NYLON HIGHWAY 18

...ESPECIALLY FOR THE VERTICAL CAVER

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EDITOR--NYLON HIGHWAY Bruce Smith

DUES ARE DUE

1984-1985 DUES ARE DUE if you have not mailed them in or paid at the 1984 NSS Convention. Mail $3.00 (no increase again) to Bill Bussey, P. O. Box 311, Stanley, N. C. 28164. Make checks payable to NSS Vertical Section

WHAT THE HELL IS GOING ON?

Every 1983-84 member/subscriber has received N.H. # 18 as well as all currently paid up 1984-85 member/subscriber. Issue # 19 has already been printed. Expect to see it in a month or so. #20 will arrive in the Spring before convention. If you have any questions about the statis of your membership/subscription call Bill Bussey H..704-864-5071 or W..704-263-1011. Questions about the Nylon Highway's content call the Editor, H...312-231-7126 W...312-920-7899

SUBSCRIBERS VS. MEMBERS

What's the difference? Members have NSS #'s... Subscribers don't. Members vote during elections and key issues, Subscribers shouldn't. Otherwise the cost is the same.

ILLUSTRATIONS: Robert Landau created his own illustrations. The others were contributed by the Editor.

NYLON HIGHWAY #18

SEPTEMBER 1984

TABLE OF CONTENTS

ISSUES #1 #2, #3, #4, #5, #6, #7, #8 REPRINTED

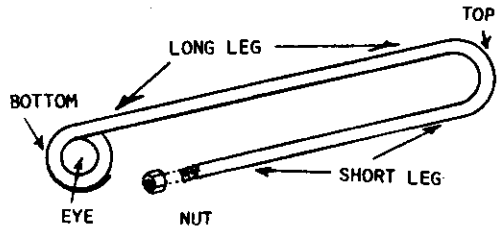
COVER: Editor's pen and ink of "Daydreaming." Memories that often fill our mind during the weekdays.

SELECTING BRAKE BARS FOR YOUR RACK

By CJ Rushin-Bell

I have recently come across a number of new (and some not-so-new) vertical cavers who seem confused as to the types of brake bars available and the proper method of putting the bars on their racks. Let's go over a few basics!

The Rack! The rack is the "U" shaped stainless steel holder for the brake bars. You may purchase either a 5-bar ("short") rack or the standard 6-bar rack. If you are light weight, say a child or small adult, the 5-bar rack may be fine for you. However, most cavers use the slightly longer 6-bar rack. Racks generally are sold without brake bars. You should make bar selections based on your particular needs.

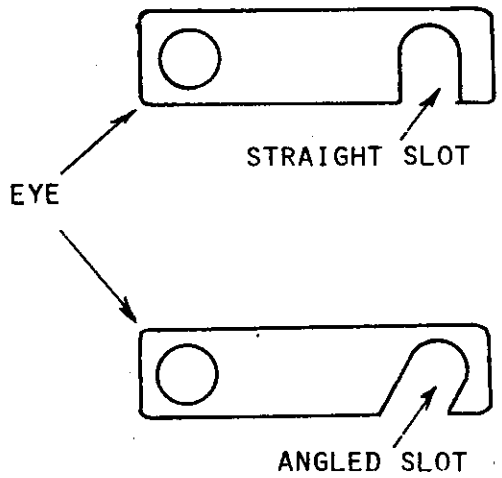


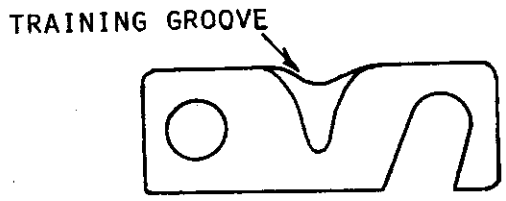
RAPPEL RACK FRAME

Brake Bars! Brake bars now come in an assortment of types! 3/4" solid aluminum, hollow steel, and stainless steel -- all available with either straight slots or angled slots. The slot is the open end, opposite the eye of the bar.

There are even 1" solid aluminum top bars, with or without a training groove. The training groove, which is nothing more than a notch in the center, helps keep the rope lined up in the middle of the bar. Some of the 3/4" steel and 3/4" stainless models are also available with a training groove.

The straight slot bar is essentially an idiot bar since it will only stay clipped into the rack when held there by a properly threaded rope -- it will flop off if you have rigged in backwards. Straight slot bars tend to be a nuisance as they will not stay snapped in when the rack is carried around off rope. Angled slot bars, on the other hand, will stay in place whether you have rigged in backwards or not.(Ed. Rigging your rack in backwards is a practice that should be avoided at all costs in the opinion of the Editor) Thus, they do not provide the "warning" of improper rigging that a straight slot bars does. Still, most cavers prefer the angled slot bars. Occasionally cavers will place a straight slot bar in the second position from the top of the rack.





1" TOP BAR WITH TRAINING GROOVE

Selecting Brake Bars

Aluminum bars are cheaper (approx. $2.00 & up each), weigh less, dissipate heat faster and provide more friction than steel bars. They also wear quicker and leave aluminum streaks on your rope. The new 1" solid aluminum, top bars give even more friction, however the manufacturer recommends only one be used, as the top bar, per rack.

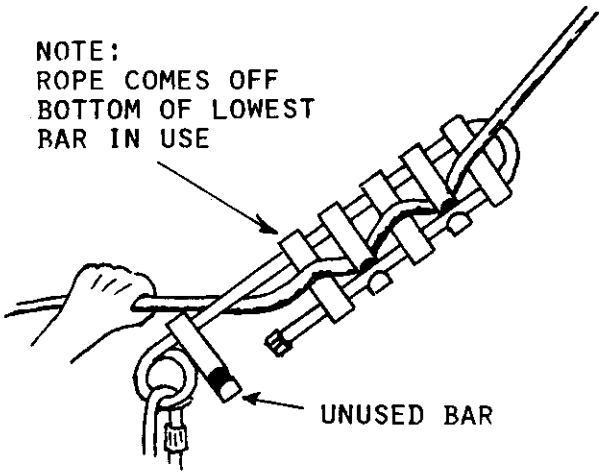
Steel bars, at around $5.00 & up each, are more expensive than aluminum bars, but last longer. They do not dissipate heat as well, are heavier, and provide less friction than aluminum bars. However, they do not leave a mess on your rope. Some cavers mix bars. I use stainless steel as my first and second bars from the top; the rest are aluminum.

Make sure the bars you select will fit the rack -- some brands are interchangeable, some are not. Examples: B&B brake bars will fit SMC racks; Bluewater racks use Bluewater bars only; etc.

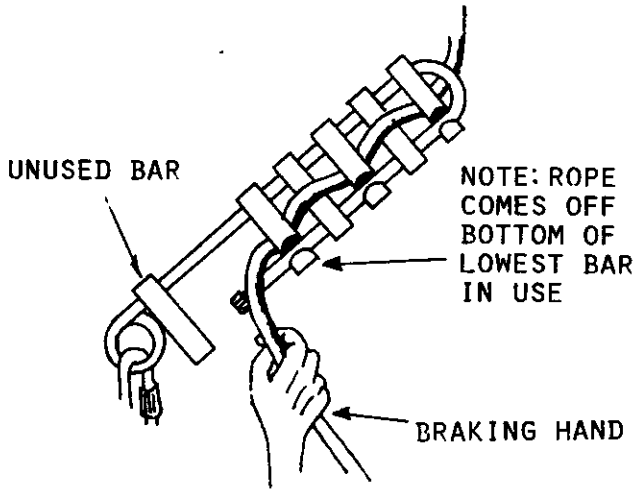
Selection of bars for your rack depends on your personal preference of steel versus aluminum, the amount of money you are willing to invest, the condition of your rope, and the type of rappels you generally do. Remember that more steel bars may be required to give the same amount of friction as aluminum bars, and the heavier you and your gear are, the more bars you will need.

Once you have selected the bars you want, unscrew the nut on the short leg of the rack and, beginning with what will end up as your lowest bar, slip the eye up the short leg, around the top and over to the long leg of the rack. Why rig the eye on the long leg? This allows any bars you may not be using during a rappel to be slid to the very bottom of the rack, out of the way. If the eye was placed on the short leg, an unused bottom bar could be pushed only as far down as the nut. (See drawings below).

Continue putting the bars on, alternating directions the slots face, until all your bars are in place. Be sure the bars are set up such that the rope comes off the bottom of the lowest bar you intend to use and into your braking hand.



BRAKE BAR RACK SET UP FOR LEFT HANDED CAVER USING 5 BAR OR RIGHT HANDED CAVER USING 6 BARS.



BRAKE BAR RACK SET UP FOR RIGHT HANDED CAVER USING 5 BARS OR LEFT HANDED CAVER USING 6 BARS, SHORT LEG SHOULD ALWAYS BE FACING DOWN AS A CAVER RAPPELS.

Selecting Brake Bars

The eye of the 1" top bar will not slide over the top of the rack to the long leg. If you use one of these bars, you will have to leave the eye rigged on the short leg. This is not a problem with the 3/4" bars.

When all the bars are in place, screw the nut back on per the manufacturer's directions. And make sure that you have obtained competent training in the proper rigging and use of the rack before attempting to use it. □

CUT RESISTANCE OF ROPE

By Gary Storrick

There is a lot of talk these days of the importance of abrasion resistance of the various static kernmantle ropes. Wheather it be PMI, Bluewater or SSP they all make claims with regard to their ability to resist abrasion. Padding becomes a very important factor when it comes to rigging and safe SRT.

What has become apparent to me lately is that there may be a factor far more important, that if not taken seriously could result in tragic consequences. That being the "Cut Resistance" of a rope. The ropes that cavers use when under any kind of a load really have no cut resistance. Repeatedly I have placed any piece of static kernmantle nylon rope under load and taken a moderately sharp knife and sliced through it like a hot knife through soft butter. It takes but a fraction of a second to completely sever all the fibers. (ED. At the 1984 NSS Convention at the Vertical Session we repeatly witnessed this phenomenon. Two people stretched a small piece of rope between them while Gary laid his knife on the fibers. The group watched as, almost instancely, the two people found themselves lieing on the floor.)

Why is this important you may ask? What do we do when we find we've caught our hair or beard in or rack? At an odd painful posture we pull out our sharpest knife and start cutting anything that holds a promise of freeing ourselves.

What we are really encountering is a stress concentration of the fibers under tension and the knife will slide through this man made fiber like hot knife through warm butter.

What's the bottom line...when someone gets their hair caught in a rack you don't go up and cut them off with the sharpest knife you can find. I think it's important to keep in mind that abrasion isn't everything in the world and very often in caves we find very sharp rocks that can more often cut through your rope than abrade it or fuzz it.

*This text was transcribed and placed in readable sentences by the editor who recorded the proceedings from the NSS Vertical Session at the 1984 Convention in Sheridan, Wyoming.

EDITOR'S REPORT

By Bruce Smith

A little more than two years have passed and I feel an obligation to inform the membership what exactly the Editor's have done with your money. Both Sherry Graham and myself have obtained non-profit bulk mailing permits which drops the price of Mailing from 54 cents a piece to 5.2 cents a piece...963% reduction in postage. Postage delays are the compromise so to fight I've just resolved that I shall mail early.

NYLON HIGHWAY ACTIVITIES--THE LAST TWO YEARS

Item	Length	Date	# printed	Cost
NH 15	23 pgs	3/83	400	$210.00
NH 16	23 pgs	5/83	500	$250.00
NH 17	22 pgs	11/83	500	$265.00
NH 18	25 pgs	9/84	500	$285.00
NH 14	16 pgs	11/83	400	$195.00 reprint
NH 1	22 pgs	4/84	200	$ 20.00 reprint
NH 2	23 pgs	6/83	40	N.A. xerox
NH 2	23 pgs	4/84	200	$ 20.00 reprint
NH 3	23 pgs	6/83	40	N.A. xerox
NH 3	23 pgs	4/84	200	$ 20.00 reprint
NH 4	26 pgs	6/83	40	N.A. xerox
NH 4	26 pgs	4/84	200	$ 20.00 reprint
NH 5	22 pgs	6/83	40	N.A. xerox
NH 5	22 pgs	4/84	200	$ 20.00 reprint
NH 6	18 pgs	6/83	40	N.A. xerox
NH 6	18 pgs	4/84	200	$ 20.00 reprint
NH 7	25 pgs	6/83	40	N.A. xerox
NH 7	25 pgs	4/84	200	$ 20.00 reprint
NH 8	27 pgs	6/83	40	N.A. xerox
NH 8	27 pgs	4/84	200	$ 20.00 reprint
NH 15	23 pgs	4/84	200	$ 20.00 reprint

INVENTORY PRIOR TO NSS CONVENTION 1984

ISSUE	TOTAL	ISSUE	TOTAL
#1	230	#9	145
#2	230	#10	70
#3	225	#11	118
#4	206	#12	155
#5	223	#13	53
#6	200	#14	405
#7	200	#15	226
#8	203	#16	120
		#17	243

We've come a long way from the early days of N.H. Printing costs were higher believe it or not. N.H. #3 cost us $110 for 150 copies. As with N.H. # 1 as today I still hand collate and hand staple everyone. It took nine hours to collate the 900 issues of #17 and #14 when they both got back from the printer the same day. I've been unsuccessful in finding a printer that can produce wrap around covers (i.e. NH #6, #7, #8, #13, and #14) at a competative price. I tried to get #14 reprinted exactly as the original and the 11" X 17" format was quoted at $460.00 for 400 issues. I had it done on 8 1/2" X 11" stock, I collated and stapled for $195.00.

How much does a real issue cost?

Raw Printing cost per issue	$.5111
Mailing envelope	$.1012
Postage per issue(bulk)	$.0520
TOTAL	$.6643

EDITOR'S REPORT

You're probably calculating, 2 issues a year...$.6643 X 2 = $1.3286...?...?...? What happens to the rest of my $3.00 a year? Quite obviously, there are many other expenses that are not reflected in direct production and mailing (i.e. Mailing permits costs $40.00 to apply for and $40.00 a year). Our second year is upon us on the same permit so we only had to pay $40.00. If I change post offices the $80.00 1st year fee starts all over again. Bulk permits are non-transferable between post offices.

I think its also important to at least mention that even though we collect extra money for international mailings, it is necessary to subsidize the mailing of those issues. In fact, in general, it costs about 1 1/2 times as much to mail the international issues as it costs to ship the entire bulk mailing.
Issue # 16 for example:
309 issues at 5.2 cents = $16.07
25 International issues = $23.90
Our international mailing is small enough to avoid concern. I don't feel it's necessary to make any adjustments in international rates. This is in fact the only area of our dues structure that doesn't pay for itself.

The $3.00 a year also covers those issues printed, but not sold and become back issues. Back issues, by-in-large, pay for themselves, but the initial inventory takes money.

The good news that comes out of this analysis is that if the membership does not wish to upgrade the quality of the N.H. to say glossy covers and color photographs, from my perspective, I see no reason to raise dues for a long time. (Note: They haven't ever gone up since N.H. started in 1973).

Back issues sales at conventions can be finacially a great deal for us. Final figures are sketchy but convention sales over the last two years have put about $1000.00 in our treasury. As we grow our potential for back issue sales becomes far greater as we have far more issues to offer for purchase...This is a benefit that I feel we truly failed to realize the full potential in our early days.

Our format has attempted to remain information oriented and does not assume the profile of a gossip sheet or information that lacks substance. In this way our past issues have remained attractive and desireable.

The NYLON HIGHWAY has suffered through many generations of its own problems not to mention LP records that have adopted its name. There is even a Screen Play that has been written that adopted the same name. The origin of the name is a story all of its own...corner me sometime and I'll tell you.

I think we can deduce from this report that our base is strong...We have money in our treasury...back issues in storage and dedicated people who care about perpetuating safe vertical cave travel. ■

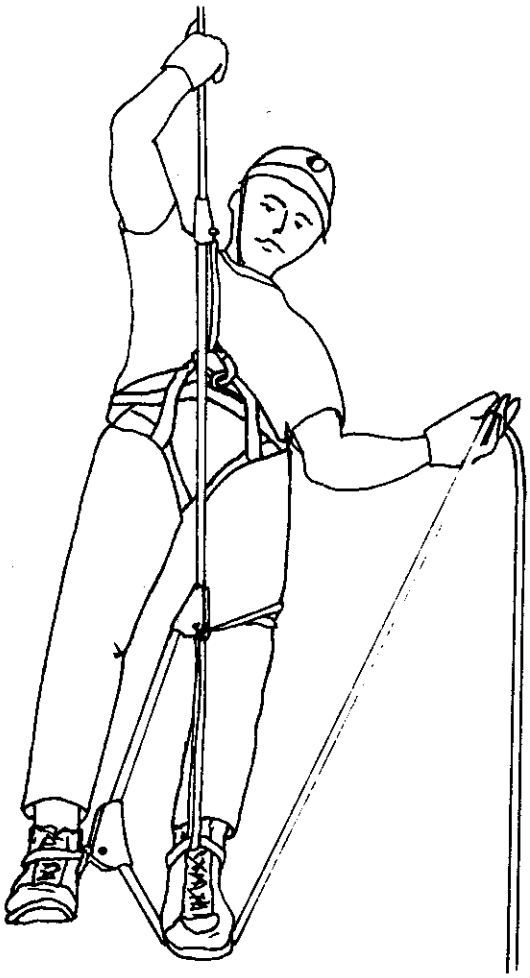
NORTH AMERICAN SINGLE ROPE TECHNIQUES BOOK BEING WRITTEN...Dateline July 1, 1984, Sheridan, Wyoming... The NSS has asked the NSS Vertical Section to supply the talent/horses needed to put together a complete book on North American SRT. Allen Padgett and the N.H. Editor are doing the coordinating and the leg work. The working title is "On Rope" and has a rough draft completion date of NSS Convention 1985.

AN IMPROVED GIBBS SELF-START TECHNIQUE

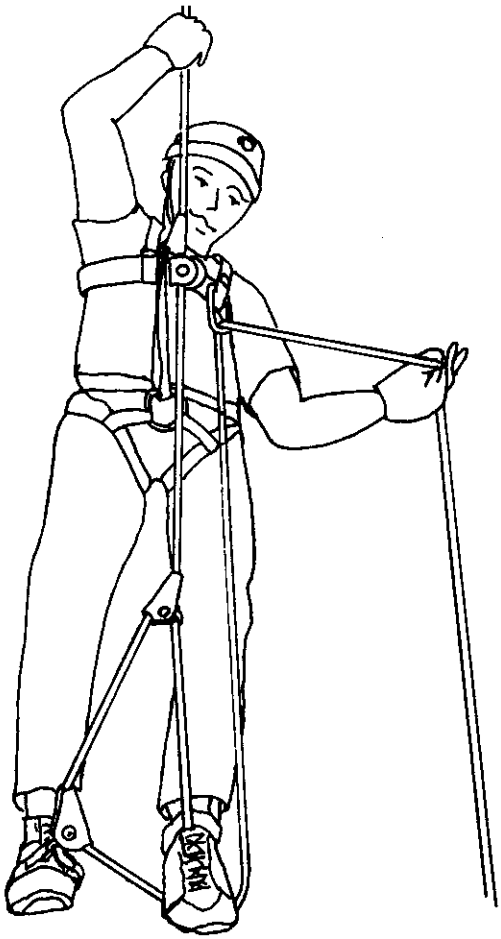
By Dave McClurg*

Traditionally, when you're the last one out of a pit using Gibbs, you have to loop the trailing rope under the instep of your knee cam foot in order to apply enough down presure to enable your foot Gibbs to work at low climbing altitudes. This I found to be a strain on my back and often times very frustrating. Just about the time I figure I'm high enough and can drop the rope (i.e., the rope below has enough weight so my lower ascender can function without down pressure), I discover I'm, infact, not high enough so I have to lean over and contort my body so I can grasp the rope below my feet and begin all over again to provide more tension.

My simple improvement on this process is simply to run the rope under the knee Gibbs foot, as before, but now to bring the rope up and run it through a carabiner that is attached to my chest harness somewhere. This has two advantages, 1. I can let go of the rope to see if I have enough tension below me without dropping the rope out of reach and 2. The downward motion that needs to be provided on



Traditional Way of Self-starting



Improved Self-start Method Incorporates a Chest Carabiner.

the rope is far easier and doesn't put the awkward strain on my back like the other system did.

The location of the carabiner is non critical...anywhere high enough on the chest area to provide you with the appropriate purchase does the job. This is a simple and easy solution to a problem that's plagued many of us "last outers."

*This text was transcribed and placed in readable sentences by the editor who recorded the proceedings from the NSS Vertical Session at the 1984 NSS Convention in Sheridan, Wyoming. □

SSP CAVING ROPE

The Sheridan NSS Convention held many eye opening surprises, one of which was the introduction of a new caving rope...SSP Caving Pope. In personal conversations with Dan Smith, the representative of Smith Safety Products I was able to discover that their company has attempted to manufacture a rope that possesses many of the good qualities of existing, well known ropes...Specifically the abrasion resistance of PMI coupled with the ease of handling that Bluewater has.

The following is taken from the information sheet supplied to the convention participants... "...Seven years have past now and our research backed by over 25 years of caving has produced what we believe to be the ultimate caving rope--SSP-ELO.

ULTIMATEis a big claim, but SSP feels confident in this statement. First, we increased the fiber in the core to 22 strands instead of 20. Next, we prevailed on Dupont! to supply a fiber superior to the 707 and 707S, Nylon traditionally used in Premier caving rope. This done, we developed a technique of aligning all the rope's fibers parallel to the abrasion factor - "PAR-ALIGN". The result was what experience and only experience could produce-- an Ultimate abrasion resistance! easy handling! low stretch and inexpensive rope! No, we don't do 1000 foot pits but our field evaluators do -- they tell us, not the other way around, and we listen.

Simply stated, most of us Cavers do not do 1000 foot+ drops. We spend our time with 150 to 300 ft. drops. SSP sppreciates this and sets out to build rop for the average vertical caver who comes hard by his dollar, yet caves hard on his time available! to him, we are dedicated!

If you believe in the practical aspect of vertical caving and want a rope built for every day use - year after year, then SSP is your rope - your answer - your reliability, that is our commitment! more performance at less cost.

CONSTRUCTION!

16 Strand Par-Align construction sheath.

22 Core strands utilizing an EXCLUSIVE blend of Nylon multifiliment fiber.

minimum 191, 601 test 6700 lbs. average 6770 lbs.

STRETCH!

1.9% at 200 lbs. 15% at 5000 lbs.

WORKING STRENGTH:
17% current tensil.
STANDARD LENGTHS
200 300 600 1200 ft."

As the editor, I can assure you there are many claims and counter claims between the rope manufacturers. My objective is to present some current facts about this relatively unknown rope. An Independent Commercial Testing Laboratory tested several products that SSP produces including their 7/16" SSP Caving Rope. Below find the report.

SMITH-EMERY COMPANY
HUNTERS POINT SHIPYARD BLDG 114 · SAN FRANCISCO CALIFORNIA 94124 · (415) 822 0882
DIRECT LINE (415) 885 2980

Client: Smith Safety Products
P. O. Box 36
Petaluma CA 94953-0036

June 26, 1984

Job No: 5308
Lab No: P060112

REPORT OF TESTING

Procedure: Five samples were tested in accordance with Federal Test Standard 191A, Method 6016.

Material & Construction: 16 Carrier Basket Stitch Braid Over Multiple Core Strands (Static Kermmantle Type) of High Tenacity Continuous Multifilament Nylon Yarns.

Identification: 7/16" SSP Caving Rope

Sample	Tensile Strength	Elongation at 75% Load Value	Elongation at 75% Load %	Elongation at 200 Lbs. Value	Elongation at 200 Lbs. %
1	6900	.750	15.0	.094	1.9
2	6400	.688	13.8	.063	1.3
3	6900	.750	15.0	.094	1.9
4	6700	.750	15.0	.094	1.9
5	6800	.750	15.0	.063	1.3

Respectfully submitted,
SMITH-EMERY COMPANY
Leonard Preas
Senior Technician

JP:pa

In addition I've received three field endorsements supplied to my Dan Smith.

"Used Bluewater Expedition rope the same day. I found the SSP rope more flexible, slower with the same number of brake bars on rappel rack, to the point that I could have used 5 bars rather than 6 (205 lb. caver). Easy handling rope."

G. Zimmer

"Best ever!"

John C. Blum

"We used the SSP rope on a vertical practice session at Larch Mountain. On a 120 to 140 foot rappel, with several points of contact with the rock (basalt !!), there was very little abrasion. After about 15 rappels, there was some minor fuzzing only. Our experiences with other ropes on similar lava climbs and drops have often shown severe abrading of the sheath. Also, the SSP rope is somewhat slower on rappel than some of the stiffer ropes, a characteristic which I like about SSP. On ascending, some cavers with new Jumars complained about the teeth "sticking" in the rope. Since I use Gibbs, I didn't notice this. The SSP rope was notably less stretchy than the other caving rope we were using that day; upon ascending, you were immediately off the floor."

Mike Sims

SSP caving ropes run 32 cents to 43 cents a foot depending on colors and lengths and can be obtained by writing SSP, Box 36, Petaluma, CA 94953 or calling 707-763-5946 ◻

SUPPLIERS: The NYLON HIGHWAY is an excellent vehicle to explain the specific development, use, and/or features of a product in your product line...particularly if it is new. (At no charge). General advertising, as always, is for sale. Contact the Editor for Specific rates.

Issues #1, #2, #3, #4, #5, #6, #7, #8, Reprinted

YUP! You read it right. 1984 has been a busy year for reprinting. Back issues are NOW AVAILABLE. Make your set complete. Back issues cost $2.00, write today for those you're missing. Write to Bill Bussey or Bruce Smith for your missing issues.

A NEW CHEST ROLLER

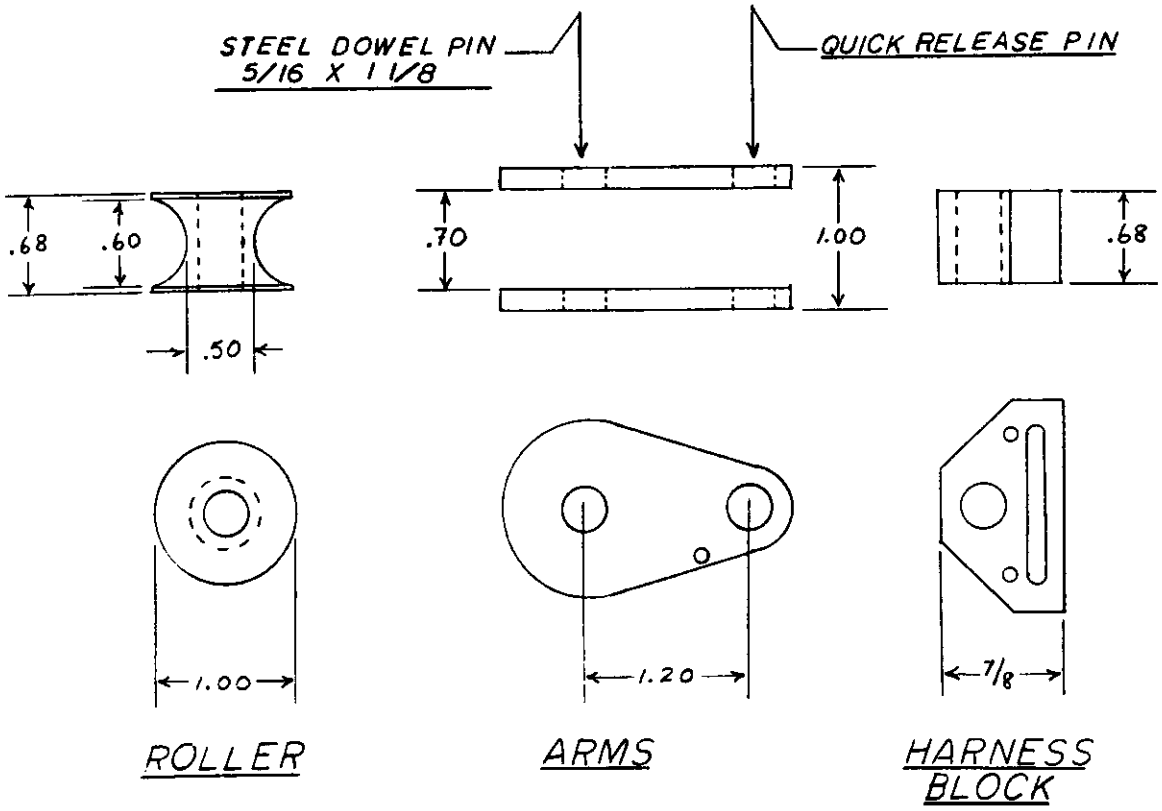
By Robert Landau*

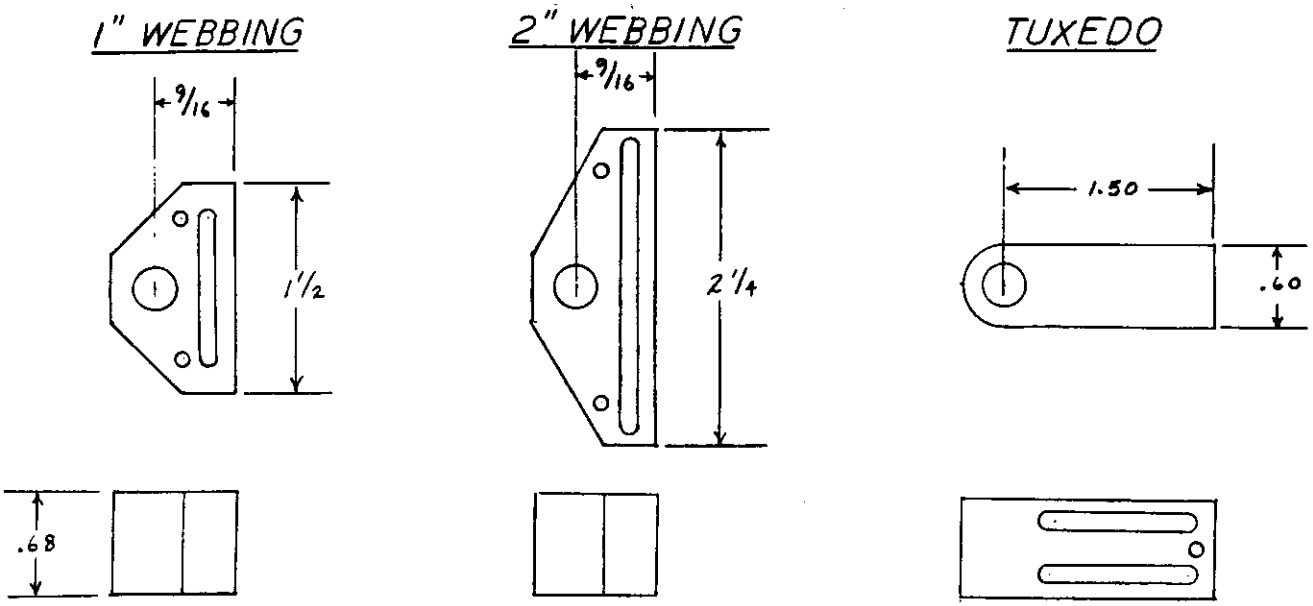
I've taken the opportunity to design a new chest roller. Tailored somewhat after the Simmons' Roller...It has an unmodified quick release pin that holds the two parts together. This is the same 5/16" quick release pin that is used on any Gibbs climber.

To fabricate this roller required a few items from a metal shop. Its components are two arms, a roller put together with a 5/16 steel dowel pin, a harness block, a quick release pin and a small piece of wire or nylon string to hold the arm and roller assembly to the harness block so they are not dropped back into the pit when the quick release pin is removed at the top of the climb.

The roller is placed between the two arms while the steel dowel pin is press fit into place with a vice. The holes in the arms should be undersized of 5/16" by 1/1000"; that is, they are reamed with a .3115" reamer. The arms, dowel pin, and roller are now a single unit, and only require the harness block. The roller is made of Delrin which is a plastic and should be drilled one hole size larger than 5/16"; that is, with a letter "O" size drill. Delrin will ride on steel essentially forever. There is practically no wear that takes place between these two surfaces.

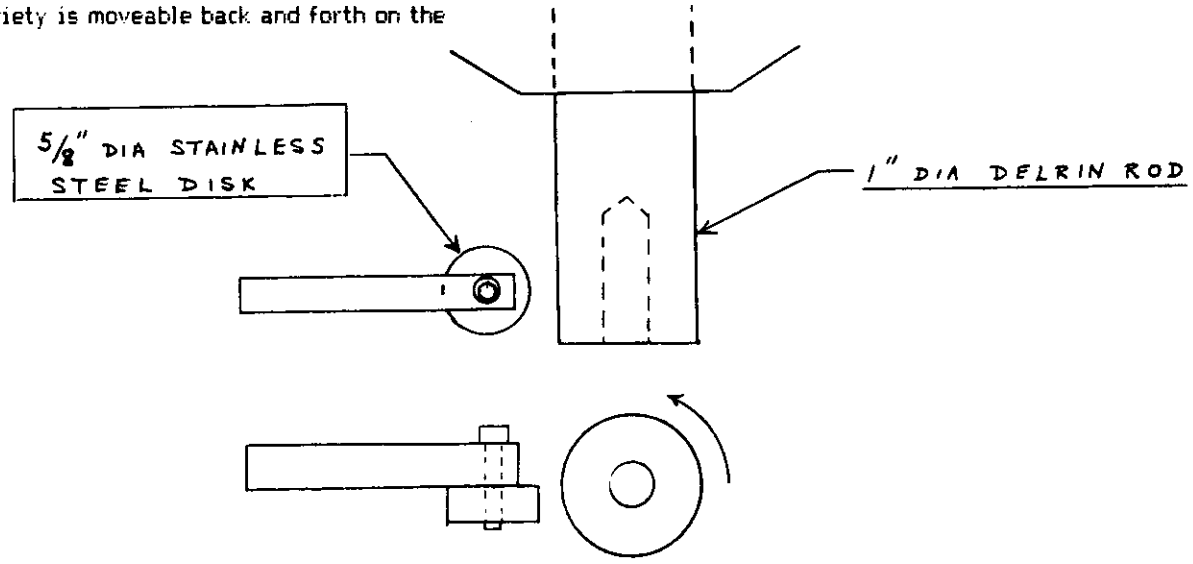
The harness block comes in 3 separate varieties according to how it is to be attached to





CHEST ROLLER - HARNESS BLOCKS

your chest harness. Having it as high and as close to your body is very important. Just 2" from your body can result in a climbing angle as much as 30 degrees. Close attention to this detail can reduce this angle to as little as 10 degrees. Using the one inch webbing block would probably require you to sew it to two inch webbing. The advantage being less bulk. The alternative being the two inch block...more bulk and weight but no sewing The 2" variety is moveable back and forth on the horizontal chest harness strap for different size chests. The third variety which is my favorite I call the Tuxedo and is fitted onto your chest with the use of 1" webbing formed into an "8", criss-crossed upon your back and worn like a vest with the Tuxedo block acting as the buttons. The advantage is that the entire harness is a single piece of webbing, unsewn and no shoulder buckles are needed to keep the harness up.

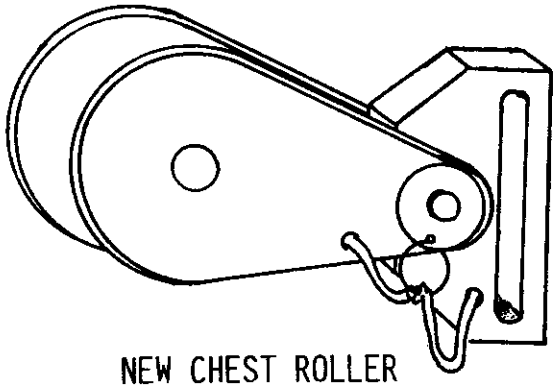


CUTTING THE ROLLER

NEW CHEST ROLLER

To fabricate the roller you'll need a piece of one inch Delrin rod. The cutting tool was made from 5/8" stainless steel rod with a tapped hole in the center. This was then screwed to a piece of steel as shown in the diagram. Since we're only cutting plastic, stainless does an absolutely perfect job and can cut any number of rollers. Rotate the Delrin rod and grind the hollow portion with the tool. A contoured roller is not essential, but it will prevent the rope from scraping on the arms, especially when the pull of the rope has a component to the side.

The entire roller weighs about 3 ounces,of which half is the quick release pin. This is not particularly lighter than the Simmons' Roller although it is simpler and cheaper if you are into making your own rollers. I've calculated the built in strength of this unit to be over 1000 lbs, but have only tested it with 150 lbs actually hanging from it. I find it very comfortable and takes weight in any direction...in other words it rotates to the direction that the rope is coming from. See



NEW CHEST ROLLER

the diagrams for further details. The small holes shown on the diagrams are for attaching the cord that holds all the pieces together; normally the cord passes completely through the harness block and is tied to the roller assembly at one end and to the quick release pin at the other.

*This text was transcribed and placed in readable sentences by the editor who recorded the proceedings from the NSS Vertical Session at the 1984 NSS Convention in Sheridan, Wyoming. □

HOW GOOD OF A VERTICAL CAVER ARE YOU?

BY DAVE MCCLURG

Here are some self tests that both beginning and experienced cavers can use to see how good their vertical skills are.

To the best of my knowledge, there aren't any generally accepted national or international standards for judging vertical skills. This means you don't have anything to compare yourself to if you want to try to improve your performance. The following self tests are intended to fill this gap.

BASIC SKILLS'

1. KNOTS! Tie these basic caving knots blindfolded or in complete darkness. Include backup over hand knots on the bowlines.

-Bowline.

-Bowline-on-a-Coil.

-Water Knot (also called an Overhand Bend, Tape knot, ED, Blood knot, Follow through knot, and a Ring Bend).

-Grapevine knot.
-Figure-of-eight loop.
-Prusik knot.

2. CRAWLING: Crawl through a low passage, 1/2 meter (18 inches or less in height, 2/3 meter (two feet) or less in width, and 3 meters (10 feet) or more in length.

3. SCRAMBLING: In a breakdown area scramble up and down some good sized blocks (3 x 3 x 7 meters or 10 x 10 x 20 feet), using any available walls and ceiling, if contact with them will not cause damage.

4. SLOPES and SLOTS: Slide downward on a slope (using walls and ceiling if possible), a semi-vertical passage (less than 45 degrees), a fissure, or between breakdown blocks, for at least 3 meters (ten feet) in total depth. (This assumes the landing below has been previously explored and is known to be a safe stopping place.

5. SLOPES and SLOTS (up): Similarly, climb, crawl, or chimney back up this or a similar passage.

6. TILTED SLOTS (down): Slide down a tilted slot, fissure, or breakdown of similar dimensions as above, so that you must slide not straight down, but at an angle.

7. TILTED SLOTS (up): Climb or clamber back up through a similar slanting passage.

INTERMEDIATE AND ADVANCED SKILLS

1. TIGHT CRAWLING: Crawl through a tight passage 300 mm (12 inches) or less in height with at least one "S" curve that requires turning over or crawling on your side with one shoulder ahead of you, while pushing your hard-hat and gear ahead of you or dragging them behind you on your boot.

2. VERBAL CLIMBING SIGNALS: Demonstrate the proper verbal signals and use them in each test.

3. RIGGING: Find and rig a satisfactory anchor and backup anchor for a belay line in a cave.

4. STATIC BELAYING: Belay a 70 to 90 Kg. (150 to 200 lb.) caver on both an ascent and a descent in cave, using the sitting hip position. Successfully hold an unannounced fall by both an ascending and a descending climber.

5. CHIMNEYING DOWN: Chimney down a vertical or semi-vertical pit (more then 45 degrees), that is wider than 2/3 meter (two feet) on the average, and at least 5 meters(15 feet) deep. Use a belay if the chimney bells out, is slippery, or is otherwise dangerous.

6. CHIMNEYING UP: Similarly, chimney up the same or a similar pit.

7. TRAVERSING: Make a horizontal traverse, while on belay, using three-point rock climbing skills, or if the walls are close, using good chimneying and stradling techniques.

8. FREE CLIMBING: Using three-point climbing techniques, climb up and down while on belay, 7 to 10 meters (20 to 30 feet) of climbable vertical wall or pit face that is too wide for chimneying and too steep for scrambling, using hand and footholds.

9. DEMONSTRATE a knowledge of the proper climbing calls and responses.

TECHNICAL VERTICAL SELF TEST

These tests cover technical vertical caving skills, such as ladder climbing, rappelling, and prusiking. They are in addition to the previous ones such as knots, chimneying, verbal climbing signals, rigging, and belaying. It's when you have good caving skills plus good technical skills that you can consider yourself a really well rounded caver.

1. LADDER CLIMBING! Find and rig a satisfactory anchor and backup anchor for a cable ladder.

2,3. CLIMB DOWN and UP at least a 10 meter (30 foot) cable ladder with a proper static belay from a separate belayer.

4,5. CLIMB UP and DOWN a 10 meter (30 foot) ladder using a self belay on a fixed line with a Prusik knot or Gibbs ascender.

6. RAPPELLING! Find and rig a satisfactory rappel anchor and backup anchor in a cave.

7. RAPPEL into a tight fissure or pit here you are against the wall most of the way. The drop must be at least 12 to 15 meters (40 to 50 feet).

8. RAPPEL into a medium width fisssure or pit where you have both contact and free rappelling. The drop should be at least 12 to 15 meters (40 to 50 feet).

9. RAPPEL into a wide fissure or room where you are mostly free from the wall. Drop must be at least 12 to 15 meters (40 to 50 feet).

10. RAPPEL down into one of these pits, perform a chngeover from rappel to prusik, then ascend back to the top.

11. RAPPEL down a long drop in a cave or outdoors at 50 meters (150 feet) and preferably 60 meters (200 feet) or more. Demonstrate your ability to handle the weight of the free hanging rope--from 10 to 30 kg. (22 to 66 lbs.) or more, by adding and removing bars from your rack, locking off and unlocking the rack, and securing and freeing your spelean shunt or other dynamic safety device. (A Prusik knot is not recommended for this purpose because of the difficulty of freeing it under load.)

12. RAPPEL down a line with two knots and successfully pass them both. Then continue on down.

13. RAPPEL down a line to a knot or obstruction. Then transfer to an adjacent line and continue on down.

14. PRUSIKING! Find and rig a satisfactory anchor in a cave for a prusik line. (This could be the same anchor used in No. 6.)

15,16,17. PRUSIK up the three separate types of drops required for the rappel test (in the same or different caves).

18. PRUSIK up in one of these drops and perform a changeover to rappel. Then rappel back down.

19. PRUSIK up to a knot or obstruction, then transfer to an adjacent line and continue up.

20. PRUSIK up a line that has two knots and successfully pass them. Continue on up.

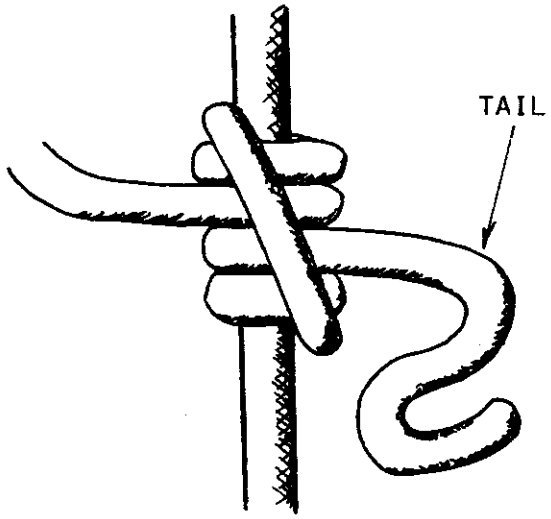
21. PRUSIK up a pit at least 50 meters deep (150 feet) of any type, using a three ascender system and a seat sling resting position.

22. BE FAMILIAR with and follow the safety rules of your local or national caving group. ◘

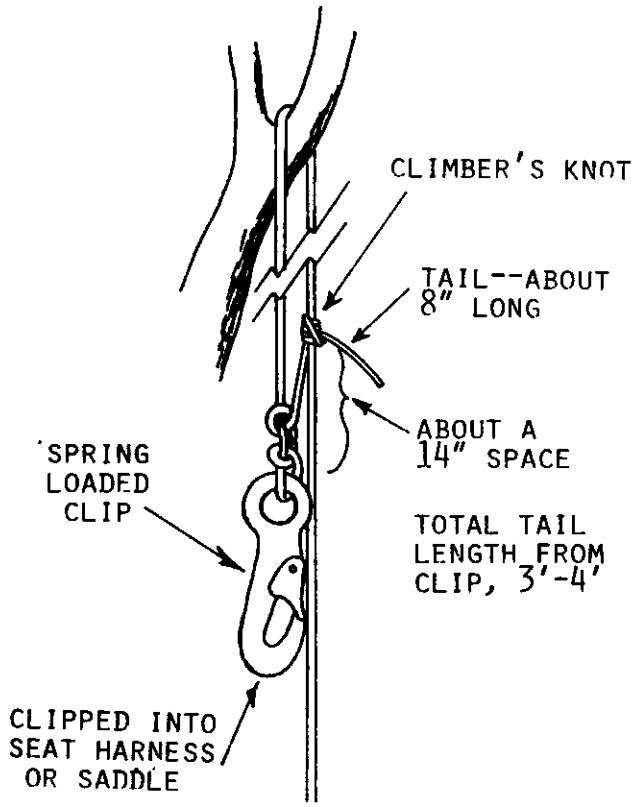
TREE CLIMBING

By Bruce Smith

The age old art of Tree Climbing has many similararities to the single rope techniques of the modern caveman. I think it's worth looking at the methods that tree surgeons use...You never know... you might learn something you can use someday.



CLIMBER' KNOT

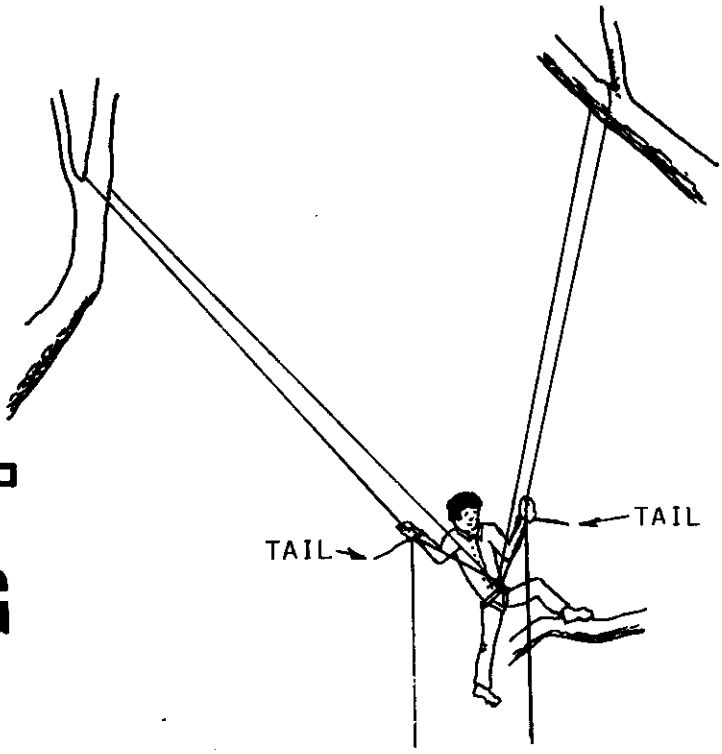


My best friend and caving buddy is a tree surgeon by trade and taught me a skill/technique that I've used repeatedly. Tree climbers depend heavily upon the friction that is developed between the rope and the forks of trees that the rope passes through. They also require a very pliable rope...PMI Flex, BW III, SSP, Samson 2-in-1 all work. The harness they use is called a saddle and clipped together with a spring loaded clip. But I find myself getting ahead of myself.

A throw line or the rope itself is thrown into a tree through a desireable crotch. The free end is tied to the spring loaded clip with two half hitches or a square knot which turns into a ring knot. The Tree Climber's knot is then tied (a version of the Prusik knot...see the diagram). <u>This knot is used to go up as well as down.</u> The climber pulls on one side of the line--advancing the knot to capture progress. Essentially the climber really only lifts half his/her weight. After the crotch of the tree is attained, the climber repeats the process until he/she is high enough to start their pruning.

Descent is the best part of all...Same knot just hold it like a prusik knot. To stop pull out on the tail of the rope. It's a very sensitive but responsive knot. Rappels are slow and controlled and surprisingly enjoyable. One technique that

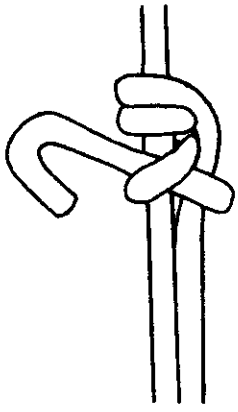
requires the use of two lines from two different sides of the tree. By carefully controlling the descent on each line you can place yourself anywhere you wish to be in the tree.(For chainsaw cutting or pruning purposes) Very similar to the needs you would require if you were to place a bolt on a free flat face that required you to be elsewhere than the vertical fall line of the main rope. Look at the drawings...Our neighbors above ground have a whole different technology. ◘

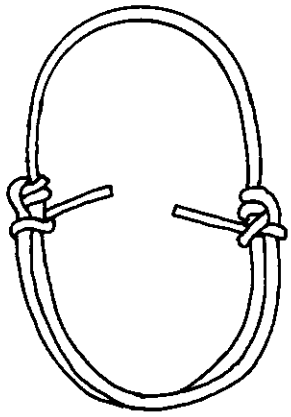


AN ADJUSTABLE SLING

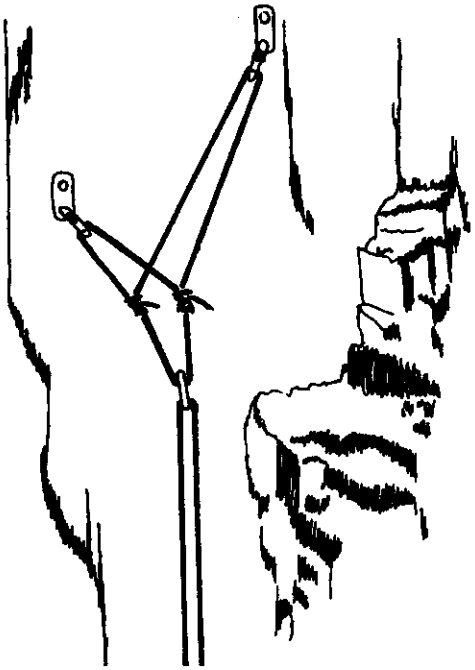
BY BRIAN JUDGE*

I recently came across a new knot invented in 1980 or '81 in a newsletter of the Interior Rock Climbing Association and it can be used to make an adjustable sling, which I feel has some potential application while caving. It takes a lot of care in tieing and requires a rope that is somewhat pliable. Once the knots are pushed into the proper configuration and left an adaequate pair of tails sticking out, it has a sorta of prusik knot like action. It can slip under extremely high loads, but if it does all that happens is that the knots slide together and it acts very much like a Fisherman's Bend.





The key feature is that it can be adjusted in length. This becomes most useful in a cave when you find the need to rig onto two bolts. You adjust the main hang point by simply adjusting the knots back and forth. If you find you want to avoid some obstacle you just shorten one side of the sling. It works very well with



EQUAL TENSION--DOUBLE ANCHOR

webbing as well. Other uses become obvious such as climbing slings, rigging slings, prusik slings and the like. See the diagrams for details.

*This text was transcribed and placed in readable sentences by the editor who recorded the proceedings from the NSS Vertical Session at the 1984 NSS Convention in Sheridan, Wyoming. □

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My solution to lost or forgotten chicken loops is simple. My caving boots are the kind that have a leather loop at the top in the back. Presumably to supply a finger-hold for pulling them on. For each boot I simply stitched some webbing into a small loop that passes through the loop on the boot. So my chicken loops are permanently attached to my boots.

by Bill Mixon

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GREAT VERTICAL EVENTS is a NYLON HIGHWAY feature. From time to time great vertical achievements take place utilizing rope techniques commonly used in a cave. Often times these events require special talent, equipment, money and sacrifice. It is our intent to bring you those stories as they happen with all the significant details. Got any you want to share...?

ASCENT OF SNOWBALL DOME

By Mike Fischesser

...Portions of this account have been condensed by the editor.

October 20-31, 1978 found Outward Bound staffs from throughout the country assembling at the North Carolina Outward Bound School near Morganton, N. C. to train specifically for an expedition to the bottom of Ellison's Cave. The purpose was to climb the mysterious Snowball Dome located in the heart of the cave.

The group consisted of 18 people...half were experienced cavers, most had strong rockclimbing and mountaineering backgrounds, 3/4 of the group were certified as Emergency Medical Technicians and had experience in high angle rock rescues. The expedition members were: R.E. Whittemore, Larry Caldwell, Bob Box, Robert Harkness, Carrie Ashton, Terry Reeves, Steve Hertach, John Kerrick, Jon Zeliff, Chuck Parker, Ian Wade, John Logsdon, Ken Murphy, Em Jones, Don Obert, and Cath Johnson, and of course, myself.

The idea of climbing the Snowball Dome originated from a tourist trip led by Smokey Caldwell in September 1977...R.E. Whittemore and I were visiting Ellison's for the first time. Smokey took us on the usual whirlwind tour to Angel's Paradise, but as we stood in the center of the enormous Snowball Dome shaft looking up into "nothingness"...Smokey made a speculation about the possibility of passages at the top and the climbing involved to get there. Being first a climber, but slowly turning caver, that speculation stuck in my mind the rest of the fall. Later that year, in December, the plan for returning to Ellison's with teams of climbers and enough people to support them began to start rolling. Smokey and Whit were contacted for ideas and thoughts on the feasibility and ethics of such an undertaking. They were very supportive and made many helpful suggestions during the planning stages. The trick was going to be how to be self-sufficient (in the event of an accident), how to train many of the folks in single rope techniques, how not to damage the cave in the process, how to get all the necessary equipment for four days underground and climbing gear in, how to get up the seemingly smooth walls of the dome in two days, how to pull the whole thing off safely and at the same time make it a fun trip for everyone. Not an easy feat, but for sure a learning experience.

Six days were spent at Tablerock Mountain and the Linville Gorge area practicing single rope techniques, caving, and climbing. Presentations from guest speakers, Cheryl Jones and R.E. Whittemore also took place before we went undergound.

Everyone, with the exception of Ian, Smokey and Whit, used the Butt Strap Harness

for ascending and descending...with no problems, I might add.

Two vans left Tablerock at 5 A.M. on October 27. We rendevoued in LaFayette, GA. at the Pigeon Mountain Industries rope shop. We met Smokey there and were shown the rope making machines. Onto the Blue Hole for transferring all gear to Smokey's 4-wheel drive which would dump it all at the New Entrance while the others followed a newly blazed trail Smokey had cut. Finally, got into the cave at 3:30 P.M. Everyone had their own personal pack containing, sleeping bag, ground cloth, water bottle, vertical gear, lights (electric & carbide), food, extra clothes and the group gear of stoves, pots, and first-aid kits. Climbing gear was distributed among everyone. That only left several other separate packs to contend with, most of which were 600 foot ropes. The warm-up Pit (127') was rigged with two ropes. The stream was mere trickle. Smaller groups of three or four would be taken on to the Rectum and Nuisance Drop (14') and then on to Fantastiac Pit (510') which we rigged with an additional rope thus speeding up the descending and ascending time. Everyone rappelled with Pigeon Mountain racks on Bluewater ropes with a Spelean Shunt as a safety rappel cam. All the descents were fine and well controlled. The heavy packs were slung underneath the rappellers, which added to their weight, but no problems occurred. A sigh of relief, for ... the intense training was paying off. I had scared them with stories of rope failures, uncontrollable rides, etc. They were being cautious. As we waited at the bottom of Fantastic for everyone to arrive, John kerrick entertained us with the reverberations of his flute off the massive walls of Tag Hall.

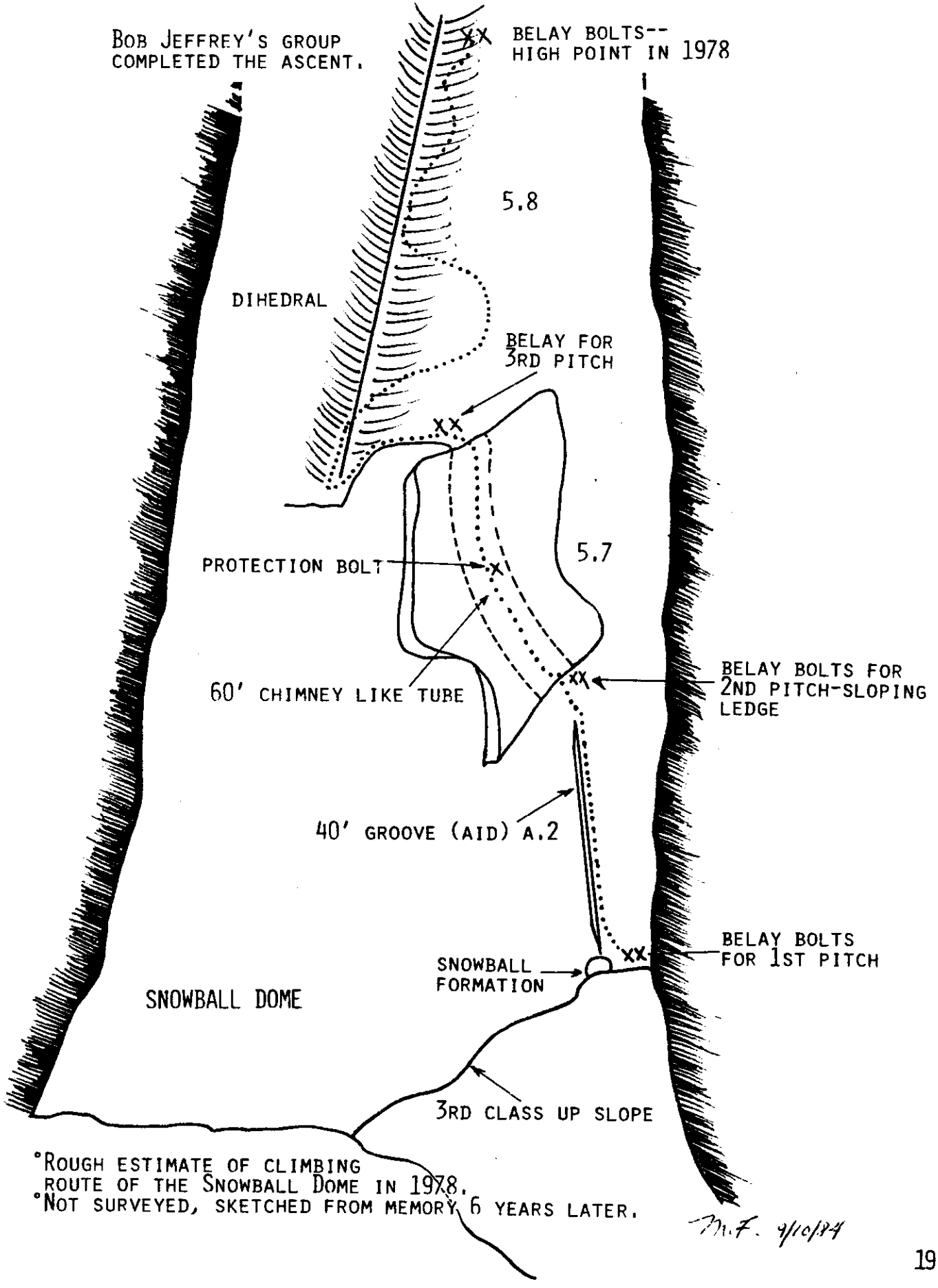
The trip from the bottom of Fantastic to the Gypsum Room (our base camp) was a real grunt. It was becoming obvious that we had brought too much, but better safe than sorry... I guess. It must have been around 2 A.M. when we finally finished supper and bedded down for the night (or was it day?) A late start the next morning after a much needed rest and the climbers went to set up at the base of the route and others went off in small groups to explore the rest of the cave.

A large sheet of plastic was brought in to cover the beautiful, white Snowfall formation. The route went up a groove right behind the formation and we had to be very careful while working in the area.

In May, 1978, Smokey, Roger Stephens, Zoe Rabinowitz, Don Obert and myself went in to the Snowball Dome to choose the best route up the wall and test the wall hardness for different types of bolts. The 40 foot groove was chosen because it would go quicker than bolting up a blank wall and it was at the highest point in the room. Binoculars, Roman candles and powerful lights were also brought in to assist in spotting the top. We estimated it at 200-250 feet up. Boy, were we proven wrong later! The anchors were set -- the route was begun. The Roman candles were a dud. They went up about fifteen feet and exploded -- not exactly what the salesperson had described.

Bob Box and Ian Wade were the first team of climbers. Ian aided the 40' groove quickly and free climbed up to a sloping ledge where he established a two bolt belay (3/8"). Bob followed, cleaning the pitch and lead the second pitch which turned out to be about 60' of chimneying. They placed one bolt for protection. Chocks,

SNOWBALL DOME ASCENT



*ROUGH ESTIMATE OF CLIMBING ROUTE OF THE SNOWBALL DOME IN 1978.
*NOT SURVEYED, SKETCHED FROM MEMORY 6 YEARS LATER.

M.F. 9/10/84

pitons and slings were used mostly during the climb. Bob set up a double bolt belay, now 100' off the floor. Meanwhile chuck and others popped out across the dome from Bob in a passage they had found by simply exploring leads across from the Snowball formation. It was an excellent vantage point. A semi-circle balcony was spotted not far from Bob, but it would require a lot of traversing to get to, thru what looked to be a loose section. No one was hot to do it due to some rather close calls from rockfall in the first and second pitches. Bob and Ian actually discovered new passage at the 40' level but didn't realize it until I later traversed over into the top of it at the 100' level. Chuck Parker was to later gain access to this new passage, without rope work, by chimneying up from the Gypsum Room/Broken Dome area. So the early finds weren't that exciting. We wanted to get to the top. Bob and Ian came down after the second pitch to eat supper and rest awhile. We discussed the dangers of rockfall and which way to go next. The choices were: Traverse to the "semi-circle balcony" which is where the drip comes from that forms the Snowball or continue up a deep cleavage (a double chimney) which actually develops into a dome itself, joined to the Snowball Dome at the 100' level like Siamese twins. It was decided that Ian and I would go back up and establish the third pitch. Chuck would have gone, but he was off exploring elsewhere. We ascended to the balconey and organized the gear for the next lead. I led off by penduluming down, walking 10' back into the cleavage then climbing the right hand wall, eventually working back over Ian. Some loose, large blocks were encounteded on this pitch. I ran out about 100 feet of rope and put in a bolt for a belay while braced with one leg out in a chimney position. No Fun! This was getting serious. A fall now would be a mess to get to and extricated from 200' up, not to mention being about 1000' underground. Well anyway, the sewing machine legs let up when that bolt was finally in place. But no sooner was I clipped into it, than I began to drill another. None of this single bolt belay stuff for us, especially with all the bolt and hanger failure reports lately. Clipped into two! time for Ian to come up. Ian jumared up, but not without an incident. He accidentally dislodged the large block that I had managed to get by. It was a scary experience due to its size (about 100 lbs) as it thundered into the pit below. Luckily, no one was down below. Most everyone had gotten the word to stay clear of the dome floor while folks were on the wall. But what if someone had been hit? Obert had been struck on the thigh earlier watching from below when about a 10 pounder came off and exploded nearby.

Ian and I held a pow-wow while hanging from our seat harnesses--200'up on the wall. After studying the next pitch and taking into consideration the past and future rockfall dangers, we decided to call the climb off. The next pitch of 100 feet would surely have led into some exciting areas which would probably contain new cave, but we felt the risk wasn't worth the prize of virgin passage. We could see large blocks up ahead, which usually indicates the tops of domes. Terraces and balconies seemed abundant, but the next pitch was up a double chimney with no protection for the belayer in the event of a dislodged rock. Enough. we left fixed lines up to our high point and rappelled off.

In one day we had gained approximately 200 feet, placed a total of eleven bolts (3 of which were for belay anchors), discovered some new passages and left fixed ropes.

While the climb was going on others made trips to Angel's Paradise and even over to the the bottom of Incredible Pit.

Now you may be wondering what we did with 18 people's fecal matter for four days. We carried it out. We used a strong, five gallon plastic container with a tight fitting lid; made a harness for it; lined it with a garbage bag set it near the base camp (down wind). Urine bottles consisted of four wide wide mouth gallon jugs which became full all too often and required emptying into a dry sandy passage off the beaten track.

We ate very well during our stay in the Gypsum Room -- even had food left over. Cooking was done on two Optimus 111 B gas stoves. Could have gotten by with one stove for 18 people.

Carbide lamps were used by most people while in the bottom of the cave and Justrite electirc lights, with alkaline batteries and a #502 bulb were used while doing any rope work. These lights worked well and some used them the entire time (except when sleeping). Lightweight (2 1/2 lb.) Polarguard sleeping bags were used. These proved to be bulky, but warm. Probably would go with "down" next time due to their compactibility. Our packs were made by Karrimor of England. They were rugged; made of canvas; but were a bit too rotund for tight passages. A longer, more cylindrical pack would have been better for us. Ultimate climbing helmets were used with L-1 brackets mounted on after purchase--excellent protection.

At one point in the planning stages, ABC television was interested in filming the expedition. We discussed it among ourselves and agreed only if the name of the cave would be withheld. They backed out at the last minute because of lighting problems. It is a good thing they did. It would have detracted from the expedition both physically and mentally.

The fourth day was spent getting out of Ellison's. Camp was disassembled at 5 A.M., October 30 and the last person saw daylight at 3:30 P.M. Most of the packs and the "honeybucket" were hauled up Fantastic Pit in three loads. Two people carried their packs up the 510' drop. No one can agree on which was worse: climbing out with your pack or hauling them out in groups of four to five.

We didn't feel bad about our decision. It was O.K. with us. We were not terribly summit oriented to risk serious injury to anyone. The expedition was a success to us because we had a good, safe time without leaving anymore than the usual impact from a tourist trip.

If anyone is interested in picking up where we left off ... feel free. We don't feel possessive about the climb at all. You may want to get in touch with us for more details, but at any rate let us know what you find "cause der jest gotta be sumpthin' up der."

To learn more about this fascinating cave, read Marion Smith's book entitled, The History and Exploration of Ellison's Cave, Georgia. ☐

SPECIAL THANKS. Take careful notice of the names listed under each Feature Article in the Table of Contents on the inside of the cover. These are the movers and the shakers of the vertical world...these are the people that feel being current about vertical stuff is important. Their concern keeps this publication alive and I truly appreciate their contributions. Words can not express my gratitude. Thank you...