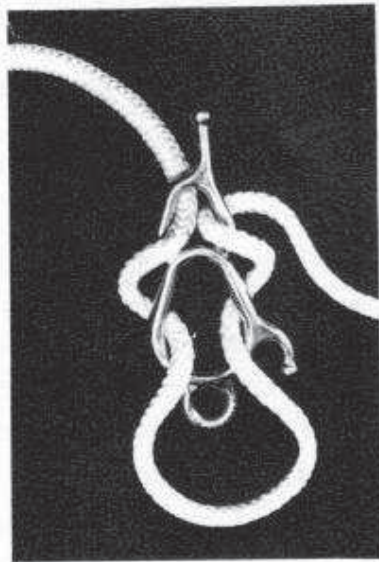
He does not want to see bosun's chairing impeded because there are some circumstances where it is necessary to use the chair. "When someone gets stuck out there there's no high-tech machinery to come and get him. It's the good old bosun's chair and rope that they rely on," he says. A combination of scaffolding and chairing is the only way to efficiently operate, according to Fisk.

Duckworth is all for training in the industry and says that the Workers Compensation Department should provide it, and make it mandatory for all high-rise workers. "They'll (bosses) send an idiot to do a job on his own say-so," Duckworth says. "Any piece of equipment is only as good as the guy operating it."

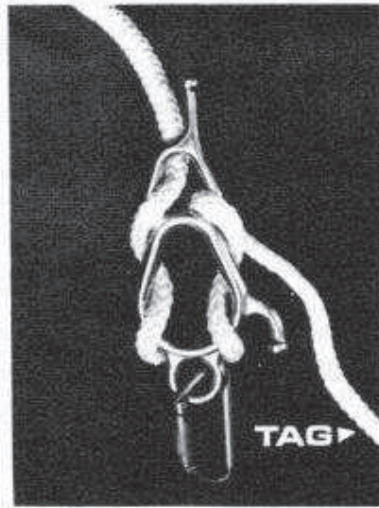
RIGGING INSTRUCTIONS:



1. Grasp rope and fold in half. Slide rope through the Descender from the back side through the top hole, keeping left rope to anchor. Open folded rope to make a loop. Wrap around to the outside of the Descender.



2. Pass folded rope through center loop then around the outside of bottom loop.



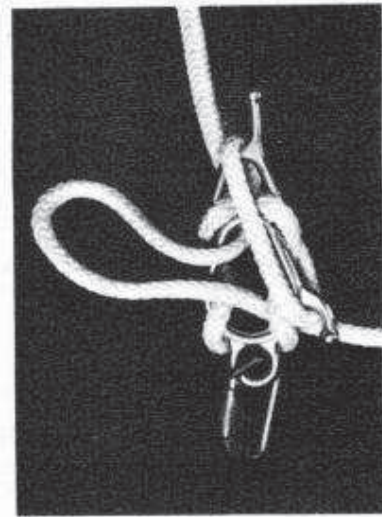
3. Use locking carabiner to hook to bosun's chair or harness. Pull slack from line. You are now in normal descent position. To regulate descent motion of the rope, take the tension off the tag end of the rope.

LOCKING OFF INSTRUCTIONS:

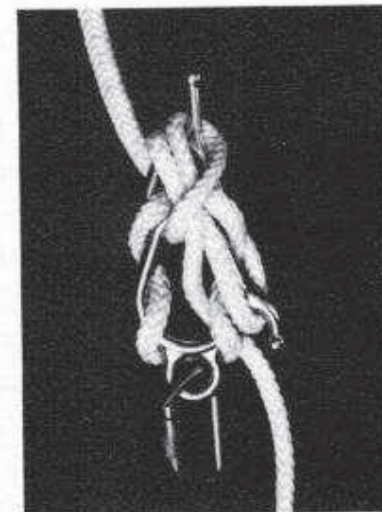


4. Initial Lock-off Position: pull down on the tag end of the rope. Wrap around the bottom ear and pull up and over top

ear. Rope should now be secure for your temporary lock-off position.



5. Stationary Lock-off Position: pull tag end of rope through middle loop.



6. Add half twist and pass over top ear. This position offers a stationary, permanent lock-off.

Important Note: Always maintain tension on the TAG end when locking or unlocking to prevent accidental descent.

"If you get over the side and you're uncomfortable up there, you're in danger. If you get over the side and you start wondering about your knots, it's a little late," Duckworth stresses.

Tim Howell, another high-rise worker, has seen people jump over the sides of buildings into their chairs, although not in his company. "People in the industry should be more safety-conscious," he says.

FISK DESCENDER Continued on page 23

THREE THINGS

More Cerebral Wanderings

By George Dasher

FIRST THING

First, I hate to keep agreeing with Bruce Smith (You don't know how much this hurts me...) but I think he has a good point in the last Nylon Highway concerning three points of contact while ascending.

I own two vertical systems. One, for short drops, is the two point Jumar Texas System. The other, for serious vertical, is the three point Gibbs Ropewalker with a Simmons Roller. Which one do I like the best? The Texas. It is simple, compact, and if you have the energy, it will get you home.

Now let's be honest, I don't really do that much vertical and what I do is usually deep in the cave system and measured in tens of feet, not hundreds of feet. That is Figure-Eight rappelling and Texas ascending. The Gibbs Ropewalker is nice, it is a joy to use--when it is working right--particularly on free-fall drops. But so often, there is some little thing that goes wrong with the Ropewalker, usually on wet drops. Thus, I am always just a little scared to use it. Or perhaps I am a little scared of the longer drops. There is a beauty in the rugged simplicity of the Texas System. There is so little weight, so little gear, and so little that can go wrong with the system.

And which system would be better if something failed. Well, once I tore out the harness on my foot Gibbs. That was awkward, but no real problem. I suspect that if the knee Gibbs failed it would be no worse of a situation. But if that top Gibbs failed, that would be a whole different ballgame. With the Texas system, if either Jumar

failed--since I have a tether between the foot Jumar and my seat harness--I am not going to get hurt, in fact, I am going to be real comfortable while I figure out what to do next--which will probably be to tie something back together.

Back to the Ropewalker. If the Simmons Roller failed, I would be all right, just sitting when I should be standing. But if the top Gibbs failed I am going to be in serious shit, cause there will be nothing to hold me upright. After reading Bruce's article, I am going to tie a tether between the knee Gibbs and the seat harness. Then if the top Gibbs breaks, I can contemplate my world while trying to get my right knee out of my mouth, but at least I wouldn't fall. So all things being equal (fogive me Bill, for I have sinned.) I think my two point Texas System is safer than my three point Ropewalker system.

Of course--Like I said--I don't really do a lot of l-o-n-g drops and maybe if I did I would use a Gibbs Ropewalker and a Jumar safety. I suspect--given my old age--if I have to start doing a lot of vertical stuff, I would probably just quit going underground all together, it is just not my style of caving.

There are three other things I like about the Texas System. It is simple to teach other people (particularly when you are at the top and they are at the bottom), simple to bastardize, and simple to get off and on rope. Of course it is hard to beat the Gibbs' strength and gripping ability on icy or muddy ropes. Maybe that is why I have two ascending systems.

SECOND THING

Three or four years ago I read this article in PSC'S Potomac Caver. A bunch of people (please see my other article in this issue, for the definition of people) left the D.C. area and went down to Georgia and did Ellisons or some such cave. The water was up and they had one wild, wet trip. As a matter of fact, between the wet stuff and the cold, the trip became "sporting". I took this to mean that someone almost "bought the farm". Some of the PSC members thought the trip was unsafe and there was a little bit of a debate in the Potomac Caver. I forget who won.

Three and a half years ago we had a couple of people come down and drop Cass Cave, which is pretty high up on the side of Back Allegheny Mountain. It was the first day of December and the sun was melting the snow higher on the mountain. The water was way up and was serious c-o-l-d. Two other parties crapped out of their cave trip to Cass that day. But the two guys, who were from Ohio, didn't. They did the stream crawl and dropped the 140 foot Suicide Falls. The trip leader died and came out of the cave with a placitic sheet over his face.

The bottom line is: it is important to know when to abort a caving trip. I know sometimes you look forward to a trip a long time, drive a long way, and have a lot of cavers depending on you but nevertheless, there is always a day that the water is s-o-o-o-o cold, it is very wise to crap out. I know it is not macho, but so what. That Ohio boy was only in his early twenties and you know that was one hell of a sad Christmas for his family. That trip should have been aborted and that PSC trip should have also been aborted.

And I will tell you something else, I have been caving thirteen/fourteen years and most cavers don't care what caves you have done or how many

macho trips you have been on, they only seem to care how long you have been caving. Some of the most macho cavers I know I have never been seen in a cave. As a matter of fact, I suspect some of them may have never even been in a cave. Besides, most cavers can't remember the last time they went to the bathroom, much less who crapped out on what trip when. "Oh, Yea, Old Joe Blow, been around forever." Of course, a poll of Joe Blow's closest friends would prove he hasn't been caving since 1969... and that was during a two hour trip at an Old Timers. Nonetheless, he is the most respected caver in a four state area.

I think it is all important that all trip leaders--and a few of their go-fers--know how to abort a trip.

April 23, 1983, eight cavers were trapped in Precinct 11 Cave in Rockcastle. Most North American weather fronts move from west to east, so it takes a little longer for rain and such to get from Kentucky to West Virginia. I spent that night at the PSC fieldhouse in Germany Valley. That night it rained and rained. The next morning, everything was flooded. A lot of the sinkholes were rim full of water. Streams were out of their banks--in fact, Ray Keeler, refused to allow us to drive through one submerged section of the road. Instead he waded ahead on foot, checking to make sure the road had not washed away. That was one hell of a regional rainstorm and --as I recall--well announced by the weather bureau. With water caves--either on rope or in stream level passages--you can only do so much to protect yourself from the water and the cold. When the shit gets serious, you have to be somewhere else, or you die. Rain equals high water in the caves, snow melts equals high water, and --because a long dry spell will form a hard crust on the ground--the first rain after a drought equals high water in the cave. The only way to survive is to be somewhere

Three Things

else--like the neighborhood bar. That Precinct 11 trip should have been aborted.

The first weekend in March last year, two people died in Miller's Cave in Iowa. The caving party was trapped below a drop by a sudden rainstorm. It was another case of a caving trip that should have been aborted. They--the weather bureau--were calling for a major storm from the Rockies to the Appalachians. There is more to life than caving. I think.

Now before someone gets the idea I am someone like God or the editor of *Nylon Highway*, let me say that I am not a know-It-All and I too have trouble with aborting caving trips. Not the kind everyone travels to the same cave in the same one or two car. I live in a rural area and I can put the entire county's cavers in my car and still have room for four other people--and my car only seats five. I am not a real expert on vertical caving, but I am an expert on project caving and mapping caves. Y number of cavers arrive at the Project Fieldhouse from X number of towns in Z number of states. That means you have between two and fifty people at the fieldstation, some of which you know, many of which you do not, some which are good cavers, and some which are not. Either you or the Expedition Leader organizes the caving trips. Sometimes you get the people you want, sometimes you get who is left over.

Now you are in the cave--and lo and behold--you discover one or more people on your trip are complete idiots, unable to cave. They can't walk, they have to be out of the cave by 5 pm to study. What's an ascending system?, They won't get their boots wet, they want to explore, not survey. Do

you send them out on their own? Do you accompany them out? Do you quietly murder them and hide the bodies under a handy rock? There is more than one story of someone sending rank notices--they always look s-o-o-o good at the fieldstation before they go into the cave--out of a complex cave system. "Turn left at the first water junction. I know it is a small junction, but you can't miss it, the main passage ends a half mile past the turn off...Yes, the water goes in the top of the lamp, not in the bottom..."

I don't have any easy answers. Everyone has to put up with a nerd now and then. All of us are nerds now and then. But I think--project caving excluded--cavers should be more ready to abort their caving trips and spend the day touring downtown Huntsville or the Space Museum. Now with project caving, you are allowed to quietly kill the idiot some other idiot has saddled you with.

THIRD THING

In another article in this issue, I alluded that It was OK to throw rocks at cavers you don't like. I lied--it is not right to throw rocks at cavers you don't like. If you throw rocks at cavers you don't like and you hit them, then--after the caving trip--you have to explain why Joe Caver has a rock sticking out of their left eye. Let me tell you this, **NO** explanation is good enough to satisfy a mother or a spouse. That fact alone is the only thing that has saved my life all these long years leading caving trips. A lot of people have wanted to kill me, but no one has wanted to explain the "accident" to my mother. □

THE "FREDDY B" SYSTEM

By Fred Baumann

The "FREDDY B" system is designed to get rid of the bungee cord blues. Some of the rope walking systems use bungee cords to pull the Gibbs ascender up the rope. Others have tried tying the upper ascender to the leg with webbing. Neither method seems to be satisfactory. The bungee cord pulls painfully at the chest harness and has a tendency to snag and tangle on the climbing gear. Tying the ascender on the leg is not much better. The ascender slips and moves around and climbing with this system can be a real pain.

The "FREDDY B" system simplifies the attachment of the upper Gibbs ascender. This system uses a light weight plastic tube to push (rather than pull) the ascender (See Figure #1). Note: Hot water type ABS tubing is less likely to break and PVC should be avoided. The tube should be cut about 16 inches long. (The distance from the top of the foot to the knee.) One chicken strap is loosely applied at the top of the tube and seems to fwork best when attached to the climber's harness, while another is snugly applied at the bottom of the tube. The "FREDDY B" system allows longer steps and is more comfortable. Note: this is an experimental system. Do not attempt to use this system. It requires extensive vertical experience. This method was published for discussion purposes only. Let me know what you think.

Fred Baumann
Member of the Dogwood City Grotto
6404 Shore Drive
Douglasville, GA 30135

Note: Neither Fred Baumann or the Dogwood City Grotto endorses or promote this idea until further experimentation.

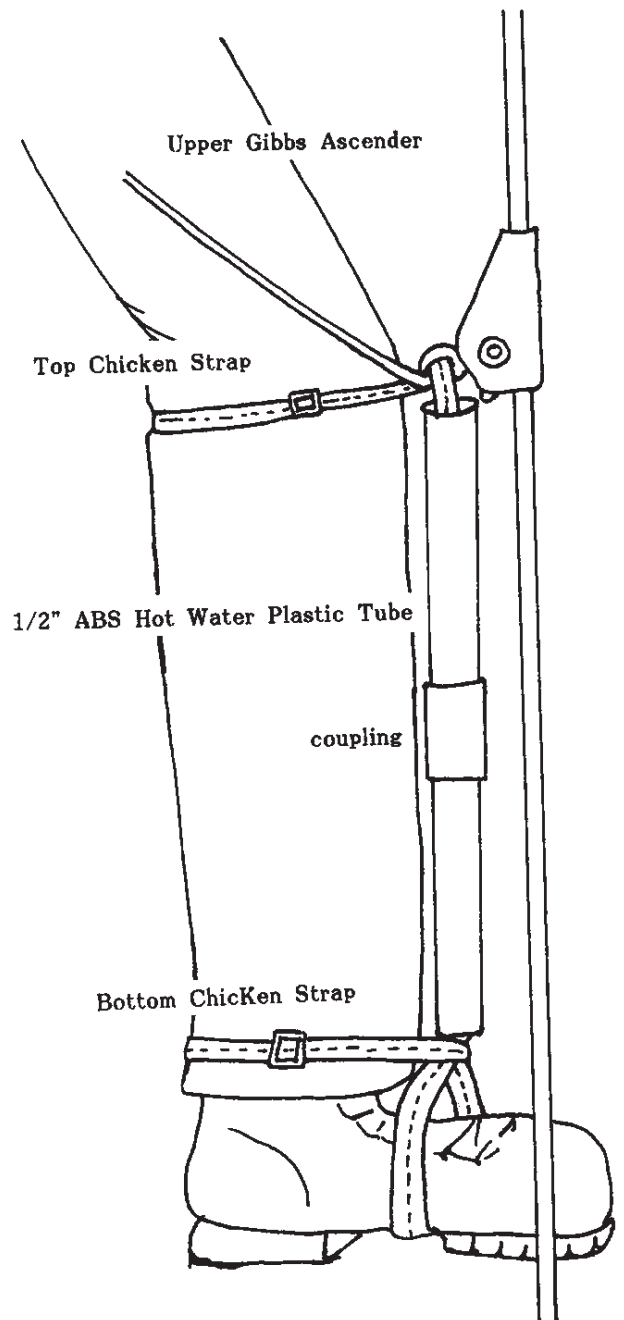


Figure #1 The tube can be cut in half and a coupling can be glued to the bottom. The top just rests in the tube (not glued). In this way the assembly will fit in a pack. □

THE ARBORIST CINCH

By Robert Wells

After 20 some years of SRT it is truly amazing to find someone in the business of manufacturing an ascending device who is completely unfamiliar with this technology. The "Arborist Cinch" as it is called is put out by two such folk, Dan Brennan and Luther Houck, in Kutztown, PA.

I came across this device at an arborists trade show in late Feb. 88 in Lancaster, PA--A piece of 1/2" woven climbing line was looped over a beam in the ceiling with an Arborist Cinch attached to the running end at eye level. Two or three tree men were gathered around the device in what looked like a casting call for "Quest For Fire".

After reading for years other's articles on the leading edge of vertical technology I thought for a moment it was my turn to share that precarious position on that edge. With Glee in my heart, I drove to Kutztown a few weeks later to interview the two budding capitalists who have invented the Arborist Cinch.

The Arborist Cinch is both an ascending as well as a rappelling device in one unit. The running end of a line is passed through the Arborist Cinch housing and held in place by a crescent shaped stop or guard that rocks back and forth on a pin through the housing. The guard is affixed to a cam not too much unlike the cam found in the Gibbs ascender except that there are a second set of teeth that are located above the first series. This entire cam/guard unit is controlled by a lever that juts out lethally from the housing, inviting disaster through the accidental hitting of the lever. One feeds the rope into the housing as the lever is simultaneously pressed and released. At rest, both

ends of the guard hold the rope in place.

Overall the Arborist Cinch is a very crude ascending device, that in my opinion is of little to no use to the caver. It bristles with sharp and unfinished edges, the housing is fabricated from diecast aluminum/magnesium alloy rather than the professional look of rolled steel as found in such products as Petzls. The two roll pins that hold the toothed back plate in place appear to me to be extremely unsafe. One further drawback to this device is that the back plate must be changed when going from 7/16" to 1/2" rope, requiring the removal of the roll pins in a shop, (hardly an activity readily done in the field). Furthermore, one cannot use a laid line with this device--only woven or braided rope.

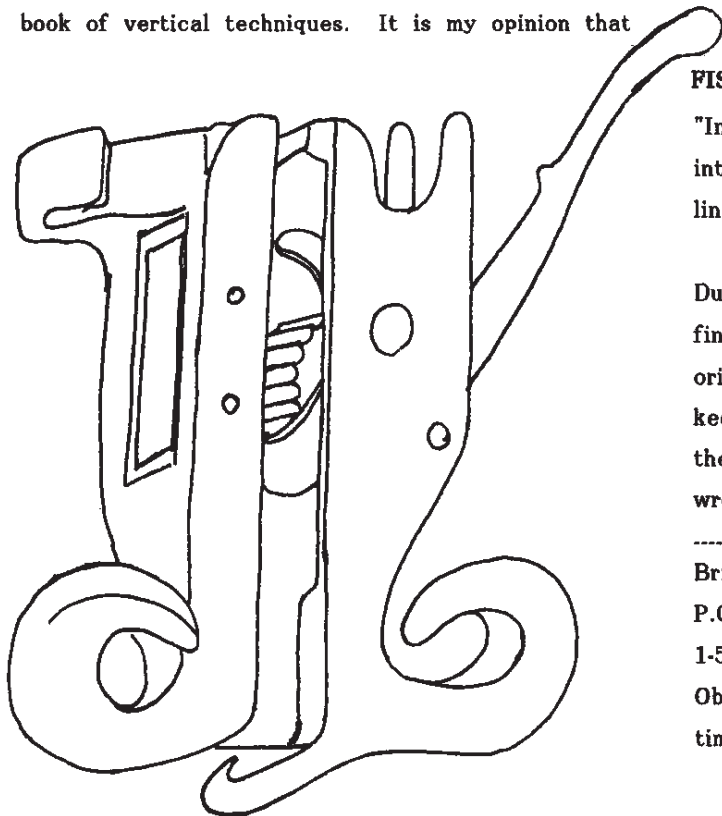
Dan Brennan, the inventor and patent holder of this device, has been an arborist for the last 17 years. And until my interview he was unfamiliar with SRT; and seemed to have developed his device in a vacuum. The use of ropes by arborists (tree surgeons) is very different from the caver's rope techniques. An arborist throws a rope via some method through a substantial crotch high in a tree, secures himself to one end and thrust/pulls himself up the tree via the free end. His progress is captured with the use of a knot similar to a prusik knot. This device seeks to replace the knot. Once at the top the process is placed in reverse and the primary rappelling friction is derived from the rope running through the crotch of the tree and the friction in the aforementioned knot or device. It is interesting to note that arborist's technology can be traced back to the turn of the century and that several books by Keith Davey,

Arborist Cinch

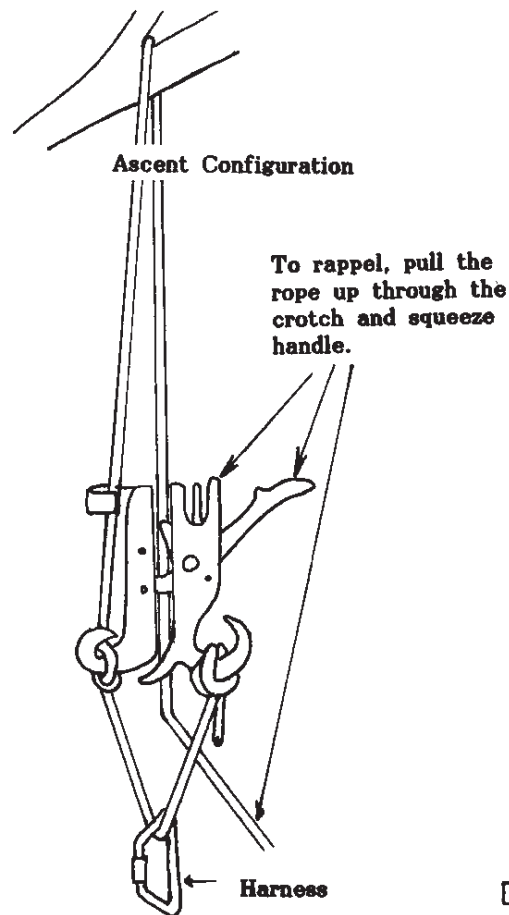
(father of Davey Tree Service) spell out this procedure of tree negotiation. These techniques have remained intact and basically unchanged. They involve a simple application of a rope, saddle (seat harness) and a snap clip. The Arborist Cinch by Mr. Brennan is an effort to improve these techniques, it is difficult to imagine that his \$95.00 device will ever see wide spread application. It is simply too difficult for the everyday tree worker to comprehend or use with proficiency.

Other drawbacks of the device include its bulk/weight (1+ lbs.), inability to readily accept different sizes of rope, the sharpness of the teeth on the cams, the use of diecasting should be replaced with millwork or extrusions on roiled steel and the "devil horns" at the bottom makes it appear somewhat "bush".

This device represents a noble effort on the part of Mr. Brennan to develop an ascending/rappelling device that would find everyday usage. For this effort alone this device deserves a footnote in the book of vertical techniques. It is my opinion that



the concept of the double toothed cam and the crescent shaped rope guard are good ideas however, the whole device needs refinement.



FISK DESCENDER Continued from page 17

"Instead of crawling over the side and climbing into your chair, just strap your chair and safety line while you're on the roof."

Duckworth does, and 14 years in the industry still finds him whistling while he works. It is this orientation toward safety and common sense that keeps him seeking out new and safer products like the Fisk Descender. The only thing he feels is wrong with it is that he didn't think of it himself.

Brian K. Fisk's company is called Ascendor Corp. P.O. Box 02884, Portland, Oregon 97202, 1-503-231-9532. The device sells for \$125.00. Obviously built for the serious rappeller or those times when gang rappelling is required.

HISTORY AND CHANGES OF THE "VERTICAL EIGHT" PATCH

By Scott Fee

In the January, 1967 Huntsville Grotto Newsletter (HGN); Dick Mitchell, Huntsville's Grotto Chairman, (NSS 8200) introduced the concept of the Vertical Eight Patch. This patch would be issued to any qualifying NSS caver who had satisfactorily done eight of the then listed pits and caves. Applicants must qualify and cannot just purchase the patch for their collections or whatever. Dick believed, "Cavers from not only Alabama, but from all over the United States will, we hope, wear the patches on field trips and to conventions, publicizing not only the patches, but also the tremendous amount of work spent in order to obtain them." He adds, "Maybe I'm idealistic, but I believe that this award means that an individual is qualified and capable of exploring any horizontal or vertical cave in the United States safely and with the experience needed to handle any situation."

Jim Hall mentioned another reason for the patch introduction in the March, 1975 HGN: "In doing the advance planning for the 1967 Convention in Huntsville-Birmingham, it was realized that most of the vertical cavers coming to the Convention would all want to do the Fern drop (as Ellisons and others had not been discovered yet!) and that the non-vertical cavers would all desire to go to one or two of our popular horizontal caves. The Vertical 8, Horizontal 12 Program was instigated to help conserve our Alabama caves by spreading the traffic through a lot of our caves instead of only a few well known ones. The purpose of the V8 and H12 Program is to discourage visits to particular caves (ie: reduce visitation for conservation) by offering alternative objectives for non-local cavers coming to our caving area.

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In addition, Bill Torode related his thoughts to me regarding the patches creation. The Huntsville Grotto, at that time, was experiencing an underground slump. That is, not as many active cavers were caving. He thought the patch may have been introduced to encourage the Huntsville members to become more active in underground activities.

The qualifications for the V8 remained the same until 1970 when they were changed and expanded. Instead of doing an accepted pit or in-cave drop as contained on 'the list,' you now must do a minimum of: 5 single pitch 100 ft. drops, 2 200 foot single pitch drops, and 1 400 foot pit-cave system. In 1983, there were over 100 pits 100 ft deep, over 16 pits 200 or more ft deep and over 20 caves over 400 ft deep! Applicants must have been an NSS member at the time they visited these caves or pits and must have followed safe caving practices and personally rigged at least one of the pits. The requirements of the H12 was similarly modified. As of this writing, approximately 300 Vertical Eight patches and less than 200 Horizontal Twelve patches have been issued.

Thanks to Bill Torode, NSS Librarian, who located all of the above references and helped me with various tidbits of information. □

SARA F. CORRIE

We will remember you for many things. Among those will include your vast contributions to the Vertical world, Your strength, Your persistence, Your appreciation for people, Your love for the majesty and greatness of karst and river countries and particularly your encouragement to others. When asked once if she could describe what it was like climbing out of Fern's 404' she said, "I can't, It's a personal thing." And so it is for all of us.

We love you and we will miss you.

SIX KNOT HARNESS

By Russell Born

The six knot harness was introduced in Ohio by Lt. Kreg Williams, of the Westerville, Ohio Fire Dept. His previous experience, in Colorado, involved him in mountain rescue. This was the harness used for training due to the redundancy of the system.

Such a harness is made using 1" tubular nylon webbing (average tensile strength is 4000 lbs.), 18 ft. in length for the average sized male adult person. Larger persons may find a need for webbing up to 20 feet in length while smaller persons may use only 16 feet of length.



Figure #1 Locate the middle of the 1" tubular webbing.

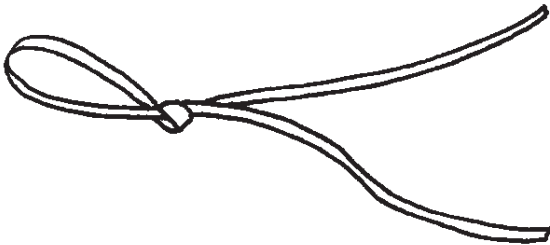


Figure #2 Starting at the middle, tie one overhand knot to form a leg loop. Make it large enough to fit around the upper thigh.

The tying method actually creates two harnesses with this single run of 1" webbing. When tied properly, it is the safest known tied webbing harness available. Compare it with the "Diaper", "Swami", "Army Seat", or "Swiss Seat" which are tied with a single run of webbing but they only utilize one or two knots in the tying. Should a knot fail or a "burn-through" occur the end results

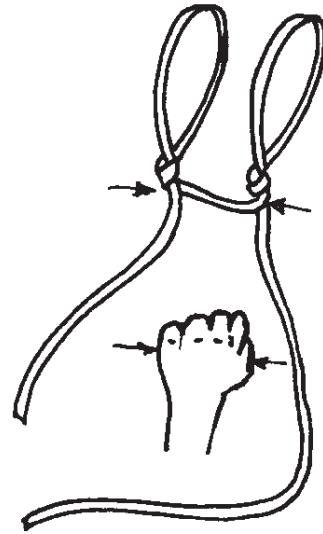


Figure #3 Check size of the first loop, then tie a second loop the same size. Separate the loops about a fist's width.

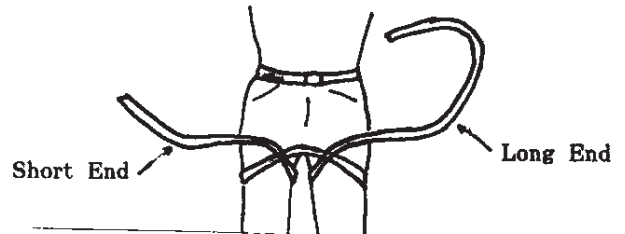


Figure #4 Step into the leg loops with the knots forward.

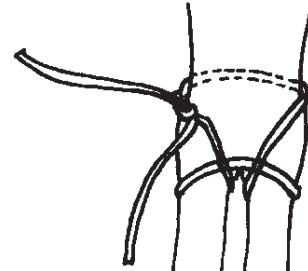


Figure #5 Pass the long end around your back. Tie the long end to the short end with a square knot on the hip bone at your side.

could be tragic. A "burn-through" can occur by having the nylon rope in contact with the nylon harness material and moving in a rubbing manner so as to permit the friction to generate heat. The six knot harness, being two harnesses, is thus recommended as the safest tied harness.

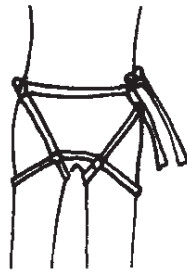


Figure #6 Pass one remaining end around your front and the other end around your back. Tie the ends together with a square knot.

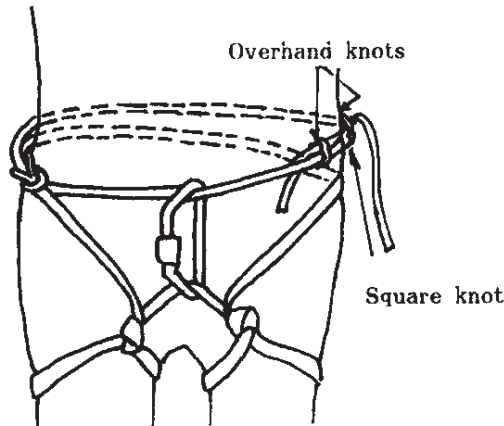


Figure #7 Finish with an overhand knot on each side of the last square knot for a safety back-up. Tuck the tails into your trouser pockets.

Once your leg loops have been tied to your fit (fig. #3) they may be left in the webbing for future use.

Recognize that a tied harness is not as comfortable as a factory manufactured harness but, if one is in the training process and doesn't own a factory made harness, the tied harness will serve well due to the safety factors incorporated into it. Prolonged wearing of a tied harness will, however, become uncomfortable and one should consider having his/her own harness at the earliest possible time.

This information is provided to refresh one's memory of the training you have received. It is not intended as a substitute for instructions given by a competent instructor of rope techniques.

ADMINISTRATIVE

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For Spouse memberships add \$1.00. Please insure that these payments are in U.S. dollars. Frequency of the publication is based on the availability of material. All material that is submitted must be readable. The Editor is able to arrange, upon request relatively quality drawings explaining your topic. As many of the articles published in the **Nylon Highway** are experimental, the NSS, Vertical Section, the Editor as well as any and all authors whos names appear in the **Nylon Highway** absolve themselves of all responsibility. It should be understood by the reader that the responsibility lies with those who choose to experiment further with the information contained here. The **Nylon Highway** attempts to screen and publish reliable high quality material that in the Auther's and Editor's best judgement appears to be sound in principle and is backed up with supportive testing or facts. The science of SRT is ever changing because cavers and climbers are constantly finding better safer and more effecient ways of acheiving our goals. Always experiment using good judgement and adequate caution. ...**THE EDITOR**

OUR REPRINTING POLICY We have always felt that it can only benefit everyone if the vertical procedures as described in the **Nylon Highway** be reprinted in every publication that will do it. We only request that the Author receive credit for his/her work and the **Nylon Highway** receive credit as being the original publication.

PROPER BUNGIE ATTACHMENT

By Bruce Smith

It has been shared once with the general vertical caving public by D. C. Province in Frankfort, KY at the NSS Convention back in 1985 the best way or place to attach Bungie Cords to the knee cam of a Gibbs floating cam system. Everything published to-date has been less than the best.

Shell Attachment

Attachment to the shell either around the quick release pin or with a mini-mini biner to one of the top holes in the shell will cant the cam and cause it to be pulled upward at an angle causing drag and unnecessary friction.

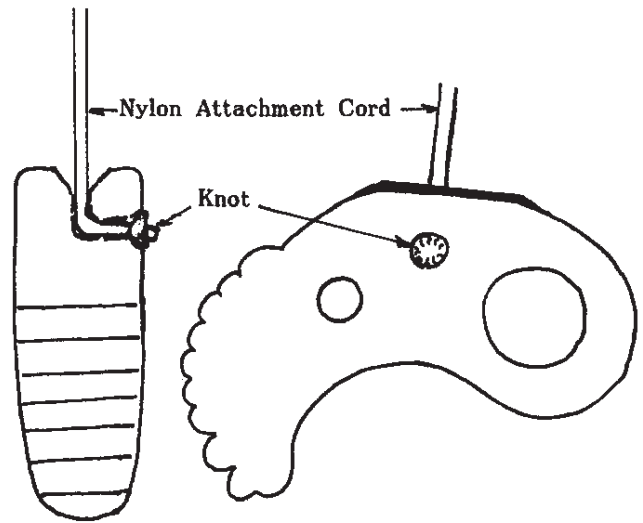
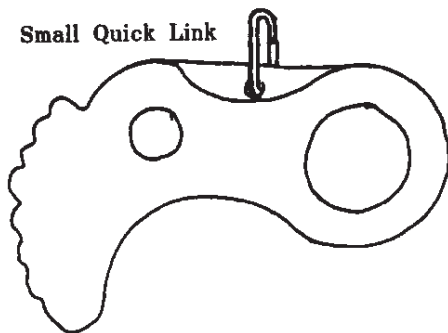
Cam Eye Attachment

Attachment to the cam eye will only cause the cam to remain in the open position disallowing it to grab the rope at the appropriate times.

Best Attachment

Attaching the bungie cord to the spine of the cam just offset from the release pin hole will provide the best possible attachment point. It is here that the cam will release and grab the rope when it is supposed to. The cam will not be tilted to one side causing drag, rather straight up and down providing the most efficient use your equipment.

I wish to thank D. C. for his contribution to this short but so important article on bungie attachment.



Super Pit Continued from Page 14

Mihintale had become so riddled with great crevices, many of them still unexplored, that it came to be known as the "Field of a Hundred Fissures". Often narrow at the top and widening below, like a limestone pit, these fissures reach incredible depths. How deep? Hold on to your racks guys; some of these openings, fully seventy feet across, have a free drop of three thousand feet. I said 3000 feet!

How long would it take the average vertical caver to climb out of such a monster? The "average" caver, in good condition, can climb out of Golondrinas in about an hour. Stack another one thousand feet on top, however, and he, or she, probably wouldn't get out in two. The longer the climb, the slower the pace. I would guess that a three thousand foot pit would require something like four to five hours!

Anybody care to find out? Well, first you'd better make sure you're in shape. Find yourself a one hundred foot pit. Drop in and climb out again... thirty times. Then you'll know if you can make it!



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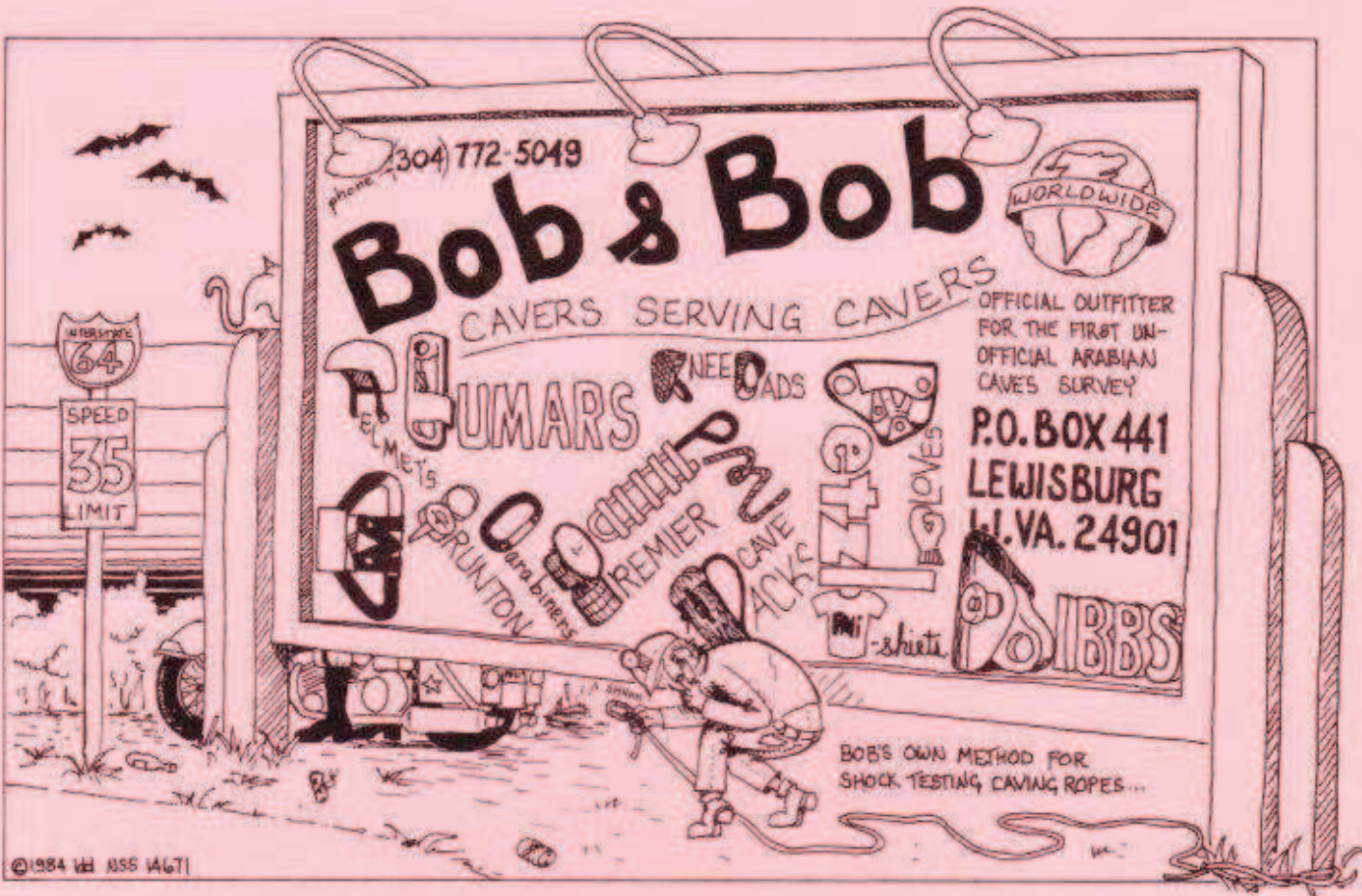
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