

# NYLON HIGHWAY II

...especially for the vertical caver



# Nylon Highway 11

NSS  
Vertical  
Section  
June, 1979

## CONTENTS

WHY NOT KNOTS? David Hughes.....	1
CLIMBING WITH THE GOSSETT SYSTEM Darrel Tomer.....	2
THE NEW ASCENDER 5000 Thomas Shifflett.....	4
SPRING-LOADED GIBBS REPAIR Warren Hall.....	5
THE HARPOON Don Davison.....	6
ROPE PADS Cheryl Jones.....	8
VERTICAL SECTION MINUTES.....	10
CONVENTION HAPPENINGS.....	11
PROPOSED CONSTITUTIONAL AMENDMENT.....	12
MEMBERSHIP ADDITIONS.....	13

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## Cover

The cover is a drawing by Vertical Section member, Mike Magill. Copies (numbered and signed) are available from Mike for \$2.00 each. 34 Brookwell Dr., Apt. 201, Downsview, Ontario, Canada, M3M 2Y1.

DEADLINE for NYLON HIGHWAY # 11 is October 15, 1979. Articles need to be typed double spaced, if at all possible, and illustrations, graphs, etc., inked ready for final copy. One need not be a Vertical Section member to contribute. Letters to the Editor are welcome.

NYLON HIGHWAY is published by the NSS Vertical Section, and available to non-members for \$3 per year. Grottos may receive issues for the cost of postage; \$1 deposit required. Receipt of copies of articles appearing in the organization's publication concerning vertical techniques, equipment, etc., which may be considered for reprinting in the NH will be considered an exchange for one issue of the NH. Overseas subscriptions are \$4 (\$6 airmail) a year. Frequency of publication is based on the availability of material.

OPINIONS EXPRESSED herein are credited to the author and do not necessarily agree with those of the Vertical Section or its Executive Committee. Unsigned material may be attributed to the Editor. Reprinted material must give credit to the author and source to prevent an unhealthy curse from descending upon your evil publication. Correspondence should be addressed to the Editor.

## OPINION

# Why Not Knots?!

\* Dave Hughes

"A perfection of means, and a confusion of aims, seems to be our main problem."

-- Albert Einstein

The past several years have witnessed a vast menagerie of ascending gadgetry become available to the vertical caver. Equipment suppliers have taken highly sophisticated devices, improved them extensively and then enhanced the improvements. With all this technological assistance, a new breed of participant has evolved. When such a character begins an ascent, he wants maximum altitude, with minimum work in the shortest time. This individual bombs madly about the countryside blitzing in and out of pits and dismisses even the speleo-classics as "mere formalities". With such apparatus, perhaps they are.

Let's recall the sequence of events that lured us into this syndrome. On our initial vertical trip it is suggested that we climb on Prusik knots. Knots are, we're reminded, how it was done in the olden days. Our strangely mechanical trip leader informs us that knots have a number of other delightful advantages. They are inexpensive, light in weight and reportedly, fun. Quite possibly however, a dose of both acrophobia and speleophobia joined forces to make this first ascent, to say the least, a memorable experience. Thus initiated, one rejects Prusik knots as totally insane and subsequently invests a considerable sum of money on a "Mark V, A-1, Good-for-sure" ascending outfit. Thus armed, we re-attack the vertical sector of the netherworld with greater confidence in ourselves. We select the hardest possible pit, and then make it artificially easier with mechanical ascenders. One wonders why we are visiting these immense shafts in the first place. Are we testing equipment or are we testing ourselves? In either event, several years see such an individual check off many guidebook entries, lose interest in it all and then proceed to some other equally worthwhile activity such as whitewater kayaking, sky-diving or roller skating.

If the shine of ascending from vertical caves has worn off for you, then perhaps you can recapture some of your original enthusiasm if you return to your original methods. Many experienced pit cavers have gone back to knots for just this reason. In fact, a number of established pitters are such purists that they refuse to climb on any type of mechanical system regardless of the difficulty of the cave. If the shafts in your favorite caving area seem too familiar or too shallow, then try them again; this time on knots. You'll have a new standard, a new perspective and a new challenge.

Many folks agree that a well-maintained, three knot climbing rig is perhaps the safest ascending system known. Devote to it a little dedicated practice and it will also be a fast system. You can easily go two hundred feet on a standing rope in ten minutes if you work at it. Take a few of the evenings that you spend looking at equipment catalogs and invest that time improving your physical condition. Still getting tired on rope? Then take a little rest in scenic surroundings, make an impressive photograph or laugh at the characters below you fumbling with pulleys, shock cords and cams.

Sure there is a place for metallic climbing devices and the people developing them are making a fine contribution to speleology. But mechanical ascenders are not for every pit or for every trip or for everyone. Try leaving the iron at home on your next outing. Travel with a lighter pack and a lighter heart and sample the essence of a magnificently challenging adventure.

# Climbing with the Gossett System

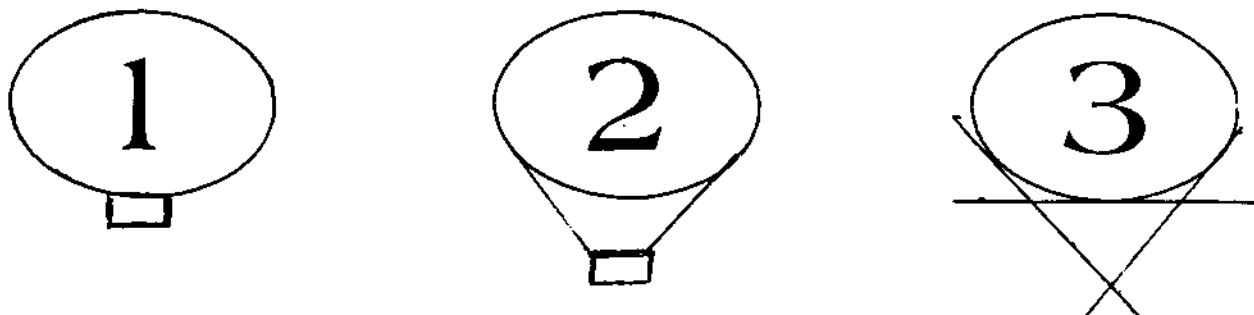
\* Darrel Tomer

Since publishing the first brochure on the Gossett Block in 1977, G.T. Enterprises has a frequently received questions concerning how it is possible for a rope climber to keep his balance with the Gossett Block slung at hip level. The way to keep from falling upside down is to keep the block close against your body and prevent vertical see-saw. The method described below has worked well for nine out of ten who have tried it under my direction. Most of these have been rank beginners who were never before on a rope. They caught on rapidly and became enthusiastic.

Starting with fundamentals: What is the advantage of placing the back so low? If the block is near your hip joints, you need use only the muscles that straighten your leg at the knee. When the block is placed higher, your spine gets involved in the straightening process, but it is not a rigid bone like in your shin or thigh; so you have to use extra effort keeping the wobbly thing straight and in line with the legs. Having the block near your center of mass is an advantage. Your body can pivot around it and remain at any angle with little effort like a well balanced wheel on an axle. This makes it easier when you want to extend arms or legs to the limit of your reach in a horizontal direction.

Admittedly, no one can put a block on the line between their hip joints. It is equally impossible for the climber to remain contorted such that his center of mass is always within the block. The idea is simply to save energy by approaching these conditions as nearly as practical.

I wear my block where the sling will pass around my hips just below the crest of the illium; that puts it an inch or two above the ball and socket hip joint. At this level, it locks into a bony depression on each side. The pressure is not painful since it is mostly applied to solid bone rather than to muscles, nerves, and vessles.



Now, some geometry: At the hip level, which to me means just below the crest of the illium, a horizontal cross section of the body tends to be wider than it is thick; that's the trouble. To simplify my diagrams, I am taking the cross section to be an ellipse. Figure one represents the climber who has just belted on his Gossett Block (rectangle) around his hips (ellipse). When the climber mounts the rope, the block tends to move away from his body, as in Figure 2. In Figure 3, we draw a tangent to

the front of the ellipse, and extend it until it intersects the lines representing the belt under tension. In Figure 4, the tangent segment has become a rigid bar held by the belt. It supports the Gossett Block, and the climber is still on the rope. What has been accomplished? Without increasing the belt tension, the block has been brought back to the climber's tummy where it is closer to both the line of hip joints and the center of mass. Further, the block is now less free to see-saw up and down because it is on shorter tethers.

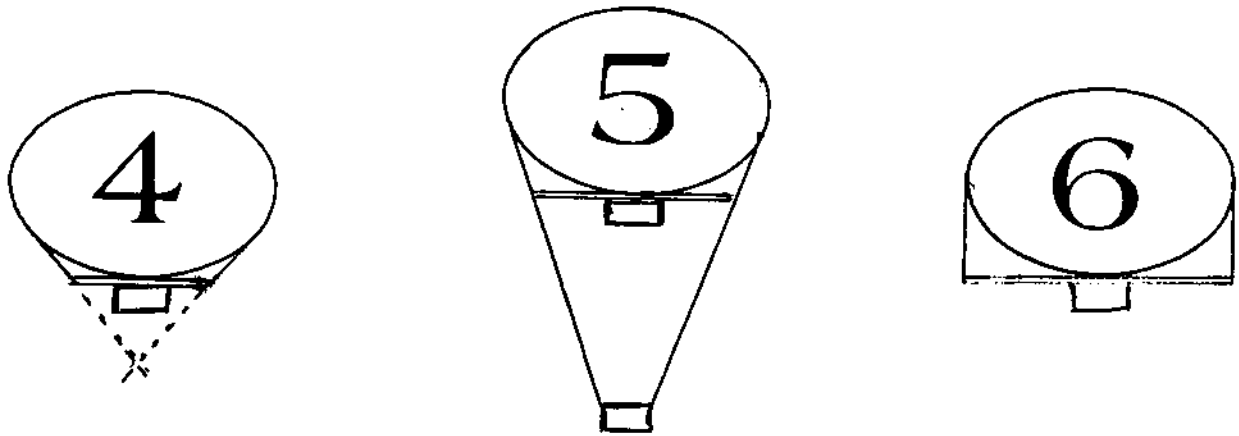


Figure 5 illustrates that the block will depart still farther, if the belt tension is reduced. Getting the block back to the tummy now requires a longer bar. In a way, this is good, because less tension means less chafing on the body. Figure 6 shows the limit to which the length of the block bar may be profitably extended. Here the bar is exactly as long as the hips are wide. This allows the block to be held in with the least tension, (equal to  $\frac{1}{2}$  the body weight) because the belt is pulling exactly parallel to the direction of force needed to hold the block in. Less tension means greater comfort, but would you be willing to drag such a long bar through a cave? Possibly, for you there is some compromise length of block bar that is more of an advantage. It will cause you to waste energy in some place in order to save energy in more critical places. In which phase of progressing through a cave is it most critical that you be operating at your highest efficiency?

## Jumar-Boxers Take Note!

Several cavers report sudden failure of Jumar webbing during ascent. The cause seems to be the way the webbing rides in the box: It works its way into the 1/16 inch space between the nylon roller and the box wall. This results in excessive, localized wear on the webbing, causing it to break in only a few hundred feet.

The solution seems to be the use of 7mm (5/16") Kernmantle type construction rope, which will not easily wedge into the small space mentioned (both Bluewater and PMI make this size rope), or the use of a Gossett Block, which has closer-fitting rollers. Slings and ropes should be checked before each cave trip, and between each ascent and descent, so as not to perform strength tests with live bodies.

Thanks to Dave Hubbard.

# a word about the new Ascender 5000

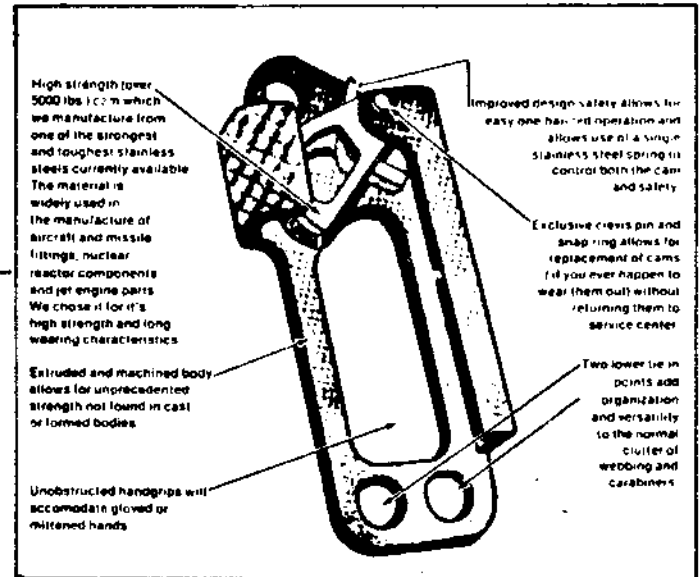
\* Thomas Shifflett

With the tremendous cam strength and the holes on the bottom for sling attachment, Ascender 5000 seems at first glance a better bargain than Jumars. But the author found that the design could perhaps stand some improvements.

The first use of the ascender in a tree seemed to work satisfactorily. After actual use by the author in a cave in Zoquitlan, however, the ascender was found less desirable. It seemed that after a certain amount of use and cave abuse, the spring becomes weak. This causes the cam not to clamp to the rope and instead, the Ascender slides back down the rope when one is ready to rest his tired body upon it.

The other undesirable feature is the cam release spring, located on top of the Ascender. At first this is only slightly awkward, and one feels that it could be overcome. But when changing direction on the rope, this becomes quite a hassle factor. Pushing on the lever on the Ascender by the thumb or fingers is more difficult than pulling the Jumar lever. Also, that little extra stretch to the cam release lever makes a difference.

Some good alterations to the Ascender 5000 might be to put the cam release spring and lever near the same location as on the Jumar. A much stronger spring is also needed for a firm and quick clamping down of the cam to the rope. With these alterations, the Ascender 5000 should make a good device for ascending fixed ropes.



Thanks to D.C. SPELEOGRAPH and  
THE BALLS-DOWN CRAWL GAZETTE

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## Call for Papers, People, and Presentations

The Vertical Session at the 1979 NSS Convention is a chance for cavers to learn what's new and changing in vertical caving. If YOU would like to share an idea, equipment tip or modification, vertical rig, new solution to an old problem, equipment design theory or specifications, vertical caving philosophy, testing results or other pertinent topic....plan to give a presentation at the vertical session! Contact Darrel Tomer (2020 Berwick Dr., Cambria, CA 93428) for details.

Spring - Loaded

# Gibbs Repair

\* Warren Hall

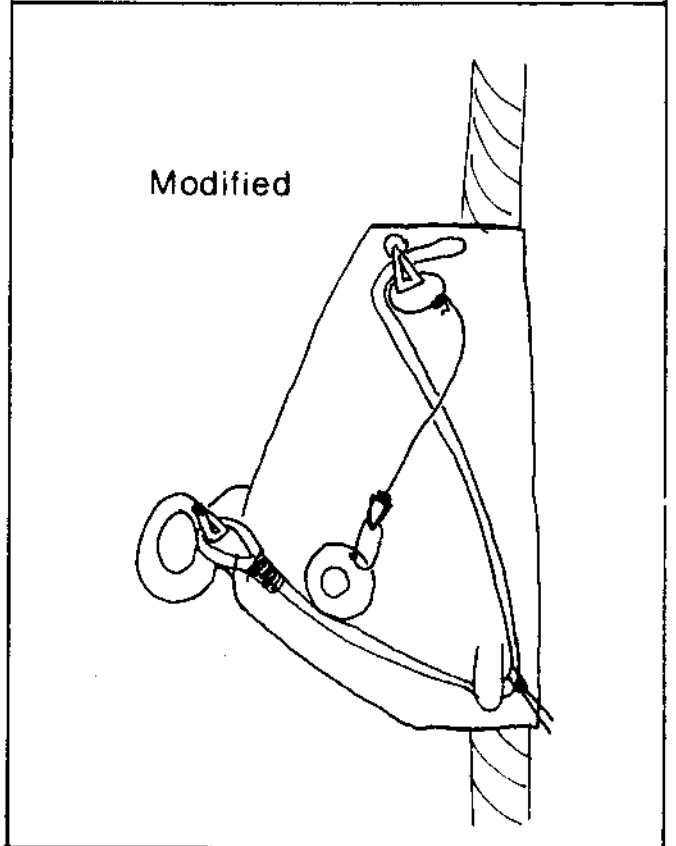
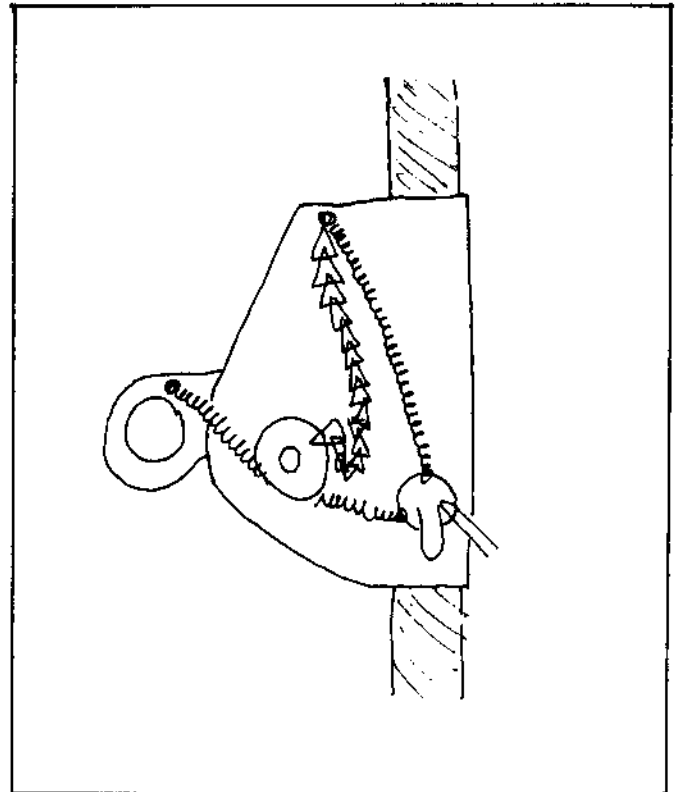
Have you seen the new spring loaded Gibbs? Works great, no more kicking your foot. However...they break easily or maybe I'm a bit clumsy. Anyway, the day my Gibbs arrived, I tried it out in a tree while working out the mechanics of a new single rope solo rescue/hauling system. The system worked, but I broke my Gibbs. The springs got stretched to the point where they pulled right off the cam screw. As this didn't seem like it would do underground, but wanting the benefit of a spring loaded cam, I redesigned the spring action using shock cord. The cam seems to work well in all three modes -- as a regular Gibbs, spring loaded closed, spring loaded open.

This change to shock cord takes about 20 minutes, and uses about  $4\frac{1}{2}$ " of shock cord and about 3" of avalanche cord. I reused the rivet that holds the pin chain in place and 2 links of the chain. Gently pry the chain off the rivet, remove the first link, spread it open a bit, lay in the shock cord and avalanche cord and crimp tight. Work the link back over the rivet and reflaten the rivet. I used a hammer, pliers, and phillips screwdriver. You can figure out the procedure easy enough. Do the same thing with the screw on the cam using a screw driver to make a wider hole in the link to take the screw, making sure that the link doesn't bind on the shell of the Gibbs; bend it away if it does. Tie off the end of the shock cord with any light cord.

You will have to experiment with the length of the shock cord used to find the right tension for you.

Tie other end of the red avalanche cord to ring in pin. Take another piece of red cord or anything similar and make a ring hitch over shock cord to use in putting cord over the hook. The other copper links of the chain can be used on your old cams to replace the steel links that are rusting away. I use one copper link and a few inches of cord to replace the chains, which I don't like.

Well, there you are folks, a home repair for your spring loaded Gibbs and an article in plain English in the NYLON HIGHWAY.

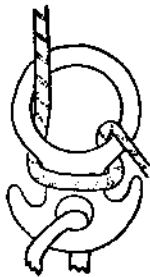


# The Harpoon

\* Don Davison

The Harpoon is a barbed Australian variant of the classic "figure 8" descender, with the additional advantage that it can be placed on the rope while firmly attached to a seat carabiner. As a result, you can take the Harpoon on and off the rope quickly without fear of dropping it (to be damaged or lost) while switching ropes in muddy and cold, or less demanding, situations. This important characteristic is shared by most common rappel devices except the "8s".

The Harpoon is a heavy aluminum casting which is larger in all respects than the CMI or Clog "8". It may be rigged as a traditional "8" by passing a loop of the rappel rope through the larger hole and over the neck (figure 1) and then clipping into the seat with a locking carabiner. But the advantage may be gained by rigging the Harpoon in the manufacturer's "Quick Action" position (figure 2) -- clip the locking carabiner into the large hole and pass the loop of rope through the hole, up and over the barbs and down around the neck.



1



2



3

In the "Quick Action" position, the Harpoon may be safely locked off by wrapping the rope around the neck, below the barbs, several times so that the rope is firmly pinched between its ascending portion and the neck of the device. The Harpoon may also be locked off, when using the "8" position, by using the barbs as a cleat (figure 3). Much care and practice should be used before employing this method underground.

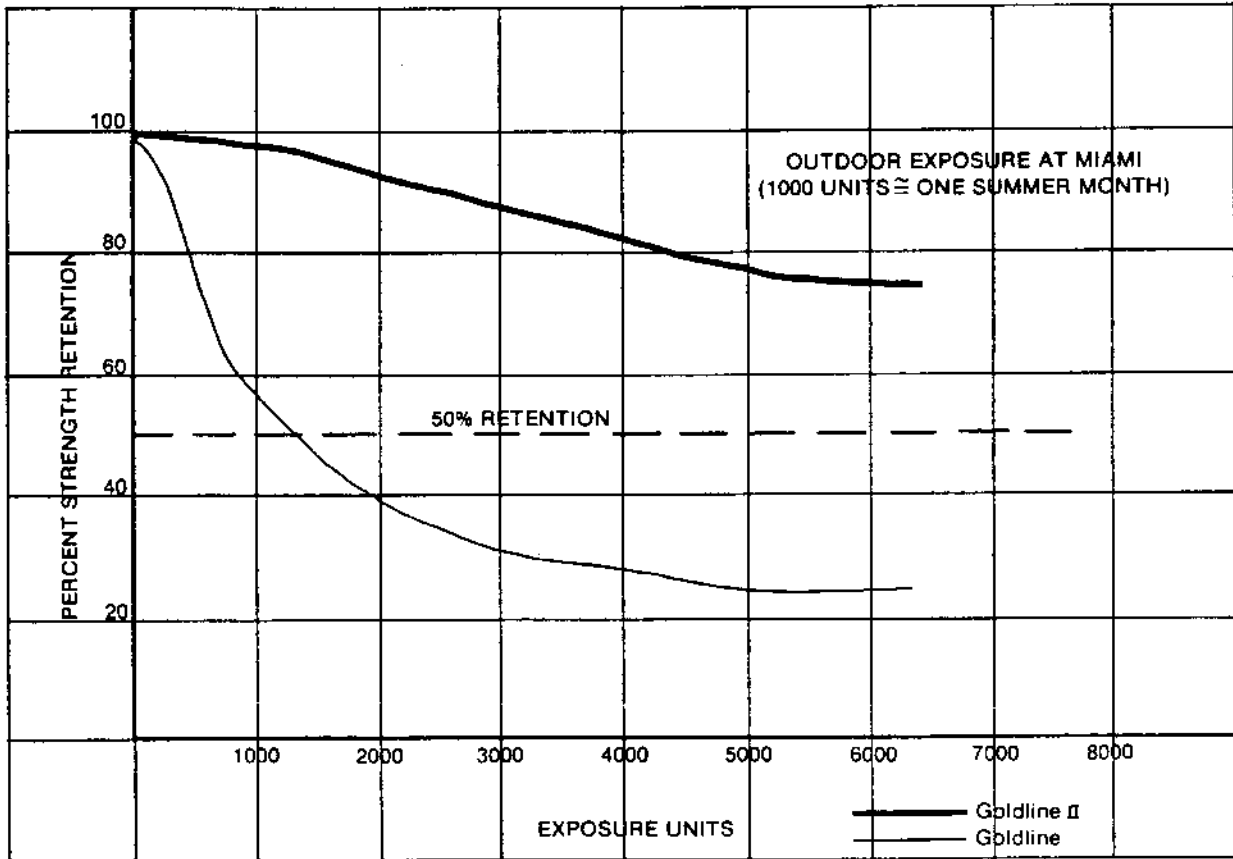
The manufacturer indicates that in either configuration failure, preceded by plastic deformation, occurs above 4500 pounds and wisely indicates that rappels should be conducted slowly so as not to exceed the limited capability (of all descending devices) to absorb heat.

I have experienced no problems in using the device and consider it to be an excellent constant friction rappel device for use in short to medium length drops where constant friction is suitable. As with any new device, practice is advisable before using the Harpoon underground.

The Harpoon is available through:  
SPELEAN  
P.O. Box 230  
Milsons Point, NSW 2061  
Australia  
\$8.75



# COMPARISON OF STRENGTH RETENTION UNDER OUTDOOR EXPOSURE — GOLDLINE® AND GOLDLINE II®



**Goldline II** has been developed to provide a gold nylon rope with greater resistance to ultraviolet degradation. As shown above, Goldline II rope withstands exposure to sunlight far longer than Goldline and similar gold nylon ropes. This resistance to the effects of sunlight makes Goldline II a superior rope

for those uses which involve leaving the rope out in the open for extended periods.

Goldline II is made of DuPont nylon, specially dyed to give it a bright, distinctive color. Other gold nylon ropes are made of another type of nylon which gets its color from a process used in manufacturing the fiber.

Reprinted from The Cordage Group's "Information Bulletin" #R-10  
Thanks to Ian Ellis and Bob Liebman.



Money for testing grants is still available to individuals or groups wishing to do research on various pieces of equipment used in vertical caving. For further information, see NH #10 or write to Kirk MacGregor, 78 King High Ave, Downsview, Ontario, Canada M3H 3B1.

# Rope Pads

\*Cheryl Jones

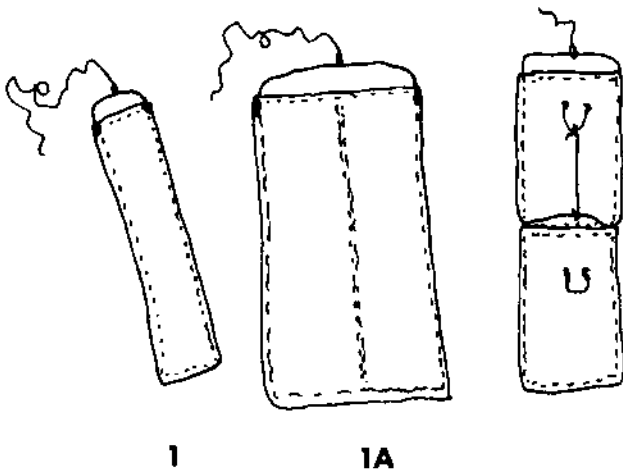
Rope pads are essential pieces of gear for vertical cavers. This is not only due to the rope acting as our life line, but with the soaring price of rope, we can't afford to have it cut or retired.

Several types of rope pad materials and designs are available. The most common and basic of these are discussed below.

Figure 1: Old Pants Legs. Cut the legs off your (or your neighbor's) old pants. Sew them together at the top and bottom, perhaps down the sides, and attach a nylon cord to the top two corners, then a long cord to this.

Figure 1A: If a wider rope pad is desired, cut the pants legs up one side. Sew two legs together to provide an adequate thickness for protection.

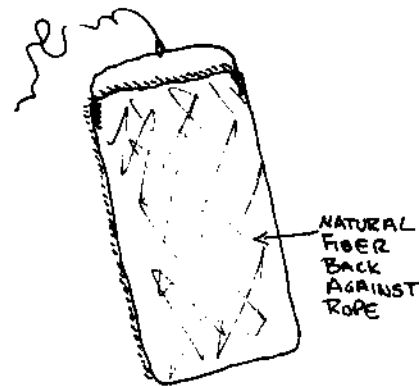
If a small loop of cord is sewn on the back of each pad, a rope pad can be attached below another, so that a longer section of rope may be protected from abrasion.



Of course, if you have no pants legs, or no neighbor, you may begin from scratch. However, be sure not to use nylon (synthetic) fabric. Heavy denim or sail cloth is probably best.

Leather: Adequately oiled leather makes a pretty classy rope pad, with an inherently longer life (if properly cared for), since it is more resistant to wearing, tearing, and rot than cotton. The pad's design is the same as those discussed above.

Figure 2: Carpet. Many people use sections of carpet for padding. These tend to be heavier and more bulky than those described above, especially when soaked with mud and water. If carpet is used, be sure to place the natural fiber back against the rope. The movement under body weight of the rope on synthetic fabric will cause weld abrasion. This usually means the carpet fibers will fuse onto your rope.



2

For the above designs, the nylon cord is tied onto a rock, the main rope's rigging knot, a bolt hanger, or whatever is solid and available. If used in the center of the rope, the pad may be attached by using a helical or Prusik knot tied to the main rope. This knot will have to be removed and replaced as the climber or rappeller passes by. A "knot" easier to use in this instance is shown in figure 3. The cord, with a biner attached to the end, is simply wound up the rope 3 or 4 times, then the biner is brought back down and clipped onto the standing rope pad line.

While on rappel, the caver must be sure to lock off securely before letting go of the rope to remove or replace the rope pad. Practice in the backyard tree may first be in order.

Figure 4: Rubber Tubing. Sections of heavy rubber tubing or hose can be slit so to fit over the rope. 1/2 to 3/8 inch inside diameter tubing is appropriate for 7/16 inch rope. This method's advantage is that it may be positioned easily in the center

portion of the rope, protecting where there is no available tie-in for a regular pad. The rappeller or climber removes the tubing, moves past the section to be protected, then replaces the tubing on the rope. Precautions for locking off on rappel apply here also.

Evaluate carefully the rope's expected course down the pit to determine the points of rock contact needing padding. Each rappeller or climber should then be careful to replace the rope over the rope pad after passing by. Should the rope contact the rock in too many places to pad, re-rig the rope after each climber, raising or lowering (but always in the same direction each time) the rope a few feet. This will spread the wear out along the rope rather than concentrating it in one spot, leading possibly to serious damage.



3



4

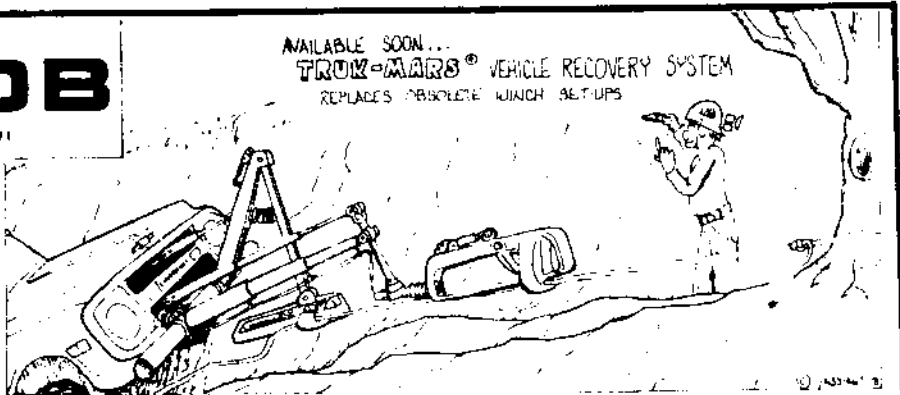


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# V. S. Minutes '78

The 1978 Vertical Section meeting was held in New Braunfels, Texas, starting about 11:25 a.m., Wednesday, June 21. A substantial number of people were present, including three of the five Executive Committee members (Bill Cuddington, Bill Steele, and Kirk MacGregor, who chaired the meeting).

The meeting started by considering the question of whether the Vertical Section should continue to require that people wishing to join must first be endorsed by two Section members. In 20 minutes of discussion, 15 different Section members presented their views, thoroughly covering the subject. Kirk MacGregor moved that:

The Vertical Section has two classes of members, regular and family dependent. Regular members are NSS members who have paid regular Vertical Section dues and who receive all rights and benefits of Section membership. Family dependent members are NSS members who have paid family dependent Vertical Section dues and who receive all rights and benefits of Section membership, except a separate subscription to NYLON HIGHWAY.

In response to questions from the floor, it was pointed out that this motion did not eliminate subscriptions to NYLON HIGHWAY. Because the Vertical Section constitution prevents non-NSS members from joining the Section, NYLON HIGHWAY subscriptions would continue to be available to provide information to non-NSS members. NSS members would be free either to join the Section or just to subscribe.

When put to a show of hands vote, the motion passed, 13 to 10. People wanting to join the Section now have only to be NSS members and pay Section dues.

The next item on the agenda was the testing grants proposal published on page 11 of NYLON HIGHWAY #9. In about ten minutes of discussion, Bob Thrun doubted that the proposal would increase the amount of testing done, as it did nothing to improve access to testing facilities. Don Davison indicated that the Safety and Techniques Committee and the Vertical Section could co-operate on funding testing, and several people supported the proposal or questioned its effect on Section finances. Kirk MacGregor moved that:

The Vertical Section will go ahead with the testing grants proposal on page 11 of NYLON HIGHWAY #9 for a one-year trial run, ending with the 1979 meeting.

The vote was 20 to 1 in favor of the motion.

Shortly before this vote, Bill Steele left the meeting to head a workshop. Jocie Hooper was his proxy for the rest of the meeting, after which, Bill left the Section Executive Committee to devote his time to his position on the NSS Board of Governors.

These issues resolved, Cheryl Jones presented the Treasurer's Report, which is reproduced following these minutes. Following a bit of discussion of several matters, none of which involved any voting, the meeting closed with the elections. Eight people were nominated for the Executive Committee. Bill Cuddington, Foxy Ferguson, Kirk MacGregor, Richard Schreiber, and Darrel Tomer were elected. Cheryl Jones was re-elected as Editor-Treasurer by acclamation.

After the meeting ended about 12:25 p.m., the Executive Committee met briefly, chose Kirk MacGregor as Chairman, Foxy Ferguson as Secretary, and selected the various event chairmen for the 1979 Convention.

Miriam Cuddington and Kirk MacGregor  
Acting Secretaries  
Vertical Section

# ◀ V S CONVENTION HAPPENINGS ▶

- 1) **VERTICAL CONTESTS:**  
 Chairman: Bill Cuddington  
 Time: 8 a.m. to 5 p.m., Monday & Tuesday, August 6 & 7  
 Place: Half of the Gym
- 2) **VERTICAL WORKSHOP:**  
 Chairman: Foxy Ferguson  
 Time: 8 a.m. to 5 p.m., Monday & Tuesday August 6 & 7  
 Place: Half of the Gym
- 3) **VERTICAL DEMONSTRATION:**  
 Chairman: Richard Schreiber  
 Time: 7 p.m. to 8:30 p.m., Tuesday, August 7  
 Place: Koussevitzky Arts Center Auditorium.  
 Note: If there is bad weather on Monday evening, the howdy party will be moved from then to Tuesday, & the demonstration will be on Monday. All people involved in the demonstration should be able to switch to Monday on short notice.
- 4) **Vertical Session:**  
 Chairman: Darrel Tomer  
 Time: 8 a.m. to 11 a.m. Wednesday, August 8.  
 Place: A large Classroom
- 5) **VERTICAL SECTION MEETING:**  
 Chairman: Kirk MacGregor  
 Time: 11 a.m. to noon, Wednesday, August 8  
 Place: The same large classroom as Vertical Session
- 6) **VERTICAL AWARDS:**  
 Chairman: Bill Cuddington  
 Time: 7 p.m. to 7:30 p.m., Thursday August 9  
 Place: The Gym

## 77-78 Treasurer's Report :

**INCOME:**

Memberships.....\$205.00  
 Subscriptions.....325.00  
 Back Issue Sales.....160.00  
 TOTAL.....\$690.00

AMOUNT FORWARDED .....\$261.53  
 AMOUNT CARRIED OVER.....\$377.06  
 TOTAL IN TREASURY.....\$638.59

**EXPENSES:**

Postage.....\$159.33  
 Printing.....141.36  
   Dues Notices.....\$ 9.52  
   N.H. #8.....106.00  
   N.H. #9.....25.84  
 Supplies.....63.14  
 Phone.....15.89  
 Photo Copying.....11.75  
 NSS NEWS advertisement.....32.00  
 Misc. money returns.....5.00  
   (excess ad, back issue)  
 TOTAL.....\$428.47

Members.....69  
   (6 new)  
 Subscriptions.....106  
   (64 new)  
 Subscription-  
   Exchanges.....7

Submitted by:  
 Cheryl Jones,  
 Editor-Treasurer  
 June, 1978

# Proposed Constitutional Amendment

The regular Vertical Section meeting at the 1979 NSS Convention will also be a meeting called by the Executive Committee expressly for the purpose of amending the Section Constitution, which can be done by a 2/3 favorable vote of those present at such a meeting. It is proposed to amend article III of the constitution as follows:

## PRESENT ARTICLE III

1. The Vertical Section shall be governed by an Executive Committee made up of five committeemen elected annually by the members.
2. The Executive Committee shall have complete power to manage the business, to formulate by-laws, to raise funds in any manner not inconsistent with the policies of the NSS; to perform all other necessary functions.
3. Decisions or actions of the Executive Committee may be overruled by a 2/3 majority vote of the members.

## PROPOSED AMENDED ARTICLE III

1. The Vertical Section shall be governed by an Executive Committee made up of a Chairman, a Secretary-Treasurer, an Editor, and two Committee Members at Large.
2. The Executive Committee members shall be elected annually by secret ballot at the Vertical Section meeting at the NSS Convention. In the event that an NSS Convention is not held, the election shall be held by mail.
3. Only members of the Vertical Section may vote in the election or hold positions on the Executive Committee.
4. (Same as #2 in present Article III)
5. (Same as #3 in present Article III)

There are three main reasons for proposing this change. One is so that candidates in the annual election will be volunteering for specific jobs, rather than having a situation where five people get elected for the sake of being elected, but no one has any definite responsibilities. A second consideration is that the Editor-Treasurer of the Section is presently not on the Executive Committee, a most unusual arrangement. The proposed amendment puts both these important positions on the Executive Committee, where they belong. Lastly, the present Editor-Treasurer job includes practically all of the ongoing work done by the section, an unreasonable workload for one volunteer. Splitting this job in two produces workloads that people will be much more likely to volunteer for.

## Proposed Bylaw

The proposed constitutional amendment above deliberately does not go into details. Some important details related to the amendment will be covered by two bylaws that will also be voted on at the 1979 Section meeting.

One of these bylaws will outline the duties of the various Executive Committee members. For example, the Secretary-Treasurer will handle memberships, Section money, provide money and mailing labels to the Editor, write a few reports, etc. The full text of this proposed bylaw will be available at the Convention.

The other bylaw will specify some details of the election, as follows: The election for the Executive Committee held at each NSS Convention shall be in four parts. First the chairman shall be elected, then the Secretary-Treasurer, then the Editor, and finally the two Committee Members at Large. Losers in earlier parts of the election may run again in later parts.



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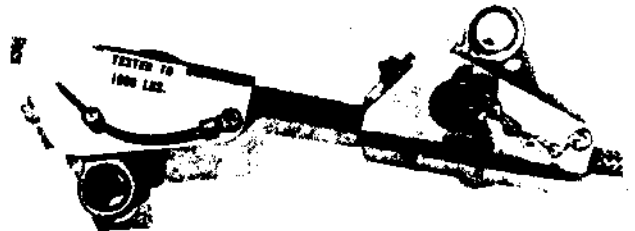
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## Membership List Additions

Percy Dougherty  
Ian Ellis  
Charles Gibbs  
Joe Giddens  
Bruce Herr  
Steve Hudson  
Randall Kidd  
Mike Magill  
Bru Randall  
Dick Sears  
Eric Steenburn

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