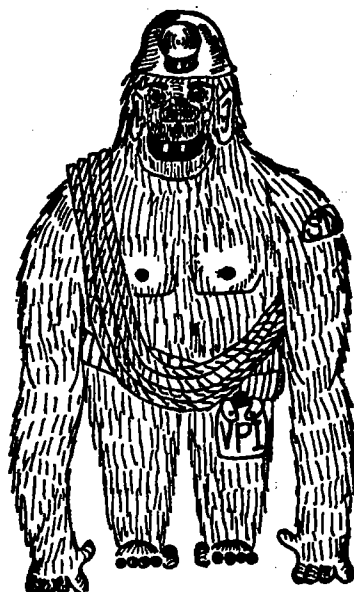


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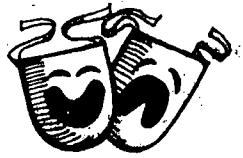
Son of Trog!



THE TECH TROGLODYTE

A JOURNAL OF THE VIRGINIA TECH GROTTO OF THE
NATIONAL SPELEOLOGICAL SOCIETY

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fall, 1977



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V.P.I. Grotto
P.O. Box 471
Blacksburg, Va. 24060

President Donald E. Carter

Editor: Lor M. Windle

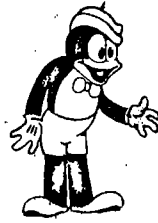
Vice President Lor M. Windle

Secretary Phil Sica

Treasurer David Bell

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RANDOM SHOTS



I never do know how to start writing these columns. But, basically I want to say thank you to everyone who has cooperated to make this quarter a success. The trainee program and the fall project have progressed very well this quarter.

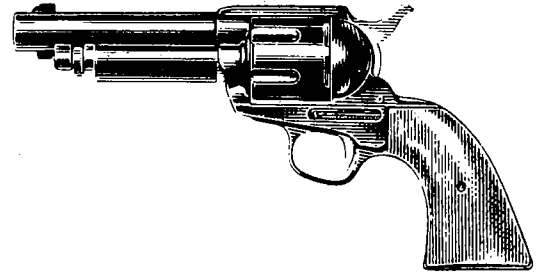
But, the one thing which really concerns me is the fact that most of the work is being done by just a few people. There are still several tasks with which I need help; so I am asking each of you, both members and trainees, to help the officers and the club by taking a more active role in caving and grotto functions. Because, with your help, we can prove by our achievements that VPI Grotto is one of the best grottos in the N.S.S. So, let me know if you would like to help.

O.K., you can relax now. The serious stuff is over. So let's see some gung-ho caving and some raise hell parties. That's all for now.

Caving forever,

A handwritten signature in cursive script, appearing to read 'Donnie Carter'.

Donnie Carter



TAKING AIM»

**LOR WINDLE;
EDITOR**

welcome back, fair reader. Once again this publication has emerged from the toil and sweat of yours truly. And it is beginning to bother me. Who shall take up the saber of penmanship when the faltering hands fail? Who shall combat injustice with the barbs of prose when the old methods are no longer? It is indeed a question to be considered. I shall produce only two more such publications before my country serves me the honor to serve them. All I can say is, 'Good Luck, World'.

There are many and glorious plans in the making for the rest of my editorial life. The next two Troggs shall be glorious beasts that shall assail all who wondered about the written virility of the Grotto. Plans and indeed projects have been set in motion to help the future publications gain the birth they so richly deserve, rather than a shelf life of ignominy.

Winter quarter shall show a return to much of the old Trog ways. Due to rising costs, it shall be mimeographed. But do not fear; it shall be worth it. For some time now we have recieved comments from members and other people for another song-book as was printed up in winter of 1972. Every copy we made was sold to trainees, associates, and people who heard about it through word of mouth (usually in song, itself). Therefore we feel that the time again is right to create such an opus. We are taking alot of the old, popular songs, adding newer songs, correcting words and chords, and printing. It is expected to be going to the top of the charts.

Spring quarter shall see my research into "The Rise and Fall of the Third Floor", an anecdotal history of Pritchard Dormitory where much of VPI history was made. Any persons with information concerning the goings-on out there will be welcomed with open arms. I would really appreciate it. Also, of course, will be the LTC Column (probably the last one by the originator and Chairman), and, hopefully, other goodies.

Watch for them in your mail-box.

Ahhh. At last. Like a cool autumn breeze blowing into the back entrance of a cave. Like a rustle of packrats in the dark. Like the unexpected return of color to the scenery when you emerge from Chernobog's great halls on a spring day. Yes, this is truly the wonder and glory of

THE GROTTO GRAPEVINE

VPI Grotto has returned to school and the local underground for which they were long pining away with desire. When last this column was heard from, the grotto was getting into the excitement of an active spring filled with adventures and looking forward to a summer fraught with delights. And it was so. But in the midst of delight, despair for many members have left us. Mike and Pam Wolf have moved off to Martinsville to begin their own den. Doug Olson graduated and disappeared out west before being retrieved by Carolyn Lewis this fall. Lawrence Johnson, known by friend and foe as "Tuna" has moved to Houston to work for an oil subsidiary firm. He was bid a fond farewell on the last day of November with a round of drinks (several actually) at a local bar. He was presented with a book of "Fantasex", concerning games to play with your sexual partner. The book was passed around and everyone signed it and put lewd comments in it. When last seen, Tuna was driving off two hours behind schedule because he over slept. Ed Loud has finally settled down to a job in sunny West Virginia. He claims it no further than the nearest bar, though. Robyn Loud is attending the Medical College of Virginia in Richmond. Other than that, no one else has deserted to reduce our ranks. Buckwheat Richardson and Nancy Coleman have disappeared into Alaska, but they are merely replacing Frame and Suzanne who should be reappearing sometime this winter. Additionally, Mike Richardson has finally recovered his senses and will return from an overdue sabbatical near New York this winter.

As usual, the wild parties have been pretty average in the wiliness. With the acquisition of the Pepper Street house out in Christiansburg, the grotto again has a magnificent place to get rowdy and drunk and partied out. Of special interest this past fall is the VPI shoot-out's and the Halloween party. In order, then...

The first VPI shoot-out was held in late '75 at Lor Windle's near Charlottesville. There were seven people in attendance. Since that time, the world quieted down until Bob Mead heard of this ancient event. The first weeks of September slowly lingered towards October when they were shattered one weekend by the burst of what sounded like automatic fire. Black powder made a small showing. Twice the original number of participants were involved. But it was not enough. As November prepared to rear its horny head the silence was again shattered by the continuous roar of weaponry. For the third time, VPI Grotto had gathered together their mighty arsenal to halt the advancing hordes of beer-thirsty bottles advancing upon the dump on Brush Mountain. There were

three times the original number present this time. Over a score of daring cavers presented their skills and accuracy as one by one the bottles were forced into helpless submission before the combined strength of the grotto. This time black powder was out in force both in rifles, pistols, and boarding pieces. The Ruger pistol was selected as the "standard grotto armament" since over half of the participants were in possession of such weapons. The highlights of the shoot-out occurred in the evening when a walk-through was staged to eliminate and overwhelm any bottles that may have attempted to hide. Lor Windle's Stetson was given a half-dozen bullet wounds at this time. Also at this time it was discovered that Bob Mead's Renault 5 had received a grazing head wound in the sunroof while Mead was finger-fanning. Closer examination found that the bullet had indeed pierced the roof and lodged inside the vehicle. Repairs were completed that night.

Halloween followed the shoot-out like night follows day; for the party was the night after the shoot-out. The costumes were, as usual, glorious. Stringfellow came as a black hooker, Armstrong as a Klansman. Rolf McQuerry and Jan Davis came as weird creatures; an 8-foot bug eyed monster and a 5-foot bird. Randy Stoutenburgh appeared as Luke Skywalker complete with light-saber. Jock, Carol, Carolann, and Donnie made an impact as the Fruit-of-the-Loom label. Wolf fell back on his old standby routine of a scout while Spam came as an old woman he could help across the street. Doug Perkins appeared as a Jew and was immediately taken prisoner by Lor Windle in his Nazi police uniform. Perkins was to be hung at dawn, but he was judged hung-over before dawn and released. Other costumes included dice, civil war soldier, the mad hatter, several pumpkins, and dozens of others. As is so often the case, the party lasted into the wee hours.

But fear not. Because VPI parties does not mean that VPI does not cave. Four more members have joined the fold since the word last was spread. Joe Lokaites (#197), Bill Reorchner (#198), Paul Kirchman (#199) and Dennis Murry (Associate, #200). VPI has spent the fall quarter introducing new trainees into the wonders of the underworld (caving that is, not crime). Vertical session was held out at Maybrook Sinkhole and all who attended had a great time. Tuna even demonstrated his jumar rig! In serious caving, we have begun work on rebuilding the back entrance to Pighole because it is beginning to collapse. Mr. Porterfield is very pleased. Bill Douty led a trip of select cavers into Clover hollow in a massive attempt to clean out A.I. Cartwright's abode. All who participated considered it worthwhile and even old A.I. himself has been reported as looking neater than ever. So once again, let the grace of Chernobog grace your vibrams and keep on muddying that cave stream.

L O R W I N D L E

Will We Rally to the Crisis?

A member of the V.P.I. Cave club must be more than just a caver. The current mechanism for filtering out mere cavers from the prospective members is the trainee program. This program has the ability to maintain both the image and quality of the club. Any manipulation of the requirements will have a direct effect on that image.

Our current trainee program threatens to weaken the image of the club. The present program is a middle-of-the-road type of program that will create a middle-of-the-road type of image for a club of wisny-washy quality. In the light of this revelation, I would like to propose the following alternatives for the requirements of the trainee program.

Option 1

1. To be qualified as an active member of the club a trainee must:
 - a. Remain a trainee for at least one quarter during which time he spends at least 200 hours in a cave on no more than 8 club trips.
 - b. Demonstrate ability to handle himself/herself in a cave by:
 1. Completing a 5.9 grade climb of at least 50 feet.
 2. Complete one trip with one arm tied behind the back.
 3. Traverse 1000 feet of cave passage without a light.
 - c. Manufacture a light source in a cave from natural materials.
 - d. Have a working knowledge of belays as outlined in A.I. Cartwright's 1949 limited edition of Hanging on Underground.
 - e. Complete successfully a rappel/prussik change-over in a waterfall of at least 5 c.f.m. on a drop of at least 100 feet.

r. know how to tie and uses for: Bowline, bowline on a coil, bowline on a bight, spanish bowline, Prussik, Carrack bend, fisherman's knot, muleskinner's knot, butterfly, Cockroach, sheetbend, broken eight knot, square knot, oblique knot, figure eight knot, left-handed how's-that-again knot, under-handed crotch knot, and a double-fisted-guaranteed-to-come-untied-when-you-sit-on-it knot.

g. satisfy the cave exploration committee by:

1. Participating in mapping projects culminating in 2000 feet of virgin passage being mapped.
2. Staying at least three stations ahead of the scetchner as lead tape.
3. Closing a loop as Brunton reader with less than a .01% error.

h. satisfy the conservation committee by:

1. turning in at least fifteen trash bags of certified cave garbage.
2. Reconstructing the formation room of at least one heavily vandalized cave.

i. Submit to interrogation by the club.

j. Live through the entire program.

k. Be endorsed by the S.T.C.

L. Be approved by a two-thirds majority vote.

Option 2

11. To be qualified as an active member of the club a trainee must:

A. Remain a trainee for at least one quarter during which time he consumes 100 16-ounce drafts at no more than eight club keg parties.

B. Be the subject of at least three drinking techniques committee experiments.

C. Demonstrate five proper comode nugs and calls as are outlined in A.I. Cartwright's 1949 limited edition of Tension Release During Times of Over Consumption.

D. Know all of the words to and the appropriate times to sing: M.I.A., Wreck of the Old 97, Folsom Prison Blues, C.R.T., Ryder, Greenback Dollar, Charlotte the Harlot, Cocaine Blues, Old Rugged Cross, Amazing Grace, and Mary had a Little Lamb.

E. Demonstrate a working knowledge of paraphernalia by:

1. Smoking
2. Keeping a pipe lit.
3. Grabing a roach by the right end.

F. Be able to recognize an E.L.M.F. on sight.

G. Have intimate knowledge of the club knowing:

1. Who is available and who will fool around
2. Who is sleeping with who
3. Who has slept with whom and when they did
4. Who is living where and with whom.
5. How long each member of the club has been hanging around Blacksour.

H. Maintain no higher than a 1.5 GCA

I. Stay out of caves

J. Submit to interrogation by "The Committee"

K. Live through the entire program

L. Be endorsed by the D.F.C.

M. Be approved by a two-thirds majority vote.

Bob Alderson

VERTICAL RIG

Pete Sauvigne

Bill Arney

The purpose of this article is to describe a climbing rig which has proven its effectiveness in many caves around Southwest Virginia. It is not claimed to be the ultimate rig. Prussik knots are cheaper. Jumars are easier to rig. The strong points of this design are ease of climbing and safety.

Basically, it is a three cam rig. The foot cam straps on the right foot and the knee cam is attached to the left foot by a length of sling and is held in suspension near the knee by an elastic shock cord which goes over the shoulder. The foot and knee cams do all of the work. Raising one foot after another allows the caver to walk up the rope. The shoulder cam keeps the body upright, allows a rest position, and acts as a safety. The seat in this rig also acts as a rappel seat.

Construction: You'll need 3 jobs, 20 ft. of 2" webbing, 10 ft. of 1", 4-6 ft. of shock cord, 4 buckles, 4 1" rings, and a large steel locking carabiner. All sewing must be done with an awl or sewing machine to obtain lock stitches. Hand stitching will take 10-20 hours. We have access to a parachute snop that will sew it with a machine if it is laid out in advance.

The foot cam assembly is constructed so that the cam will ride on the top of the arch. The buckle should ride on the outside so that an upward pull tightens it. The 1" sling is a safety strap that goes around the heel so that if all else fails, you will hang by the foot (better than an air rappel). The cam is attached by looping 1" sling through its eye. Keep excess slack out of the sling to avoid too much slop. The distance from the eye to the rightmost piece of 1" sling should not exceed 2½" or the main buckle may run out of adjustment before it's tight. I found it handy to fold back the main strap so it just fits out of the buckle. This gives a knob to pull on and prevents the buckle from coming completely apart.

The knee cam assembly is made of 1" sling. The foot loop should be tied with an overhand knot to keep tension off the stitching. The strap with the loose end goes around the heel and through a guide in the foot loop to a double ring adjuster. This strap is a safety, but is also required to keep the assembly on. Drill an extra hole in the cam shell, feed the shock cord through, and secure with an overhand knot on the outside. The shock cord should pass over the left shoulder and be attached in the back. It should be secured so as to be stretched when standing.

The right seat assembly clips into the seat biner, forms a leg loop, and attaches to the other half of the seat by a buckle in the rear. Do not make the leg loops too tight. The dimensions shown fit me; they may not fit you. Since the buckle need not come off, form a knob as in the foot cam.

The left seat assembly similarly clips into the seat like the right half. In addition, a back strap goes off near the buckle to attach and adjust the shoulder cam. This buckle should come completely apart to remove the shoulder cam.

The shoulder strap has a buckle on either end so it can be adjusted to put the cam on top of the shoulder. 1" webbing attaches the cam to the strap similar to the foot cam arrangement.

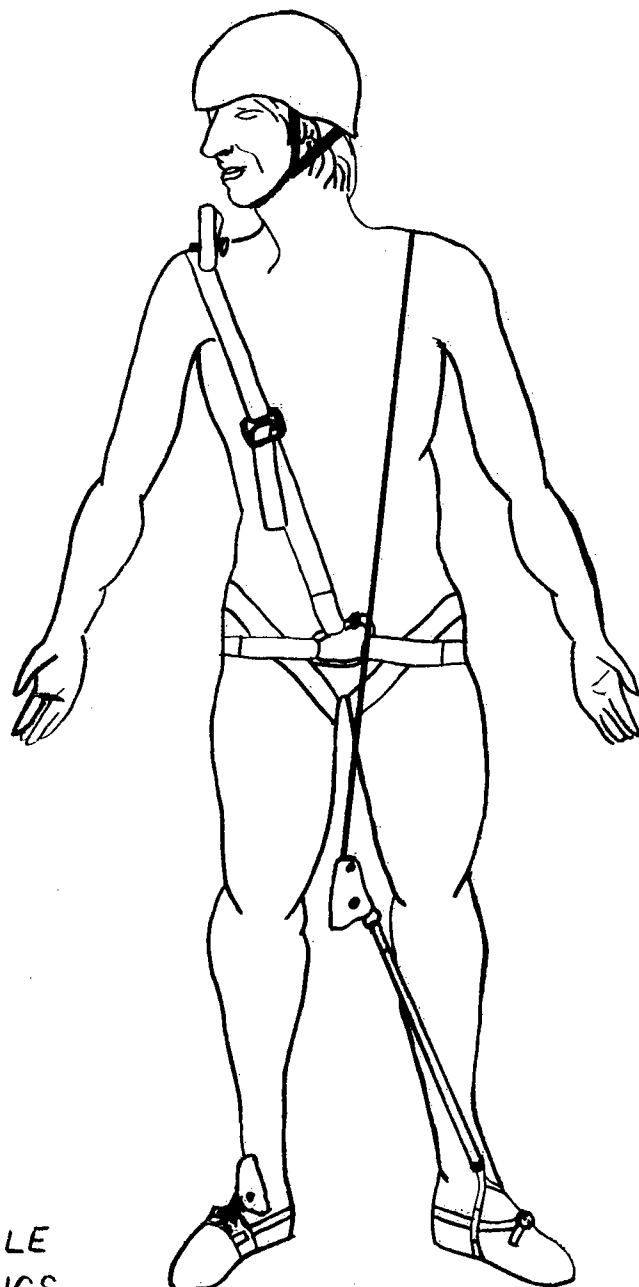
The front strap clips into the seat biner and attaches to the front buckle on the shoulder strap. Again, a knob is advised to prevent the buckle from slipping.

Using the rig: Only the seat assembly is needed to rappel. Clip your rappel device into the large biner holding the halves of your seat together.

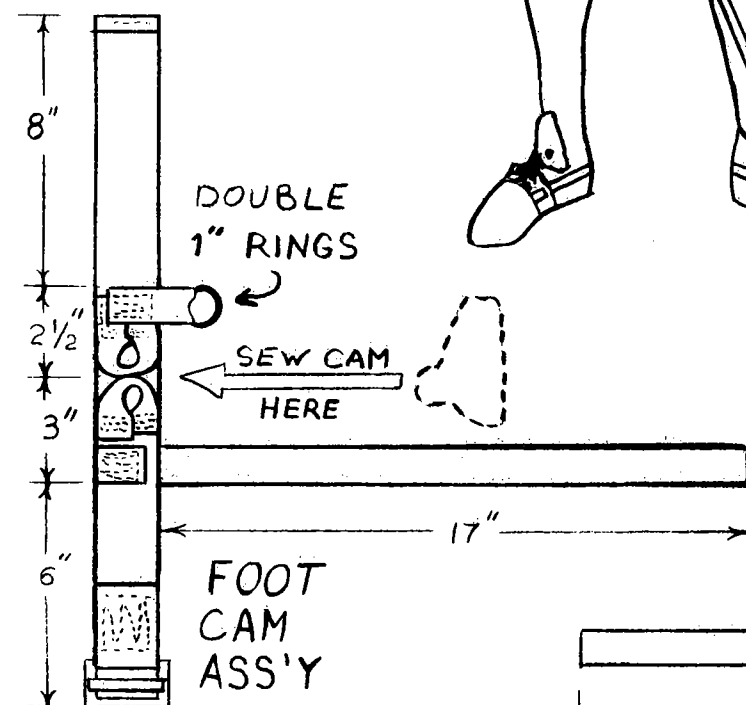
To climb, the entire rig must be used. Do not tighten the safety loop on your foot too much or the main buckle may loosen. Be sure to adjust your seat before adjusting your shoulder cam. This cam should be snug on the shoulder, but will rise up when you put your weight on it. Do not over tighten this.

This rig is easiest to use on a completely vertical drop. If it is less than vertical, the shoulder cam should be adjusted to ride more to the front to prevent your face from being pulled into the wall. On slopes and breakovers the arm can be slipped out of the shoulder cam and the cam will still be functional and safe.

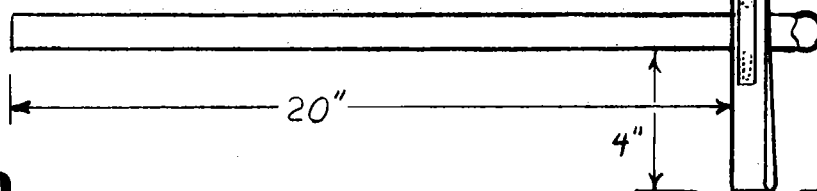
Many of these design features were originated by Don Davison Jr. and Gary Moss. Some ideas were my own. Any modifications are done at your own discretion and for your own convenience. Good luck and have fun.

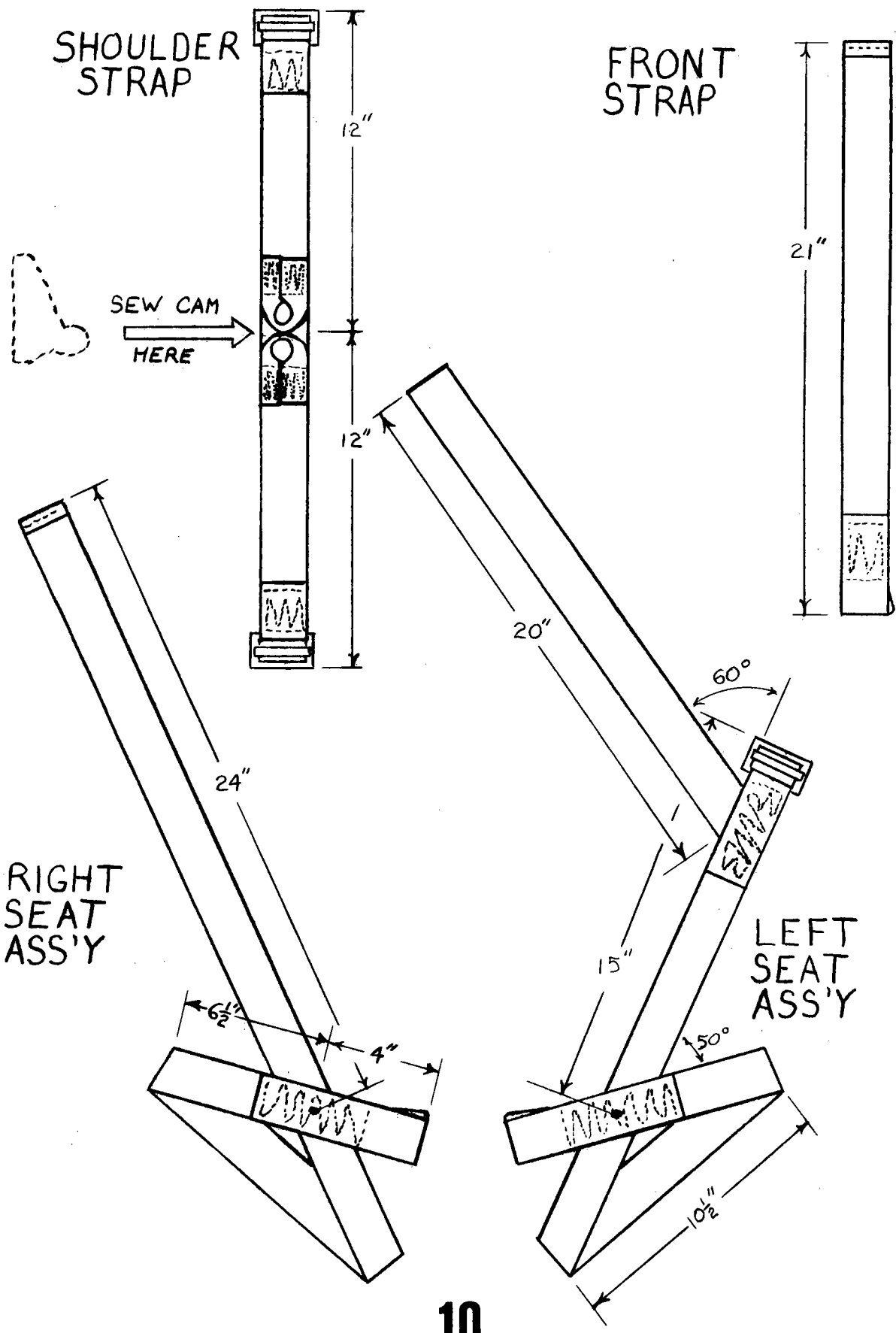


SHOCK CORD
TO SHOULDER



KNEE
CAM
ASS'Y





D. T. C. Action Report

Dave Donison
P.O. Box 471
Blacksburg, Va. 24060

"Only a real heavy drinker or an alcoholic can get that heavy without dying"

The Drinking Techniques Committee is here to serve you as best we can. And all evidence seems to point positively in that direction. We have been in existence for only one year now, but many and great are the fine feats we have done in the interest of safer drinking everywhere.

There are two major areas in which the D.T.C. has excelled this past year. The first area is in equipment production and initiation of many D.T.C. programs across the nation. We have made a name for ourselves. Last spring the D.T.C. began a uniform policy. Now, the familiar orange shirts with blue lettering bring fear into the hearts of even the meanest A.B.C. store salesman. These shirts are designed to facilitate recognition in emergency party situations and proclaim the proud status of the wearer. In the beginning of the summer, the DTC research flag was adopted. The triangle of orange and blue proudly waves wherever the DTC action team roams. Lastly, in terms of new innovation, is the certification program begun by the DTC this past fall. It is said that

a good idea is hard to stop and we agree. Hearing of an idea to certify cavers, we decided that this was such a good idea that we should use it, too. So we developed a criteria and a rating scale, produced some identification cards, and announced and certified all sorts of drinkers at the Fall Virginia Region Meeting.

Our other major field of activity has been in our activities themselves. The DTC uniform was first worn at the VPI Float Trip and saw considerable service. The DTC flag first appeared at convention where it flew over the organized mass of scientific drinkers. Later, Old Timer's saw the flag again raised in defiance of sobriety. It was there that

the true colors were shown. Members of the DTC were made primarily responsible for the party music and were able to keep things well in hand for several nights. The DTC also sent representatives to sanction, certify, and guard the drinking contests run by the Old Timer's staff. Several DTC members participated in the contest, but refused to take any unfair advantage over any of the other participants (In other words, our representative from the Northern Section came in last). Then, as mentioned earlier in the report, at the Fall Virginia Region meeting members of the DTC initiated the drinker certification program. So it can be seen that your DTC is still busily at work trying to make your world at little safer to drink in.

Pukes and Near Pisses

I WAS ENGAGED IN A LITTLE SOCIAL DISCOURSE AT A LOCAL BAR WHEN A PAIR OF ROWDIES ENGAGED ME IN A CONTEST OF FISTICUFFS. NOT WISHING TO OFFEND EITHER GENTLEMEN, I ARROSE AND CONTENDED WITH THE BOTH OF THEM, ONE AFTER THE OTHER. THEY PROCEEDED TO CONCEDE TO MY SUPERIOR SKILL IN THE GAME, BUT SOON GREW TIRED AND RESTED ON THE FLOOR MUCH TO MY DISMAY. THE KIND PROPRIETOR OFFERED CIVIL AID AND I WAS TEMPORARILY INCARCERATED WITHIN THE CONFINES OF THE LOCAL PENAL INSTITUTION.

It appears perfectly clear that you have overstepped your welcome in the establishment of which you mention. It seems probable that there was some sort of law that prohibited the sport to which you refer, and from which the managerial staff was able to claim legal basis upon in summoning the constabulary officials. The very fact that you were restrained and retained may prove the statement. That's what you get for drinking in strange places.

HELPFUL HINTS

Always have 50¢ taped to the bottom of your drinking vessel in case you run out of beer and need one for an emergency. But always, repeat ALWAYS have a large stock of refreshment in reserve.

COGITATE

Cave Coordinate Calculations with a Programmable Calculator

Bill Douty

The plotting of cave survey data by the use of a coordinate system is frequently faster and more accurate than plotting by bearing and distance. However, hand calculation of coordinates from raw data is a time consuming process and virtually eliminates any advantage gained from use of the coordinate system. Due to this, a computer has been considered necessary for reduction of survey data. Despite the speed with which a computer can process this data, the use of a computer is often made impracticable due to inaccessability, cost, or turn-around time.

Now with the advent of the Hewlett-Packard (H-P) 25, a low cost programmable hand calculator, reduction of cave survey data to coordinates can be done quickly and easily. Large systems will still require the use of a computer, but working maps or maps of short caves can be done very conveniently.

Several programs have been developed to use the H-P 25 to coordinate cave data, and those that have been found to be most useful are presented here. These programs can be modified to work on other H-P calculators.

The programs receive the survey distance in feet, feet and inches, or in meters; the horizontal and vertical angles are given in degrees. The conversion of distance (feet to meters or meters to feet) and correction of the horizontal angle for declination are made by the program. The programs will also keep a summation of surveyed distance and accept backsights.

The main difference between programs is that Program 1 will take either azimuths or bearing while Program 2 will take only azimuths. Program 2 will also keep track of the total number of courses.

MODIFICATIONS

NO INCHES

If the distance is in feet or meters program lines 04 through 07 can be eliminated when keying in the program, or by entering GTO 08 for line 04. Insert A Y and R between lines 13 and 14. Also skip program instruction step 7.

MILS

The programs do not account for mils, but the conversion can be made by modifying the programs. In order to convert mils to degrees the conversion (360/6400) must be stored in one of the registers. Both programs use all eight of the registers, so one register must be eliminated. This modification uses the register that is for the distance conversion; register 6. Program 1 converts just the vertical angle since the horizontal angle is a bearing. Program 2 converts both horizontal and vertical angle. The only program instruction change will be in step 4, which would be the conversion from mils to degrees.

BACKSITES

If all the courses are going to be backsites (or a majority) store the conversion factor (STO 6) as a negative value. Note program 2 step 37 should now be plus (+). Omit comments 6 and 7 or make any foresites distance a negative.

PROGRAM 1 USERS GUIDE
(For use with either Azimuth or Bearing)

Registers

R ₀	Horizontal Distance	R ₄	Bearing (azimuth)
R ₁	North coordinate	R ₅	Declination correction
R ₂	East coordinate	R ₆	Distance conversion
R ₃	Elevation	R ₇	Total surveyed distance

STEP	INSTRUCTIONS	INPUT	KEYS	OUTPUT	COMMENTS
1	Key in program				
2	Initialize		f REG f STX f PRGM		
3	Input declination correction	Decl, degrees	STO 5		East is positive West is negative
4	Input distance conversion	Con	STO 6		Input Output Conversion feet feet 1.00 feet meters 0.3048 meters meters 1.00 meters feet 1 / 0.3048
5	Input initial coordinates	North East Elev	STO 1 STO 2 STO 3		If initial coordinates are zero skip step
6	Input distance	Dis	ENTER↓		For backsight change sign
7	Input inches	Inch	ENTER↓		For backsight change sign Input 0.00 for no inches or meters
8	Input horizontal angle	Hor, degrees	ENTER↓		
9	Input vertical angle	Ver, degrees	R/S	1.00	
10	Input quadrant code	Quad	R/S		Quadrant Code NE or Azimuth 1 SE 2 SW 3 NW 4
			R/S R/S	North East Elev	
11	Repeat steps 6 - 10 for successive courses				
12	Totalled surveyed distance		RCL 7	Dist	

Program 1

DISPLAY LINE	CODE	KEY ENTRY	DISPLAY LINE	CODE	KEY ENTRY
00			25	14 71	f X=Y
01	22	R↓	26	32	CHS
02	23 04	STO 4	27	01	1
03	22	R↓	28	08	8
04	01	1	29	00	0
05	02	2	30	61	X
06	71	÷	31	24 04	RCL 4
07	51	+	32	51	+
08	24 06	RCL 6	33	15 03	g ABS
09	61	X	34	24 05	RCL 5
10	31	ENTER↑	35	51	+
11	15 03	g ABS	36	24 00	RCL 0
12	23 51 07	STO + 7	37	14 09	f ←R
13	22	R↓	38	23 51 01	STO + 1
14	14 09	f ←R	39	21	X↔Y
15	23 00	STO 0	40	23 51 02	STO + 2
16	21	X↔Y	41	24 01	RCL 1
17	23 51 03	STO + 3	42	74	R/S
18	01	1	43	24 02	RCL 2
19	74	R/S	44	74	R/S
20	31	ENTER↑	45	24 03	RCL 3
21	02	2	46	13 00	GTO 00
22	71	÷			
23	31	ENTER↑			
24	14 01	f INT			

PROGRAM 2 USERS GUIDE
(For use with Azimuth)

R ₀	Sum of courses	R ₄	Azimuth
R ₁	North coordinate	R ₅	Declination correction
R ₂	East coordinate	R ₆	Distance conversion
R ₃	Elevation	R ₇	Total surveyed distance

STEP	INSTRUCTIONS	INPUT	KEYS	OUTPUT	COMMENTS
1	Key in program				
2	Initialize		f REG f STK f PRGM		
3	Input declination correction	Decl. degrees	STO 5		East is positive West is negative
4	Input distance conversion	Con	STO 6		Input Output Conversion feet feet 1.00 feet meters 0.3048 meters meters 1.00 meters feet 1 / 0.3048
5	Input initial coordinates	North East Elev	STO 1 STO 2 STO 3		If initial coordinates are zero skip step
6	Input distance	Dis	ENTER↑		For backsight change sign
7	Input inches	Inch	ENTER↑		For backsight change sign Input 0.00 for no inches or meters
8	Input azimuth	Azim, degrees	ENTER↑		
9	Input vertical angle	Ver, degrees	R/S R/S R/S	North East Elev.	
10	Input floor	Floor	R/S	Floor Elev.	
11	Repeat 6-9 for successive courses				
12	Total survey distance		RCL 7	Distance	
13	Sum of courses		RCL 0	Courses	

Program 2

DISPLAY LINE	CODE	KEY ENTRY	DISPLAY LINE	CODE	KEY ENTRY
00			25	23 51 02	STO + 2
01	22	R↓	26	01	1
02	23 04	STO 4	27	23 51 00	STO + 0
03	22	R↓	28	24 01	RCL 1
04	01	1	29	74	R/S
05	02	2	30	24 02	RCL 2
06	71	÷	31	74	R/S
07	51	+	32	24 03	RCL 3
08	24 06	RCL 6	33	13 00	GTO 00
09	61	X	34	74	R/S
10	31	ENTER↑	35	24 06	RCL 6
11	15 03	g ABS	36	61	X
12	23 51 07	STO + 7	37	41	-
13	22	R↓	38	13 00	GTO 00
14	14 09	f ←R			
15	21	X↔Y			
16	23 51 03	STO + 3			
17	21	X↔Y			
18	24 04	RCL 4			
19	24 05	RCL 5			
20	51	+			
21	21	X↔Y			
22	14 09	f ←R			
23	23 51 01	STO + 1			
24	21	X↔Y			